

ENGINEERING and MINING JOURNAL.

VOL. XXIX., No. 15.

RICHARD P. ROTHWELL, C.E., M.E., } Editors.
ROSSITER W. RAYMOND, Ph.D., }

WILLIAM H. WAHL, Ph.D., Department of Progress in Science and the Arts.

NOTE.—Communications relative to the editorial management should be addressed to RICHARD P. ROTHWELL, P.O. Box 4404, New York.

Communications for Mr. RAYMOND should be addressed to ROSSITER W. RAYMOND, P.O. Box 1465, New York. Articles written by Mr. RAYMOND will be signed thus *.

SUBSCRIPTION PRICE, including postage, for the United States and Canada, \$4 per annum; \$2.25 for six months; all other countries, including postage, \$5.00 = 20s. = 25 francs = 20 marks. All payments must be made in advance.

REMITTANCES should always be made by Post-Office Orders or Bank Drafts on New York, made payable to THE SCIENTIFIC PUBLISHING COMPANY.

THE SCIENTIFIC PUBLISHING CO., PUBLISHERS,
27 Park Place, New York.

CONTENTS.

EDITORIALS:	PAGE.		PAGE.
Fair Enough, but Too Funny.....	251	Cupellation Shown with the Lantern.....	257
A Prophet and an Historian come to Grief.....	251	GENERAL MINING NEWS:	
The Leadville Mines.....	251	Arizona.....	257
Maryland Union Coal Company.....	252	California.....	257
Mr. Irving A. Stearns's Report.....	253	Colorado.....	258
The Maryland Union Coal Company.....	254	Dakota.....	259
San Juan Mines—Yield and Cost.....	254	Montana.....	259
The Geology of the Leadville Ore-District.....	255	Nevada.....	259
Mociana Mines and Mining.....	256	Utah.....	259
Completion of the No. 1 Shaft of the Rheinpreussen Coal-Pit.....	256	PROPOSALS.....	259
PROGRESS IN SCIENCE AND THE ARTS:		ASSAY DEPARTMENT.....	259
Mineral Eosphorite.....	256	FINANCIAL:	
Substantial Advances in the Construction of Steam-Injectors.....	256	Gold and Silver Stocks.....	260
Edison's Latest.....	257	Coal Stocks.....	264
A New Process for Etching on Copper.....	257	Copper Stocks.....	264
New Steel Works.....	257	Gas Stocks.....	263
An Ingenious Method of Measuring the Quantity of Moisture in the Air.....	257	BULLION MARKET.....	264
		METALS.....	265
		IRON MARKET REVIEW.....	265
		THE COAL TRADE REVIEW.....	265
		STATISTICS OF COAL PRODUCTION.....	266
		FREIGHTS.....	—
		Miscellaneous Stocks and Quotations.....	263

We learn that Mr. E. GAUJOT, a well-known mining engineer, who has been for some time past in the service of the Japanese government, is now on his way back to America, and expects to arrive in San Francisco about the end of the present month. Those desiring to communicate with him, or secure his professional services, can do so by addressing him at the Palace Hotel, San Francisco.

FAIR ENOUGH, BUT TOO FUNNY.

We clip from the *Graphic* the following witty burlesque, entitled *Expert's Report on the Big Goosetherumfoodle Mine*, and designed, we presume, as a good-natured thrust at Dr. RAYMOND's last Little Pittsburg report:

"There is undoubtedly a mine here, if the ore-bodies hold out. The gangue rock is favorable to the existence of ore, and the overlapping seams of schistose show an undoubted tendency to productiveness in rock, which may be ore-bearing. While I refrain from pronouncing with certainty on the Big Goosetherumfoodle mine, still I argue that as great expectations regarding the yield of this vein may be maintained as of any other ground in the vicinity. The trend of the rock, S.S.E., and the direction of all the dips and angles, show this to be a true lead, and, as such, liable to rich ore. Above all things, the ground should be thoroughly prospected. I would advise the sinking of 100 shafts ten feet apart through the hardest rock which can be found. If water be encountered, it should be pumped out. If the rock prove rich, the mine will be valuable. If it prove very rich, the mine will then prove very valuable. It should be borne in mind that if it is necessary to sink deep on the vein, the lode must be penetrated farther than if not."

As the *Graphic* presented fairly last week the substance of that report, it is entitled to its joke on the subject; and since the joke is a good one, we feel ourselves entitled to it also. Dr. RAYMOND has richly deserved ridicule by stating clearly, on both occasions, what could be seen and known, and what could only be inferred and hoped. Such frankness may not be frequent, but for that very reason it is funny; and it should, of course, be properly shown up. *

A PROPHET AND AN HISTORIAN COME TO GRIEF.

It is a good rule for a prophet to deal with events so far in the future as to give people a chance to forget his prediction if it should fail of fulfillment. This obvious caution was ignored by the Editor of *Bullion*, who, on the first of April (appropriate day!), favored his readers with the prophetic suggestion that Dr. RAYMOND would report great riches "wickedly concealed" in the Little Pittsburg mines, so as to produce a "boom" in the stock, for the benefit of his "employers," who would then, doubtless, be found to have quietly bought again at low prices what they had previously sold at high ones. Two days after this prophecy (which does equal credit to the ingenuity and the honorable instincts of its originator), the report was published—and no more need be said on that head.

But if it is perilous to fool in this way with the immediate future, it is certainly not less so to apply the art of invention or intuition—or whatever else it may be called without discourtesy—to the past. In the case before us, the historian is as bad as the prophet. He says that Dr. RAYMOND re-

ported on the Little Pittsburg "ostensibly for the benefit of purchasers at \$20 per share," though "it is true he now shows he didn't mean to; but the foolish public misunderstood his cumulative figures, and in their blind faith rushed in" and bought the stock at \$25 to \$30; that these higher prices were "based on the Doctor's estimate," and so on. The facts are on record, that Dr. RAYMOND never reported on the value of the stock; that he said in his first report, without any "cumulative figures," exactly what he meant, as plainly as the English language could express it; and that the high price of the stock was not based on his estimate, but on other estimates, all of which, without exception, exceeded his. If the Editor of *Bullion* wishes to write with the minimum of trouble a truly trustworthy paragraph, and give his readers at the same time a pleasant example of candor, let him retract *seriatim* all the statements of his April hoax.

He is careful not to assert that Dr. RAYMOND was party to a fraudulent stock-jobbing operation, but only to insinuate that this was the case; or if that charge should fail to stick, then that Dr. RAYMOND was the tool of knaves. He does not dream that this is an insult. On the contrary, all that he bases upon it is an accusation of inconsistency! (He calls it inconsistency; but we presume this is irony.)

It seems, according to this authority—we have not verified the quotation, and naturally we accept it with some hesitation—that, once upon a time, Dr. RAYMOND declared that the governmental supervision of the affairs of gold and silver mining companies would be "impertinent and tyrannical." And now he has been caught examining mines for his employers! How dreadfully inconsistent!

The sapient critic opines that a government supervision would have prevented all the trouble in Little Pittsburg stock—a proposition which betrays an amount of verdancy almost incredible. Is the government to employ experts? No; but the companies are to make full returns to the government. An editor ought surely to know that such reports can not be collected and published in time to prevent fluctuations and operations in the stock-market. Nor do we see how they are to prevent misrepresentations on the part of dishonest superintendents or owners. True, officials could be punished for such false statements. But so they can be punished now, if they make false statements to their stockholders.

But if the government should employ its own experts to make examinations, as often as the newspapers required, of all gold and silver mines, what would be the result? In place of agents selected by the owners, all mining enterprises would be at the mercy of appointees of politicians. The "expert mining engineer" appointed by the President some years ago upon the Suro Tunnel Commission was a conchologist. The expert selected by the Director of the Mint to examine the last Comstock bonanza was a chemist. Neither of these estimable gentlemen was acquainted with mining, and both of them had reason to regret that they dabbled in "government supervision."

We say again that the idea of such supervision, as a preventive of fraud or delusion concerning the value of mines, is preposterous. The thing itself, if it were practicable, would be "impertinent and tyrannical"—impertinent, because it would be an unwarrantable interference in private business; tyrannical, because it would be an exercise of arbitrary power. Tyranny implies the use of force, as impertinence does not. Hence, we employ both epithets. The Editor of *Bullion* will doubtless understand that it is possible to be impertinent without force.

But here comes the *American Exchange*, another amateur mining journal, and sarcastically remarks that the "bland and childlike assertion" in Dr. RAYMOND's report, "that there is a very large area belonging to your company and entirely undeveloped, within which the body would have room to develop an immense quantity of ore," is refreshing. *

Lay down that dangerous piece of irony with which you are playing, sonny, and come and stand by our knee. When you grow older and wiser, you will learn that mining claims have boundaries; that on Fryer Hill the generally accepted boundaries are vertical planes, restricting the ownership of each company to what lies under its surface ground; and that, when an ore-body is discovered or expected to run in a certain direction, the first question is, Does this company own enough unworked ground in that direction to hold a large portion of the body? This question is not childlike, dear infant; it is the kind of question which grown people ask. Don't make your poor little head ache by trying to understand it, but run along and play with something else. You say you have found "nothing" in Dr. RAYMOND's "two columns of type." There were more than twice as many columns as that; but you were wise to stop where you did. You would have found nothing anyhow. You are too young. *

THE LEADVILLE MINES.

We give this week a diagram of the claims on Fryer Hill, Leadville, in order to show how much of the property of the Little Pittsburg Company lies outside of the area covered by the map which accompanied Dr. RAYMOND's report of last week. The rectangle drawn in the middle of this diagram represents the size and position of the former map. It will be seen that by far the larger portion of the company's property (that is, of

the New Discovery, Union, Little Pittsburg, Winnemuck, and Dives claims) lies outside of that rectangle, and is practically undeveloped. It is to this undeveloped ground, and particularly to that portion of it which seems likely, from its situation, to contain the eastward continuation of the ore-body now worked in the Little Chief, that the expectation of the company is chiefly turned. The nature and the grounds of this expectation are sufficiently set forth in Dr. RAYMOND'S report; and we should not now revert to the point but for the circumstance that the diagram given this week was prepared to accompany the report last week, but could not be engraved in time. Its supplementary publication seemed, therefore, to require a word of explanation.

The trouble of the Little Pittsburg Company has been made the text (or pretext) of an onslaught upon Leadville properties generally; and we notice that the proprietors and promoters of mines elsewhere are making the most of their opportunity to point out the superior permanency of "fissure-veins" over such deposits. Every word of caution, whether disinterested or otherwise, bestowed upon the public, meets with our hearty approbation. At the same time, the attempt to prove that a vein which has a gentle dip is less trustworthy (because it does not "go down") than one which has a steep dip strikes us as quite ridiculous. Yet this is the chief difference, so far as we can see, between the Leadville formation and that of a fissure-vein following more or less closely the plane of contact between two different rocks.

