

ENGINEERING and MINING JOURNAL.

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MR. GEORGE S. DWIGHT, who has been representing the Lowe-Strong Gas process at Stockholm, Sweden, advises us by mail that hereafter his address will be Wiesbaden, Prussia. We are also glad to announce that through his efforts this process is meeting with the attention it deserves.

CHRYSLITE.

The recent rapid decline in the stock of the Chrysolite Company illustrates very well the peculiar nature of what is called, by courtesy, the "market" for mining stocks in this city. The fact is, that a real market for such stocks scarcely exists here; that is, there is no large body of investors intelligent enough to have opinions of their own, and sufficiently experienced in mining matters to put confidence in their opinions and to act upon them. If any body manifests a desire to sell, nobody dares to buy. A large number of persons have risked some money in mining stocks; and very few of them regard the investment as more than a brief speculation. That this state of things will improve with time is quite probable. There will come to be a class of capitalists, who, having made their money in mines, will invest in similar enterprises with confidence; and we shall not see valuable properties reduced in market value over sixty per cent in a few weeks, in the entire absence of any bad news about the mines, or any other known cause except the fact that a fraction of the shares is persistently offered for sale.

A little while ago, Chrysolite stock stood above 40. This was a high price—much higher than the ore then actually in sight would justify. But Mr. KEYES's vigorous operations rapidly enlarged the visible resources of the mine. Its condition improved daily—and the stock declined as fast. So far as could be discovered, nothing was the matter except that a certain "block" of shares was for sale, and the sale of these shares, together with some other lots of scared holders, broke the "market" entirely. On Thursday, the price touched 15. That morning, the last of the "block," as we are informed, was sold—and the price reacted to 23½ in a few minutes.

Of the mysteries of stock-manipulation we know, and desire to know, little. But we may be permitted, as outsiders, to say that if we were an owner of stock in a valuable mine, with a thoroughly competent superintendent, who made daily reports of progress, and opened the mine at all times to the examination of experts; and if, without any cause, we should be frightened into sacrificing our investment; or if we were a so-called "mining editor," and should betray our readers by joining in the panic, without knowledge or any attempt to obtain it—we should feel, when the flurry was over, as if we had mistaken our vocation.

But doubtless this is unsophisticated simplicity. For all we know, the

vocation of a "mining editor" may be to "sell short," or to "put" or "call" or "straddle," or whatever else they call it, and write articles accordingly. Of course, in that case, the accomplished editor considers those experts who confine their studies to the actual condition of mines as "theoretical and not practical." *

AN OLD CAUTION REPEATED.

On the 24th of January, the following statement appeared in our columns, called out by a paragraph in a Boston paper, which professed to give the substance of the opinions of Dr. RAYMOND concerning the mines of the Colorado Central Company :

"The 'published report' of Dr. RAYMOND here alluded to, is the Report of the United States Mining Commissioner rendered in 1874, and describing the condition of the Colorado Central mine at the end of 1873. On page 286 of the volume will be found the Commissioner's statement that Mr. H. Stoeltzing (now deceased) furnished for that year the report on Clear Creek County. Mr. Stoeltzing was a competent and careful reporter; but the collection of statistics for a general report to the government is not like the critical examination of a mine in the interest of purchasers. Nor could Dr. RAYMOND, or any body else, after the lapse of some years, 'personally verify,' in such a way as to endow with present, decisive value, this statement of the condition of a mine in 1873. Moreover, the Commissioner's Report of 1876 (page 303) shows that in 1875 the bonanza described in the Report of 1874 had been worked out. The Colorado Central mine has, as we are informed, been successfully worked since 1875, and now promises to be both productive and profitable. But this fact is to be established by other and later evidence than the old government reports referred to. Dr. RAYMOND has published nothing on the subject; and the use of his name is unwarrantable. The gentlemen concerned in this enterprise would probably be the last to use it in that way; but their prospectus is somewhat to blame for the misunderstanding. Dr. RAYMOND is now absent on his way to the Pacific, and we do not profess to know his present personal opinion in this case."

This warning ought to have been enough; but the Colorado Central Company has since issued a new and gorgeous prospectus, on the outside and inside of which Dr. RAYMOND is represented as having "reported" on the mines; the "report" being the same old extract from the volume of Mining Statistics of 1874, explicitly declared in that volume to be furnished by another person, and describing an ore-body which was worked out at least six years ago. We repeat, and shall not cease in such cases to repeat, that the compilations of the U. S. Commissioner of Mining Statistics are not the equivalents of critical reports made upon personal examination. They were, at the time of their preparation, as trustworthy as they could be made under the circumstances—those circumstances being the lack of time and strength adequate for the personal exploration every year of all the mines in the West; the lack of means adequate to the payment of experts for that work, and the lack of authority to examine books or otherwise verify the statements of interested parties. By great industry and care on the part of the Commissioner and his few paid assistants, and by the help of many public-spirited citizens and professional colleagues, a high degree of general fairness and accuracy was maintained in these annual reports. Nor can any one be blamed for citing them as evidence, so far as they go. But they do not go so far as to take the place of professional opinions, based upon examinations of mining properties offered for sale. Finally, the lapse of six or seven years seriously affects the importance of all opinions of that kind, however carefully formed and expressed.

Another company which is displaying extracts from one of the Commissioner's volumes as a report of Dr. RAYMOND is the California Water Company, which quotes at length from the volume of 1875 passages for which the Commissioner, in that volume, expressly acknowledges his indebtedness to documents furnished by the company itself.

In both these instances, the properties described are, so far as we know, productive and valuable. So much the less reason for supporting them by questionable means. Our object is not to discredit the enterprises referred to, but simply to reiterate, what we have said before, that the reports of the late Mining Commissioner were not intended, and ought not to be used, as his deliberate professional opinions, based on personal knowledge; and that the attempt to put this construction upon them is not fair to him or to the public. *

THE COTTA MEMORIAL.

Having had occasion, during the past few weeks, to meet a considerable number of former Freiberg students, now actively engaged in the mining and metallurgical industries of this country, we know that they remember the genial and brilliant COTTA with affection, and look with favor upon the movement to establish a memorial of him in the city of which his fame is the glory, and through the contributions of those who received instruction from his lips and clasped his hand in cordial friendship. Every body praises the scheme, and many promise to cooperate in it. To the latter class it is not necessary to address an argument calculated to prove its claims upon them. What we wish to say to them is simply this: Upon reading the present article, put your good intentions into practice, by sending your contribution, be it small or great, to Professor GEORGE J. BRUSH of New Haven, the Treasurer of the American Committee. It is not so much the amount to be collected in the United States (though we trust that will not be unworthy of our reputation), as it is the general partici-

pation of American mining engineers and metallurgists, which seems to us important.

A word to those who have not yet formed any intentions may not be inappropriate. This memorial will be not merely a tribute to BERNHARD VON COTTA, but also an acknowledgment of the benefit conferred by the famous old mining school of Freiberg upon our profession. In this respect, it stands pre-eminent among the technical schools of the world. Nowhere has the teaching of theoretical science been more directly aimed at its use in practice. Nowhere have its results been more fruitful in the improvement of industrial machines and methods. The students trained at Freiberg have become inventors, instructors, authors, and managers of great enterprises throughout the world. The books written at Freiberg have been the guides of more than one generation.

The work of BERNHARD VON COTTA may be taken as a type of the influence of this school. No one can deny his eminence as a geologist; but we think his distinctive merit lies in his perpetual and skillful application of the principles of geology to the problems of mining. To that part of the work of the mining engineer which consists in the examination of mines and the giving of advice to their owners, he was no stranger. A large portion of his published writings, and doubtless a still larger portion of those which were never printed, consisted of reports on mines and mining districts, which are models of keen observation and logical reasoning. We remember an instance (not, so far as we know, publicly on record) in which his judgment saved from ruin a mining enterprise in which a large sum had been fruitlessly expended. The case (as, after the lapse of many years, we recall it) was that of a coal-mining operation, in which a deep and costly shaft had been sunk far below the point at which the coal-seam, already known and exploited in the vicinity, should naturally have been encountered. The engineers were baffled and discouraged; and COTTA was called upon for advice. His experienced eye perceived that the shaft had passed through a break on the crest of a small anticlinal in the basin; and a short drift from the point which he indicated struck the coal almost immediately, to the great joy of the adventurers.

We do not undervalue the great names of WEISSBACH, SCHEERER, and other illustrious professors at Freiberg. On the contrary, we consider the memorial to COTTA in some sense a tribute to them all. The venerable school where WERNER laid the foundations of modern geology; where HUMBOLDT caught the inspiration of his splendid career; whence KÖRNER went forth to die, with the "Sword-song" on his lips; where so many Americans have gathered the knowledge which is making their country rich "beyond the dreams of avarice;" this historic and beloved institution deserves some recognition at our hands. The New World can afford, in this instance, to acknowledge its obligations to the Old.

And the present is the proper time to do it. Those obligations have in one sense ceased. The service is now mutual. Our own schools and our own practitioners are now giving to Europe as much as they are receiving. Nobody recognizes this fact more freely and joyfully than do the professors of Freiberg. To their thought, the achievements of their pupils are part of their own laurels. The interest with which COTTA and his colleagues have followed the growth of the mining industry here, and the revelations which it has made of our unparalleled mineral resources, is well known to all who by personal intercourse or correspondence have been privileged to know their feelings.

To these general considerations may be added some reference to the special hospitality with which American students were always received in Professor VON COTTA'S household, and the friendly advice and assistance which he was always ready to extend to them.

It is a small matter for each individual to bear his testimony of personal and national gratitude in such a matter; but it would be, in our judgment, a serious matter to bear testimony, by indifference and neglect, that such a sentiment did not exist. Not merely all the pupils of COTTA, but all who can appreciate the benefit which he and his associates have directly and indirectly conferred upon our country, should hasten to claim the honor of contributing to the memorial now proposed, whether as a token of private friendship, a record of international appreciation, or a monument of well-earned fame. *

THE DEPRESSION IN MINING STOCKS—THE CAUSE AND THE REMEDY.

For several weeks past, there has been a perfect panic in mining stocks, and many think that the public will cease to interest itself hereafter in mining. Those who most strongly hold this opinion are among the professional operators from the Pacific coast and the far West. Many of these came to this market first, with the belief that the interest would not assume the proportions it has; and secondly, that it would not last nearly as long as it has. They advanced arguments that contained weight and truth for the purpose of enlisting public confidence; and had the business been left entirely to the management of this set of men, and had it been possible to have their statements accepted without verification by competent and reliable authorities commanding the confidence of Eastern investors, there is no question that the end would have been seen ere this.

There is the gambling feature, which must always accompany a mining excitement, and must always act to the injury of legitimate mining. Had the investments been confined to mines fully developed, under good management, and upon a fair basis of value, as fixed by a competent expert, our prospects would be much more encouraging. The public has learned that at some time in the history of all of our great mines they could have been had by simply placing stakes about them and claiming the property; while perhaps at a later date, they were, or could have been, purchased for a few thousand dollars. This knowledge has brought forth a large army of those who hope to make fortunes by making a small investment in stocks that are offered upon the market at a very small figure, as compared with the stocks of mines of an established reputation, and upon a good dividend-paying basis. While some of these may meet with luck, there will be millions of dollars thrown away upon such stocks and upon worthless mining claims, although the promoters undoubtedly make very handsome profits. That many of these stocks and mines will eventually disappear entirely from public notice there can be no question; but there are a great many very good mines into which the Eastern public has put its money that can not be lost to view; for they will steadily announce dividends, and these always command attention. Even though the wild-cats may all be killed and confidence in mining be for a time disturbed, the good mines, honestly and competently managed, will give so much greater returns upon the investment than ordinary securities, that mining must be considered a legitimate industry by our people.

The ENGINEERING AND MINING JOURNAL has done all in its power to instruct its readers upon particular mines, and put before them the precautions necessary in making an investment. Promoters floating mines at immense profits disagreed with us, and by their energetic efforts led the public to disregard the necessary rules for a safe or business-like investment.

We have contended, and continue to contend, that mining for gold and silver is as legitimate an industry as any followed, when entered upon and conducted upon true business principles. Although it has its risks, these are counterbalanced by the certainties in the form of a continuous and comparatively steady market for the products. The difference between failure in a well-conducted mercantile business and in a mining operation is, that in the first there is a lack of demand and consequent depreciation of values, while in the latter the ore becomes exhausted; and it is about as difficult to tell, ordinarily, what the price and demand for an article will be at the end of three months, as it is to tell what the developments in a mine will be at the end of the same time. It then becomes a question as to which furnishes the greatest average profits. We think that mining, legitimately conducted, must make a very favorable comparison.

The great trouble is, that those who have the money to invest in mining have but very little knowledge of the business. This same trouble is met, however, by those who attempt to use money in other than their regular business; for it then becomes necessary to depend upon the judgment of those who are acquainted with the industry, and the management must be intrusted to some competent and trustworthy person. Unfortunately, there are but few who are competent to advise on an important mining investment; yet these few are sufficient to advise upon all worthy enterprises. There are a great many incompetent and even dishonest persons, who are asked to give advice upon such questions, and from this class legitimate mining suffers more than from any other cause.

Our advice is now, as previously:

First. Investments should be made only upon a full report by a thoroughly competent and trustworthy expert, giving the value of the ore in sight and the capabilities of the mines to earn dividends.

Second. The officers of a company should be men of the highest integrity and commanding the fullest confidence of the public.

Third. A mine should be managed by the most capable superintendent obtainable. This position should be filled by merit, and not by favor.

Fourth. A mine should be worked in the interest of legitimate earnings and not stock speculation.

Fifth. It should be the duty of the officers of a company to furnish full and prompt information of the developments at the mines and the earnings of the company, and they should be held responsible for any delay in furnishing this information, or for any false statements.

Had the public insisted upon having the above rules complied with, the mining-stock market would not be in its present condition.

A great cause of trouble has been, that promoters have assumed to know more about mines than the experts, and to pronounce the reports of the latter "too conservative." Experience has taught that the utmost conservatism must be practiced in estimating the value of a mine. The immediate cause of our present troubles is, that the public was able to see from New York more in the Little Pittsburg mine than Dr. RAYMOND saw upon a careful examination made at Leadville.

Dr. RAYMOND was able to place an actual value of \$10 per share upon Little Pittsburg, and a prospective value of \$5 more. The promoters permitted a special few to take stock at \$20 per share, after which the general public was asked to indulge at \$25 per share. By the grossest misrep-

have tested them; and in this case (Fuel-Ratio, 1.27), the value was only one of the two deduced from Mr. McCreath's analyses. Only a few of these amended values were examined, and chiefly those which showed the largest variations from the values calculated by me. The following are some of these errors:

FUEL-RATIOS.		
Mr. McCreath's Table.		Should be by his own Method.
Old.	New.	
.91	.96	.996
1.02	1.18	1.48
1.17	1.27	1.27 and 1.46
1.37	1.50	1.47
2.70	2.92	3.47
3.06	3.64	5.22
4.51	4.89	6.03
4.51	4.81	5.52

This will suffice to prove that, independently of the soundness of the method, the values are not accurate.

It remains to be seen whether any corrections obtained by Mr. McCreath would justify the assertion that the difference "is enough in some cases to require the whole series to be recast." The class of bituminous coals proposed by me embraced those with fuel-ratios from 5 to 0. No value obtained by Mr. McCreath as a correction of mine reaches 5; so that even if his figures were sound and accurate, they would not alter the class of a single coal as given by me.

But it appears to me that (1) his method is founded upon an error; (2) his calculations are wrong; and (3) his corrections are immaterial.

Very respectfully,
PERSIFOR FRAZER, JR.
PHILADELPHIA, March 31.

MAINE MINING NOTES.

Special Correspondence of the Engineering and Mining Journal.

The Granger copper mine, situated near the shore of Blue Hill Bay, is making a fine opening. Colonel Brownell Granger, civil engineer (formerly of the Hoosac Tunnel), is superintendent, and Nahum Hinckley, of Surry, an experienced miner, is foreman. Work was begun about two weeks ago, and fine ore is taken out every day, as well as specimens of native copper, peacock ore, malachite, etc. The Favorite mine (situated just east of the Twin Lead) is also reported to be looking promising. The Dirigo Copper Mining Company was organized here two weeks ago. This property is on Blue Hill Neck, near the Brooklin town-line. Work will soon begin. The cross-cut from the shaft of the Atlantic struck ore some time ago. This mine, and the Douglass and the Blue Hill, are looking fine. The City of Boston shaft is making good progress, and the company will probably be organized ere long. The shaft men on the Twin Lead struck several days ago, claiming an advance from \$1.25 to \$1.50 per day. I am not able to give full particulars.
DIRIGO.

BLUE HILL, ME., April 6.

MONTANA MINING NOTES.

Special Correspondence of the Engineering and Mining Journal.

The Algonquin mill, as noted some time since, has been actively at work, and is turning out from \$1200 to \$1500 daily. Mr. J. K. Pardee, its efficient superintendent, thinks that this can and will be increased by enlarging the pan capacity, in order to make it equal to the roasting facilities. The immense Howell roaster does its work to perfection, and the whole machinery is working admirably. The company is greatly encouraged thereby. The present supply of ore for the mill comes from the Trout, Salmon, and Algonquin; and in these mines, the ore-body is looking well. The Hope Company is turning out \$600 daily, and feels happy over the prospect. Phillipsburg is looking up under the stimulus of these two successful mills.

The "boom" has certainly struck Montana at last. Mines by the score have been bonded, and negotiations are pending for the bonding of scores more. Among the principal ones thus disposed of, may be mentioned the Nellie Grant (silver), to New York parties, for \$125,000; the Belle, to the New York Copper Company, for \$100,000; the Cotter & Hickey and the Bluebird, to John W. Eddy, for \$100,000; and the Sanford, for \$35,000. Every one whom you meet wants either to sell or to buy a mine, and consequently, mining matters are certainly on the "jump."

Tatem & Chadwick have again struck it "rich" in their mine near the Penobscot. The ore-body is reported by responsible persons to be 15 feet in width, and all of it pay-rock. Near the foot-wall, there is a small seam varying from one inch to two inches, that carries \$1000 gold to the ton. At the depth of 40 feet, the seam had widened to 3 inches, and is as rich as on the surface.