The Leadville formation is not technically a bed—that is, it is not a member of the series of rocks in which it occurs. The ore-deposit is of later origin than either the foot-wall or the hanging-wall. Its original entry appears to have been made along the parting or fissure between the porphyry, and the limestone. But, in many places, the fissure has entered the porphyry and in some places it has entered the limestone. Now, "horses" from the hanging-wall may possibly occur, under peculiar circumstances, in a bed; but horses from the foot-wall (in this case, limestone) can not occur in a bed. Dislocations and plications, causing one part of a bed to overlap another, may produce a resemblance to a horse of foot-wall rock; but the instances of the inclusion of limestone in the Leadville ore-deposits do not appear to us to be thus explicable. Taking all the indications together, we entertain no doubt that these deposits present a fissure-vein mainly following the contact between two dissimilar rocks.

But most fissure-veins are wider than the original fissures. The old notion, that a vein of this class represents a crack in the earth's crust, filled up from wall to wall with new material "from below," is now proved to be applicable to very few cases. A far more frequent phenomenon is that of the gradual enlargement of the vein by chemical and mechanical action upon one or both walls, resulting in a metamorphosis and a replacement. The very acute and thorough papers published during the past few years by Dr. CLEMENT LE NEVE FOSTER have demonstrated this for the tin-bearing veins of Cornwall, showing that a very small fissure, admitting the metalliferous fluids, may produce in the end a vein, the greater part of which is altered, impregnated granite. The student will find in the essays of Dr. T. STERRY HUNT, and in the admirable monograph on the granitic veins of the Hartz, by Prof. HERMANN CREDNER, of Leipzig, abundant suggestions as to the manner in which such reactions may produce, from the constituents of the wall-rock, a new series of minerals, constituting the gangue of a vein. We recommend, also, as suggestive, though not perhaps conclusive, the remarkable treatise recently published by Prof. JOHN A. CHURCH on the Comstock lode.

In Dr. RAYMOND'S original report on the Little Pittsburg property, the nature of the reactions which have probably taken place (chiefly in the porphyry hanging-wall) in the Leadville ore-deposits is discussed at length. We shall say no more at present on that head than this: The thickness of the ore-vein at any point is not in this instance, and is not necessarily in any fissure-vein, a measure of the size of the original fissure.

Again, in numerous fissure-veins, there has been apparently a redistribution of the ore, subsequent to its original deposition. This is most clearly the case in those portions of the vein exposed to the oxidizing action of surface waters. The depth of the zone thus subject to alteration varies with the nature, structure, and position of the vein. All these conditions at Leadville have favored the oxidation (and carbonation) and hence, also, the redistribution of the ore, and its accumulation in distinct "chimneys," or bodies, to a great distance from the outcrop. The same is the case at Eureka, Nevada, where the carbonates are found at a vertical depth of some 800 feet below the surface—much more than that, measured on the dip of the vein.

It is highly probable that the ore-bodies at Leadville, if followed beyond the zone of surface alteration, would be found to be still distributed in chimneys, though not perhaps in size, form, and concentrated value like those hitherto encountered.

As explained in Dr. RAYMOND'S first report, there is for the geologist but one argentiferous vein at Leadville—that is, so far as present explorations have shown. This vein accompanies the contact between the porphyry and the limestone; and by a series of faults in the formation, i

exposed in successive outcrops at different elevations on the mountain-side. It is said that there are seven of these; certainly there are four or five. Beginning on the outcrop at any one of these breaks, and following the vein into the mountain, the miner can proceed until he reaches the next break. How far this would be, we will not undertake to state with precision. In the case of some of the principal mines, it would undoubtedly be some three thousand feet.

In such a case, then, we have a mine dipping gently (12 or 15 degrees) and continuing to a distance quite as great as that to which deep mines have generally been pursued. Is it not preposterous that nature should be held to have made such a deposit unreliable, "because it don't go down"? The amateur geologists who make this criticism ought to "go down" in a few mines. They would soon discover that going down is neither pleasant nor profitable, and that if all fissure-veins could be tilted over so as to dip but 15° below the horizon, mining engineers would find no fault with the "formation."

Yet there are serious grounds for special caution as to Leadville properties. The "formation" is indirectly, though not directly, responsible for a state of affairs which renders blind investment in that district a perilous matter. In the first place, the legal right of the owner of an outcrop to follow his vein in depth is hotly disputed at Leadville by many, who find it easy to reach the vein, outside the limits of the owner's surface claim, by a shaft in another claim located alongside. The result is, that the majority of the titles are likely to prove bad, and the good ones are perpetually threatened with litigation.

In the second place, many mine-owners, to avoid this evil, have voluntarily compromised with their neighbors, establishing vertical planes through their surface side-lines as the boundaries of their property underground. This, of course limits the right which the law would otherwise confer. On Fryer Hill, for instance, a splendid vein passes from the Carboniferous claim of the Chrysolite Company into the Little Chief, and from the Little Chief probably into the Dives and Little Pittsburg. But compromise agreements prevent the Chrysolite Company from following its vein into the Little Chief ground, and similarly protect the Little Pittsburg against the Little Chief. The "formation" is not to blame for this. Nor, in view of all the difficulties in this particular locality, are we prepared to say that the existence of such agreements is an unmitigated evil. All that we point out at present is, that they do limit the mining ground of each proprietor as completely as if the ore-deposit itself were confined within his surface-boundaries—as it is not.

The Iron Silver Mining Company, owning about a mile and a half of outcrop, has refused to compromise with the trespassers upon its vein, and is vigorously maintaining its rights under the law. That this company and others similarly situated are forced to fight at all, is due, not to the nature but to the position of the vein, the flat dip of, which makes trespass easy.

The vein at Leadville, so far as it is exposed, is essentially a vein of oxide of iron. Lead, silver, and gold are variable constituents. At some points, they are present in much larger proportions than at others, and one or the other of them may predominate. The vein has its thick, rich, poor, and barren spots, like any other. The great peculiarity of the situation is that the position of the vein has enabled so many people, rightfully or wrongfully, to get at it. A large number of them, even if they have valid titles to their claims, will find that they have located on the poor or barren intervals between the ore-bodies. This is no new thing. There are mines situated, beyond a doubt, on the Comstock vein, which have never found a bonanza or paid a dividend. The privilege of "going down" has been theirs, and that is all. They have "gone down," stock and all.

Investors in Leadville mines should look, first, to the undisputed title of the property offered; secondly, to the amount of territory and the mining right which it conveys; thirdly, to the nature and value of that part of the vein which it includes. If these points are satisfactorily covered, they need not worry about the "formation." *

MARYLAND UNION COAL COMPANY.

We gladly give place to the following correspondence, relating to the property of this company, being always ready to afford every opportunity for corrections or explanations of any statements which may appear in our columns.

It was certainly no desire to injure this property which prompted the remarks in our issue of the 3d instant (page 246). That the amount of big-vein coal owned by this company was apparently understated in the article referred to, seems to have been due to our informant's having overlooked the fact, claimed by the proprietors of this property, that additional "big-vein" area was acquired as the original George's Creek and Franklin properties were becoming exhausted. We do not question the statement that this company has a valuable property; but we think further evidence is needed to justify the valuation of \$1000 an acre, where only some 400 acres are claimed as containing the big vein. The price at which the property is placed is unquestionably a very large one, and, in transactions of that magnitude, fuller and more specific expert information than has been made public should be given.

We have no hesitation in expressing the greatest confidence in any professional statement made by Mr. STEARNS upon his personal knowledge; but we confess some surprise that the accompanying brief and meager memorandum—for it would strain courtesy to dignify it with the title of a report—should be offered as the foundation of the investment of so large an amount of capital. We understand Mr. STEARNS based his estimates of the amount of coal in the property upon general information and the surveys of parties unknown to him, and whose names are not given—a practice which Mr. STEARNS's high reputation for safe and reliable work shows is quite new to him, and we trust will not be repeated. But, assuming the correctness of the estimated amount of coal, there suggest themselves a number of other scarcely less important questions to which answers would be desirable.

For example: It is not clear that the geographical position gives this

Hamill properties, which are said to contain the greater part of the company's big-vein coal, and we have also heard some questions as to the company's charter, which, we believe, was granted in 1868, while the State of Maryland prohibited special legislation of this kind in 1867. These, and other questions which naturally suggest themselves to investors, we have no doubt will be answered promptly and satisfactorily by the gentlemen who conduct the affairs of the company. So far as the ability to market the coal is concerned, no one can question the capacity of its officers; but technical questions, such as the intrinsic value of coal lands, the cost of marketing, and the legal question of title and charter, are without the sphere of the coal merchant and should be answered by competent experts, and, in a case where so very large an amount of capital is involved, they should be answered in the fullest and most explicit manner by at least