Northwest of Helena, about five miles, is situated a little glen called the "Park." In this place and near by, are situated the quondam bonanzas of the National Mining Company and the Columbia Mining Company. The mountains surrounding this glen divide and form the Grizzly and Nelson gulches, out of which millions of dust have been taken. Recently, much prospecting and developing have been made, with a view to find the best veins of these two companies, or at least, their extension. Mr. George S. Kennedy seems to be the lucky individual; for he has just struck a large body of ore which assays \$75 to the ton. He has a steam hoisting-apparatus, and expects to have 200 tons on the dump by May 1st.

The district in which the Yego mines are situated has been named Kan Kan. The Cameron Company has drifted 200 feet, without reaching bed-rock, and has obtained fair prospects from the gravel removed in constructing its drain. There is a strong feeling as to the permanency of the camp, although no one has as yet "struck it big."

The Black Eagle, in Madison County, is now down 120 feet, and the vein is 3 feet wide. At this depth, the mine looks very well, and the vein-matter pretty rich. It is in good hands for a thorough and honest development.

At last, Montana is joined to the outer world by the indissoluble bonds

of the iron rail, and the snort of the iron horse is, for the first time, heard among these ancient hills. The ceremony of driving the silver spikes which fastened the rail was duly celebrated last week, and caused much rejoicing throughout the territory. The mining men are particularly elated, while truth compels the assertion that the cattle men opposed the railroad, because it invaded their domain, breaking up the ranges.

TUBEROSE.

PARK COUNTY (COLO.) MINES.

Correspondence of the Engineering and Mining Journal.

MOUNT LINCOLN AND MOUNT BROSS.

Both of these mountains are well known, through the Russia on the former, and the Moose and Dolly Varden mines on the latter; but in consequence of the general mining excitement in Colorado, these mountains could not well escape the sharp eyes of prospectors. The entire surface on both mountains is "taken up" as mineral land, and is undergoing as rapid development as the deep snow at an altitude of over 14,000 feet, will permit at this time of the year. The Russia, Present Help, Gertrude, and Consolidated Danville figure most promisingly as regular shippers of ore; some of them employing regular jack-trains to carry the mineral to Alma and the smelters at Holland and at the head of Sacramento Gulch. The mill-run assays vary from 100 to 600 ounces—in a few cases, considerably higher. In Mount Bross, the outlook is, on account of its large surface, still more encouraging. It is true, the Moose Mining Company has not paid a dividend for a considerable time; yet it employs a force of from 60 to 100 men, and ships more or less mineral regularly. There will undoubtedly be some hope of realizing dividends, "if stockholders only hold out."

The Dolly Varden, worked systematically, with a force of only 16 men, yields handsome profits to its owners. Also the Silver Gem, which was lately sold for \$40,000. The Sweet Home, Gregory group, Security, Criterion, Cleaner, Hunkidori, Five-Twenty, and many others are in pay-mineral, and will rank among producing mines as soon as the mountain roads are in a passable condition.

MOUNT BUCKSKIN OR LOVELAND MOUNTAIN.

Some mines, as, for instance, the Orphan Boy and Silver Exchange, were successfully worked as early as 1872; but the real value of this mountain is due to the discoveries in the Mount King, Mount King Extension, Mount Queen and Mount Queen Extension, which now, in combination with sixteen other surrounding mines and mining claims and the two placers in Buckskin and Mosquito Gulch, form a complete belt of claims, 900 feet wide across the mountain, and organized as the Fanny Barrett Mining Association. This property, although among the latest discoveries, will soon be ranked with the big mines of the State. Development on mines as claims outside of the above property was mostly suspended during the winter months.

As this was the first season of discoveries and working, miners in general were not prepared for a winter's run at an altitude equal to the highest point of famous Pike's Peak. Notwithstanding the hardships and danger, the question how to take matters in hand, and the best sort of development, must be secondary if mineral is known to exist in good paying quantities; and it has been proved that mineral does exist in good paying quantities in this mountain. Starting from the top of the mountain, we note the Little Nelly, with a 40-foot shaft, exposing a fine crevice of hard carbonate with sulphuret of silver. Joining this are the La Salle and Peru mines; the former with a 35-foot shaft, exposing a two-foot vein assaying 152 ounces. Farther on, is the Napoleon Tunnel, also exposing several streaks of carbonate of copper. Below are several claims of the Elgin Silver Company, of Leadville, all in fair prospects. The deepest shaft—110 feet—on that mountain is on the Avalanche claim, showing, at a depth of 90 feet, galena high enough in silver to be profitable. The Mollie Dean, Rankin, etc., are in good prospects. The Buckeye State exposes a 3-foot vein, assaying from 30 to 60 ounces. The Red Lion has mill-runs of from 20 to 40 ounces; and a number of other claims are showing good prospects. As the connecting link between Buckskin and Bross Mountain, and with good prospects, is

BUCKSKIN GULCH.

At its very head we find the Colorado Springs, having had mill-runs of 1200 ounces. The Tanner Boy group has 90 feet of tunneling; a half interest has been sold for \$15,000. The Badger Boy Consolidated shows in a 28-foot shaft 18 feet of low-grade mineral, averaging from 10 to 40 ounces. The Daisy mine, owned by Denver parties, has had assays from the Denver Mint as high as 1668 ounces.

This gulch has its history. As early as 1862, gold in quartz leads was eagerly sought for, and placer mining was carried on on an extensive scale. There are actually many open cuts, shafts, and tunnels to give evidence of lively prospecting; but the value of silver ores, either as carbonates or as in galena, was not appreciated, and the ore also had to run from 80 to 100 ounces to pay expenses. The history of this gulch is identical with California Gulch, except that, being old settlers' claims, it was more lively, and there was more money in this camp than on the other side of the range. Speaking now of the center of the 1862 excitement, we may mention the old town of Buckskin, still giving evidence of a once famous camp. Adjoining the town is the "Old" Phillips mine, which has yielded hundreds of thousands of dollars. The Leadville excitement made it quiet for some time, and the mine partly caved in; but recently, energy and capital have been enlisted, and contracts have been made for 200 feet of shafting. Toward Alma, we note the American Flag, for which an offer of \$20,000 has been refused; adjoining this, the Fairfield and Mirza-Shaffy; on the other side the gulch, the Drew lode—all in mineral; lower down, on the east slope of Buckskin Mountain, being the south side of the gulch, a group of ten claims, known as the Humboldt Consolidated; opposite to them, Military Hill, with a score or more of good prospects.

ALMA, PARK Co., COLO., April 8.

HERKIMER.

The Norton Coal-Works, near Brownsville, Pa., which have been lying idle for a number of years, are to be put in operation as soon as the necessary arrangements can be made. A Philadelphia firm has leased the works.

NOTES ON BATTERY AND COPPER PLATE AMALGAMATION.*

FROM THE MINING LABORATORY OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

By Robert H. Richards, S. B. Professor of Mining.

Very little has been published recently on this subject in the mining journals or proceedings of societies.

The attention of experts has been diverted perhaps partly by the demands for pan amalgamation in refractory ores. Yet free milling ores occur in many localities, and it may be interesting to have on record some data as to details of running a small test-mill, especially as details of results do not seem to be accessible to students and investigators.

Küstel, in 1863, under battery amalgamation, dismisses the subject by stating that "Amalgamation on copper-plated platforms, troughs, and other copper fixings," is "very imperfect, and mostly abandoned."

J. Arthur Phillips states, in 1867, under placer mining: "A well-amalgamated copper plate is considered as effective for saving fine gold as an equal surface of pure mercury."

In Dr. R. W. Raymond's reports, I find in two volumes mention of amalgamation by copper plates.

In 1871, in an admirable article by N. S. Keith on the preparation of amalgamated copper plates, he states: "The discovery of the utility of amalgamated copper plates in the treatment of auriferous rock in the stamp-mill has so simplified and cheapened the metallurgy of gold that it is now profitable to mine and reduce many gold-bearing ores and rocks that formerly would not pay."

In Dr. Raymond's report in 1872, J. A. Church discusses the use of copper plates with reference to his theory of amalgamation. I am unable to find any allusion to amalgamation in either Rittinger's or Gaetzschmann's excellent works on *Aufbereitungskunde*.

Our experience at the Massachusetts Institute of Technology has been as follows:

In the winter of 1872, the little five-stamp battery was started in good earnest. Small lots of ore, severally from North Carolina, Georgia, Colorado, and New Hampshire, were run in the mill and over the plates. After each run, the plates were cleaned up, and the amalgam retorted. Our tailings were not so clean as we could have hoped, and the yield of gold, therefore, was not so high as we expected, for causes which will be partially accounted for later on in this paper.

After the last of these runs, the plate was scraped a second time, and, to our dismay, some more gold was obtained; a third time, and more gold. We began to wake up to the fact that we had been crediting North Carolina ore with Georgia gold, and so on. This difficulty became so apparent, and seemed so insurmountable, that we well-nigh despaired of ever using the mill in making careful quantitative tests. I shall speak of this difficulty, in the course of this paper, as the *overlapping error*.

Until 1876, we did nothing more with the mill, owing to other cares. During that year, however, we tried a new expedient for overcoming the overlapping error. It was to purchase the thinnest copper that could be found in the market, about $\frac{1}{16}$ inch, and to use a new set of plates with each run, dissolving the old ones in sulphuric acid at the end of the run, and thus recovering the gold. We got back our gold, to be sure, but after much trouble; and in this way we entirely overcame the overlapping error. We recovered, after running 1500 lbs. of \$14 rock, besides the amalgam which we scraped off, about \$2.75 of gold which had soaked into our plate, 10 feet long 6 inches wide, or 5 square feet of surface. Still the tailings were too rich, and the mill work was not altogether satisfactory. We finally found that, in avoiding the overlapping error by the above expedient, we had run into another and, possibly, a worse error, which I shall call the *new plate error*.

Mill men will tell you that no mine is willing to send ore to a mill that has just put in new plates; that the new copper plate, coated with mercury, is not well calculated to catch gold; that a layer of gold amalgam must be formed on the surface before the plates can be considered at all reliable. In fact, we are informed that, in the Black Hills and elsewhere, a mill with new plates counts it as one of its regular expenses to buy 100 tons or so of gold ore and run it, to charge the surfaces of the plates with gold amalgam, before taking in custom work. Recently we have adopted the suggestions in N. S. Keith's paper (Raymond's Report, 1871). These, with certain modifications, have overcome all the difficulties, and given us the means to test gold ore by the ton accurately and efficiently.

Our method is to take soft copper-plate, $\frac{1}{16}$ -inch thick, of the size required. Scrub it with sand, sal-ammoniac, quicklime, and mercury, until it is plated. Dilute nitrate of mercury will plate the copper far quicker and with less trouble, but not so permanently, so deeply, or so thoroughly. If very obstinate spots are found, dilute nitrate of mercury may be used; and if this fails, a plumber's scraper will remove the spot. When thoroughly plated and washed clean, the plates are dried carefully with cotton batting. Mercury is then sprinkled on through chamois-skin, and distributed with cotton. This will give the plates a brilliant, mirror-like surface, which will remain for several days if water is kept off them. The least addition of water will very soon bring out the yellow stain that is the enemy of the amalgamator. This yellow stain is prevented on old plates by the coating of gold amalgam which has formed on their surfaces.

We have hit upon an expedient for overcoming the new plate error and the formation of the yellow stain which so much retards the amalgamation of gold. Our device is in the substitution of silver amalgam for gold amalgam. Silver amalgam is made by dissolving silver dollars in nitric acid diluted by equal weight of water, and then adding about ten times as much quicksilver as silver. The silver is all precipitated, making a pasty amalgam; the liquor, after standing over night, is then decanted, and the remaining amalgam washed thoroughly with water. One silver dollar will make amalgam enough to paint about 4 square feet of surface.

This amalgam is dried and squeezed in chamois-skin, to remove the excess of mercury, until about the consistency of soft putty. It should then be painted on dry to the bright plates with a flat hog's-bristle paste-brush. This amalgam should be allowed to drain for at least 12 hours, to

avoid, as far as possible, the presence of free mercury on the plates during the run, as it is liable to flour and be lost.

Silver amalgam is just as good a catcher of gold as the gold amalgam, so far as we yet know. This layer of silver amalgam also overcomes the overlapping error, because the gold never comes to any considerable extent into contact with the copper plate; and hence, when the plates are scraped off in the usual way, the silver amalgam practically carries off with it the whole of the gold.

For a testing-mill, the method is sufficiently easy and simple, and has been adopted by us as overcoming all the difficulties yet encountered.

The Institute mill is a single five-stamp battery, with stamps weighing 55 pounds originally (now worn down perhaps to 53 pounds), $\frac{3}{4}$ -inch face of shoe and die, $\frac{9}{16}$ -inch drop, 88 drops per minute. It uses about 34 kilos water per minute, and stamps through a screen punched with holes $\frac{1}{16}$ inch in diameter. The discharge is on both sides—that is, double issue. We amalgamate in the battery, without battery-plates. The plates are five in number; net length available for amalgamation, 5 feet 6 inches each, or total length $27\frac{1}{2}$ feet, by 10 inches wide. The plates slope $1\frac{3}{8}$ inches to the foot, and have never given much trouble from settling sand. This is the minimum slope at which we should dare to place them; $1\frac{1}{2}$ inches to the foot would be a better slope. The mercury trap at the end of the plates is a kind of quicksand apparatus, which allows the mercury to discharge below as fast as it accumulates.

When cleaning up, the battery amalgam is kept by itself, and each one of the five plates by itself. This enables us to see when and where the amalgamation takes place. The sand is separated by a spitzkasten apparatus into sand and slimes. The sand is concentrated, and yields concentration and tailings. Assays are then made of the original ore, the residue in the battery, concentrations, tailings, and slimes. When an ore has been subjected to this series of tests, we know, to say the least, a good deal about it.

TABULAR STATEMENT OF THE PROCESS.

Ore.	Amalgams.	Battery.	} Each parted by itself.
		1st plate.	
		2d plate.	
		3d plate.	
		4th plate.	
Mercury.		5th plate.	} Mercury trap.
Silver.			
	Sand or spitz-	Slimes, for chlorination or other treatment,	} Concentration for chlorination or other treatment.
	kasten.	Sand on table.	
		Tailings—waste.	

Pure mercury is used in the battery, and hence this lot when assayed gives us the fineness of the gold in the ore.

Besides the above tests, a sample is always taken from the pulp as it comes from the stamp-mill, and also as it comes off the plates. These two samples are taken at the rate of $\frac{1}{4}$ liter dipperful every 15 minutes. They serve to give additional testimony in regard to the working of the plates.

The rate of stamping rock has not been satisfactorily settled, as the mill was out of line about half an inch, at the time of the runs this year. The shoes overlapped the edges of the dies half an inch. When New Hampshire quartz was fed, in size about 1-inch cube, the best rate maintained was 54 kilos per hour. When this rock was crushed by rolls through a $\frac{1}{4}$ -inch sieve, it then stamped 69.6 kilos per hour. These figures are, however, only approximate averages, as they depend largely on the skill of the feeder. Either over-feeding or under-feeding lessens the yield.

Four tests have recently been made; two of them on a low-grade ore from New Hampshire; the others from a mine in Nova Scotia, which was sent to us through the kindness of J. Frazer Torrance, Esq., of the American Institute.

I. The New Hampshire lot. This was composed mostly of quartz, stained yellow with iron rust, having cavities from which the iron pyrites had been dissolved. It contained a small percentage of pyrites, but no gold that was visible as we examined the heap. This lot also contained some fine mica-schist, which was probably from the wall-rock.

This lot of ore weighed 2021.6 kilos or 4447.5 pounds. A sample of it yielded to fire assay \$4.14 in gold to the ton of 2000 pounds, reckoning gold at \$20.67 per ounce troy. The total value, therefore, of the gold in this lot was \$9.20.

The yield of gold in the different parts of the process was as follows:

Battery amalgam.....	\$4.573
1st plate.....	2.694
2d plate.....	.215
3d plate.....	.180
4th plate.....	.099
5th plate.....	.050
Mercury trap.....	.038
Total yield.....	\$7.849

Samples were assayed for gold as follows:

Ore sample.....	Per ton. \$4.14
Pulp sample as sand went to plates.....	2.07
Pulp sample as came off the plates.....	trace.
Pyrites concentrations weighing 74 kilos.....	\$5.17
Coarse tailings.....	trace.
Fine tailings or slimes.....	trace.
Residue in battery, weighing 11.75 kilos.....	\$17.57
The total value of the ore.....	9.30
The total value of the ore extracted.....	7.85

or 85.2 per cent of the gold was saved. This, reduced to value per ton, is as follows:

By fire assay.....	Per ton. \$4.14
By amalgamation.....	3.53

85.2 per cent saved by amalgamation.

The poverty of the iron pyrites concentrations found by us corroborates the conclusions arrived at by Professor Hitchcock, who states that he has universally found the gold in these mines to be in the quartz and not intimately associated with the pyrites, as it is in some other localities.

II. The second lot of ore was taken from the same heap as the last, but was taken at a different time. The lot weighed 403.80 kilos (or 888 lbs.),

* A paper read before the American Institute of Mining Engineers, at the New York Meeting, February, 1880.

and assayed \$4.14 per ton. When cleaned up, the different parts yielded gold as follows:

Battery amalgam.....	\$1.220
1st plate.....	0.430
2d plate.....	0.063
3d plate.....	0.041
4th plate.....	0.028
5th plate.....	0.020
Mercury trap.....	0.020
Total yield.....	\$1.822

—or \$4.10 per ton.

According to the above, assays the lot yielded to fire assay \$4.14, to amalgamation \$4.10 per ton, or 99 per cent of the gold was saved. This, of course, we can not claim to have done; we can only say that the method of valuing by fire assay is not fine enough to give the cents exactly on such low-grade ore.

III. The third lot of ore was from Nova Scotia, and was composed of bluish-white quartz and blue slate. It contained a very little pyrites, arsenical pyrites, and galena. The gold sights, or visible lumps of gold, had all been picked out of this lot of ore; and when it was crushed in a Blake's crusher to 1 cubic inch in size, it showed no gold. These sights, I should judge, may have amounted to as much as \$5 or \$6 for the lots III. and IV. inclusive.

This lot III. weighed 639.87 kilos or 1407.7 pounds. No satisfactory valuation could be obtained from it, as the gold proved to be in such coarse condition. A sample of 48.45 kilos (or 106.6 pounds) when crushed and passed through a sieve having 12 holes to the linear inch yielded:

Gold pellets on sieve.....	Per ton.
Siftings by fire assay.....	\$7.10
	7.23
Total value.....	\$14.33

After the ore was stamped and the mill cleaned up, the following figures were obtained from the different products:

Battery amalgam.....	\$9.1324 gold.
1st and 2d plates together.....	1.389 "
3d plate.....	0.083 "
4th plate.....	0.188 "
5th plate.....	0.048 "
Mercury trap.....	0.134 "
Total.....	\$9.3166 gold.

or \$13.24 to the ton.