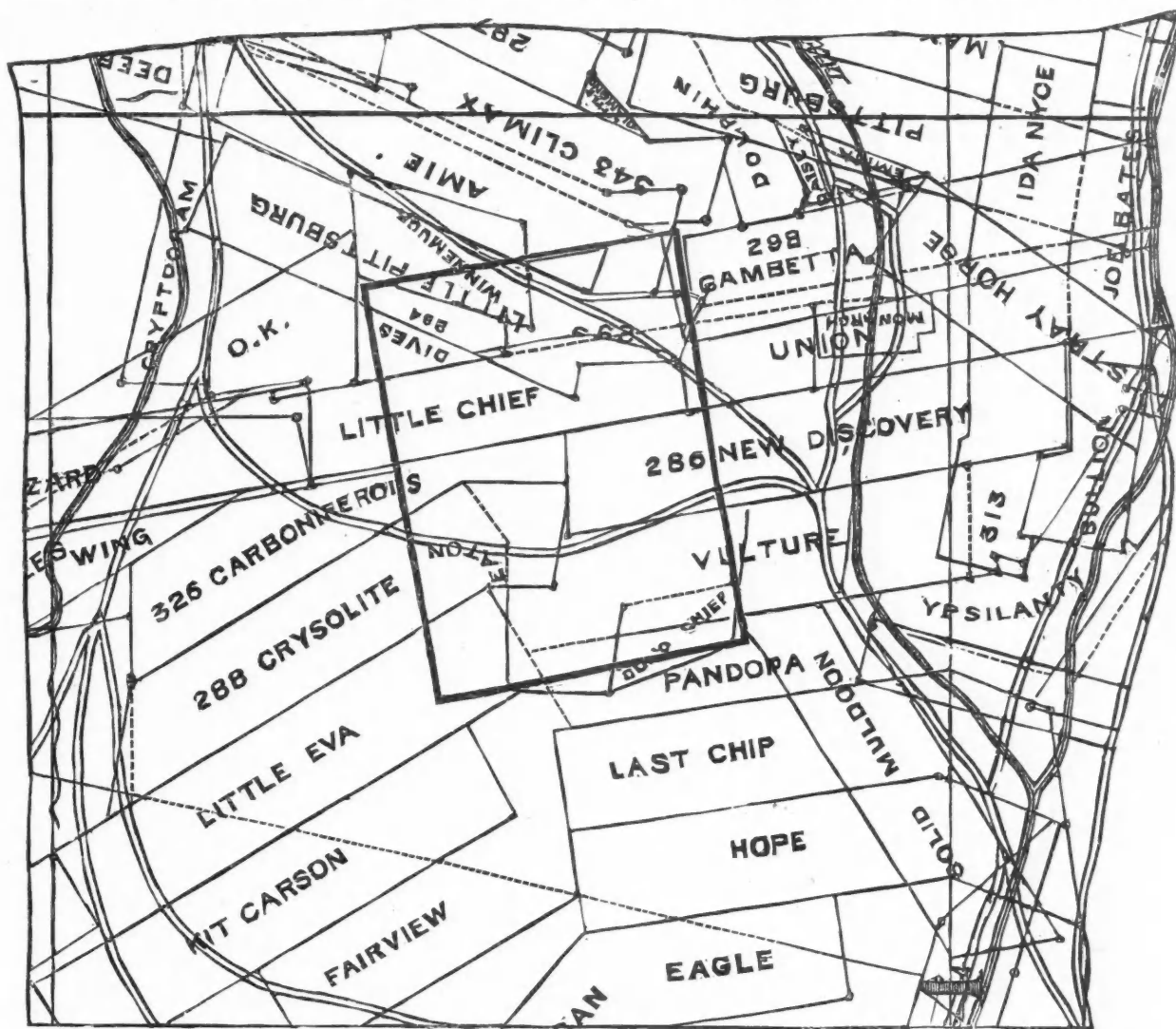


DIAGRAM OF CLAIMS ON FRYER HILL, LEADVILLE, COLO.

THE RECTANGLE IN THE MIDDLE OF THE MAP REPRESENTS THE SIZE AND POSITION OF THE UNDERGROUND WORKINGS, PUBLISHED IN OUR SUPPLEMENT LAST WEEK.

property an advantage of 20@25c. per ton over competing properties, as claimed by Mr. WHITE; on the contrary, except in the direct railroad freights to Baltimore, where it would probably be on an equal footing with the Consolidation Coal Company, and possibly 20@25c. better than the least favorably located of its rivals, it would seem to be rather at a disadvantage; for all history teaches us that to have the Baltimore & Ohio Railroad as a sole outlet to market is almost equivalent to having no market; and by the canal or the Pennsylvania road, this property would, no doubt, be at a disadvantage as compared with some of its rivals.

The question of the value of the "small-vein" coal on this and other Cumberland properties is still, in a measure, an open one, though it is all but certain that neither in cost of mining nor in the price which its coal will command in the market can the "small vein" compete with the "big vein."

No doubt these mines are developed to an extent which will allow a large and economical business; but the cost of producing coal and of delivery over the long plain which the company has to use should be stated upon some expert authority.

Questions have been raised as to the ownership of the Midland and

one, and, better still, by more than one, high authority in each department.

In thus calling attention to the criticisms which are current in highly responsible circles, and affording the gentlemen who are managing this company this opportunity to explain and answer them, we intend to do, and believe we are doing, the company a service which our long and friendly acquaintance with its officers renders a pleasure.

MR. IRVING A. STEARNS'S REPORT.

JOHN WHITE, Esq., 111 Broadway, New York:

SIR: In compliance with your request, I have made an examination of the property of the Franklin Union Coal Company (late the property of James Boyce, Esq., of Baltimore), and will give you briefly the result of the examination, expecting, in the future, to give you a more elaborate and detailed report.

The Mammoth or "fourteen-foot bed," as it is commonly called, is being worked on this property, and is in its best condition, being from eleven and one half to twelve feet thick, with only two inches of slate, and the full thickness of the vein is mined, which is not the case in many of the mines of the Cumberland coal-field.

The reputation this coal has made in market is sufficient evidence of its superior quality.

There are several other smaller veins upon the property which I will not mention in this report, excepting what is known as the "six-foot vein," and one other having a thickness of four and one half feet, which has been opened.

The "six-foot vein" has been opened at different places on the property, showing a thickness of from four feet nine inches to six feet; the only impurity in the vein being a bench of bony coal, which varies from four to six inches in thickness.

It underlies about fourteen hundred of the total area of sixteen hundred acres, and the quality of the coal is very highly spoken of by parties who have used it.

From my examination, and from all I could learn in regard to it, there is little or no doubt but that the condition of this vein, both as to thickness and quality, is superior here to any other part of this coal-field.

From all the obtainable data, I have estimated the total amount of coal in the "fourteen-foot vein" remaining unmined in this property at six million tons, and in the "six-foot vein" at nine million tons, or a total of 15,000,000 tons in these two veins.

The company has a complete outfit of mine-cars, horses, tools, inclines, sidings, houses, etc. etc., and a present capacity of fifteen hundred tons per day, which could, in a comparatively short time, be increased to two thousand or twenty-five hundred tons, with an outlay of about thirty thousand dollars.

Respectfully submitted,

IRVING A. STEARNS, Mining Engineer.

WILKES-BARRE, PA., Jan. 15, 1880.

THE MARYLAND UNION COAL COMPANY.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I notice an article in your issue of the 3d instant, regarding the Maryland Union Coal Company, which does serious and unwarranted injustice to the property of this company.

I am sorry you did not call on us for facts, as you now know we employed, at your suggestion, your trusted friend, Mr. Irving A. Stearns, of Wilkes-Barre, to examine the property and report before purchasing, and we bought on his report; but your article is directly at variance with his report.

Your reporters have probably given credence to the rumors of competing companies set afloat in this market, that the coal in our property was depleted. So far from this being the case, the original owners purchased additional properties as they were exhausting, so that this company acquired the fee to a very valuable mining company.

In point of fact, this property possesses exceptional advantages, namely:

First. Its geographical position gives it a clear advantage of 20 to 25 cents per ton over competing properties, which is tremendous, when we consider that 50 cents per ton is looked upon as a full profit by the Cumberland companies, at which time we could make 75 cents; or, in other words, a ton of our coal has a market value equal to a ton and a half of the coal produced by our competitors.

Second. The quantity is from 400 to 450 acres of big vein, at 15,000 tons per acre, or from 6,000,000 to 6,750,000 tons, and 1500 acres small vein, at 6000 tons per acre, or 9,000,000, which will give 15,000,000 or more tons.

Third. The six-foot vein at our property yields as much as the 14-foot at many of the other properties in the basin.

Fourth. Our mines are opened, and are being opened for a very large capacity.

Fifth. As you know very well, we have a selling capacity not inferior to that of any Cumberland company.

If this company sell 500,000 tons at a profit of 50 to 75 cents, or an average of 60 cents, we can pay 6 per cent on our stock, which will certainly satisfy the original buyers at \$30 per share.

Asking from you simply the courtesy which you have always accorded me personally, I would suggest that you give to the public exactly the facts in this case, and allow our business and our dividends to speak for the result.

Yours truly,

JOHN WHITE, President.

NEW YORK, April 7.

SAN JUAN MINES—YIELD AND COST.

Special Correspondence of the Engineering and Mining Journal.

From all points comes news of a great awakening to the prospective value of this region as a field for the investment of capital in honest and profitable mining industry. Not only is every one hereabouts who holds claims planning to add more to the list in early spring, but all San Juan residents who are spending the winter outside will return as soon as the season will permit, followed by large numbers of prospectors and investors, eager to be first on the ground. What with our rapidly approaching railroad, the increased facilities for stage travel, and mail and telegraphic communication, together with the expected additions to our working force, we shall soon be able to offer capitalists fully as great inducements, to say the least, as they will meet in any other mining district. There is no region in the world, probably, that has so many rich veins, as well exposed for examination and development, as this area in Southwestern Colorado. As yet, the surface has only been skimmed, and no doubt many of the best properties are still unknown. The bullion product of San Juan last year, all told, was less than half the yield of single mines in some other parts of the State; but this, to persons well conversant with the facts in the case, merely indicates the truth of my previous statement. It would be a most interesting and instructive matter to make a careful comparison of reliable statistics concerning both the yield of our district, year by year, and the cost of marketing this product. This is a subject which has claimed much of my attention for nearly a year, and, although I am unprepared to deal with exact figures, there is every reason to believe that the conclusions here given are in the main correct. Without entering into details, or explaining minutely the process by which I have arrived at my opinions, let me simply present the following generalizations, as texts for some further remarks upon the present condition and future capabilities of this portion of the State:

1. There has been, from the first, a gradually increasing output, the

production of each succeeding year being proportionately much larger than the year before.

2. By increase of facilities for transportation, but more than all by increased competition among ore-purchasers, higher prices have been paid each year in a rapidly rising ratio; hence:

3. The profit on mining work has been increased in almost double proportion, by enabling every dollar of investment to earn more, both by better returns received for ore of grades previously marketed and by providing a market for certain classes of ore previously unprofitable. Again, as a result of the same cause,

4. Some mines, formerly unprofitable, have been enabled to work without loss, thus each year adding to the substantial development of the region.

5. The ratio of addition to capital invested has been even more progressive than the ratio of added product. This fact may seem rather against than in favor of the region; but in reality, as I shall presently show, it is the result of causes which do not in any degree affect the real value of the country, because there is abundant proof that,

6. While there has, perhaps, been more money lost than made in mining in this section, every dollar invested in the mines that have been successful has returned a liberal profit; and

7. Almost every unsuccessful mining enterprise has failed through lack of strict business integrity or of professional skill.

I am confident that the above statements are based upon adequate facts, and that they will be accepted as fair by all who are competent to judge of their worth.

The first conclusion is self-evident, being acknowledged even by the most jealous advocates of other districts, and it is fully supported by official statistics.

There has been some change in the character or economy of transportation with each recurring summer. At first, only the high-grade ore could be marketed, as the pack-train was the only means of transport, and the reducing works were fully 250 miles away. Another drawback was the lack of lead in the marketable grades, and the absence of non-smelting reducing plants, even at this distance. One year brought the railroad more than 100 miles nearer, then came a wagon-road gradually approaching, until last summer the former could be reached over the latter in less than 150 miles. The reduction plants have followed the other improvements and brought the markets themselves almost to our doors, and now the distant works and the transporters must combine their efforts and afford new competition for local smelters, while other forms of mills and furnaces give new impetus to the producer by furnishing better means of utilizing his ores which are poor in lead. Next summer, new works will further increase this competition, and add directly to the miner's profits. The railroad will be at the gate ere another year, and then will be seen what enterprise can do in a country which has produced its half a million, with all its disadvantages, and with its meager population.