The amalgam from the battery was in large, coarse nuggets, attached together by liquid mercury. Scarcely any of this gold appears to have made its way through the sieves. A very different result is shown in both the first and second lots of ore, where the gold was evidently fine, and therefore passed through quite freely, and more than one third was caught on the plates.

It should be stated here that the lot marked No. II. was run after that marked No. III. The reader, by comparing the yields of the plates of No. I., No. III., and No. II., will readily perceive how perfectly we have overcome the overlapping error. Samples were assayed as follows:

The pyrites concentration, weighing 9.9 kilos.....	Per ton.
Coarse tailings.....	\$10.33
Fine tailings.....	trace.
Battery residue, weighing 7.05 kilos.....	trace.
The sample of pulp fed to plates.....	\$6.20
The sample of pulp from off the plates.....	trace.

IV. A second portion of the above lot was stamped without the use of amalgam or amalgamated plates. This lot weighed 631.8 kilos, or 1390 pounds. When the battery residue was panned out, it yielded nuggets of gold valued at \$8.24, or \$11.85 per ton. The yields, therefore, by the above tests were, by fire assay of doubtful accuracy, \$14.24; by stamping with amalgamation, \$13.26; by stamping alone through $\frac{1}{16}$ -inch holes, \$11.85. The tests of each of these two lots of ores were carried on under the supervision of a mining student, who was assisted at his work by the rest of his class.

The following precautions in managing gold mills have been mostly obtained by conversing with mill men from different parts of the country. Our experience entirely confirms the truth and importance of them:

The amalgam on the plates should not be allowed to get too hard or too soft. If too hard, it may fail to catch the gold; if too soft, mercury will flour at the lower end of the plates.

A quantity of mercury, varying from 1 ounce to $1\frac{1}{2}$ ounces, should be fed to the stamps for every ounce of gold contained in the ore under treatment. This mercury should be fed a little at a time every half-hour. If the plates are inclined to stain, a lump of cyanide of potassium held a moment on the spot will remove the yellow stain. Too free use of the cyanide will cause the amalgam to soften too much on the plates, and cause a loss at the lower end.

Keith says that if an ore contains ferrous or cupric sulphate (blue or green vitriol), as a result of oxidation of pyrites, and giving rise to the yellow stain on the plates, a little lime should be added along with the ore. This will precipitate the metals, forming harmless gypsum with the liberated sulphuric acid.

The use of oil about the mill should be restricted as much as possible, as this, more than any thing else, causes the yellow stain to come. If the cams are oiled with an oily rag on a stick every half-hour, the excess and dripping may be largely prevented. Molasses is sometimes used to lubricate the cams, but it is a poor lubricant. It does no harm to the amalgam. The cams should be wiped clean every day.

It would seem to us that the method adopted in our laboratory is equally well suited for large mills. The first two cleanings-up would be diluted with silver as a matter of course; but after this, no such trouble would ensue.

Copper plates in the battery we are inclined to recommend strongly, although we have not used them ourselves, owing to the difficulty of making a quantitative experiment with them.

Thus far, our search for methods for testing such small quantities of gold in tailings and products as we obtained in these runs has been fruitless.

The chlorination method gives the greatest encouragement; but this is a long and tedious assay, and has to be performed with the utmost care.

The fire assay is of little use, as the quantities taken are too small to give any result at all on \$1 tailings. We are just now working up an amalgamation method for tests of tailings, which gives some degree of promise, and which, if successful, we hope to describe at some future date.

PROGRESS IN SCIENCE AND THE ARTS.

Chemistry.

Is Chlorine a Compound Body?—We gave, some time ago, a short notice of the remarkable observations of Professors C. and V. Meyer, that chlorine, evolved from platinous chloride, at temperatures of 1200° and above, had a density of only two thirds of that corresponding to the molecular formula Cl₂; and we noticed the singular inference that this observation appears to justify, namely, that, at these elevated temperatures, chlorine becomes dissociated, and that it is, therefore, a compound body, and not, as has hitherto been held, an elementary one. Iodine was also noticed to show a similar behavior.

A well-known American chemist, Prof. Crafts, however, has repeated the experiment with chlorine, by passing it already made into the density apparatus, and his results failed to verify those of the German chemists. Prof. C. Meyer, in connection with Herr Züblin, in repeating Crafts's experiment with chlorine made in the ordinary way and carefully purified, confirms the accuracy of his (Crafts's) observations. With iodine, Crafts, be it noticed, obtained results confirmatory of the Meyers's statements, the observed density at exceedingly high temperatures being an approximation to that corresponding to the molecular formula I₃. These results, which appear conflicting, seem to point, at least, to the remarkable fact that, whereas ready-prepared free chlorine is stable at high temperatures, nascent chlorine—that is, chlorine at the moment of its liberation from the compound platinous chloride—is unstable and undergoes dissociation.

The Latest News Concerning the Sun.—The central orb of our system has of late been the subject of much special study, investigations with improved apparatus and by improved methods being directed especially to problems relating to its distance and mass, its temperature and constitution, and the nature of its appendages of chromosphere and corona. Prof. C. A. Young, a distinguished American astronomer, gives an account of the more important of these investigations, from which we summarize the following facts:

The recent correction of the value of the solar parallax he notices as of the first importance. Encke's figures (8.58"), deduced from observations of the transit of Venus, remained unquestioned for about forty years. They represented a mean distance of the earth from the sun of 95,000,000 miles. Prof. Newcomb's and Lieutenant Michelson's late researches have shown this figure to be somewhat erroneous, and the latter investigator's figures, obtained by methods involving the strictest accuracy, place the value of the solar parallax at 8.78", representing a mean distance of the earth from the sun of 93,100,000 miles. The investigations next in interest are those which deal with the solar temperature, concerning which the most diverse opinions existed until lately among men of science; as may be inferred from the statement that Secchi and Ericsson estimated it as high as several million degrees, while the French astronomers, Violle and Vicaire, as low as 2000° C. (3632° Fahr.). In this direction, Prof. Young alludes to highly-interesting investigations lately made by Prof. Langley at Pittsburg, and by Prof. Rosetti at Padua. The first-named, while not naming any temperature, has demonstrated that the solar heat is far higher than the most intense artificial heat; and the latter's experiments have led him to the conclusion that 10,000° C. (say 18,000° Fahr.) would represent the effective temperature of the sun. Prof. Young is inclined to the belief that Rosetti's results are more worthy of confidence than any hitherto attained. Passing to the subject of the constitution of the sun, Prof. Young alludes to Dr. Henry Draper's recent discovery of oxygen in the solar atmosphere, as being the first discovery of the existence of a non-metallic element there. He looked forward to such improvement of photographic methods, in the near future, as would lead to the discovery of other non-metallic elements in the solar atmosphere, the absence (non-discovery?) of which has been quite puzzling to astronomers. To Prof. Lockyer's hypothesis of the composite nature of the non-metallic elements, and his inference that they could not exist undecomposed in the intense heat of the sun, Prof. Young made casual reference, but did not commit himself as a believer. He referred to the eclipse observations in 1878 as having established the fact that an intimate connection exists between the state of the sun's surface and the condition of the corona; while on the interesting question of a connection between the sun-spots and terrestrial meteorology he appears to be undecided, save that he regards as established a connection between the sun-spot period and the magnetic state of the earth.

Technology and Miscellaneous.

Technical Notes.—*Bonsilate* is the name given to a new product, intended as a substitute for ivory, hard rubber, and other kindred substances, in the manufacture of a variety of articles, such as canes and umbrella-handles, checkers and dominos, clock-cases, and other ornamental objects. It is said to be harder than celluloid, and to be susceptible of being molded in dies, like other plastic materials. It can be formed into slabs or bars, and can be turned, polished, or sawed into any shape, similar to ivory. By the proper admixture of coloring matters, malachite, costly marbles, etc., can be imitated with it, as is the case with celluloid. It is said to be made from finely-ground bones, agglutinated with some cementing substance, which, from the name adapted for the product, we suspect may be silicate of soda. The details of the manufacture are, as yet, kept secret.—Vincent has lately described a process, by which *methyl chloride* may be profitably applied to the extraction of the odoriferous principles of flowers, for use in perfumery. The new procedure has already been established in Paris, on a scale sufficiently large to treat a ton of flowers daily.—A simple way of distinguishing between *natural* and *artificial* butter (oleomargarine), on the authority of a Belgian chemist, is based on the different behavior of the two substances when exposed to a temperature of 150° to 160° C. (300° to 320° Fahr.). When heated in a capsule or test-tube to this temperature,

natural butters all produce an abundant froth, the mass boils irregularly, with a slightly jerking motion, and becomes uniformly brown. With artificial butters, on the other hand, there is little or no frothing; the boiling is accompanied by violent jerks, the fatty portion retains its natural color, while brownish clots separate from it and attach themselves to the wall of the vessel.—The opening up of the Soudan has taken strong hold upon the minds of the French as a most important aid in giving their country a new outlet for her industries and new commercial connections. On this account, the *Trans-Saharan Railway* is looked upon with favor by the authorities, and it is confidently predicted that its construction will not be long deferred.—A well-attended meeting to complete the organization of the *American Society of Mechanical Engineers* was held at the Stevens Institute, on the 7th of April.—Respecting the question of *expert testimony*, the *Times* makes the inquiry whether this, at least in cases involving the life or liberty of accused persons, should not be a judicial rather than a forensic matter; whether, under the authority of the court, and not under the manipulation of opposing lawyers, the scientific facts needed should not be laid down by a special commission impartially chosen, as the law is laid down by the jurists on the bench.

The World's Fair of 1883.—The passage by the Senate of the United States of a bill authorizing the formation of a corporation, with ample privileges to undertake the organization of the project for a World's Fair in this city in 1883—the 100th anniversary of the acknowledgment of the independence of the American colonies by the mother country—is the first substantial step in advance toward the actual realization of this much-debated scheme. There is no reason that we know of why such an exhibition should not be productive of most beneficial results. The progress made by this country in many branches of the useful arts since the famous exhibition of 1876 in Philadelphia has been very great; and the position of New York as the commercial center of the United States would doubtless exercise a more decided influence in attracting the attention of foreign exhibitors than could be expected to be achieved by any other city of the Union. The benefits of the Centennial Exhibition to almost every industry of the country have been so pronounced, in the very general improvement in the character and artistic excellence of the products of our manufactories, that the desirability and advantage of holding such great exhibitions at short intervals is not to be questioned. We therefore await the realization of a world's fair in New York in 1883 with much satisfaction.

MR. E. B. BENJAMIN, one of our largest dealers in assayers and miners' supplies, who has held a position in our advertising columns for years, is removing from his old stand, which he has occupied for years, to a more commodious warehouse at No. 6 Barclay and No. 12 Vesey streets, immediately in the rear of the Astor House. Our friends will do well to examine his large stock of furnaces and laboratory materials, which have obtained a high reputation among consumers.

GENERAL MINING NEWS.

ARIZONA.

GLOBE DISTRICT.

We obtain the following items from the *Silver Belt* of the 3d inst.:

MACK MORRIS.—The mine has two shafts over 100 feet, one on the foot-wall near the La Plata line, 106 feet deep, with the bottom in ore, two feet of which will yield \$1000 per ton. The main working-shaft is 112 feet deep, has two compartments, is situated on the hanging-wall side of the vein farther west. This shaft will be continued to a depth of 300 feet without stopping, levels will be run, and the ores raised by steam hoisting-works, now in course of erection.

COX & COPLIN.—A working-shaft, now 64 feet, is sinking, and when 120 feet is reached, drifting will be commenced toward the main ledge, to connect with the drift upon the strata.

PILGRIM.—Pilgrim mine, on Rescue Ledge, has two shafts 25 feet each, and tunnel 25 feet; vein, four to six feet wide.

TOMBSTONE DISTRICT.

A correspondent of the *Arizona Citizen*, writing from Tombstone, says: "The Three Brothers mine, which was bought last week by the True Blue Company, is only 1500 feet to the northwest of this camp; it has two shafts, one 18 and the other 22 feet. The Gordon mine is the southwest extension of the Three Brothers, and is owned by the True Blue Company. There is a 28-foot shaft, which shows some excellent chloride ore. North of the Three Brothers, is the True Blue mine, owned by a company of the same name. It is working three shafts, and has a 68-foot shaft with a 13-foot drift. There is nothing in the shaft but ledge matter, which assays from \$150 to \$600. This company has a mill-site at Charleston, and will have its mill running shortly.

"The San Pedro has one shaft of 100 feet and will begin on a new one in a few days, which it is proposed to sink to the depth of 150 feet. The 100-foot shaft has 40 feet of water; and when the new shaft is finished, the company hopes to have enough water for its mill and hoisting-engine."

On the Grand Central, work is progressing rapidly. Two winzes are sinking—one from the 135-foot level and one from the 84-foot level. There are about 1600 tons of ore on the dump now.

PATAGONIA DISTRICT.

The *Citizen* has the following from Patagonia: "Two thirty-ton smelters are on the way for the Holland, and a twenty-stamp mill for the Alta.

BELMONT.—The Belmont has a shaft down 125 feet, with a cross-cut at the bottom showing thirty feet of ore that will average from \$80 to \$90 in silver to the ton. Shaft No. 2 on the Belmont lode is sunk to a depth of forty feet, exposing a large body of ore that runs from \$40 to \$60 per ton in silver. A tunnel to tap the vein at a depth of 125 feet has been started on the west side of the hill.

HOLLAND.—The main shaft, which is intended for a working-shaft, is down 50 feet, at which point a cut is now being run, which shows up some of the finest ore yet found in the district. The width of the ore-body at this point is not yet known, but was 18 feet on the surface.

SAN ANTONIO.—Shaft No. 1 is down 40 feet; shaft No. 2 is down about 20 feet; shaft No. 3 is down 50 feet, on a vein of ore from 3 to 4 feet wide.

OLD HAT DISTRICT.

The main shaft on the American Flag is now down 85 feet, revealing a vein $3\frac{1}{2}$ feet wide. There is about \$15,000 worth of ore at present on the dump, and the four men working are taking out about \$1000 worth of ore each day. Another shaft has been started 300 feet east of the main one. It is down 32 feet, and will, it is expected, strike the ledge at about 40 feet.

The Wedge, adjoining the above mine on the east, has a shaft down 13 feet, which shows a vein $2\frac{1}{2}$ feet wide, assaying \$200 per ton on the average.

ARIVACA NOTES.

At the Liberty mine, there are twelve men at work night and day. The shaft is now down about 100 feet, and hoisting-works are building. The Silver Eagle,

an extension of the McCafferty mine, has been sold for \$25,000, and \$5000 of the money paid in hand.

CALIFORNIA.

THE BODIE DISTRICT.

We condense summary of operations for the week ending April 6th from the *Bodie Free Press* as follows:

BELVIDERE.—The shaft is down 50 feet below the 400 station, still carrying the ledge about 5 feet wide, which is now pitching slightly to the east. On the 400 level, the main west cross-cut is in 126 feet, without important change to note. This cross-cut will be continued to the west boundary line, where the Consolidated Pacific will make connection from its 400 level. On the 350 level, the south drift is in 179 feet. On the 300 level, the north drift is in 64 feet. The south drift on this level is in 15 feet.

BLACK HAWK.—The east drift, on the 700-foot level, is in 44 feet, in good working ground. The west drift just started is in 7 feet. The rock is hard and progress slow.

BODIE BLUFF.—The vein is becoming more compact and continuing the same size. Several samples taken during the week carry free gold and give good assays. Good progress has been made in sinking since last report.

BULWER CONSOLIDATED.—The north drift from the tunnel on the Ralston vein is in 147 feet, showing progress since last report of 12 feet. The ledge is 3 feet wide. The north drift has been extended during the week 10 feet; total distance from tunnel, 141 feet. The ledge in the face of this drift is $2\frac{1}{2}$ feet wide, and looks well. The vein in the Stonewall stopes is $2\frac{1}{2}$ feet wide, of good ore. In the Ralston vein, the ledge is 4 feet wide.

STANDARD CONSOLIDATED.—The east cross-cut from the north drift, 500-foot level, is in 25 feet, showing a progress for the week of 15 feet. The west cross-cut is in 34 feet; progress since last report, 14 feet. The east cross-cut from the south drift, 385-foot level, has connected with the north drift on the West Standard vein. The company will finish putting in track and chutes in a few days. Upraise No. 2 from the south drift is now above the level 119 feet. The ledge is 6 feet wide, and at this point is opening well, showing 6 feet of very rich ore. During the week, timbering the north drift has prevented any work in the upraise from the north drift. The north drift, 300-foot level, incline, has been advanced since last report 10 feet; total distance, 242 feet. The ledge here is three feet wide, of good milling ore. The south drift from the west cross-cut is in 272 feet, making a progress for the week of 12 feet. The ledge in the face of this drift is $4\frac{1}{2}$ feet wide, of good ore. The north drift, 550-foot level, has been extended during the week 10 feet; total distance, 142 feet. The ledge is $3\frac{1}{2}$ feet wide, and looks well. The shaft is making good progress. At present, a tank station is cutting at the 800-foot level. The yield of ore from the different stopes throughout the mine is about the same as usual. In the stopes, north drift, 385-foot level, the ledge is looking well. The West Standard vein is 5 feet wide, of the usual high-grade ore. The Gildea ledge at the point where stoping is now going on is $4\frac{1}{2}$ feet wide, of good milling ore.

FRESNO COUNTY.

The *Fresno Expositor* of March 13th says: "At Fresno Flats, several discoveries have recently been made. Mr. Phelps has sunk a shaft to the depth of 50 feet on his newly-discovered mine. The ledge varies from two to four feet in width, and shows abundance of free gold. Another rich strike has recently been made in the lower level of the Fresno Enterprise. A large body of ore, worth from \$300 to \$400 per ton, was disclosed. Two arrastras are running steadily on the richest ore, that not paying over \$50 or \$80 per ton being thrown in the dump, to be worked in the future. About \$40,000 in bullion was recently shipped from the mine."

HOMER-MILL CREEK DISTRICT.