Nor has local talent been idle in devising new methods with special adaptation to local needs. Lewis Schantl, of Silverton, has invented a cheap and simple reverberatory furnace, for combined roasting and smelting, which, if properly managed, can probably exert a very strong restraining influence upon the exorbitant demands of unscrupulous reducers, by reason of its adaptation to the economical treatment of quite low-grade ores. By his method, it will be feasible, at this juncture, to work lead-bearing ores carrying from 30 ounces to 40 ounces of silver to the ton, whereas 55-ounce to 60-ounce ores are as low as one can profitably mine at present. The cost of this furnace will be about \$3000 or less.

Statements 6 and 7, above, sufficiently explain the seeming paradox in the fifth generalization. I am not making a mere rough "guess," but am well sustained by actually observed facts, when I express the opinion that there has been no good reason (the mine alone considered) for failure of one fifth of the enterprises which have been unsuccessful in this region. Such is my firm and well-founded belief in the intrinsic value of the multitude of veins in the San Juan country. From my personal knowledge of the mines, and of the negotiation and after-management to which they are subjected, I do not hesitate to state that more than four fifths of the money already wasted hereabouts can yet be returned to the stockholders, with liberal interest, if they will look upon the matter in the light of a true business transaction, and employ skilled labor from the start.

There is one matter that is too rarely regarded by investors in buying the stock of a new company, and that is the outlay necessary to convert the contents of the vein into the form in which it is to finally pass out of the company's possession in exchange for cash. The report which Mr. T. E. Schwarz so justly condemns in your issue of February 14th (p. 117) is a good illustration as I could select of what has swamped numerous companies in this neighborhood. I have read a large number of the reports upon which investment has been made in San Juan, and it has struck me as very peculiar that very many of them have pursued exactly the same line of argument as that adopted by McChesney, in the document under review. By the way, Mr. Randolph has reported upon several properties in this valley, some of which are offering in the East. Judging from the prices asked for one or two, I think it would be wise for purchasers to see a copy of his opinions, which are reported as being suppressed.

Now, Mr. Editor, friend Weston hints broadly that *somebody* doesn't say enough in favor of San Juan. Please tell him that it is not against San Juan veins and their undoubted worth, nor in opposition to any enterprise that is based upon the possession of a good vein, for which a fair price is paid, and which is skillfully managed in the interest of the lightest as well as the heaviest stockholder, nor yet to regard the interest of the investor to the very smallest injury to the miner, that we have pursued the policy of severe criticism upon certain schemes that we have noticed. There is to-day no better place, no more promising field for investment, than in this section of Colorado, as we have said many times in no uncertain words. But it is less a question of time gained than of permanency with us. It is far better for us to record the advent of four or five good companies in one year than of a thousand failures in one month. We confidently predict, unpleasant as is the admission, that a large proportion of the mining companies which have been formed this winter to operate in San Juan County will not return the money that has been invested in their stock, under their present arrangements. This has

been the experience of the past, and the warning has not been heeded yet to any great extent. Nearly all of these organizations have good "prospects;" most of them are capitalized as mines. It is probably not known in the East, either, that a small proportion only of the purchase-money has passed beyond the pockets of the negotiators. It is a very profitable business to organize companies sometimes; it is a little difficult to manage a mine successfully.

It has been my aim in this correspondence to use my humble powers to shield as much as possible the mine-owner from the machinations of irresponsible negotiators, at the same time warning the investor against the misdeeds of the same individuals. Already some good has come to our region; for the operations of these men are becoming more secret, and miners and investors are much more cautious than formerly.

The following are some of the symptoms of the convalescence: Mine-owners who went out last fall are writing in for reports "from some one who is known in the East." Intending purchasers are asking for information on individual claims, and people in here are inquiring: "Is Mr. Professor, Doctor So-and-So, who was here last summer, really an authority in the East?" "What is his record?" Then, too, it is noticeable that prospectuses of new companies are just a little less glowing in descriptions of mountain scenery, rose-colored estimates of "ore in sight," that can't be seen, and more attention is being given now to estimates of cost, considerations of economy, and, once in a while, there is included a bit of information from some one who has taken a look or two at a well-developed mine, and who has devoted a few weeks, at least, to the study of certain of the problems which every vein presents.

The Bullion Club has had more influence in producing this desirable reaction than many suppose, though it has done its work quietly, and has apparently given San Juan but little direct attention. The ENGINEERING AND MINING JOURNAL is entitled to a vast amount of credit, perhaps more than all, because of its repeated efforts. But one of the principal causes has been the excess of greed and avarice on the part of those who have done the damage.

We hear of the organization of two mammoth companies. One is to work the North Star mine, it is said, on King Solomon Mountain, near Silverton; the other will control the Little Abbie, Belcher, Grand Central, etc., in Picayune Gulch. Both are officered by men of great wealth, the former including Cyrus W. Field, the latter W. A. H. Loveland, in the board of directors. The capitalization of each is \$10,000,000, which seems like an enormous sum for the properties. The North Star has been remunerative for some time, and the capitalization may be defended, perhaps, if the stock be sold at a very low figure; but there seems little to recommend the present placing of the Picayune properties on any such terms. May our district be spared the infliction of another Comstock Lode operation. Any improvements this large capital may introduce into the region will be very welcome, of course.

The "37" mine, in Poughkeepsie Gulch, is idle temporarily, on account of irregularities in financial matters, charged against a Chicago operator who deals largely in Poughkeepsie properties, and who has interests in several companies working there.

The Highland Mary, of Cunningham Gulch, stopped in February, having exhausted its wood. It is doubtful if it can resume before spring. The force at work on the Tabor tunnel of the Niagara Consolidated Company was withdrawn March 1st. The manager's plans have been carried out as far as economical, until the snow has melted somewhat, and work will probably not be resumed for a few weeks. It has been found wasteful to employ day labor, and contracts will be let in future. This is the experience of all in this region who have had to depend somewhat upon unskilled labor. There is a demand for first-class miners.

The Alaska tunnel is approaching the shaft. Rich ore is in the stoping-ground, but little or none in the shaft.

Rico is preparing for large accessions to its population when spring opens.

Provisions are becoming scarce in some districts. Meat and oil and whisky are the principal needs, just at present. Flour will probably last through.

Lake City travel is almost abandoned, on account of deep snow and severe cold. *Au revoir.* THEODORE B. COMSTOCK.

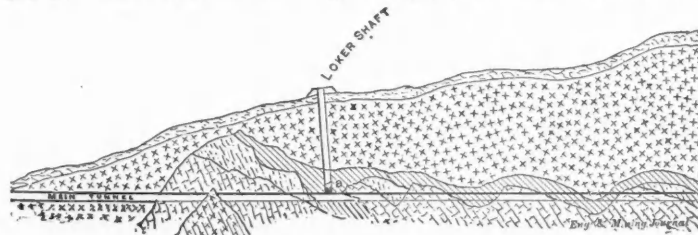
EUREKA, SAN JUAN CO., COLO., March.

THE GEOLOGY OF THE LEADVILLE ORE-DISTRICT.

By Fred. M. Amelung.

Accompanying this article are three sections, by means of which I shall endeavor to demonstrate the existence of at least two contacts between porphyry as cap-rock and limestone, or its equivalent, quartzite, as bed-rock.

The Argentine Tunnel runs from the southern side of Stray Horse Gulch in a southerly direction. After going through a light-colored porphyry, which I have marked "Upper Porphyry," limestone is met with,

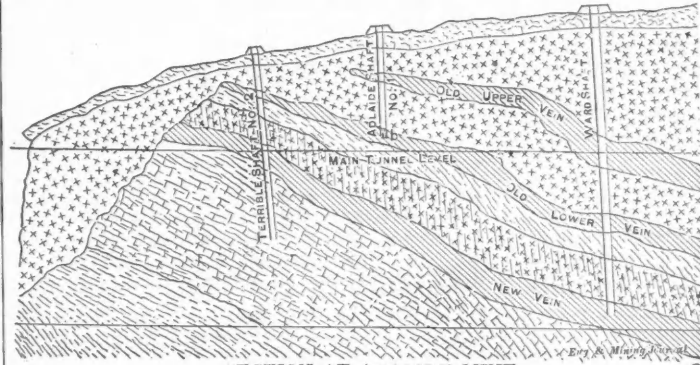


SECTION AT ARGENTINE TUNNEL.

dipping south 20°. This is followed for some time until an outcrop of dark-gray porphyry is met with. This is the "Lower Porphyry" of the sections, and is only a few feet thick where the tunnel strikes it, forming a horse in the lime. After passing this, the tunnel runs through limestone again, which, however, farther on, is replaced by quartzite, this latter immediately underlying the vein. This vein, consisting of iron and argentiferous lead-ores, has been exploited to some extent—in the first

place, through a shaft (the Loker shaft), and then by a drift, which connects the Loker shaft with the Adlaide shaft No. 2, the drift running in iron all the way; thus showing this vein to be identical with the one cut by the Adlaide shaft at b, where the drift runs into it. The Argentine Tunnel runs along the contact from this on, cutting the vein, running through lime, or its equivalent quartzite, and in one instance touching the Upper Porphyry, which is the cap-rock of the vein.

The next section is about a hundred yards up the gulch on the same side, and is given by the Terrible, Adlaide, and Ward shafts, all on the Adlaide Consolidated Mining Company's property. These two sections I owe to the courtesy of Mr. A. D. Foote, the superintendent, who had them made at the instance of the company which owns the property. The Terrible shaft, after passing a few feet of glacial drift, runs through the Upper Porphyry, striking the "Old Lower Vein" at a depth of 45 feet.



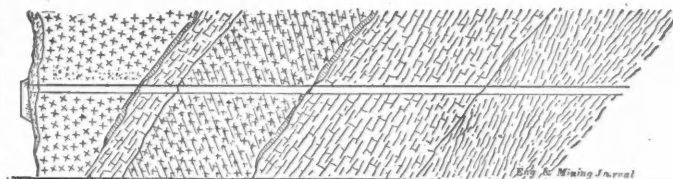
SECTION AT ADLAIDE MINE.

The bed-rock of this vein is quartzite, which replaces completely the limestone of the Argentine section. After passing through this bed of quartzite, Lower Porphyry is reached, being here somewhat similar in appearance to the Upper Porphyry. At a depth of 105 feet, the lower or second contact is reached, called by Mr. Foote the New Vein. After this vein was passed through, being here some fifteen feet in width, limestone was met with.

The Adlaide shaft, after passing through the drift and Upper Porphyry, cuts, at a depth of 60 feet, the "Old Upper Vein," a branch of the "Old Lower Vein." This "Old Upper Vein" has Upper Porphyry both as hanging and foot-wall, is composed chiefly of black oxide of manganese, with streaks of iron, and bodies of low-grade lead-ores running up to 60 per cent lead. After leaving this vein, the shaft again enters the Upper Porphyry, and at a depth of 100 feet cuts the "Old Lower Vein," which has been worked out between this and the Terrible shaft, and whose strike and dip are thus ascertained. Here the Adlaide shaft stops.

The Ward shaft, after passing through drift and the Upper Porphyry, meets the "Old Upper Vein" at a depth of 120 feet, which is here 35 feet thick, with its bed-rock porphyry, and reaches, at a depth of 190 feet, the "Old Lower Vein," which has the same quartzite as bed-rock that we met with in the Terrible shaft and in portions of the Argentine tunnel. After going through this, the shaft enters the Lower Porphyry, which is here sharply defined from the quartzite, and at a depth of 240 feet the "New Vein" was met with.

The third section was furnished by the drill-hole of the Day claim, the drill-cores being placed at my disposal through the kindness of Mr.



SECTION AT DAY MINE.

Drift		Lower Porphyry	
Upper Porphyry		Limestone	
Vein		Quartzite	

Frisbie, one of the owners. This claim is located on the same side of Stray Horse Gulch, about two hundred yards above the Adlaide property.

At first, after passing through a few feet of glacial drift, Upper Porphyry was gone through, and then, at a depth of some 90 feet, limestone was met with, this first contact vein proving to be barren. This limestone continued for about 30 feet, when the Lower Porphyry was met, identical in texture and appearance with that found in the Argentine Tunnel. Below this, at a depth of 220 feet, lime was encountered again, this contact being apparently also barren. This drill-section therefore proves, in conjunction with the other two, the existence of at least two contacts between porphyry as cap-rock and limestone as bed-rock. The upper limestone is very siliceous at times, and is scarcely distinguishable from true quartzite, undiluted hydrochloric acid only showing a faint reaction for lime. The lower limestone, at a depth of 360 feet, gradually changes into a true quartzite, which the drill opened up for over a hundred feet, when it stopped.

STEEL-WORKS IN FRANCE.—The latest statistics show that there are in France 9 Bessemer steel-works with 32 converters, with an actual output of about 250,000 tons.

A. W. HUMPHREYS was elected President of the Sterling Iron and Railway Company on Tuesday last, in place of J. B. Moorhead.

MONTANA MINES AND MINING.

Correspondence of the Engineering and Mining Journal.

As this is the initial letter from my pen, and as others will probably follow, describing the mineral wealth of this and our sister territory, Idaho, I shall not confine myself to any particular mine or mining district. About the 15th of April, or the 1st of May, I expect to start out and visit every mine and mining camp of any importance, and my letters will be written from actual observation and inspection of the mines described. Montana, as many of the readers of the ENGINEERING AND MINING JOURNAL are aware, has been, from the time of the first discovery of gold within its borders up to the present time, too remote from civilization to be easy of access. Although twenty years have elapsed since the whites first began settling the territory, to-day the population does not exceed 30,000 persons. The territory embraces over ninety-two million acres, interspersed with mountain ranges, valleys, and hills, and within its borders lie the sources of the Missouri and Columbia rivers. This season the Utah Northern narrow-gauge railroad will penetrate the territory about 150 miles south, and it is expected that, on the east, the Northern Pacific will be pushed forward to Miles City, at the mouth of Tongue River, on the Yellowstone. Our day of isolation is therefore nearly past. We welcome the iron bands that unite us with the outside world.

We have mines here that need no puffing to sell them; they show for themselves. As a natural consequence of our country being so far from the lines of travel, capital has been slow to make investment in our mines, although some has come. Like other mining countries, we have had our successes and our failures; but the greater portion of the enterprising moneyed men who have invested capital in Montana have been rewarded. One peculiarity I have noticed in Montana ores—the ease and cheapness of reduction, making available a low grade of mineral. Scattered all over the mining districts of the territory, one sees the primitive arrastra, here run by an immense overshot wheel, there with engine-power, and containing from one to eight grinding-tubs. By this slow and old-style process nearly every mine (except the galena mines) in the territory has been tested. The ores, both gold and silver, lying above water-level, are of such a free character that, with no other manipulation than pulverizing, as much as from 60 to 85 per cent can be saved. Below water-level, the ore is generally associated with baser metals and sulphur, and therefore requires roasting and chloridizing. I have known instances, however, where the ore continued free far below the water-level.

Smelting is an important industry which, during the past year, has begun to assume promising proportions. The almost unparalleled success of the Hecla Consolidated Mining and Smelting Company, at Glendale, in Beaverhead County, has influenced others to use that method for reducing the base or refractory ores. Last season, a smelter was started at Butte City—a branch of Professor Hill's works, of Black Hawk, Colorado—and has been working copper, manganese, and galena ores very successfully. The New York Copper Company, which has purchased several valuable copper-silver mines, has a smelter under way at Butte City, and will probably begin operations as soon as spring opens. There are no refining works connected with the above-mentioned works. At present, they only reduce to a matte.

Lode mining can only be considered in its infancy in Montana. For many years after the discovery of gold, the "gum-booter," with his pick, shovel, and pan, washed the yellow dust from the rich gravel in the many placers. Although many of the richer gulches have long ago been turned over to the Chinaman, there are thousands of acres of placer ground that will pay to work for decades to come. Yet the placer interest has subsided in a measure with the rapid development of the lodes.

The first enterprise in reducing ores by stamp-mill process was tried near Bannock over a dozen years ago. The stamp stems were made of wood and the shoes and dies of wagon-tires welded together. The next trial was at Phillipsburg, where every thing was made of wood. The first trial demonstrated that the wood was softer than the quartz. From this small beginning, one stamp-mill after another has been built, until to-day the number of stamps keeping up their ceaseless pounding can be counted by the hundreds. The Alice, Silver Bow, and Dexter, of Butte; the Algonquin, of Phillipsburg; and several others we might mention, are models of beauty and convenience.

We have comparatively few mines represented on the stock-boards of the East; but when the railroads get a little closer to our doors, we expect the mining boom of Montana to commence.

R. H. KEMP.

BELMONT, MONT., March 5.

COMPLETION OF THE NO. 1 SHAFT OF THE RHEINPREUSSEN COAL-PIT.*

By M. Wagner.

The present memoir describes the operations carried out during the fourth period of seven years, in the sinking—or rather, boring—of a shaft through the alluvial sands of the Rhine, near Dortmund, which was completed at the end of November, 1877, when impermeable strata were reached at a depth of 408 feet, after rather more than twenty years' unceasing work, the ground having broken in, and even destroyed the iron tubing, on several occasions. The great interest attaching to this very difficult work has led to the previous publication of several analogous communications, in former volumes of the same journal, notably in vols. xi., xvii., xx., and xxiii., the record of the period in question commencing with the destruction of the sheet-iron lining tube strengthened with segmental cast-iron tubing, which happened in July, 1870. In the first instance, it was hoped that the repairs might be effected by divers; but when the water and sand were pumped out down to 276 feet, at which point a horizontal crack in the original tubing had been previously filled up, it was found that the fracture had reopened, the lower part having sunk about 6 inches, and the upper part shifted sideways about 1½ inches. To prevent further separation, sixteen steel bars, 4 inches × 1 inch and 16

* Abstract of a paper in the *Zeitschrift für das Berg-, Hütten- und Salinen-Wesen*, vol. xxvii., p. 1. From the Proceedings of the Institution of Civil Engineers of London, edited by James Forrest, Secretary.

feet long, were laid flat against the inner surface of the tube and screwed fast to the latter at either end, forming a series of tie-rods. At the same time, an inner cast-iron tube of smaller diameter was built up, and packed tightly against the rods. This appeared, at first, to stop the movement, but in a very few days the whole of the tie-rods broke; and the upper lining showing signs of movement, it became necessary to fill up the shaft with water, and to complete it down to the hard ground by boring, an operation which necessitated the removal of a great quantity of permanent oak timbering, set before the accident to the original tubing, as well as of several lengths of tubing built in at different times to secure weak places in the manner mentioned above.

For the first purpose, a tool with lever jaws, opening and shutting by a screw-movement, was used; and for the second, a double-headed percussive instrument, the tool carriers being arranged at the end of bows hinged next the point of suspension, so that, by opening or contracting them, a range between 3¼ and 16½ feet in diameter is commanded. The weight was about 5½ tons. With this instrument, the whole of the inner lengths of tubing, as well as the wrought-iron bearers for the shaft timbers, were broken to pieces, and were afterward removed by a rotating drag borer. The clearing out of the shaft to a lower wrought-iron tube fixed in the original sinking, and secured with concrete, at 357½ feet deep, was not completed until May, 1876. A new wrought-iron cylinder, 98½ feet long, with internal angle-iron stiffening-rings at intervals, extending from the bottom to a point 16½ feet above the fracture in the tubing at 276 feet, was next constructed and lowered into the shaft. The clearance space at the back of this cylinder was filled with concrete made of 1 part slacked lime, 2 parts trass, and four parts iron turnings, the last ingredient being added to obtain a dense mass. The filling was effected by segmental boxes of exactly the dimensions of the space to be filled. The manipulation of these boxes was a very tedious work. The interior of the cylinder was then completely filled with concrete, and the water pumped out. After making good the damage to the upper part of the shaft, which was not considerable, the internal concrete was cut out by the sinkers, and the cylinders, as the successive lengths were cleared out, were strengthened by building in cast-iron rings with wooden packings between the projections of the angle-iron flanges. On reaching the bottom cylinder, the flanges of the two were found to be in perfect contact, so that it was only necessary to drill through the lower flange, and fix the screw-bolts, to unite them. The concrete filling the lower cylinder was then cleared out, and a system of iron stiffening-rings, similar to those used in the upper cylinder, but of a much heavier character, were built in. These consisted, for each length of plates forming the cylinder, of two wrought-iron rings 3·15 inches square, two of 3·98 inches square, and a cast-iron one of 1 section, 9 inches high, sockets being cast on the latter to receive the butts of the guide timbers. At the bottom of the lower cylinder, which had a conical shoe, several attempts were made to form a joint with compressible material, analogous to the moss packing used in Kind and Chaudron's system; but all failed, owing to the presence of numerous fragments of the original broken tube, which could be bent aside, but not removed, by the boring tool. The necessary junction was therefore effected by means of an 8 foot 9 inch length of cast-iron segmental tubing of 7 feet 4 inches internal diameter, which was built up and supported upon a staging, until a hole was bored 3 feet 3 inches below the foot of the wrought-iron cylinder, and of the full diameter of the latter. This was carefully cleared from sludge, and filled with clean water, to receive a layer of concrete, 3 feet 3 inches thick, into which the smaller cast-iron tubing was pressed before the concrete had set. As the bottom of the sinking was now in the compact marls of the coal measures, which are quite impervious to water, no further difficulties are to be anticipated in working, although a farther depth of 607 feet has to be traversed before reaching the first working-level. Subsequently, the small-sized tubing at the bottom has been partly removed, and a system of V-shaped cast-iron rings are being built below the wrought-iron cylinder, giving a zigzag outline to the sides of the shaft in section. These rings increase in diameter downward, so that at 443 feet the diameter of the shaft will be 9·23 feet, which size will be preserved below that point.