The tunnel on the lower vein has been advanced nine feet during the week—total length, 200 feet. At this point a turn-table has been put in, and cross-cuts started both east and west. The east cross-cut has been advanced five feet, and projected in this direction to cut the Wasatch vein at a point vertically underneath the rich croppings, and at a depth of 120 feet. The west cross-cut has been advanced four feet, and has not yet passed through the Crevice vein. The bottom of the cross-cut is still in ore-matter. The face of the Crevice vein is four feet in width, of ore that will mill \$40 per ton in gold. All other work in the tunnel has been discontinued, and the force concentrated upon running these two cross-cuts.

TUOLUMNE COUNTY.

BONANZA.—The *Independent* says: "This claim has been worked by different claimants for over twenty-five years, though on a limited scale. About six months ago, the company extracted from a pocket, with a few days' labor, something near \$175,000, and gross yield for that month was over \$300,000. The total yield of the mine since its discovery reaches half a million dollars. This is a pocket vein and in a pocket locality. Work in the mine has been wholly or partly discontinued since the 'big strike.'"

"The Chinamen owning claims among the old boulders, between Columbia, Sonora, and Springfield, are doing extensive work upon claims they have purchased from the original owners, who, having become discouraged at the small amount of gold that their claims yielded, were willing to sell out for a few hundred dollars to any purchaser who would buy their interests. Many Chinamen were shrewd enough to see that, with plenty of water and hard work, there could be more gold taken out of the old claims that were so very rich in early days. Their calculations have proved correct, and to-day, in some of their claims, they are averaging from \$4 to \$6 per man."

MARBLE.

The *Amador Ledger* of April 3d says: "It has long been known that marble of good quality exists in practically unlimited quantities within the limits of Amador County. Over twenty years ago, Henry Wolgemuth, a sculptor, set about the task of developing marble deposits in the vicinity of Volcano. At that date, every thing was subservient to gold; hydraulic mining interfered with the development of the marble interest; besides which, California had hardly reached that stage when a ready and profitable market could be found for the marble, and the attempt at that early day to open up the quarries was abandoned. Not only near Volcano, but in other parts of the county, vast bodies of marble are known to exist. One quarry, between two and three miles from Oleta, has been worked for a number of years. There is nothing to forbid the conclusion that we have in the foot-hills of Amador marble equal in every respect to the finest specimens ever brought from Italy."

COLORADO.

CLEAR CREEK COUNTY.

PRIDE OF THE WEST.—The *Georgetown Miner* says: "This is the name of a new discovery. There is a tunnel run on the vein some 25 feet in length. There are two streaks of ore, one on either wall, the average width being $1\frac{1}{2}$ inches. The first mill-run gave the following returns: First class, 278 ounces per ton; second class, 52 ounces per ton.

"A short time ago, there was a mill-run of 2200 pounds of ore from this place, which gave: First class, 478 ounces per ton; second class, 89 ounces per ton. The work, so far, has been done entirely by two men."

TRIO.—The mill-dirt is yielding $4\frac{1}{2}$ ounces gold per cord, and the smelting ore from \$48 to \$90 per ton."

GILPIN COUNTY.

BOBTAIL.—The *Register-Call* says: "The Consolidated Bobtail Mining Com-

pany has already started up twenty-five of the additional stamps recently put into the company's 75-stamp mill in Black Hawk. The remaining twenty-five stamps will be in motion in a few days. This will afford a capacity of 125 stamps—the largest mill in the State—and will require 125 tons of ore per day to keep them running on mill-dirt. The mine can produce the ore."

NIMROD.—"Until a depth of some 300 feet was attained, the shaft on this vein passed through barren ground. In fact, no pay was obtained until home capital was put in, since which, time the mine has been sunk, and the lower workings are now producing ore that yields an average of 6 ounces gold per cord. The vein produces a fair average of smelting iron."

PYRENEES.—"Present depth of shaft is 350 feet. Connection is making with their lower levels by a winze. The mill ore raised gives an average return of 6 ounces gold per cord."

LAKE COUNTY.

"From all sides," says the *Leadville Democrat* of the 10th instant, "complaint of the horrible condition of the roads is heard. Many of our principal mines have, in consequence of this condition of affairs, been obliged to curtail to some extent their shipment, though their outputs maintain the regular standard. This is the case particularly with mines located any distance from the smelters. The general aspect of mining affairs remains unchanged, and things seem to be running along without interruption in the customary grooves."

CARBONATE.—"The operations in this mine for some months past have resulted in opening to view many and valuable bodies of fine ore. The shipments now amount to about twenty tons daily, divided equally between the first and second-class grades. Besides this, there are about ten tons of ore taken out each day, which, being of a low value, is piled on a dump containing now some 500 tons. Here, to a greater extent than is perhaps the case with any other of our prominent mines, prospecting work is going on. From the south incline, to a distance of 350 or 400 feet, a large amount of this class of labor is laid out. The territory embraced will be thoroughly exploited its full length, and from the east to the west side line of the mine. The ore-dump referred to above possesses, as determined through tests made from many samples, an average net value to the company of about seventeen dollars per ton, or, in round numbers, \$9000 in all. It is the result of several months' accumulation of ore, which, while not sufficiently profitable to ship at the present price of smelting, must of necessity be taken from the mine, in order not to interfere with the progress of planned work. The south incline is being pushed steadily into the hill, the breast now being a distance of 180 feet from the surface; 120 men are employed in and about the mine. A saw-mill is now being added to the outside improvements, which will include slabbing saws, heading and shoulder saws, the latter being so arranged as to make the cut with a slight bevel. This machinery will be ready for operation in about two weeks. A steam pump has also been added, so that, in case of fire, means will be at hand to combat it. In running the seventh level from the main incline, last week, a large body of soft lime was passed through for a distance of fifty feet. This material, which, under ordinary circumstances, is considered valueless, was analyzed by Professor Harker, the superintendent, and found to contain so small a percentage of silica as to render it valuable for fluxing purposes to the smelters. Acting upon this discovery, the lime described has been shipped to Grant's smelter, and the price of five dollars per ton received for it. Its extent is not known beyond where it is exposed in the drift. From ten to fifteen tons daily are shipped."

CATALPA.—"Here, as is the case with all the mines located on the Carbonate contact, the principal operations are carried on at the upper openings. From the shaft, now down 215 feet, several tons of handsome-looking gray carbonates, hard and soft, are raised daily. From the bottom of this shaft a drift is running north now 75 feet in length, following iron mixed with mineral. The object is to cut the present ore-streak at a greater distance, and, if possible, more clearly to define its limits."

EVENING STAR.—"The upper shaft on this mine is now 300 feet deep. From the bottom a drift is being pushed north to connect with the workings, for the purpose of furnishing good air circulation. It is now sixty feet in length and follows along the contact, the floor being on lime. It is four by seven feet in the clear, the roof still below the upper contact rock. Eastwardly from the bottom of this same shaft, a drift now in twenty feet on the dip follows a mineral streak varying from six inches to one foot in width, of a fair grade in silver and heavy in lead. At No. 2 shaft, lower down the hill, the main operations of the mines are carried on. Its total depth is 300 feet, the bottom being in iron through which the management intends sinking until the lime or bed-rock is reached. In the various drifts and levels tributary to this shaft are to be found the great masses of ore which have made the *Evening Star* so noted a property. The main work of opening has been done at a distance of 133 feet from the surface, where radiate in divers directions the passages leading to and through vast bodies of mineral, blocking them out in easily definable shape. In one of the drifts, the roof has been stoped out in mineral fifty feet high, and followed along for 100 feet. No effort is put forth at this mine to take out ore, and about twenty tons daily is the product of advancing drifts and levels, the result of ten men's labor. Lower down the hill, some prospecting work is going on, and a whim is being erected by which to operate one of the shafts there. Some seventy odd men are employed about the mine."

HIBERNIA.—The *Leadville Herald* of April 10th says: "More than a week ago, the finding of ore in the Hibernia, which joins the Robert E. Lee on the south, was mentioned. The mine is now producing ten tons of ore daily, and it is very valuable. Yesterday, twenty-two tons of ore were settled for, that ran 392 ounces of silver to the ton. There is no doubt but the same valuable body of ore has been found in the Hibernia that exists in the Lee, and will make the eastern end of Fryer Hill far more important than the remainder. In the Hibernia consolidation are the Hibernia, Surprise, and May Queen, thus giving a large extent of territory."

LEE.—The *Democrat* of April 10th says: "A new ore-streak, lately encountered in the workings of Robert E. Lee, gives returns by sample assay of 5000 ounces in silver per ton. It is a heavy, rich-looking chloride. Enough development has not been made upon the 'find' to ascertain any thing regarding its extent. The fact that it is from the Lee, however, seems almost enough to warrant expression of the opinion that it will be found in large quantity."

MORNING STAR.—"The output from the mines of this consolidation continues to average 60 tons daily, netting the owners the handsome sum of \$75,000 per month. Of course, about nine tenths of this product is obtained from the Star itself, the smaller properties down the hill adding their quota as far as possible. The Half-Way is taking out six tons daily from a mineral streak varying in width from four to six feet. It nets the owners about \$16 per ton. All hoisting here is done by windlass. Much re-tiling is in progress throughout the Star, and is done in a fine, substantial manner. The existence of a large ore-vein between the old workings down the hill and the upper is known; hence, connecting levels will be run to tap and facilitate its extraction. So much re-tiling is now going on that during April, so far, but a comparatively small amount of ore has been brought to the surface, it being piled in huge masses down in the mine-workings, the time of the engine being engaged largely in lowering new and hoisting old timbers."

SCOOPER.—"Shipments of ore from this property are from 14 to 15 tons daily, and only of the second-grade mineral, the best being left undisturbed in the mine."

SAN JUAN COUNTRY.

ALTA.—The *Silver World* of April 3d says: "This mine, in Upper San Miguel District, Ouray County, at the head of Turkey Creek, has now three main tunnels, with connecting shafts, the drifting and sinking amounting, in the aggregate, to 650 feet; all the tunneling is on the vein. The pay-streak averages 24 inches,

consisting mostly of galena strongly cemented by gray copper. There are now on the dump between 40 and 50 tons, which will run over 300 ounces, and mill-runs made at Sweet's sampling-works at Silverton gave from 265 to 290 ounces."

HUMBOLDT—(MT. SNEFFELS).—The *Mudoon* of April 2d says: "Sixty-five-foot shaft, one drift 35, and one 30 feet; about 20 tons on dump; mill-runs, No. 1, 887 ounces; No. 2, 225 ounces; gouge matter, 97 ounces; average width of pay-streak, 6 inches. Humboldt is the third extension of the Smuggler."

RED CLOUD.—"All workings encounter same character of ore; vein from 3 to 3½ feet wide. Mill-runs, 173 ounces."

ULÉ.—The *Silver World* of March 27th says:

"The body of rich ore struck in the Ulé some time ago holds out and promises to keep the Crooke Works busy treating. There are now 26 men at work on the mine. Most of the rich ore is taken from the drift from shaft No. 2, which is nearly 100 feet in length. The very rich mineral which was lately struck comes from the 4th level, and the pay-streak is about 1½ feet in width, is gray copper and galena, and improving all the way. On shaft No. 2, sinking has been commenced between the 4th and 5th levels, and the vein, which is about 3 feet in width, is looking well, gray copper being scattered through it."

SUMMIT COUNTY.

ROBINSON CONSOLIDATION.—We extract the following from the *Denver Tribune* and the *Leadville Democrat*:

Within the last year, there have been extracted from the Robinson property, Ten-Mile District, about 725 tons of ore. Of this quantity, about one third was first-class and two thirds second-class. The first-class was sold to Leadville smelters at an average assay value of \$205.54. The second-class, of which there were about 480 tons on the dump, gave an average assay value of \$73 per ton. The property has been sufficiently developed to guarantee the payment of dividends from the beginning of active operations, and the management is so confident of the great value of the claims that the first quarterly dividend is announced for the 1st of June, 1880. The lode is well defined, and is a regular contact-vein, and varies from a few feet in thickness to fifteen feet of solid ore. It is exceedingly strong and uncommonly even in richness. The lode outcrops at the mouth of the main incline on the Seventy-eight location. This claim is of great importance on account of having the apex of the vein within its boundaries. The estimated value of the ore exposed is over \$1,500,000. Admitting that only one third of the ore is first-class, the general average so far determined would be \$117.18 as the assay value per ton. The main incline penetrates the ore-body 345 feet. The parallel and cross drifts show the ore-body to be 72 feet in width from top to bottom, with an average thickness of five feet. The total cost of mining, hauling, and smelting is estimated at \$24; but this can be much reduced by greater facilities and the introduction of modern labor-saving appliances and improved machinery. The Smuggler, Checkmate, Rhone, and Ten-Mile are chiefly valuable for their abundant growth of timber."

Another lot of this splendid ore was settled for by the La Plata smelter yesterday. It was two days' shipments, amounting to 50 tons, and gave the splendid average of 262 ounces in silver to the ton and 14 per cent of lead, making a commercial value of \$300 for a ton of ore, or \$15,000 for two days' work."

SHEEP MOUNTAIN TUNNEL.—The *Summit County Times* of April 3d says: "Under the Robinson Consolidated mines is a tunnel 500 feet long, and still growing longer, named the Champion tunnel. This tunnel is intended to cut the entire Robinson group. Three veins of mineral have already been cut, and the tunnel's breast is full of good material."

"Just above Kokomo, is what is known as the Pittston tunnel, a work of considerable magnitude. The men who are interested in this undertaking intend to push the work until a large body of mineral is struck, as they have the necessary capital with which to do it. The tunnel is now three hundred feet long, having cut one vein. The shaft is in porphyry, heavily laden with mineral."

"The reason for running the Chicago tunnel is, that in a shaft a number of feet higher up the mountain was struck a fine body of ore; and in order to more successfully and agreeably work the mineral, it was decided to go down the mountain a distance and run a tunnel to strike the mineral, in this shaft at a greater depth than the bottom of the shaft. This tunnel has now reached a distance of one hundred and eighty-four feet, and is worked with much assiduity."

"Pacific Tunnel has, in the last two weeks, made good headway. It is by all odds the largest aperture of the kind on the mountain, being a trifle over seven feet in diameter either way. The intention for this tunnel is to keep going forward regardless of small veins, except as far as they administer to the working of the tunnel, until it strikes an immense body of ore, which is supposed to be under the whole of Sheep Mountain, or, if necessary, go through the mountain."

"The White Quail group of mines consisting of the Red Top Chief, Iron, and White Quail, are situated in Elk Mountain near its summit. The knowledge of the importance of this group is by no means confined to this district or even to the State, but is national, and there is no reason why it should not be, as it shows one of the finest bodies of ore to be found anywhere. With the noted exception of the Robinson Consolidated mines, it is the best in the district, and if this is so, its place in the foremost rank of mines in the State, is assured. On the dump, we find over one thousand tons of ore of excellent character, and the same amount has been mined and treated, while there are in sight six thousand tons. To accomplish the showing of this amount of ore, only about five hundred feet of shafting, drifts and levels have been made, and the ore only taken out to admit of development in the way of running levels and blocking out ore. There is a force of fourteen men at work, busy making preparations for making enormous shipments when the time for so doing comes. A tunnel three hundred feet in length is just begun to cross-cut the bodies of mineral in all the claims of this group, and facilitate the working of the mines."

GENERAL NOTES.

The Fassett reduction-works, at Cañon City, are temporarily closed, while some repairs are made on the boilers.

A mining stock exchange is about to be started at Leadville. The discovery of a lode carrying platinum is reported at Salina, Boulder County. The Bassick Company proposes the immediate erection of concentration works, and has ordered the necessary machinery. With these works, it is estimated that \$100,000 will be taken monthly from the mine.

The Silver Cliff Mining Company is working 60 stamps, and will add 100 more the coming summer. Its ores can be mined and milled for \$5 per ton.

A large stamp-mill is to be put up at Silver Cliff by a new company, called the Chloride Mining Company.

It is reported that a vein of graphite has been discovered within two miles of Lawson, in Clear Creek County.

Five feet of snow at Ruby Camp, Gunnison County. Prospectors are swarming through the mountains on snow-shoes, periling their lives to locate claims in advance of the rush to come in May and June.

A sale of the Burroughs, California, and Kent County lodes, for \$3,000,000, to California parties, is reported.

Two new railroads are proposed in Colorado. One is from Denver to Boulder direct, distance 25 miles instead of 45 as now. It is backed by Boston capital. The Leadville & Great Eastern is a proposed standard gauge from Pueblo to Leadville.

DAKOTA.

We obtain the following items from the *Black Hills News* of the 4th inst.: It is rumored that the 80-stamp Homestake mill will be leased to the Giant & Old Abe. Several cuts have lately started on the Giant & Old Abe, and this is the first active work noticed for some time. The Homestake has much richer ore on the lower levels, which, if run in the new 120-stamper, would increase the average bullion product more than the 200 now running. Golden Reef, Lead City, is sinking a shaft which is down now 65 feet. It is

going down about a foot every day, and prospects well. The shaft will be sunk to the depth of 150 feet before coming to the cross-cut.

CENTRAL CITY.—Pinney's mill is running on Sir Roderic. The Union mill has just cleaned up on Badger. The Father de Smet is running 80 stamps on ore from the lower workings. The Caledonia mill will start up next week, and the new Highland mill will be ready by the 15th.

The Stand-By (Rochford) machinery is all on the ground, and the mechanics are busy placing it in position.

GEORGIA.

ATLANTA, GA., April 14.—Considerable excitement prevails in White County over the finding of rich pockets of gold in Nacoochee Valley. Over one hundred nuggets were taken out in four days, one of which, shown in Atlanta to-day, weighs over one pound. The yield grows richer as the washing proceeds.

ATLANTA, GA., April 15.—Additional advices from the gold fields in Nacoochee Valley show richer results than before reported. A solid nugget was found on Monday weighing 440 pennyweights, without flaw or gravel. Two hands picked up 900 pennyweights in one day.

IDAHO.

From the *Avalanche* of the 3d inst., we obtain the following :

"The Black Jack and Florida Hill mines are yielding a good supply of ore. Some three hundred tons from the first-named mine have recently been crushed at the Ellmore mill, and the yield is very satisfactory. It will average over \$50 to the ton. A contract has been let for sinking a winze from the 94 to the 100-foot level in the Florida Hill, which is now progressing. Over two hundred tons of rock have recently been shipped from the mine to the mill, and the yield from it promises to be good.

"Drifting north in the Crown Prince, a fine body of ore has been struck, rich in sulphurets. Seven or eight men are working the Webfoot, and about 150 tons of ore have been extracted, and is now hauling to the mill.