PROGRESS IN SCIENCE AND THE ARTS.

Mineralogy.

From an article in the *American Journal of Science and Arts*, it appears from the investigation of Mr. Penfield that the mineral eosphorite, lately discovered and described by Messrs. Brush and E. S. Dana, is closely related to childrenite, both having the same empirical formula, as appears from Penfield's careful analysis of pure material of the last-named mineral. The two minerals, it now appears, have the same formula, but differ in this, that childrenite contains chiefly iron (26·54 per cent FeO, 4·87 per cent MnO), and eosphorite chiefly manganese (7·40 per cent FeO, 23·51 per cent MnO). Brush and Dana, therefore, consider their eosphorite to be a sub-species under childrenite.

Miscellaneous.

Substantial Advances in the Construction of Steam-Injectors are reported to have been made by Mr. J. H. Irwin, who has enunciated certain rules and formulæ for the proportions of the parts of this useful apparatus, and who has embodied the same in an apparatus which has lately been demonstrated by the tests of a committee of the Franklin Institute to be capable of yielding results of a very superior character. The last trials of this apparatus were of the most thorough and exhaustive character, and furnish in themselves a model for future work of a similar nature. The results announced by the committee are, that the information gained in regard to this injector is highly important in the cause of science, and that Mr. Irwin has contributed a valuable improvement in the manner of constructing injectors, increasing their power of augmentation to above twice that of the pressure of steam used for practical working without waste, and to about four times, with waste at the overflow, and apparently demonstrating the general law "that the lower the steam employed, the higher can the proportional augmentation of pressure be carried."

The remarkable thing about this apparatus—and that which gives an air of strong probability to the claim of Mr. Irwin that he has discovered

a law of universal applicability relative to the proportions of the parts of the injector—is the fact that the apparatus, as shown by the committee's tests, adapts itself to a great variety of conditions. Thus, the experiments ranged from 105 lbs. pressure to 15 inches vacuum, the instrument still working; an augmented pressure of 330 lbs. was gained with 90 lbs. of steam, and at 10 inches of vacuum an augmented pressure of 10 lbs. was gained; feed at 122° Fahr. was lifted 19 inches, and forced by 30 lbs. of steam against an equal pressure; water was lifted 21 feet by 40 lbs. steam, and forced against 60 lbs.; and many other tests were made with "the same instrument without a particle of change or alteration."

The law governing the economical action of injectors, as enumerated by Mr. Irwin, requires the employment of certain angles and set dimensions of the interior working parts, of which the following are the most important:

Taking the lesser diameter of the combining cone as the standard of measurement of the instrument, and calling it 1, the larger diameter and length of combining cone will be 4, the diameter and length of jet opening in steam cone will be 2, the smaller diameter of receiving cone will be 1, its larger diameter 2, its length 16, and the diameter of the starting steam-jet 0.5. The water supply-pipe and overflow are set at an angle of 45° to the axis of the instrument, which is claimed to materially increase its power of augmentation.

We can not do more here than simply present the general features of Mr. Irwin's important invention, and the general tenor of the committee's report. For the details in full, we refer our readers to the *Journal of the Franklin Institute*.

Edison's Latest.—The *Herald* is authority for the statement that Mr. Edison has found time in the intervals of his work on the electric light to make a remarkable discovery in another field. The industry which Mr. Edison proposes this time to revolutionize is the metallurgy of the precious metals. The *Herald* informs us that Mr. Edison has discovered a method by which "he can extract a greater amount of gold from the rejected residuum or 'tailings' of auriferous quartz or sand than is obtained by the present processes from the virgin rocks." To state it differently, Mr. Edison proposes, according to this account, after the ore has been treated by the usual processes of milling and amalgamating, and has yielded up from 75 to 90 per cent of its gold, according to the care with which it has been worked, to take the refuse and extract from it at merely nominal cost—anywhere from \$50 to \$1400 per ton. Mr. Edison may possibly have discovered the philosopher's stone by which to transmute baser substances into gold; but on any other supposition, the statements made by the *Herald* reporter are too ridiculously extravagant to merit serious consideration. It is by permitting omnivorous newspaper men to scatter such statements as the above broadcast without denial as emanating from him, that Mr. Edison is, to say the least, not adding to his reputation.—Dr. C. Siemens has reached some curious conclusions respecting the influence of the electric light on vegetation. He finds that the growth of plants is considerably promoted when they are continuously exposed to the alternate action of sunlight and the electric light. This, he holds, proves that plants do not require rest, that their growth can be materially hastened by giving them the benefit of the electric light at night, and that the electric light will produce chlorophyll in the leaves of plants, and promote their growth. In lecturing on this subject, Dr. Siemens illustrated his subject by placing some budding tulips in a strong electric light, which, in about 40 minutes, caused the buds to open out in full bloom.

A New Process for Etching on Copper.—From the *London Photographic News* we glean the following particulars of a new procedure for etching on copper, which has the merit of simplicity. A copper plate is first coated with bitumen on the turning-table, in the same manner as in "photo-zincography." When the coating is quite dry, an impression from a lithographic stone on transfer-paper is applied to it, which leaves behind a picture in fatty ink on the bitumen surface. The plate is then dusted with fine bronze powder, which adheres only on the inked portions, rendering them very opaque. The plate is now exposed to the light, which renders the portions of the bitumen coating not covered by the powder insoluble. Then a solvent for bitumen is applied, which removes the bitumen beneath the powdered parts, laying bare the copper surface in those parts corresponding to the picture. The copper plate can now be etched with perchloride of iron or other etching liquid, and when sufficient depth has been reached, the operation can be stopped and the whole plate cleaned. The process is said to be well adapted for line work.

New Steel Works.—The *Bulletin* notices that two new and important establishments for supplying the finest qualities of steel will shortly be ready to go into operation. One of these, the works of the Forest City Steel Company of Cleveland, Ohio, is expected to be at work about the 1st of April. Its capacity, it is stated, will be about four tons per day. The other, which is rapidly pushing to completion, is located at West Bergen, Hudson County, N. J., and is known as the West Bergen Steel Works. This establishment will be provided with two heating-furnaces, with 12 steel melting holes, two hammers and two trains of rolls; and its annual capacity, it is estimated, will be 1500 tons.

An Ingenious Method of Measuring the Quantity of Moisture in the Air has been devised by Herr Rudorff, who lately announced it to the German Chemical Society. It consists in admitting to a measured volume of air (say 1000 c. c. m.), contained in a suitable glass chamber, a small quantity of sulphuric acid from a graduated tube with stop-cock. The acid absorbs all the aqueous vapor contained in the air, thereby disturbing, however, the pressure in the chamber. This diminution of pressure is shown by means of a manometer connected with the vessel. Sulphuric acid is then admitted in drops until the original pressure is restored. The absorbed aqueous vapor is thus replaced by an equal volume of sulphuric acid, and by calculation the percentage of vapor that the air had carried can be readily ascertained. The method is said to give very accurate results, and the operation makes a good lecture experiment.

Cupellation Shown with the Lantern.—A lantern for the oxyhydrogen light has been devised by Mr. D. S. Holman, of the Franklin Institute, which possesses a number of advantageous features. According to the description given of this convenient adjunct of the lecture-room, it may be converted into a vertical lantern for showing precipitations, the

action of a magnet on iron filings, and kindred experiments, and with equal facility may be changed into a projecting microscope, or into a megascope, for showing solid objects on the screen greatly enlarged. In the course of some lectures lately delivered before the Institute, by Mr. A. E. Outerbridge, Jr., of the U. S. Mint, on the subject of "Coins and Coinage," the highly interesting and novel experiment was performed of showing to a large audience, by means of the convenient apparatus just named, the cupellation of gold and silver, as performed in the assaying of the precious metals.

A "cupel" was held in the focus of the light from the condensing lenses of the lantern, by means of a ring of copper wire, a greatly enlarged image of the same appearing on the screen. The cupel was then highly heated by means of the oxyhydrogen blow-pipe, and a weighed sample of the gold alloy, containing base metal inclosed in an envelope of lead, was then dropped into the white-hot cupel. As the oxidation of the lead and the absorption of the oxide progressed, it formed a dark ring in the bottom. "A little sheet of light was noticed moving over the surface of the molten metal as the non-oxidizable precious metal became exposed to view; then, at the moment that the lead was completely absorbed, carrying with it all the base metal originally contained in the alloy, the purified precious metal became visible as a brilliant globule, reflecting the light falling on its surface like a mirror."

GENERAL MINING NEWS.

ARIZONA.

GLOBE DISTRICT.

The following items are taken from the *Silver Bell* of the 27th ult.:

MCCORMICK.—Drifting is now going on south on the 250-foot level, and the further sinking of the shaft to solid formation will soon be begun.

MACK MORRIS.—The machinery is on the ground and the hoisting-works are going up. The double-compartment working-shaft is down 100 feet. Ore taken out at bottom of the 100-foot shaft looks finer than any on the dump.

SILVER NUGGET.—There have arrived at the Silver Nugget mine 38,000 pounds of machinery for the immediate erection of a five-stamp mill. The ore output of this mine has averaged for the last ten days, according to reliable information, \$1000 per day.

TOMBSTONE DISTRICT.

MONITOR.—The Monitor is rapidly sinking two shafts, 150 feet apart. The deepest is now down fifty feet; and when a depth of 100 feet is reached by both, a cross-cut will be run from one to the other, to determine the richness and extent of the vein.

CONTENTION.—The mill had, on the 19th ult., something over 600 pounds of refined silver. They are crushing about sixty tons per day. A new mill will be begun in a few days. There will be over fifty men and a number of teams employed in grading.

PROMPTER.—The mine is down on the main shaft fifty feet, and had to run a cross-cut twenty-eight feet before the foot-wall was reached; it shows ore which assays high.

GENERAL NOTES.

The sale of the Washington pool mines in Patagonia, which have been bonded to Eastern capitalists for some time, has finally been closed at the sum agreed upon, \$205,000.

PIONEER DISTRICT.—The Silver King working-shaft is now down a depth of 400 feet, but no ore is taken from it at present. The mill has passed into the possession of Eastern men. The Copper Top mine was sold some two weeks ago for \$12,000.

At Tip Top there is now awaiting treatment one hundred and fifty thousand dollars' worth of ore on the dump. The mill will not commence operations until about the 15th of May, when we may look for heavy shipments of bullion.

In the Old Hat District, the Silver Pence has a shaft some 40 feet down, from which, it is said, assays run from \$40 to \$550 per ton, \$25 being the lowest in silver.

The Phoenixville *Herald* says the Northern Light mine, Turkey Creek, has a shaft 30 feet in depth, working night and day shifts; vein commences 10 inches in width and gradually widens to three feet, the pay-streak being 24 inches wide; latest assays per ton, \$119.43.

CALIFORNIA.

THE BODIE DISTRICT.

The *Free Press* epitomizes up to March 29th as follows:

"The Standard Company recently cross-cut its big west ledge on the 385-foot level, and found it to be 78 feet from wall to wall, all of high-grade ore except about 5 feet of horse near the center of the vein. Among the important cross-cuts which are now running are those at the south end of the Syndicate Company's grounds, which will explore the full width of the property; at the 800-foot level of the Tioga, which have just been started east and west; at the 700-foot level of the Black Hawk, also just started; at the 500-foot level of the Jupiter, where there were two, both running west, from different points; at the 600-foot level of the Mono, which is reported to have struck a ledge within the past two or three days; and at the 600 level of the Goodshaw."

BELVIDERE.—"The main shaft is now 35 feet below the 400-foot station. The east wall of the ledge has a slight pitch to the west, and carries in it about 2 feet of bright, lively quartz, which seems to improve in strength and character as depth is attained. They now also have the west wall of the ledge, in the west end of the shaft, standing nearly vertical, which is also carrying about two feet of quartz, of about the same value as that on the east wall."

BLACK HAWK.—"The shaft is down to the 700 level, with a 6-foot sump below. The station is on both sides of the drift, and drifting to the east has been begun, with an 8-hour shift, and drifting to the west with a like shift."

BODE BLUFF.—"During the past week, a great improvement has occurred in the ledge, both in size and character of rock. It continues the same uniform regularity in the incline, and has increased in width, since last report, two inches. Good progress has been made. The incline is timbering with square sets."

BOSTON CONSOLIDATED.—"The main incline shaft has reached a depth of 78 feet below the 200-foot station. The bottom of the shaft is now in harder ground. The north drift has been driven 101 feet from the station."

TIOGA CONSOLIDATED.—"The station at the 800-foot level is completed, receiving-tank put in place, and shaft sunk and timbered 14 feet below the station. Cross-cutting from the 800 level, both east and west, has been begun. The east cross-cut is now in 9 feet, and the west 16 feet. The rock encountered in the east cross-cut is very hard. That in the west is a hard vein porphyry. No perceptible change in the flow of water."

LAKE DISTRICT.

The Mammoth City *Herald* of March 24th says: "The Mammoth Company has kept a force of men constantly at work during the whole of the winter in Tunnels Nos. 3 and 4, and good headway has been made. Its new 40-stamp mill will now be put in operation. The Headlight and Monte Cristo joint tunnel has, since the commencement of the work, on December 1st last, made 560 feet,

thus leaving but 250 feet to be run before the ledges of the Headlight and Monte Cristo are struck at a depth of over 800 feet from the surface."

MAMMOTH BLUE GRAVEL MINE.—The *Stock Report* of March 27th says: "We learn from reliable authority that this Nevada County property consists of about 12,000 acres of hydraulic and drifting ground, situated between Steep Hollow, Deer and Greenhorn Creeks, in the heart of the best gravel county in the State. There are 1600 acres of the ground patented, and a valuable water privilege and ditch connected with the property, with three parties upon said ground developing the same."

COLORADO.

CLEAR CREEK COUNTY.

The *Georgetown Miner* of April 1st says:

"The mines on Democrat Mountain, as a whole, show considerable improvement over last season, and at present the average grade of the ore produced is probably higher than that of any other district in the State, if not in the country."

BAXTER.—"An important and valuable discovery has been made in regard to the ore-veins in this profitable piece of property. When the shaft was sunk, a very valuable ore-vein was found at the 220-foot level, which has yielded largely since; but, until a few days ago, it was never suspected that the ore-vein at that point was an entirely different one from that which had been worked in the levels above, as now appears to be the case. The discovery of the error was made by raising a winze to connect the 220-foot with the 160-foot level, which demonstrated that the vein the raise was on was toward the hanging-wall of the lode, and entirely distinct from the vein which has been worked in the upper workings."

"The mine throughout is looking well, especially on the 50-foot level west of the shaft, the 100-foot level stope, the north vein on the 130-foot and 160-foot levels, and in all portions of the mine below the Diamond-tunnel level. The stope over the 100-foot level is opening up in a splendid manner, there being a vein of ore now exposed that mills from 500 to 600 ounces per ton."

EMMA.—"This well-known mine at present gives employment to a force of 17 men. The ground leased by Majors & Ross, comprising the stope of the 150 and 220-foot levels west of the main shaft, continues to show about an average quantity of ore, which is exceedingly rich."

"The stope of the 100-foot level of the shaft shows about two inches of rich ore. On the 150-foot level east of the shaft, a vein of quartz with ore mixed through it, with close assorting, mills about 500 ounces."

The Fred Rogers "mine is worked by lessees, who have recently commenced sinking the main shaft, and are stopping and drifting on the 230-foot level, on the Government or north ore-vein. The level has been driven 140 feet westerly, on an irregular vein of ore that in places carries three inches of solid, high-grade smelting ore, which mills from 700 to 1000 ounces per ton, and also, a large amount of quartz with ore scattered through it, which mills 90 to 112 ounces. The ore is galena, carrying gray copper and polybasite in large quantities."

JUNCTION.—"The only work going forward in this mine is in the back-stope west of the whim shaft. The ore-vein is lumpy, in places four inches in thickness, and mills about 360 ounces first-class, and 200 ounces second-class."

LITTLE EMMA.—"This mine is opened by an adit 500 feet long, which runs to the eastern end of the claim, where it joins the Emma. At the mouth of the adit is a commodious boarding-house, and the necessary buildings for sorting ore, blacksmithing, etc."

"Two shafts have been sunk from the adit, one to the eastern end of the claim, which is known as the McNulty shaft, and the other about 200 feet west of the former, and known as the Brigham shaft, the former being 123 and the latter 116 feet in depth."

"A level is driving west from the McNulty shaft, 63 feet below the adit. It carried a fine vein of ore for the first 25 feet; but the remainder of the distance, about 85 feet, there has been considerable barren ground. Ore is now commencing to appear as the level is driven ahead, and indications point to its being in pay again within a short distance. The stope over the adit is worked under lease by McArthur & Fuson, who have recently commenced work, and have not had a mill-run. The last lot milled from this stope returned 1038 ounces per ton."

LUCKY HESPERUS.—"Work is prosecuted on this lode from both the Junction and Lathrop tunnels. The workings from the Junction show a continuous ore-vein, averaging about two inches in thickness, for a distance of 600 feet, mill-runs ranging about 500 ounces first-class and 370 ounces second-class. The 50-foot level east of the shaft is worked by the lessees, who at present are running the level and stalling over it, preparatory to stopping it. The ore-vein is continuous, and mills, dressed into one class, from 600 to 700 ounces."

"The workings through the Lathrop tunnel are leased to Harrison & Bergman, who have a large body of quartz, with ore scattered through it, which, with assorting, mills about 250 ounces."

MILLS.—The *Georgetown Miner* of March 27th says:

"A visit to the numerous mills around the city shows that our great mines still continue to produce their full complement of ore. The mills run day and night, and are shipping large quantities of bullion, while the sampling works are sending forward lots of mineral."

"Hill's Sampling Works, at the head of Alpine street, are very nearly completed. From their present appearance, one would not think that a short time ago they were the old Pelican mill. The latter has been completely overhauled from top to bottom, and is outfitted with the latest improved machinery. It has also an iron roof and sides, and when completed will be, besides a benefit, a great ornament to the city."

GILPIN COUNTY.

The *Register-Call* says:

CHAMPION.—"The mill-ore of the Champion mine is averaging very nearly eight ounces gold per cord."

"The East Plack Mining Company, after much trial, tribulation, and the outlay of a large amount of money, at a depth of 560 feet from the surface has struck good pay, the smelting material yielding \$116 per ton above treatment; the mill-ore, which is treated at the New York Mill in Black Hawk, running above the average of the dirt crushed at the mill, varying from four to eight ounces in gold per cord. The company is now driving levels both east and west from the bottom of the mine to open up new, unexplored ground."

"The Egyptian mine—same as the Ralls County vein—gives a better showing both in milling material and smelting-iron than at any previous time since the present lessees commenced working that property. The mill-ore run at the Empire Mill, in Black Hawk, yielded five ounces gold per cord."

KENT COUNTY.—"The lode which, it is estimated, has produced over a million and a half of dollars, never carried a better or larger quantity of good ore than at the present time. Descending the shaft, the first point of interest which strikes the eye of a person interested in mining matters is that of the amount of ore to be met with in the 400-foot west level. A party of tributers are now working out a pillar of ground at this point. The vein-matter is of unusual width, carrying large quantities of smelting and milling ore. There are now some twenty tons in the shaft building over the mine awaiting treatment, which will give a return—average—of \$190 per ton above treatment. Going on down to the 500-foot level, the ore remains good and of a very uniform width."

"The mill-ore is giving an average return of 6 ounces gold per cord. Preparations are being made to continue sinking the mine to a depth of 1000 feet, 300 feet below its present depth, which will be fully inaugurated and under way by the 15th of the coming month. There never has been a time in the history of the workings of the Kent County lode, that so favorable a showing has been made as

just at the present time. Lumber has been ordered for the completion of the new 40-stamp mill, the building for which was erected some months ago. During this interim, Mr. Mackey will continue to run the Clayton stamp-mills, capacity of 37 stamps, on ore from the Kent County and Burroughs lodes."

"The mill-site, upon which there is a fine large structure, is considered the best in Nevada District. A tramway for conveying the ore from the mine to the mill could be very easily constructed, and at a comparatively small expense. The future of the Kent County lode is an assured fact—assured by present development."

"The Standley-California property, over 1000 feet in depth, continues to supply 45 stamps of the Richmond mine with food for digestion, and every week Mr. Standley leaves his regular weekly retort of not less than 140 ounces at the First National Bank, in this city. The smelting iron mined is allowed to accumulate in the ore-building, awaiting more liberal prices than have been offered by the smelters."

MILLS.—"Fifteen stamps of the Cashier Mill, in Black Hawk, are pounding on ore from the Cashier Company's mine on Mammoth Hill. Ten more stamps will be running shortly."

"The Monmouth-Kansas stamp-mill has resumed work, having been closed down since November last. The mine is being put in shape for producing enough ore to keep the 52-stamp mill constantly engaged. The tributers at work on the new vein recently tapped by means of a cross-cut north, will send off, during the present month some seventy tons of smelting iron, besides that of their stamp-mill dirt."

"Smith, Beggs & Co.'s new and improved 10-stamp mill, in Russell District, is being rapidly hurried to completion, and it is to be earnestly desired that the mill may justify the expectations of its owners and manager in treating the refractory ores of that locality. The same parties are working the Helmer lode—formerly known as the Progressive—and are taking out quantities of ore which will be treated in the mill now being erected."