"The Tremont Company is working 16 or 17 men and sinking on the Henrietta, and has contracted for a cross-cut to tap the chloride body in the Comstock at the depth of 100 feet."

MONTANA.

We take the following from the *Butte Miner* :
 Gray Rock, west level, from the bottom of the 70-foot shaft has now attained a length of almost 200 feet through a compact body of base-ore in which no walls have yet been struck. The level from the bottom of the 40-foot shaft is being extended both east and west (its total length being about 300 feet) and shows a 4-foot vein of free-milling ore along its entire length.

MAMIE.—The shaft has attained a depth of 42 feet, and shows in the bottom a 3-foot vein of ore carrying from forty to fifty ounces in silver."

BURNETT.—The level running east from the 250-foot tunnel is pushed rapidly ahead, and is in solid ore, of which a nine-foot breast is being extracted. Several cross-cuts have been run on this level, and at no place has the ore-body been found less than eighteen feet wide. The Burnett is now producing about thirty-five tons of ore daily, and is keeping two mills, the Centennial and Dexter, in operation.

The Star West mine has been sold for \$25,000.

Rich mines are reported to have been discovered eight miles north of new Chicago, on the opposite or north side of the Hellgate River.

NEVADA.

COMSTOCK LODGE.

The following summary for the week ending April 7th is condensed from official advices as published in the *Gold Hill Daily News* :

SIERRA NEVADA.—The east cross-cut, 2300 level, 600 feet of the north shaft, and opposite the main shaft, has been discontinued for the present, its face 30 feet east of the main north drift, and in very fine-looking vein-matter. The presence of water in that part of the ledge is feared. The cross-cut west, from which the raise is to be made to the main shaft, has also been discontinued on the same account, and a drill will be sent ahead to guard against water, indications of which have already been encountered. The north drift on this level is, however, being pushed ahead, and is in a very fine quartz formation.

OPHIR.—On the 2300 level, the chamber in the joint Mexican east cross-cut has been completed, and the winze for the 2500 level started. The cross-cut continues in a kindly vein material ; total length, 280 feet.

BELCHER.—On the 3000 level, the south drift is continued, and the face is in a formation of quartz and porphyry. The cross-cut east on this level was pushed 80 feet into a fine vein formation carrying bunches of good quartz, and a diamond drill was then sent in 40 feet and tapped the hot water which flooded the level and stopped work.

CALIFORNIA.—West cross-cut on the 1500 level toward the old stopes continues to penetrate a heavy vein formation which has to be carefully timbered ; total length, 195 feet.

CONSOLIDATED VIRGINIA.—The stopes continue their accustomed yield of 175 tons of ore per day, which comes from the 1550 and 1750 levels. The joint California cross-cut east on the 2200 level continues in a vein formation carrying some water ; total length, 242 feet.

YELLOW JACKET.—The cross-cut west, 2700 level, has been discontinued, its face 273 feet from the south lateral drift. Opposite to this cross-cut, one running east has been started, and is making good progress through vein porphyry.

CHOLLAR.—The drift toward the Potosi line on the 2400 level is making very rapid progress through clay, quartz, and porphyry, an average of 10 or 11 feet per day being made.

SUTRO TUNNEL.—The north header is now 2600 feet from the main tunnel and less than 200 feet from the connection with the drift west from the C. & C. shaft.

BULLION.—Since placing the larger air-pipe in the mine, the ventilation has been greatly improved. The east drift on the 2350 level is in good ledge matter ; total length, 40 feet. The incline winze below this level is also in fine ledge matter ; total depth, 30 feet.

UNION CONSOLIDATED.—The southeast drift, 2400 level, is in vein porphyry which requires careful timbering, and through which good progress is made ; total length from the Union shaft, 445 feet. The stopes continue their usual yield of good ore.

MEXICAN.—The joint Union cross-cut east on the 2300 level will this week reach the point 305 feet from the main lateral drift north, where a chamber is to be made and the winze started for the 2500 level.

PROSPECT MOUNTAIN.

The Eureka *Sentinel* has the following :

"The Prospect Mountain Tunnel passed through a four-foot vein at a depth of 400 feet.

"The Banner has a vertical shaft of 350 feet. A strong, well-defined ledge, carrying ore all the way, has been followed for the entire depth. It is as perfect and as promising at the bottom as on top.

"The Orange yielded largely on the 300-foot level.

"The Fourth of July has been worked to the 500-foot level, showing ore pretty much the entire distance.

"The Hamburg found ore in paying quantities below the six hundred.

"The Eureka Tunnel cut a stringer of carbonate ore at a depth of nearly 600 feet, giving assays as high as \$846 per ton.

"The development on the 500-foot level of the Dunderberg is even more important than was at first supposed. The ledge at this point is proved to have an average width of 14 feet, where it was but 10 feet on the 400-foot level."

The *Gold Hill Daily News* says :

"The sale of the Geddes & Bertrand mine, Eureka, is negotiating] in the East. The price asked is \$500,000."

QUINN MINE.—The shaft of the Quinn mine is now down 125 feet. The 100-foot level has been cleaned out and repaired, and the drift will be pushed on to the hanging-wall.

UTAH.

The following notes are taken from the *Park County Mining Record* of the 3d inst. :

"The shaft of the Fairview mine has attained a depth of 100 feet. At the bottom the vein has been split by the coming-in of a 'horse' of fine hard quartz, one of the veins adhering to the hanging and the other to the foot-wall. It is expected to complete the 200-foot shaft by the 1st of May. The secretary sent 15,000 shares of the stock to New York this week, to be placed on the market at \$1 per share.

"A contract has been let for sinking the remainder of the distance to the 600-foot level in the Parley's Park mine.

"The work of sinking for the 400-foot level in the White Pine is steadily progressing, the shaft being about forty feet below the 300-foot level.

"Work was resumed on a tunnel this week, which is run to tap the vein on the London claim. The tunnel is now nearly 300 feet in length, and will be extended 100 feet farther. This claim is near the Woodside mine in the Uintah District."

The *Record* says : "We notice in the *Tribune* of the 31st ult. a statement to the effect that the Wandering Boy lode, situated about 300 feet north of the McHenry mill, has from four to four and a half feet of ore, assaying from \$45 to \$65 in silver, 30 to 40 per cent lead, and \$15 in gold. All this is news to the people of Park City. Over a month ago, we visited the claim, and had there been any thing of the kind, we certainly should have mentioned it."

MINING LEGISLATION IN CONGRESS.—The House Committee on Mines reported recently a substitute for the mining bill of the Public Lands Commission, which allows locators to hold claims before the discovery of mineral deposits, and gives three years in which to apply for the papers. A person shall not be allowed to take up a claim until he shall have struck mineral in the first shaft. The object of this bill is to prevent a wholesale absorption of mineral lands. It provides that contests as to the priority of locations, etc., shall be settled by the courts, as at present. It fixes the preemption at \$2.50 per acre, instead of \$5, as is now charged. Locations can be made by any one person or association, by making the maximum a square of nine hundred and ninety feet, or its equivalent in any shape, provided neither diminishing line shall exceed three hundred feet. The object in reporting it was to have it printed so that copies may be mailed to all the mining States and territories, and elicit detailed comments and suggestions, and general expressions of opinions from all persons interested. The committee will take no further action with regard to the subject until it shall thus have afforded the Western people an opportunity to examine and discuss the whole measure.

Congress has before it an important bill reported from the House Committee on Mines by Mr. Berry, of California, which provides for a commission of two engineers, who shall "institute such scientific and practical examination into the systems and operation of hydraulic mining in their relations to the navigable waters of California, and the agricultural lands adjacent to the streams receiving the deposits from said mining operations, as may be deemed necessary by said engineers, for the purpose of devising some practical and feasible method for the protection of the navigation of the rivers aforesaid, and the lands thus injuriously affected by the said mining operations." To accomplish this, \$250,000 is asked for.

PROPOSALS.

For the benefit of many of our readers, we compile weekly such proposals and solicitations for contracts, etc., as may be of interest. The table indicates the character of proposals wanted, the full name and address of parties soliciting, and the latest date at which they will be received :

For Laying Croton Water Mains ; Office of the Department of Public Works, New York City.....	April 19, 1880.
For 1355 tons of Straight Iron Pipe and 105 tons of Branches and Special Casings ; Office of the Department of Public Works, New York City.....	" 19, "
For Stop-Cocks, Stop-Check Boxes, Hydrant, and Hydrant Boxes ; Office of the Department of Public Works, New York City.....	" 19, "
For Removal of Wrecks from Delaware Bay and River ; U. S. Engineer's Office, 1619 Chestnut street, Philadelphia, Pa.....	" 20, "
For Military Supplies ; Office of Chief Quartermaster, Fort Omaha, Neb. For Furnishing Materials and Labor for the Completion of the Lanterns and other Metal Work of Light-Houses ; Office of the Light-House Board, Washington, D. C.....	" 20, "
For Cleaning the Streets, etc. etc. ; Office of the Board of Health, S. E. Corner Sixth and Sansom Streets, Philadelphia, Pa.....	" 20, "
For Furnishing Two Steam-Engines ; Fire Department Head-Quarters, 155 and 157 Mercer street, New York City.....	" 21, "
For a Light-House and Keeper's Dwelling (both frame) ; Office of Engineer 4th L. H. District, 532 Walnut street, Philadelphia, Pa.....	" 22, "
For Furnishing the Materials and Labor necessary to Construct a First-Class Light-Ship ; Office of the Light-House Board, Washington, D. C.....	" 22, "
For One Iron Light-House Tower ; Office of Engineer Fourth Light-House District, No. 532 Walnut street, Philadelphia, Pa.....	" 22, "
For Baling Cloth ; Depot Quartermaster's Office, No. 1139 Girard street, Philadelphia Pa.....	" 23, "
For Physicians' Saddle-Bags ; Depot Quartermaster's Office, Houston street, cor. of Greene, New York City.....	" 26, "
For Quartermasters' Stores ; Jeffersonville Depot of the Quartermaster's Department, Jeffersonville, Ind.....	" 28, "
For Running a Cross-Cut Tunnel ; George S. Andrus, Lock Box 511, Ouray, Colo.....	May 1, "
For Seventy-Five Thousand (75,000) Bushels of Charcoal, or any part thereof, per month ; Office of the Eureka Consolidated Mining Company, Eureka, Nev.....	" 1, "
For Dredges, Tugs, and Scows ; U. S. Engineer's Office, No. 26 Washington avenue, Detroit, Mich.....	" 3, "
For Furnishing Materials and Building a Timber Bridge ; Auditor's Office, Rockville, Ind.....	" 4, "
For Building a Court-House ; Parkins & Bruce, Architects, Healy Building, Atlanta, Ga.....	" 4, "
For Work at National Military Cemeteries ; Office of National Military Cemeteries, Washington, D. C.....	" 8, "
For Furnishing Materials, etc., for erecting a Library and Art-Gallery ; Office of the Board of Regents of the University of California, 310 Pine street, San Francisco, Cal.....	" 8, "
For Tanks and Pumping Machinery ; F. Braun, Secretary, Department of Railways and Canals, Ottawa, Canada.....	" 15, "
For a Pumping-Engine ; Office of the Board of Public Works, Milwaukee, Wis.....	" 15, "
For Furnishing and Erecting Iron Superstructures ; F. Braun, Secretary, Department of Railways and Canals, Ottawa, Canada.....	" 15, "
For Lock-Gates for the Lachine Canal ; F. Braun, Secretary, Department of Railways and Canals, Ottawa, Canada.....	June 3, "
For Lock-Gates for the Welland Canal ; F. Braun, Secretary, Department of Railways and Canals, Ottawa, Canada.....	" 3, "
For the Construction of Swing and Stationary Bridges ; F. Braun, Secretary, Department of Railways and Canals, Ottawa, Canada.....	" 15, "
For Steam Communication round the Island of Jamaica ; British Consulate, No. 17 Broadway, New York City.....	" 21 "
For Swing and Stationary Bridges ; F. Braun, Secretary, Department of Railways and Canals, Ottawa, Canada.....	" 31 "
Rolling Stock ; F. Braun, Secretary, Department of Railways and Canals, Ottawa, Canada.....	July 1, "

FINANCIAL.

Gold and Silver Stocks.

NEW YORK, Friday Evening, April 16.

The greatest demoralization has existed in the mining market during the past week. The holders of mining stocks are, in most instances, but very little acquainted with mining, and every effort on the part of some one to sell any quantity of stock always brings out a lot of additional sellers who fear that, because the stock is sold, something is wrong. This feeling has been greatly developed since the break in Little Pittsburg. The public unjustly looks upon all mine management as no better than that of Little Pittsburg, and it is constantly expecting a recurrence of some similar catastrophe.

Owing to operations in the unlisted stocks, there has been quite an active business during the past week, but, with hardly an exception, prices have declined. There is a growing appreciation among many that there are some very cheap stocks upon the mining list, and many shrewd and conservative persons are purchasing these stocks where the management is known to be competent and honest.

The Bodie stocks have been dealt in to a considerable extent, and have been very well maintained in prices. Bodie records sales of 480 shares at \$8@88 $\frac{1}{2}$. Standard has been very active, but a shade weak; the sales amount to 8180 shares at \$31 $\frac{1}{2}$ @\$30, recovering to \$30 $\frac{1}{2}$. Bechtel has been quiet, the sales amounting to but 750 shares at \$1.50@1.65. Bulwer has had a liberal business, but has been weak; the sales amount to 2410 shares at \$7.25@8.50. Consolidated Pacific at one time showed a little strength, which it afterward lost; the sales amount to 510 shares at \$3.25@3. Goodshaw, under a moderate business, has been quite weak, declining from 35c. on Saturday to 21c. to-day, with sales of 2300 shares. South Bodie has been fairly active, the sales amounting to 7700 shares at 24@36c. South Bulwer has been active and advancing; the sales amount to 7900 shares, at 46@67c. Tioga, during the past three days, has had a business of 700 shares, declining from \$2.50@2.20.

The Comstock shares have been an exception to the list, having shown considerable strength, and also a large business. The sales of California amount to 3340 shares at \$2.55@3.40, closing at \$3 to-day. Consolidated Virginia records sales of 7350 shares at \$2.65@4.25, and selling to-day at \$3.40. During yesterday and to-day, there have been sales of 300 shares of Sierra Nevada at \$17@18 $\frac{1}{2}$. Consolidated Imperial has been rather neglected; it sold on Monday at 35c., and on Wednesday at 50c.; since when there have been no transactions, the sales for the week aggregating 2200 shares. Best & Belcher records sales of 350 shares at \$13 $\frac{1}{2}$ @12 $\frac{1}{2}$. The sales of Union Consolidated amount to 175 shares at \$29@27 $\frac{1}{2}$.

The Tuscarora stocks, although quiet, have been, as a rule, well maintained in prices. The sales of Belle Isle amount to 1300 shares at 65@80c. Grand Prize only records 25 shares at 70c. Independence, with a business of 575 shares, advanced from 60c. to 70c. Yesterday, 120 shares of Martin White sold at 70@80c. The sales of Navajo amount to 650 shares at 37@40c. Tuscarora has been quite active, but very weak, declining from 30c. to 21c. with sales of 9000 shares.

There has been but little business done in the miscellaneous San Francisco stocks. The sales of Eureka amount to 175 shares at \$19@18. On Monday, 100 shares of Caledonia (B. H.) sold at \$2.50. On the same day, 25 shares of Tip-Top sold at \$4.50.

The transactions in the "unlisted" stocks and the stocks of the regular list of our exchanges have been as follows: Amie records sales of 1200 shares at \$2.45@2.25; Caribou has been somewhat neglected and weak; the sales amount to 1180 shares at \$3@2 $\frac{1}{2}$. The great feature of the week has been Chrysolite, which sold at \$23 $\frac{1}{2}$ on Saturday and \$15 yesterday, recovering in a very short time to \$22 $\frac{1}{2}$, and selling at \$19.25@20 at the close. That this stock is selling below its actual value, there can be no question. A heavy and, perhaps, needy holder, who was badly stuck on Little Pittsburg, and, perhaps, thoroughly disgusted with the camp of Leadville, threw a block of his stock upon the market, and the bears, seeing this, assisted in forcing a decline. There are, however, a good many orders coming in to the market for this stock, and a few days more will probably increase them. The sales for the week amount to 11,950 shares. Climax has been quite

active, although somewhat irregular; the sales amount to 15,030 shares at \$2.25@2.75. Findley has been both quiet and weak, the sales amounting to 2200 shares at 55@50c. Great Eastern has had a moderate business at well-maintained prices; the sales aggregate 24,900 shares at 45@50c. Green Mountain advanced about 25c., but lost it again later; the sales amount to 6200 shares at \$3.25@3.50. Homestake only records 250 shares at \$6. Horn Silver, which is for the first time reported in the public dealings, shows an advance of 1200 shares at \$17 $\frac{1}{2}$ @17 $\frac{1}{2}$. Hukill has been very active, and although at times showing strength, had, at the close to-day, returned to the lowest figure of the week. The sales aggregate 33,635 shares at \$2.65@2.20. Leadville has been but moderately dealt in, although at quite a decline. The bear element having turned upon this stock, the sales amount to 6900 shares at \$3@2.35. Little Pittsburg made its lowest record this week, under quite an active business; the sales amount to 15,398 shares, selling from 88 $\frac{1}{2}$ on Saturday down to \$5 on Wednesday and up to \$7 $\frac{1}{2}$ to-day. Moose has been quite active, although weak; the sales amount to 11,750 shares at \$1.30@1. This stock is being a little more favorably looked upon. The sales of New York & Colorado amount to 1900 shares at \$1.90@2.10. Calaveras has been quite active, although very weak; the sales amount to 48,100 shares at 88@55c., the latter price having been reached to-day, although followed by some recovery. Central Arizona has been somewhat neglected, the sales amounting to but 1270 shares at \$7@8 $\frac{1}{2}$. [On Monday, 100 shares of King's Mountain sold at 75c. Early in the week, there was a little business in Mariposa Common at \$2.50@3, the sales amounting to 400 shares. In Quicksilver Preferred, the sales have amounted to 2400 shares at \$64@71. Shamrock has had a fair business at weak prices, the sales amounting to 6650 shares at \$1.20@1.10. Silver Cliff has been quiet and very weak, the sales amounting to 2440 shares at \$4.90@4. South Hite records sales of 8300 shares at \$1.40@1.70. Sutro Tunnel has had a fair business, and although at one time very weak, has since recovered; the sales amount to 14,610 shares at \$1 $\frac{1}{2}$ @2 $\frac{1}{2}$. Rappahannock has been very active and gaining strength. The sales aggregate 40,300 shares at 25@33c.

The dealings in the fancies have been as follows: American Flag, 14,600 shares at 60@56c.; Buckeye, 65,500 shares at 55@48c.; Dahlonga, 16,200 at 17@15c.; Gold Placer, 10,800 at \$1@92c.; Granville, 24,300 at 25@21c.; Lacrosse, 18,500 at 47@50c.; Lucerne, 3700 at 19@18c.

On Monday, a meeting of the American Stock Mining Exchange was held at the Boreel Building, and the following officers were elected:

Chairman, Mr. George W. Smiley; Secretary, Mr. E. D. Barnes.

Governing Committee—Messrs. George Chapman, Washington Lee, George D. Roberts, Samuel M. Blatchford, Juan P. Terry, W. C. Squire, Thomas J. Slaughter, L. M. Lawson, David L. St. John, E. R. Grant, W. A. Simmons, Edward P. Schmidt, William S. Warner, Walter S. Richmond, William J. Osborn, A. E. Reynolds, George D. Meeker, Henry M. Leverich, Effingham Lawrence, and C. C. Hastings.

Committee on Stock List—Messrs. Washington Lee, Mark L. McDonald, Luther E. Shan, William F. Moller, R. M. Mitchell, Jr., C. E. Orr, Effingham Lawrence, Henry M. Cowles, D. B. Gilbert, and William E. Gordon.

Committee on Management and Arrangements—Messrs. Franklin Allen, H. L. Underwood, Hiram Pool, William S. Warner, William Belden, R. W. Bogart, C. H. Tompkins, and William E. Gordon.

Committee on Admissions—L. M. Lamson, E. T. Bell, C. C. Brown, Henry M. Cowles, and S. B. Sturges.

A Clearing House is to be established with the Exchange, and the following rules have been adopted:

Every member of the Exchange is known by a number. All are supplied with numerical and alphabetical lists, giving full addresses, and will be promptly advised of any changes. Each member should have by him at the Exchange for immediate use a memorandum book, of a certain pattern, with two slips on a page, perforated in the middle, to record the same transactions in duplicate. The slips to be filled in by the seller; the upper one to be signed by the buyer and retained by the seller; the lower one to be signed by the seller and handed to the buyer. Brokers should send these slips as early as practicable to their offices to be entered in their books, and carefully preserved in perfect order for future reference. At the close of the Exchange, the Clearing-House statements will at once be prepared, and carefully checked with the slips, to prevent any errors. Each error (of commission or omission) imposes a fine to the Clearing-House of \$5, and, if the error occurs in reporting number of shares bought and sold, on which clearing fees are due, the fine will be \$5 for each 100 shares reported short. The statements ought to be finished and sent in to the Clearing House the same afternoon, unless there are "short" sales to be covered by "cash" purchases, or by borrowing stock, the following morning, which matters must be attended to the first thing in the morning, so that the delivery of no statement shall be delayed after 11 o'clock A.M. For each minute's delay after this hour, a fine of \$1 will be imposed. The stock and

money balances due the Clearing-House, as per statements, will likewise be sent in not later than 11 o'clock A.M., and are subject to the same penalty for late deliveries. Stock balances due from Clearing-House will be called for at 12 o'clock noon. Stocks not called for at 12.30 will be sent to their respective destinations at that hour at a cost of \$1 each time. The last settlement in order, namely, the payment of money balances due from the Clearing-House, will be made at 1.30 P.M., and receivers of stock certificates are thus afforded ample time to examine and return them to the Clearing-House, in case they are incorrect in any particular. If the Clearing-House is not notified of objections up to that hour, it will be taken for granted that every thing has been found in order, and the Clearing-House is then relieved of all responsibility in this regard. Any broker, having made no "regular" transactions during the day, will report that fact to the Clearing-House, immediately on the closing of the Exchange, unless he has time contracts maturing the following day; and any broker who intends to be absent from the city for a shorter or longer period, leaving no representative for transacting business in his name, will likewise make an immediate report to that effect, notifying the Clearing-House when he has returned and recommenced business. Failure of compliance with these requirements, incurs a fine of one dollar in each case. Any changes of address must be promptly reported to the Clearing-House.

QUOTATIONS OF UNLISTED MINING STOCKS.

Messrs. Trask & Francis, under date of April 16th, 3 P.M., report the current quotations of unlisted stocks as follows:

	Bid.	Off'd.	Bid.	Off'd.
Amie.....	2 $\frac{1}{4}$	2 $\frac{1}{2}$	Highland Chief.....	21
Bassick.....	4	4 $\frac{1}{2}$	Horn Silver.....	17 $\frac{1}{2}$
Big Pittsburg.....	215	235	Hortense.....	90
Breece.....	215	235	Little Chief.....	99 $\frac{1}{2}$
Bull-Domingo.....	125	130	Native Silver.....	1 $\frac{1}{2}$
Bald Mountain.....	125	130	New Phil'd'lp'a.....	1 $\frac{1}{2}$
Cherokee.....	19 $\frac{1}{2}$	21	O.K.&Winneb'o.....	2
Chrysolite.....	19 $\frac{1}{2}$	21	Penobscot.....	2
Carbonate Hill.....	125	150	Red Elephant.....	190
Colo. Central.....	187	215	Sir Rod'k Dhu.....	175
Dunderberg.....	275	300	Stormont.....	4 $\frac{1}{2}$
Father de Smet.....	5	5 $\frac{1}{4}$	Silver Nugget.....	70
Freeland.....	5	5 $\frac{1}{4}$	Van deWater G.....	85
Harshaw.....	20	22		2 $\frac{1}{4}$

OFFICIAL LETTERS.

The Alta Mine.—A dispatch from the superintendent of this mine, dated April 10th, says: "Nine days, run portion of time with only half charges, produced \$11,700; expenses same time, \$2700; weather is getting warmer, and snow melting fast."

The Amie Mine.—A dispatch from the superintendent of this mine, dated April 9th says: "Second contact improving, 3 feet high-grade ore."

The Bonanza Chief Mine.—A dispatch from the superintendent, dated April 15th, says: "The 20-stamp mill is all but completed, and every thing working well."

The Bull-Domingo.—The superintendent of this mine telegraphs under date of April 10th: "The surface shows a strong vein, being, as it is, the largest 'blow-out' of mineral I have ever seen. The 100-foot level of the old work shows an immense body of ore beneath. The drift from the shaft is giving strong signs of galena, while the face is 30 feet from the main body."

The following telegram was received on the 13th inst. at the Bull-Domingo office:

"DENVER, COLO., April 12.
"Shaeffer's application for injunction, receiver, etc., overruled to-day by Judge Hallet, after full argument."

The Boulder Consolidated.—The main tunnel of this mine is in 475 feet. The sinking of the main shaft, now 75 feet down, to the tunnel level, will be begun as soon as the weather permits.

The Bulwer Consolidated.—The north drift from the tunnel on the Ralston vein of the Bulwer Consolidated was in 147 feet on April 4th, the ledge being 3 feet wide and composed of good ore. The south drift was in 141 feet, the ledge being 2 $\frac{1}{2}$ feet wide. The ledge in the Ralston is 4 feet wide. The total shipments for March were \$27,251.

The Big Pittsburg Mine.—A dispatch from this mine, dated Leadville, April 11th, says: "New seam in Banker, low-grade ore. Lead heavy matrix, twenty inches iron and clay. Below Lent doing well, running northeast."

The Bussick Mine.—This company proposes to commence immediately erecting concentrating works, the necessary machinery for this purpose having been ordered.

The Chrysolite Mine.—The shipments from this mine from the 1st to the 9th inst. amounted to over 838 tons. The shipments will fully average at the present rate 100 tons per day. Mr. Keyes, the superintendent, under date of April 15th, telegraphs to the *Daily Mining News*, as follows: "In answer to your dispatch, asking for a definite and sweeping statement in regard to this mine, I can say that the Chrysolite is all right. The promise of a new level is better than ever before. The mine is always open for inspection. You may state, on my authority, that all the stories set

GENERAL MINING STOCKS.

Dividend Paying Mines.

Table with columns: NAME AND LOCATION OF COMPANY, Feet on Vein, Capital Stock, SHARES (No., Par Val), ASSESSMENTS (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 (Apr. 10, Apr. 12, Apr. 13, Apr. 14, Apr. 15, Apr. 16), SALES.

g. Gold. s. Silver. L. Lead. c. Cop. per. * Total Assessments levied to date 68,442,110. † Total Dividends paid to date 140,299,605. ‡ Ex dividend. Total shares sold during the week, 498,478.

afloat about the mine being exhausted are palpable lies."

The Colorado Prince.—The superintendent of this mine, which is located at Leadville, reports that he has encountered very high-grade ore in the west drift of 155-foot level. The entire drift east and west is also in good pay-ore. He also reports very high-grade ore, carrying visible free gold at bottom of working shaft, a depth of 189 feet; can now profitably employ fifty men in stoping ore from the breasts opened in the 80 and 155-foot levels.

The Crowell Mining Company (N. C.)—A letter from the superintendent of this company, dated April 7th, says: "Am sluicing gravel at a new point, which promises well. Am sinking new shaft west of mill-house, and am in a body of pay-ore running across the entire shaft. The shaft south of the whim continues to improve as we go down. Every thing is looking well."

Climax.—Superintendent, under date of April 14th, telegraphs:

"Climax has ore in five drifts, working ten-foot face in drift toward Amie; output averages over twenty (20) tons daily; thirteen (13) tons yesterday assayed three hundred (300) ounces. Will have sixty thousand dollars (\$60,000) in New York before May 1st."

Caledonia.—The *Pioneer* of the 7th inst. says: "The Caledonia 60-stamp mill starts up this morning in complete working order."

The Consolidated Bobtail Mining Company, of Colorado, is now running 125 stamps, and can mill the same number of tons per diem.

Eureka Consolidated.—A dispatch from Eureka, Nevada, reports that the Eureka Consolidated has purchased the K. K. Consolidated, terminating the lawsuit recently begun between these two companies. The consideration is understood to be \$250,000. The Eureka Consolidated has discharged two thirds of the force. Only dead-work is being done, and the furnaces will close down on the 15th for repairs, probably to be again started on May 10th.

Cashier & Empress.—The superintendent of the Cashier & Empress Mining Company, Central City, Colorado, reports that on April 11th the main shaft of the Cashier was down 399 feet, the vein at that point being thirteen feet in width. The main tunnel was in 300 feet, and was being pushed night and day.

Great Eastern.—The superintendent telegraphs that the company's new purchase, the Flora Belle, shows a ledge 70 feet wide. Every thing looking well. It is also stated that the Great Eastern produces the finest quality of gold now found in the Black Hills, some refining as high as 97½.

Iron Silver.—The superintendent writes, under date of Leadville, Colo., April 8th: "There are no noteworthy changes in any part of the Iron mine. The limestone at the foot of the main incline shows to-day a heavier stain of iron and manganese. The drift on the Stone, in the direction of the Star, shows a larger body of ore. The main tunnel in the Rock also shows an increasing ore-body. I have let the hauling for three months at \$1 and \$1.50 per ton—same rates as at present. Roads very bad. Shipped: Iron, 45 tons; total, April account, 347 tons."

"April 13th.—Track runs satisfactory. Engine works well. Shall recommence work in mine. Stone and Rock both better. Shipped ninety-one tons."

Little Chief.—Telegrams from the superintendent of this mine are appended hereto:

"LEADVILLE, April 11.—Ore in bottom Daly shaft increasing—east connection drift from Roberts shaft, of Chrysolite Company, shows more ore. Little Pittsburg caving, but has not damaged our shaft. No ore hauling to-day, Sunday. Shipped 100 tons yesterday."

"April 13.—Faces north drift soft ore. East connecting drift Roberts shaft of Chrysolite Company much better. Shipped 79 tons to smelters to-day. Mail you \$25,000."

Lowland Chief.—At the date of last advices, Shaft No. 1 on the Lowland Chief Consolidated was down 152 feet in a six-foot vein of eighty-five-ounce ore. It was expected that the main ore-body underlying the Highland Chief would be reached by the 20th. Shaft No. 2 was down 125 feet in lower-grade ore, from which point drifting was to commence toward the Highland Chief. The Lowland Chief Company expect to begin paying dividends by June 1st.

Mohave Mining Company.—Dispatches from the

treasurer of this company, who is now in Mohave, Ariz., continue very favorable, and assays of ore taken from the different workings are very encouraging.

Native Silver.—The superintendent of this mine telegraphed, under date of the 8th inst.: "The drift in the bottom of the mine west is in rich mineral. Struck counter-lode number one with from eight to ten inches mineral. Expect to strike east and west vein in a few days." This counter-lode, struck at a depth of 500 feet, below the surface, adds an important body of mineral to the immediately available reserves of the "Native Silver."

Plumas.—The thirty-stamp mill on this mine is at work. The free-milling ore is treated, and the product pays the expenses of the mine; the sulphurets, after being crushed, are stored, awaiting the erection of new reduction works, in place of those that were burned. There are about 500 tons of this ore crushed, or enough for several dividends. Development work continues in the mine.

Rappahannock Gold Mining Co.—The secretary of this company writes us, under date of April 16th:

"Having returned from a week's visit to the Rappahannock mine, I have to report the following: Our new mill-house (79 x 55) is completed, and the battery, copper-plates, shaking-tables, etc., are all in position. The engine and boiler are in place, and their connections are being made; the former is 50 and the latter 60 horse-power, quite sufficient to drive 15 more stamps when they are required. At the main shaft, our building is 45 x 30 feet. Our reversible steam-boiler and pump work admirably. At the old 'Smith shaft' we have reached a depth of 130 feet, being on the vein the entire distance. At this point, we are driving the second level. Our superintendent reports, in a letter received this morning, his further progress since I left: 'The new level is now in about 18 feet, the vein in the breast is about 2 feet in width, and carries good ore. There are at present two shifts stoping ore from the upper level. This force will be increased at the proper time. The ore is of very good quality. I will send you in a few days some fine specimens of it.' I will say, in conclusion, that we are rapidly approaching the day when our stamps will be crushing ore. We already have some 300 tons on the dump, and by May 15th we shall have 800. At that date we expect to commence crushing ore, and by August 1st, we believe we shall be upon a 'dividend' basis."

Red Elephant.—Dispatches from the superintendent of this mine, as per annexed dates, say:

"April 13.—Shipped 41 tons to-day. Twenty tons assayed 102 ounces, and 21 tons assayed 200 ounces."

"April 15.—Shipped to-day 20 tons. Ten tons assayed 93 ounces, and 10 tons (concentrating ore) assayed 40 ounces."

Note.—The total amount of this shipment would be as follows:

	Ounces.
20 tons, 102 ounces.....	2,040
21 " " 200 ".....	4,200
Total shipments.....	6,240

R. E. Lee.—A recent telegram from this mine states that in the south drift, ninety feet from the working shaft, and at a depth of 160 feet, a vein of hard carbonate, four feet thick, had been reached, which assayed from 1000 to 5000 ounces per ton. In the north workings, about seventy feet from the shaft, after running through low-grade sand carbonates, a body of mineral had been struck assaying \$3600 per ton.

Robinson Consolidated.—Recent letters and dispatches from this mine are as under:

"April 8.—Struck ore in tunnel, six hundred and forty feet from main incline and three hundred and five feet from tunnel mouth. Twelve tons received to-day."

The superintendent, writing under date of April 8th says the tunnel is in 304 feet; struck fine-looking ore in tunnel one foot wide; streak is 645 feet from the main incline, which is now in 333½ feet, with face in fine galena four feet thick. Shipped 54½ tons during the week, 300 tons in the dump, and 85 in roasters. Seventy-three men employed.

The Standard Consolidated.—A telegram from this mine, dated the 12th inst., says: "Struck ledge on 700-foot level, Standard, 360 feet east from shaft; now in it 7 feet; not yet through the ledge. Ledge is much broken, but much improving. Mine look-

better throughout. News from Bodie more encouraging to-day."

On the 4th, the east and west cross-cuts were in 25 and 34 feet, respectively. Track and chutes connecting with the drift to the West Standard vein were to be finished in a few days. Upraise No. 2 from south drift was raised 119 feet, showing a 6-foot ledge of rich ore. The north drift 300-foot level incline was 242 feet, with a 3-foot ledge; the south drift west cross-cut was in 272 feet, with a 4½-foot ledge. On the 700-foot level, a rich ledge has been struck. The yield of ore from the different stopes was about the same as usual. Bars Nos. 195 and 196, valued at \$22,559 and \$21,922, respectively, had been shipped. The total for the fiscal month of March was \$135,289.

The Stormont Mine.—The superintendent telegraphs on the 8th, as follows: "Shipments to-day, \$6541. During the month of March, the bullion product was \$38,000, the bullion being finer than United States coin."

Tombstone.—A recent letter from the superintendent of this company says: "We are taking out of the Goodenough with one shaft 10 tons of \$200 ore per day. Mills are running very fine; yesterday netted four bars valued at \$11,000 from the old mill and two at the Corbin. The people here are very much gratified to see the Corbin mill start on Tough Nut ore, as they know it will run steadily now. The company will soon be on a solid paying basis. New strike better than expected. Mills running first-class. Commence dividends in May."

Sir Roderick Dhu Mine.—A dispatch from this mine reports a new diamond drill at work and now down 100 feet.

The Slide Mine.—This mine, owned by the American Consolidated Mining Company, is said to be improving every day. The east level is now in 119 feet. Double shifts have been put on, and the work is being pushed ahead as rapidly as possible. All the expenses of the mine are paid by the ore taken out in sinking and drifting, and a handsome profit left every month.

DIVIDENDS.

The Homestake Mining Company has declared its monthly dividend of 30 cents per share, payable on the 26th inst.

The *Bulletin* says: "During the month of March, ten mining companies disbursed dividends in San Francisco, aggregating \$284,100. Of these, seven have transfer-offices in New York, and a portion of the money was paid to Eastern stockholders at that point. Two California mines, organized under the laws of New York, paid \$16,250 last month in that city, and two Colorado mines, also incorporated under the laws of New York, paid \$300,000 in dividends last month. Of \$600,350 paid out in dividends by eleven mining companies last month, at least \$316,280 was disbursed at New York, and probably \$100,000 more from the companies incorporated in California, with transfer agencies at New York."

The Green Mountain Gold Mining Company has declared its regular monthly dividend of 5 cents per share, payable on the 26th inst.

The Idaho Mine.—Owing to the increased product of this mine for the month of March, which amounted to \$30,000, it is anticipated that the next dividend will be \$2 per share, an increase of \$1 over that declared for some months past.

The Little Chief mine, of Fryer Hill, Leadville, pays its regular dividend of \$100,000 per month out of the net earnings of the mine. This is the third dividend of like amount earned and paid since the company took possession of its property in January, besides paying for the dead-work, re-timbering, and other extraordinary expenses incident to commencing the scientific development of a mine. It is officially stated by the officers of the company that, for every dollar of ore taken out of the mine, there has been placed in sight over three dollars in reserves, and that upon this principle both the Little Chief and the Chrysolite are worked.

The Father de Smet Mining Company has declared its fifth dividend of 30 cents per share, payable on the 24th inst.

The Bank of California has declared its quarterly dividend of 2½ per cent, payable to Eastern stockholders at the office of Laidlaw & Sons.

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 five days ending the 15th inst.:

Table with columns: Stocks, Opening, High, Low, Final, Sales Shares. Lists various mining stocks like Argenta, Buckeye, Bodie, etc.

Total sales.....136,294

SAN FRANCISCO MINING STOCK QUOTATIONS. Daily Range of Prices for the Week.

Table with columns: NAME OF COMPANY, CLOSING QUOTATIONS (April 9-15), Open April 16. Lists companies like Alpha, Alta, Argenta, etc.

REVIEW OF THE SAN FRANCISCO MARKET.

The Comstocks, at one period during the week, evinced some signs of recovery from the long period of depression hanging over them.

"strike," but has since materially declined upon contradiction of the same. The Alta views the change now going forward in the transfer of the mining interests from San Francisco to the East as follows:

"When the establishment of a new Mining Stock Board in New York City was proposed, the Alta was the only paper which took a serious view of the matter.

"SAN FRANCISCO, April 14.—In the Senate to-day, Mr. Braunhart's bill for the suppression of stock gambling failed to receive a constitutional majority, the vote being—yeas 18, nays 16.

Assessments, with Dates when Delinquent.—Raymond & Ely, 25 cents, May 16th; Overman, 50 cents, May 10th; Jupiter, 40 cents, May 4th; Argonaut (El Dorado County), \$1, May 1st; Oakland Gold (Grass Valley), 30 cents, May 10th; Savage, \$1, May 6th; Alta, 50 cents, May 10th; Happy Valley, Blue Gravel (Calaveras County), 7 cents, May 7th; Leopard, 10 cents, May 7th; Becher, 75 cents, May 6th; Benton Consolidated, 50 cents, May 7th; Goodshaw, 25 cents, May 8th; South Bulwer, 50 cents, May 5th; Relief, 10 cents, May 7th; Republic, 10 cents, May 7th. Ophir Mining Company has levied an assessment of \$1.50 per share, and Hillside 30 cents per share.

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in at New York, Philadelphia, and Baltimore, for the week ending the 15th inst., are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus t.

Table with columns: STOCKS, Par Value, High'st, Lowest, Closing, Sales: Shares. Lists stocks like St. L. & M. & S. R. Co., Cambria Iron Co., etc.

Table with columns: BONDS, Princ'l. When Due, Int. When Due, High'st, Lowest, Amount. Lists bonds like D. L. & W., 7s conv, M. & E., 1st con, 7s, etc.

* Assented.

Gas Stocks.

NEW YORK, Friday Evening, April 16.

Another general advance in the price of gas stocks is recorded, and the market closes strong and advancing.

The gas companies offer to light the streets in their several districts for prices as follows:

Table with columns: Name, Price. Lists gas companies like N. Y. Mutual, New York, Manhattan, etc.

The reduction in these bids as compared with the previous proposals is about \$22,000.

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. Quotations are based on the equivalent of \$100.

Table with columns: COMPANIES IN NEW YORK AND VICINITY, Capital Stock, Par, Rate per ann., Dividends, Date of last, Quotations Bid, As'd. Lists companies like Mutual N. Y., Bonds, N. York, etc.

Copper and Silver Stocks.

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

Boston, April 15. The feature of the market for copper stocks this week is the rise in Calumet & Hecla, which, on the announcement of an extra dividend of \$5 per share in addition to the regular quarterly dividend of \$3, advanced from \$240 to \$250 per share.

Central is quiet at 40, and Copper Falls steady at about 12 1/2, with but little doing in either of these stocks.

Franklin early in the week was quite firm at 19@19 1/2. On Tuesday, considerable stock was pressed for sale, resulting in a decline to 18 1/2, from which it quickly rallied to 19@19 1/2.

Quincy has been very steady at 31@31 1/2, all the stock offered at about these prices being taken by purchasers for investment.

The Northwestern Mining Journal, of Hancock, Mich., says: "Preparations are under way for the erection of an addition to the north end of the Quincy mill of dimensions sufficient to house two more batteries of stamps, together with the washing machinery necessary to treat the extra rock stamped. The product of the mine for March, in view of the short run, was very satisfactory, and indicates that the openings are in bonanza once more, instead of being, as most of the time during the past two years, in the most discouraging kind of bonanza. For the eight years previous to 1878, the product of mineral per ton of rock stamped never fell below two per cent, and the average was 2.43 per cent. There is every reason to believe that the bonanza period of 1878 and 1879, which reduced the average of the last decade to 2.30 per cent mineral per ton of rock stamped, is passed, and so encouraging is the outlook at almost all points in the mine, that it will not be a matter of surprise should the Quincy, in 1880, show a higher percentage of mineral per ton of rock mined—and per ton stamped—than ever before in her history."

Oscoda sold at 40. The company has declared a dividend of \$1.50 per share from the earnings of the mine for the first three months of the year, payable May 15th. The stock was in request to-day, and 4 1/2% was bid for it without bringing out any sellers.

Pewabic has been quite firm at 24@25, with small sales, and closes at the highest price for the week.

Atlantic weak, and declined from 21 to 20 1/2, closing at 20 1/2.

Allouez, on small sales, advanced from 15 to 21, but declined to 18, closing offered at that.

Huron sold at 7 1/2@8 1/2, closing at 7 1/2@8 1/2.

Ridge—Not much doing in this stock; price steady at 6 1/2@6 3/4.

National sold at 3.

Blue Hill opened at 9. On reports of a change in the superintendent of the mine and its good outlook, it advanced to 10, closing at 9 1/2@9 3/4.

The non-producing mines are without activity, and prices are nominal. We note small sales of Aztec at 1 1/2, Pontiac, at 1, Superior, at 50c, Messard, at 2 1/4, Humboldt, at 1, West Minnesota, at 37 1/2c.

Brunswick Antimony shows a persistent advance, in spite of the efforts on the part of the non-believers in the stock to put it down, and reached the highest price this afternoon. Sales on the 9th at 24; to-day at 23 1/2, and this afternoon it advanced to 31 bid, and but little stock to be had at these prices.

SILVER STOCKS.

Catalpa has been very active the past few days; a large block of stock was put on the market on the 12th, which sold at 1 1/2@1 3/4, after which it advanced to 2 1/2, but closes lower at 2@2 1-16.

South Hill sold at 1 1/4@1 3/4.

Sullivan declined from 1 1/2 to 1 1/4.

Harshaw sold at 22.

Waukeag sold at 7, and this afternoon it was offered at 6 1/2.

Silver Islet advanced to 22, but declined to 16 1/4, closing weak.

Duncan sold at \$3, and International Silver at 50c.

The following are the products of the reporting Lake Su

COAL STOCKS.

Table of Coal Stocks with columns for Name of Company, Capital Stock, Shares, Last Dividend, and Quotations for various dates from April 10 to April 16. Includes sub-sections for 'SALES' and 'BULLION SHIPMENTS'.

BOSTON MINING STOCKS.

Table of Boston Mining Stocks with columns for Name of Company, Shares, Par, and Quotations for various dates from April 9 to April 15. Includes sub-sections for 'SALES' and 'BULLION SHIPMENTS'.

perior mines for March: Calumet & Hecla, 1651 tons 720 lbs.; Oseola, 166 tons 1000 lbs.; Quincy, 124 tons 1950 lbs.; Atlantic, 139 tons 735 lbs.; Allouez, 90 tons 480 lbs.

Table listing production of copper in the Lake Superior region for 1879, showing company names and tons produced.

At a meeting of the Allouez Company to-day it was resolved to increase the capital to \$2,000,000, divided into 80,000 shares of the par value of \$25.

Coal Stocks. NEW YORK, Friday Evening, April 16. The week opened with a fair degree of activity in coal stocks, and with prices weak and declining.

day at 87 1/2, the lowest price of the week; the sales amount to 144,020 shares.

New Jersey Central has been very active, the sales amounting to 130,363 shares, selling on Wednesday at 81, and to-day at 76 1/2, these being the extreme prices.

The Philadelphia market has been irregular and very active, in sympathy with New York. The principal transactions have been in Pennsylvania RR., 63,719 shares selling at 53@54, and in Reading, the latter stock selling to the extent of 44,761 shares.

THE BULLION MARKET.

NEW YORK, Friday Evening, April 16. The London market was broken by Wednesday's sale of India Council bills at a material decline as compared with the sales of the week before, but has since recovered a part of the fall, and is steady at the rate given.

DAILY RANGE OF SILVER IN LONDON AND NEW YORK, PER OZ. Table with columns for Date, London (Pence, Cents), and New York (Pence, Cents).

* Nominal.

BULLION SHIPMENTS.

We give below a statement showing the latest published bullion shipments, in addition to those announced in our issue of April 10th:

Table of Bullion Shipments with columns for Date, Location, Quantity, and Value. Lists shipments from various locations including Northern Belle, Barbee & Walker, and others.

The amount of bullion received for the week ending April 3d from Tombstone, per H. C. Walker & Co.'s line, was as follows: From the Contention mill, 16 bars, valued at \$30,800.60; from the Corbin mill, 2 bars, valued at \$4912.57; from the T. M. & M. Co., 6 bars, valued at \$16,716.76.

A private letter from the Tombstone Mining District, of Arizona, says that the yield of the Contention 20-stamp mill for March was about \$75,000. The mill did not commence to run regularly until the 16th of March, and the yield for April, it is thought, will amount to \$150,000.

CALIFORNIA.

During the month of March, four Bodie mining companies shipped \$266,053.08 in bullion through Wells, Fargo & Co.'s office. During the same period, the Mono County Bank shipped \$11,281.06, making a total of \$277,334.14.

The Bald Mountain gravel mine is reported a bonanza. Gravel worth \$7.50 per yard is being extracted. The main tunnel is one mile in. The gangue breasts show coarse gold. Dividends to the amount of \$800,000 have already been realized.

The Hetherington & Hartung Gravel claim, at Scott's Flat, Nevada County, recently cleaned up \$2400 for a twenty days' run.

The bullion yield for the Idaho mine for March was \$30,000, the best output in a number of months. The mine has shown decided improvement of late on the tenth level.

COLORADO.

The Colorado smelters and metallurgists are earnestly considering the question whether the saving of the lead in their bullion in the shape of litharge, could not be of a great benefit, and perhaps prove the only cheap process by which ores poor in lead could be properly treated.

The iron-silver mines report as follows for March: Shipped, 1346740 tons; ore paid for March, 731725 tons; unpaid, 615 tons; annual received this week, \$33,588.49. Up to April 8th: Ore shipped, 5471618 tons; ore paid for this week, 664200 tons; delivered, not paid for, 4081430 tons; amount received this week, \$19,901.

The Chrysolite weekly return of ore-production, under date of April 8th, is as follows:

	Tons.	Pounds.
Ore delivered, but not paid for, as per last statement.....	953	36
Delivered current week.....	737	1,290
Total ore paid for.....	568	1,680
Balance unpaid for.....	1,121	1,646
Cash received from sales, April 1st to 8th.....	\$29,433.92	

The shipments of ore from the Morning Star consolidation for the month of March amounted to 1782 tons, the average price received for which, net above smelting, was about \$53 per ton, or a total of about \$94,000.

The Little Prince is taking out about two tons of ore daily, and making shipments twice a week. The latest mill return, according to a statement of one of the owners, was 250 ounces of silver per ton, the lead per cent being very small.

The Leadville Mining Company is now shipping twenty tons per day to the smelters. About ten tons daily of low-grade ores are being piled up. The dump contains about five hundred tons. It is estimated its average value is \$17 per ton, or \$9000 in all. The company is now employing 120 men.

The Evening Star is producing about 20 tons daily, which is the result of but ten men's labor.

The Breese Iron Mining Company is shipping from 60 to 80 tons of ore per day. The demand has recently become what increased. An almost unlimited amount can be taken out. Among the recent improvements, in addition to the fine buildings, engine, and machinery, steam drills have been in operation, and are found to work to advantage.

It is said that the Hibernia (Leadville) is now "taking out ten tons of ore per day" which "runs 400 ounces" of silver per ton.

The Buena Vista Times says: "Since the 9th day of March and up to the 31st, over 240 cars of bullion and ore, averaging 10 tons to the car, a total value of over \$1,000,000, have been shipped East from this point. About one third of this amount was ore intended for treatment East, the remainder base bullion from the Leadville smelters."

The Silver Cliff Mining and Milling Company is said to be shipping from ten to twelve hundred-pound silver bricks to New York every week.

The Register-Call says: "A gold retort, from the Burroughs lode, weighing some 109 ounces, the result of a clean-up from the Nevada stamp-mills, was brought in on the 5th inst., also that the Kimber and Empire Mills, in Black Hawk, cleaned up 59 ounces of gold from mill-dirt, treated from the Trio mine, in Virginia Cañon, Idaho Mining District. This mine is becoming self-sustaining; that is to say, while development progresses, enough ore is produced to pay all current expenses."

Denver Tribune, April 8th: "There was brought in on the 6th inst. a retort from the Gunnell mine, from stamp-mill ore crushed during March, which weighed 502 ounces and 4 pennyweights, worth about \$8200."

"On the 7th inst., 162 ounces of California gold retort, the product of 45 stamps employed on ore from the California mine, was brought in."

"The Caribou shipped on April 10th last, something over 6000 ounces of bullion to the New York office."

DAKOTA.

Gold bullion to the amount of \$116,100 and silver bullion to the amount of \$22,224 was received in this city to-day by express from the mines. Of the gold bullion \$100,000 came from mines in the Black Hills—the Homestake, Deadwood, Golden Terra, and Highland.

The Sir Roderick Dhu office on the 13th inst. received from the mine a gold bar weighing 477 ounces.

At Central City, there were mills running April 3d, as follows: Casey's, Castle & McLaughlin, Caledonia, Foote & Co., 20 stamps each. Pierson's mill is running on Flora Belle ore belonging to the Great Eastern. Three mills are running on ore from Sir Roderick Dhu. The Father de Smet is running 80 stamps on ore from the lower workings. The Caledonia mill will start all stamps in a week, and the new Highland mill will be ready by the 15th inst.

The Great Eastern mine is now running 30 stamps. The returns for March were over \$10,000, and will probably reach \$14,000 this month.

MICHIGAN.

The Portage Lake Mining Gazette gives the March product of the Lake Superior copper mines as follows: Calumet & Hecla, 1651 tons; Osceola, 166 tons; Franklin, 140 tons; Atlantic, 139 tons; Quincy, 125 tons; Pewabic, 30 tons.

MONTANA.

A telegram to the Alta-Montana Company reads as follows: "Nine days' run, part of the time with only half charges, produced \$11,700. Expenses, same time, \$2700."

A dispatch from the Alta Montana mine, of April 8th says: "This furnace is averaging \$1500 per day. Smelter No. 1 will be put in operation in a few days."

NEVADA.

The Alexander mine, of Grantville, Nye County, shipped \$14,875 bullion from March 15th to March 26th.

The Eureka Con. Company shipped during the month of March, 836,565 pounds of base bullion, or an average of 26,986 pounds per day.

Bay State.—The mine is steadily yielding, and the most of the rock taken out is very rich. Eighty tons of ore shipped from the Bay State mine within the past four months yielded a net return of almost \$14,000.

Consolidated Bullion for March.—Following is the bullion yield of the north-end mines for March, and the proportions of gold and silver of each, respectively:

Mine.	Gold.	Silver.	Total.
Con. Virginia.....	\$87,956.21	\$63,429.80	\$151,386.01
California.....	16,535.87	11,875.93	28,411.80
Ophir.....	7,929.29	10,683.11	18,612.40
Union Con.....	169,219.89	191,586.91	360,806.80
Grand total.....	\$281,641.26	\$277,575.75	\$559,217.01

The excess of gold over silver in the yield of the bonanza mines is worthy of notice.

Barbee.—The Miner of March 27th says:

"After a run of 29 days, the Barbee mill was closed down in the middle of the week and a clean-up made. The result of this first run of the new mill was \$24,000 in bullion of a fineness almost approaching pure silver. As the rock producing this bullion was taken out of the mine just as the miner dug it out of the vein, and no sorted high-grade ore introduced to swell the product, the above figures must be a base of contemplation gratifying in the extreme to the fortunate owners of the property."

There were shipped from Salt Lake City in the month of March, 296,065 pounds of Horn-Silver bullion, and received 300,062 pounds. There is on hand, to ship, 450,000 pounds.

On April 7th, 27,964 pounds of base bullion, and on April 8th, 31,728 pounds from the Horn-Silver mine, were received at the terminus of the Utah Southern Extension Railroad. The estimated value of the two shipments is \$7465.

Silver Reef has turned out \$3,000,000 since its discovery. Pretty fair for a sandstone section.

About two hundred tons of ore per diem will be the current weekly yield of the Silver Reef mines.

The shipments of bullion from Silver Reef, Utah, through Wells, Fargo & Co.'s express, for the week ending March 29th, aggregated \$20,767.70.

Silver Reef, Utah, boasts a number of houses built of rock carrying from \$10 to \$12 a ton in silver.

The Stormont Company received over \$38,000 in bullion last month, the product of ten stamps, for twenty-nine days. The superintendent telegraphed, April 12th: "Shipped \$6587; stopped one day to put in self-feeder; all well."

METALS.

NEW YORK, Friday Evening, April 16.

The metal market continues to be very quiet and considerably demoralized. Those who are in a position to hold on do not feel discouraged, as it is the general opinion that there will be a very active market a little later on, and that prices will appreciate to a considerable extent.

Copper.—The sales have been about 100,000 pounds at 21½c., in lots, and 200,000 pounds from second hands on private terms.

STATISTICS OF COPPER—LONDON, LIVERPOOL, SWANSEA, AND FRANCE.

	—March 1 to 31.—		
	Imports.	Deliveries.	
	Tons.	Tons.	
Fine foreign, chiefly Australian.....	643	591	London.
Chili (Bars and Ingots.....)	4,877	2,025	Liverpool
(In Ores and Regulus.....)	575	380	& Swansea.
Totals, England.....	6,095	2,996	
Fine foreign, chiefly American.....	50	105	France.*
Chili Bars, Ingots, and Barilla.....	192	243	
Total.....	6,337	3,344	

Stocks.

	—Mar. 31.		
	Feb. 28.	Tons.	
Fine foreign, chiefly Australian.....	4,831	4,779	London.
Chili (Bars and Ingots.....)	32,535	29,683	Liverpool
(In Ores and Regulus.....)	465	270	& Swansea.
Totals, England.....	37,831	34,732	
Fine foreign, chiefly American.....	633	140	France.*
Chili Bars, Ingots, and Barilla.....	3,554	3,024	
Total.....	42,018	37,896	
Chili, chartered (Mail.....)	12,879	12,266	
and afloat.... (Telegram.....)	3,600	7,400	
Total.....	58,497	57,562	
Chili G. O. Bs.....	£66	£71	
Wallaroo Cake.....	79	82	

	—Jan. 1 to Mar. 31.—		
	1880.	1879.	1878.
	Tons.	Tons.	Tons.
Imports.....	11,823	12,016	12,769
{Chili.....	1,985	3,940	3,224
{Other foreign.....	9,838	8,076	9,545
Total.....	13,808	15,956	15,993
Deliveries.....	12,077	10,664	10,928
{Chili.....	1,968	3,494	2,687
{Other foreign.....	10,109	7,170	8,241
Total.....	14,045	14,158	13,615

*The Havre stocks have been carefully revised this month, and a long accumulating error of about 1200 tons discovered. This has caused an apparent increase in the French stocks since 28th ult.; and to make Deliveries for the year agree with present figures, a corresponding reduction has been made.

Tin.—Straits in London declined to £79 10s. yesterday, and recovered again to £81 under a large business. We have no quotation to-day. Penang quotes at \$25.80. The shipments for the first half of April from the Straits were 350 tons to America and nothing to Great Britain. We quote Straits and L. & F. at 20¼@20½c. There has been no business worthy of note.

Messrs. Vivian, Younger & Bond, of London, under date of April 2d, say of tin:

"The Dutch Trading Company's second sale for the current year took place on the 31st ult., when 14,988 slabs Banca realized 51 to 51.75 fls., average 51.25 fls., equal to about £87 10s. laid down here; 5311 slabs Billiton realized 150 25c. to 150 50c. On Monday, the 12th inst., 13,000 piculs Billiton will be sold as usual in Batavia. The March shipments from Australia are estimated at 450 tons, while from the Straits through was shipped to England, America having, as in the two preceding months,

purchased all the available supplies. The March deliveries from London warehouses were 980 tons, and from Holland 460 tons. Having regard to the general position, it is difficult to understand the continued fall in the value of this metal. In proportion to its importance, the figures have benefited more, directly and indirectly, than any other in the general spurt which America has given to the metal trade. Doubtless two reports have seriously contributed to the scare which holders have been suffering from—one, the prospect of shipments to this side from America; and the other, the fear that the 'operation of the rise' which induced those interested last year to ship to Holland the 900 tons of tin which have since been returned to our stock posse s the means to send us a further quantity. As to the former statement, a leading American house writes as follows, under date of March 19th, 1880: 'The impression in Europe seems to prevail that of late most of our purchases abroad have been made on speculative account. They appear to forget, or to ignore, that with our largely increased consumption, which is more than double that of the average during the late depressed times, it becomes a necessity not only to provide increased stocks on the spot, but also to keep up a reserve afloat to supply the daily increasing wants of consumers. We estimate the consumption during January and February to have been 2500 tons of tin of all sorts, against 2700 tons arrived in America during the same period from all sources, thus increasing our available stocks by only about 200 tons during the first two months.' As to the latter, looking at the actual deliveries from London stocks, it is not probable the trade did not take last year the tin outside the 900 tons referred to. It therefore appears more than probable that the available supplies, as the year goes on, will be largely broken into, and nothing whatever has occurred as yet to prevent the high price later on, which many thought imminent a couple of months ago.

"The stock of foreign tin in London and Holland is thus estimated:

	—1880.—		—1879.—		—1878.—	
	March 1.	April 1.	April 1.	April 1.	Tons.	Tons.
Foreign tin in London.....	8,284	8,251	10,019	8,848		
Banca tin in Holland.....	1,384	1,564	2,051	1,571		
" (in company's hands).....	1,210	888	432	204		
Billiton tin in Holland.....	1,696	1,692	2,048	1,647		
Total.....	12,574	12,395	14,530	12,270		
Quantity of tin afloat.....	2,700	2,400	4,500	4,000		
Quotations on the same dates, being for Straits, per ton....	£93	£86	£68	£63 10s.		

Tin Plates.—There is but very little doing in these. We quote per box as follows: Charcoal tins, third cross, Melyn Grade, at \$8.75@8.87½, and Allaway, \$8.50@8.62½; charcoal terms, Allaway grade, \$7.12½@7.25; coke tins, B. V. grade, \$6.25@6.50; and terner, \$6.63½@6.75.

Messrs. Robert Crooks & Co., of Liverpool, under date of April 1st, say:

"Tin and terne plates, during the past month, have run down in value unexpectedly fast, and with scarcely a single, even temporary firmness. The feeling generally is, that buying for the past two months has been on so exceptionally small a scale that a good deal must be put through when it re-starts. Meantime, for all descriptions, prices weaken daily."

Lead.—There has been a business of about 100 tons of common at 5¼c. Corroding is held at 5½@6c., according to brand; although the market has been quiet, it is firmer. The receipts of lead at St. Louis, by the St. Louis & San Francisco Railroad for the week ending April 7th amounted to 225 tons.

The shipments of lead from London and Liverpool to the East, for the first three months of this year, were as follows, as compared with the same periods of the two previous years:

	3 mos.		
	1878.	1879.	1880.
	Tons.	Tons.	Tons.
To Madras.....	54	8	26
" Calcutta.....	344	117	97
" Bombay.....	135	102	50
" China.....	3,634	2,780	1,893
" Japan.....	574	79
" Singapore and Penang.....	45	75
Total.....	4,784	3,086	2,141

Messrs. French & Smith, of London, under date of April 1st, say of lead:

"The price fell considerably during March; Spanish Soft, which stood at about £18 5s. on the 1st, was sold as low as £15 10s. The absence of demand for home purposes is the principal cause of the fall, but another is the pressure to realize by speculators, who buy with no intention of taking the lead on arrival. There is a rather better tone, quotations being: English, £17; Spanish Soft, £16 10s. to £16 15s.; Silver Lead, £16. We estimate the arrivals in March about 6800 tons."

Spelter and Zinc.—Both are quiet; the former is quoted at 6@6½c., and the latter at 8c.

Antimony.—This is quiet. There is no Cookson's in the market. The quotation is nominally 24c. Hallett's is quoted at 19½c., and Johnson's at 19c.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, April 16.

American Pig.—A sale of No. 1 Oxford iron is reported at \$33; a sale of 10,000 tons of Forge on private terms; about 20,000 tons of English Bessemer iron, and other large transactions, are said to have taken place. There is a great deal more looking about than there was, and shrewd buyers are not looking formuch, if any, further decline. There is a

very large consumption of iron going on, and it is only a matter of a short time until as much activity will be observed as we have yet seen. Although there has been a large and rapid decline in prices, the outlook, we think, is very encouraging for a good business, at highly remunerative prices. Five hundred tons of No. 1 Thomas iron (an outside lot) were offered to-day at \$31.50 per ton. The Thomas Company has none for sale; it offers, however, No. 2 Foundry at \$28@29, and Forge at \$26@28. The general run of quotations furnished us have been at \$33@35 for No. 1 Foundry.

Scotch Pig.—We note a sale of 300 tons of Gartsherrie on private terms. There has been a fair business in a small way in addition to this. We quote Eglinton at \$26.50@27; Coltness at \$29@30; Glangarnock, \$27; and Gartsherrie, \$27@28.

Messrs. John E. Swan & Co., of Glasgow, under date of April 2d, reports 114 furnaces, against 90 at the same time last year. The quantity of iron in Connal & Co.'s stores was 438,929 tons, a decrease of 846 tons for the week. The shipments show an increase of 80,286 tons since Christmas, as compared with the shipments to the same date last year. The imports of Middlesbrough pig-iron for the same period show an increase of 247 tons. The following are the quotations of the leading brands of No. 1 pig-iron: Gartsherrie, 63s.; Coltness, 64s.; Langloan, 64s.; Summerlee, 65s.; Carnbroe, 64s.; Glangarnock, 64s.; Eglinton, 58s. Middlesbrough pig-iron was quoted as follows, f. o. b., Tees; No. 1 Foundry, 60s.; No. 2, —; No. 3, 52s. 6d.; No. 4, 52s. 6d.; No. 4 Forge, 52s. 6d.

LONDON, April 16.—The Daily News in its financial article this morning says: "There are reports of an impending strike in the coal and iron districts of Lanarkshire, Scotland. Coming when the iron trade is wavering and tending to relapse into dullness for a time, after the recent activity, a demand for increased wages is expected to result in an organized closing of the iron furnaces and coal-pits."

Rails.—We learn of no business in steel rails, which can be bought at about \$75. There have been several small lots of iron rails sold on private terms. We quote English at \$57@58 here, and American at about \$60 at works. There is quite a large inquiry, but buyers and sellers do not seem to come together. It is rumored that the rails purchased by Mr. Vanderbilt at low figures last year will not be delivered, and that he will have to make new purchases.

Old Rails.—Sales of about 4500 tons at \$34 are reported. There are considerable inquiries, and not much offering at this price.

Wrought Scrap.—This is quiet and quoted at \$35 from dock.

We publish the following letters from our regular correspondents:

"BALTIMORE, April 12. "The iron market for the past week has been quiet, anthracite iron being decidedly lower in price."

"R. C. HOFFMAN & Co."

"COLUMBUS, O., April 14. "The demand for pig-iron during the past week has been light. Sales made are mostly in small lots to supply immediate wants. Stocks in consumers' hands are getting low, and we therefore look for a good demand within a short time."

"KING, GILBERT & WARNER."

"LOUISVILLE, April 13. "There is considerable inquiry among consumers for iron, mostly in small lots for immediate use. The week shows a decline of about \$2 per ton on hot-blast iron."

"GEORGE H. HULL & Co."

"PHILADELPHIA, April 15.

"PIG-IRON.—The meeting of the Eastern Iron Association in this city yesterday, brought together a very large attendance. The expression of all seemed to be that prices of labor should be reduced, and that our American irons must be lowered to meet foreign competition. All reported, there is literally nothing doing in new orders, and quotations are almost impossible to make. We quote: No. 1, \$31@33; No. 2, \$30@31; Gray Forge, \$28@30; all at furnace."

"MANUFACTURED IRON.—As to bars, the stores are quoting 34c., but cutting under for large orders. Mill mostly held at 32-10, and yet few orders. There is quite a lively inquiry for bars, plates, and tank, but few orders placed. We quote plate and tank at 32@34c."

"OLD RAILS.—There are no sales reported, and little offering, as most holders prefer to hold, and see what the market is to do, than go in and get low offers. We quote \$34@37."

"NEW RAILS.—There is no quotation on new rails this week, and few if any orders will be placed until iron settles, when it is thought a lively demand will spring up, as many roads want iron."

"JUSTICE COX, JR., & Co."

"PITTSBURG, April 13. "While buyers are still holding off or purchasing very cautiously, there is evidently a somewhat better feeling in the market than heretofore. The sweeping reduction in prices, averaging about eight dollars per ton, within the past two or three weeks, seems to have imparted some confidence in the present rates. There has been more inquiry during the past week than for a month or more preceding."

"A. H. CHILDS."

"RICHMOND, April 12. "The views of furnace-owners are so diverse as to the value of their products that it is impracticable to arrive at quotations which will fairly represent the market. I prefer

therefore, that the quotation schedule be withdrawn for this week.

"St. LOUIS, April 15. "The market continues quiet. Quotations, to a large extent, are nominal."

"CARD & HOFFER."

THE ENGLISH IRON MARKET.

John H. Austin & Co.'s Special Market Report.

LONDON, E. C., April 1. STEEL RAILS.—Market very quiet; not so many parcels in second hands offering. Nominal price for sections, 50 lbs. and upward, £8 15s. @ £9 5s., f. o. b., equal to about £9 7s. 6d. @ £9 15s., c. i. f.

IRON RAILS.—In no demand—£8, f. o. b., would buy from Middlesbrough makers, and £8 @ £8 5s. from Welsh. OLD RAILS.—Many of the lots of Flange lately pressed on the market having been withdrawn or disposed of, we call the tone better. Flanges about 120s., and O. D. H. 125s., c. i. f., shipments over the next three months.

HEAVY WROUGHT SCRAP-IRON.—Very little inquired for; nominally £5 7s. 6d. @ £5 10s., c. i. f.; business done yesterday at £5 8s. 9d., c. i. f., prompt shipment.

BESSEMER PIG-IRON, Nos. 1, 2, and 3.—Very quiet at 90s. @ 95s. per ton, f. o. b., from dealers; makers still asking 5s. @ 10s. per ton more.

SCOTCH PIG-IRON.—Much steadier; 55s. 3d. @ 55s. 6d., cash.

MIDDLESBROUGH PIG-IRON, No. 3.—Stronger; 50s., cash, accepted, but now 51s. 6d. @ 52s., prompt; and 1s. @ 2s. per ton higher for forward.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, April 16.

Anthracite.

The anthracite coal trade is without any special feature as compared with some weeks back. Upon the whole, the demand may be pronounced somewhat light, although the coal is moving very liberally. Stove and chestnut sizes are still a drug, and occasionally we learn of certain qualities of other sizes that are a little quiet. Prices, however, are as well maintained as at any time heretofore, and there is no indication of a decline. It is announced upon very good authority, although not officially, that arrangements have been made for a further curtailment of the production. This should put the market in a very strong position. Buyers, owing to their experience during several years past, are very shy of making purchases, expecting that the companies, as they have invariably done in the past, will disagree before long, and that prices will decline. By this action they will carry a very large demand into the latter portion of the year, and as the outlook indicates that the requirements for 1880 will be fully as great as, if not greater than, in 1879, the prospects are, that the mining companies will have matters very much their own way, and will be enabled to demand the prices which have already been talked of. There seems to exist the utmost harmony among the companies, with every indication that prices will be well maintained and even advanced.

The labor troubles have disturbed nearly all the coal-mining operations throughout the country, excepting anthracite. In the Schuylkill and Lehigh regions, where the basis system is in operation, no immediate fear is expressed. In the Wyoming region, however, there have been a number of secret meetings of late, and the indications point to an early demand from the men; and should it not be granted, a strike will probably take place. Dealers and consumers should watch this movement very closely; for, should a strike take place, it would very materially change the situation; and, for a time, there might be a great scarcity of coal and an advance in prices.

Since writing the above, we learn that the companies have agreed to suspend operations half of next week and the following week.

The production of anthracite coal last week was 644,284 tons, as compared with 371,042 tons the previous week, and 472,597 tons the corresponding week of 1879. The total production from January 1st to April 10th was 5,332,185 tons, as against 5,604,776 tons for the like period of last year, showing a decrease this year of 272,591 tons.

Bituminous.

There is quite a demand for this coal at remunerative prices. A little coal is being moved over the Chesapeake and Ohio Canal, indicating that the question of freight is approaching adjustment. In the Clearfield region, quite a number of new miners have been set to work under the protection of police, and a lot more will probably be employed within a few days. The operators appear determined to carry their point, and the indications favor their success. Until these various questions are settled, the Bituminous trade is not likely to attract much attention.

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 April 10th, and years from January 1st:

Table with columns: Tons of 2240 lbs., 1880 (Week, Year), 1879 (Week, Year). Rows include Wyoming Region, Lehigh Region, Schuylkill Region, Sullivan Region, and Total.

Table showing Total same time in 1875, 1876, 1877, 1878, 1879.

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.

The increase in shipments of Cumberland Coal over the Cumberland Branch and Cumberland and Pennsylvania railroads amounts to 111,452 tons, as compared with the corresponding period in 1879.

The Production of Bituminous Coal for the week ending April 10th was as follows:

Table with columns: Tons of 2240 lbs., Week, Year. Rows include Cumberland Region, Md., Barclay Region, Pa., Broad Top Region, Pa., etc.

The Production of Coke for the week ending March 28th:

Table with columns: Tons of 2000 lbs., Week, Year. Rows include Penn. R.R. (Alleghany Region), West Penn. R.R., etc.

SACRAMENTO MINING COMPANY OF COLORADO.

Incorporated under the laws of the State of Colorado. Capital - - - - \$2,000,000 200,000 Shares; Par Value, \$10 each.

STOCK FULL PAID AND UNASSESSABLE. OFFICE: 62 Broadway, Rooms 12 and 13, New York.

The mining property of this Company is located about six miles west of Fairplay, at the head of Sacramento Gulch, Park County, Colorado.

The property embraces seven mining claims, covering about seventy acres of mineral land.

The ore-body at present developed varies from a foot and a half (1 1/2) to nearly six (6) feet in thickness.

The mine has produced, up to the present time, between 50,000 and 60,000 dollars.

The mill-runs of ore produced average over two hundred and sixty (260) ounces of silver to the ton.

The ore-body at present developed (by drifts and tunnels alone—no ground having been stoped) is variously estimated by different parties at from 400,000 to 500,000 dollars in value.

Instructions have been sent to the Superintendent of the mine to commence stoping, as it is the intention to pay quarterly dividends.

A small amount of the stock is for sale at five dollars (\$5) per share, which can be obtained from the undersigned at the office of the Company.

R. G. LAY, Secretary. TRUSTEES: Wm. B. Frue, Detroit, Mich. (President). Joseph Hobson, New York City (Vice-President). R. G. Lay, New York City (Secretary and Treasurer). J. A. Hubbell, Houghton, Mich. Chas. W. Dwell, Denver, Colo.

John W. Plummer, Mine Superintendent.