"The Whitcomb 25-stamp mill, at Nevadaville, is full of ore, ten stamps being employed on ore from the Nimrod lode, five on Hidden Treasure ore for the Hidden Treasure Company, five on Kansas ore, and five on ore from the Pyrenee mine, which lies west of and adjoining the Nimrod."

JEFFERSON COUNTY.

REDUCTION WORKS.—The *Golden Transcript* of March 31st says:

"The different smelting-works of Golden are progressing finely with their work, and, when all are running, will make an excellent showing with their bullion product."

"The Valley works, now operated by the Moore Mining and Smelting Company, are running to their full capacity. The product of this establishment for the week ending last Saturday was \$11,433."

"Matters are progressing at the Golden Smelting Works as usual, a full complement of men being employed. Ores from Leadville and other points on the South Park and Rio Grande roads come through on the third rail without change at Denver. These cars, as well as those bringing in coke from El Moro, find plenty of return freight at our various fire-brick works."

"The Golden Sampling Works, at the mouth of the cañon, are preparing to start up again, having been shut down for some time, on account of the burning of the Omaha smelting-works, where the ores from here were treated."

"The new manager of the French smelting-works is crowding work upon his new furnaces, a large new building having been erected for their reception. He hopes to be able to start up permanently during April."

LAKE COUNTY.

AMIE.—The *Leadville Democrat* of April 2d says: "All the shafts are in operation, the principal output coming, and the principal shipments going, from the two shafts on the lower end of the claim and near the center of the location lines. The smelters still get about thirty tons daily, while the stock and stone house receives nearly the same amount."

ANNIE.—The *Leadville Herald* of March 28th says: "The Annie mine, on Fryer Hill, adjoining the Winnemuck, is one of the most productive mines on the hill. The surface improvements are first-class, and among the best in Leadville. There are four shafts on the mine, all in mineral, and all connected by underground drifts. From fifty to sixty tons of ore are mined daily from the property, and regular dividends of fifty thousand dollars a month have been paid for some months back. It is now proposed to increase the amount of dividends to one hundred thousand a month. While this can probably be done, it seems like a bad move. Overcrowding a mine is not proper mining."

CHRYSOLITE.—*Democrat*, April 2d: "Both cages are now in operation, the second starting in the early part of the week, though there is not, as yet, any need for such facilities, nor will there be until all connections are completed with the first station in the Roberts shaft. In the mean time, however, work is much more rapid, as men and lumber can be sent down in half the time formerly consumed. The Chrysolite is using the heaviest timbers in the camp, principally as caps in the lower levels and drifts."

CLIMAX.—"Is briskly working in two shafts to the north and south of the superintendent's office; both are in ore, and both outputting and shipping at the rate of from 20 or 25 tons every day, with an average, perhaps, of nearly the first-named quantity."

LEE.—"The lixiviation or leaching process, that Mr. Loomis, the superintendent of the Lee mine, has started to treat a certain grade of ore low in silver and without lead which is stacked at the mine, may now be said to be in operation. The building is double, and erected on the slope of the hill, just below the office, with a car-track connecting from the shaft-house and dump to the upper building, where bins are arranged adjacent to the drier, and from the drier by chutes to the leaching-vats in the lower building. As far as could be observed, the plan is to first dry the ore as stated, then charge it into the vats, which are filled with a liquid solution of hyposulphate of soda, and, when treated, to pass it through stop-cocks from the bottom of the vats to settling vats below. The capacity is thirty tons of ore a day, averaging about thirty ounces to the ton."

LITTLE PITTSBURG.—"Is shipping about the same amount of ore that it has done for the past two weeks, averaging eighty tons daily. The grade, which was mentioned in the *Democrat* as greatly improved, still continues, and it may be said that it leaves a margin over and above all expenses of mining and smelting on the ton. The diamond drill, under able management, has reached a depth from the surface of about three hundred feet in all from the surface of the Dives shaft. The drill works beautifully, and brings out a clean, nice core. Water is troubling its working somewhat, but not materially. The No. 6 Big Pittsburg shaft is also in water at a depth of two hundred and twenty feet, but large-size valve-buckets, operated when not hoisting, prevent interference in sinking."

Leadville Herald, April 2d: "On Monday, thirty-six men were discharged from the Little Pittsburg mine, and forty-five were discharged about two weeks ago. This leaves a small force at work, and these are employed in pushing forward development. Mr. John T. Herrick, the new superintendent, is expected to arrive on Saturday, when definite action will be taken as to the future working of the mine."

MORNING STAR.—"It is the intention of the owners of the Morning Star to sink a new shaft on the property farther to the east, and run it down to contact. As the vein is pitching toward the east, this will enable them to run all the ore from the ground already developed down-hill to the new shaft."

"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 fifty-three dollars per ton, or a total of about \$94,000."

SAN JUAN COUNTRY.

From the *Silver World* March 27th :
 "The Alabama cross-cut is in 160 feet, and it is expected the vein will be struck in about 15 feet more.
 "The Maid of the Mist shows in the bottom of the shaft a seam of mineral between 5 and 5½ feet wide.
 "The Red Cloud, at Mineral Point, continues to improve. The pay-streak in the shaft has increased from 3 feet to fully 4 feet in width. The contractors have stopped work on this shaft, not being able to make it pay."

SUMMIT COUNTY.

ROBINSON CONSOLIDATION.—Leadville *Democrat*, April 1st : "It is credibly reported that what gives every appearance, in weight and looks, of being hard carbonate was struck yesterday in the cross-cut tunnel driven to intersect the Robinson Consolidation at Ten Mile. The tunnel is in about 300 feet, and, on the engineer's calculation, it will take 600 feet more to strike the vein. Should this prove to be mineral, it is either another distinct body or, more probably, a cap from the vein which has broken over and fallen down the hill, which is often observed in fissure districts."

GENERAL NOTES.

Mining Timber.—Leadville *Herald*, April 1st : "So great has been the devastation of the forests about Leadville that the future supply of mining timber is becoming a serious subject. Already those obtained have to be hauled long distances, and the cost is becoming very great. In a short time, a supply of coal, brought in by the railroad, will, in a measure, take the place of wood as a fuel, but for timbering our mines, the forests are the only supply. A great deal of care should, therefore, be used that destructive fires, such as we had last summer, are not allowed to start, and fine, heavy timbers should be preserved for mine timbers alone. On the north side of Big Evans, there is a heavy growth of timber at present, but already it is being encroached upon. A good timber ranch will soon be as valuable as a mine."

Fairplay *Flume*, April 1st : "Any one who will buy mines, or an interest in mining property, upon the strength of assays, be they ever so large, is away behind the times in the matter of common sense, and but little sympathy will be wasted upon him when he is 'sinched.' The practical value of frequent assays to the miner can not be overestimated. By means of them, he becomes familiar with every changing feature of the mineral in his lode, ledge, or deposit, and often finds constituents of value where he had not looked for them. But a mill-run is the only safe test of value in bulk."

The contract for building the Green Smelting Works at Ten Mile has been awarded, and operations commenced.

Native copper of superior excellence is reported a short distance north of Kokomo.

Water boils in Leadville at a temperature of 192 degrees.
 Mr. Stevens, of the Iron mine, is reported to have received a check for \$1,600, 000 for his half of that property.

The Fairplay *Flume* says the Monte Cristo lode, formerly known as the Quarry, has no value but for experimental purposes, except, perhaps, \$2000, the cost of the mill on the river bank.

The Caribou Company has decided to declare dividends quarterly.
 At the Little Annie Mining Company's office, in Rio Grande County, water boils at 182°.

DAKOTA.

We condense as follows from the *Black Hills News* of the 28th ult. :
 RODERICK DRU.—Boring through the bottom of the shaft to find the extent of the ore-body. The old Wade & Castner 20-stamp mill, Sawpit Gulch, is running on the ore, and is connected with the mine by means of a tramway.

GOLDEN STAR, No. 2.—Erecting hoisting-works, and running contract work, sinking with three shifts.

GREAT EASTERN.—Still sinking on the main shaft, now down 70 feet. This company lately purchased the Flora Belle, situated in Hidden Treasure Gulch. The old Cunningham mill is now running its full capacity on Flora Belle.

FATHER DE SMET.—An 80-stamp mill is steadily running, but the rock is very hard, and one and a half tons of ore crushed per stamp every 24 hours, and a little over \$30,000 a month gold extracted.

ROSEBUD.—The Rosebud and several other contiguous claims on the hill south of Lead, are rapidly sinking through the porphyry cap, in hopes of making a discovery. The Rosebud is down 100 feet, but no discovery yet.

MONTANA.

We condense as follows from the *Butte Miner* :
 GAGNON.—The shaft has now a depth of 245 feet. It is sinking on the hanging-wall side of the ledge. On the 225-foot level, the cross-cut from the shaft is still pushed forward, but the foot-wall has not yet been struck. Work in the west level, which is now in forty feet from a point in the cross-cut twenty-five feet from the shaft, is also prosecuted. This level is on the hanging-wall side of the vein, which will soon be penetrated by a series of cross-cuts, for the purpose of taking out ore. The ore at present extracted from the upper levels is of very high grade, and, besides the silver, carries from 15 to 20 per cent copper. The two new pumps are expected to arrive in a few days.

MOOSE.—At the bottom of the 80-foot vertical shaft, the level has been extended about 10 feet south and 15 feet north, during the past week. The ledge continues strong and well-defined, and, in the face of the north level, a 2-foot vein of magnificent-looking base ore is extracted, assaying upward of \$200 per ton.

SUNNY SIDE.—A drift has been started east from the bottom of the 70-foot perpendicular shaft, following a three-foot body of fine ore. In the west drift, the ore is four feet wide.

GRAY ROCK.—The west level, 70 feet from the surface, is in 180 feet, and is now extending by contract.

CLEVE.—Work has been resumed in the Cleve mine, and a force of twenty is now employed. The distance from the first set of timbers to the face is 295 feet.

BELMONT NOTES.

The Penobscot has reached a depth of nearly 400 feet, the ore-body still holds out, and the stamp-mill runs steadily along. The Drum Lommond is developed by a 45-foot shaft, from the bottom of which cross-cuts are run to each wall, showing a vein over 60 feet wide, and carrying over 50 feet of pay-ore; a cross-cut tunnel 300 feet in length cuts the vein at a depth of nearly 200 feet from the surface.

NEVADA.

COMSTOCK LODGE.

Official advices of March 31st say :
 SIERRA NEVADA.—On the 2300 level, and from a point 600 feet north of the east shaft, a cross-cut has been started west. The winze from the 2400 level, and 145 feet north of the incline, is in good ore, the bottom 88 feet below that level.

BELCHER.—A diamond drill has been run in cross-cut No. 2 east, on the 3000 level, and has tapped the water which is allowed to drain off.

UNION CONSOLIDATED.—The Union shaft is nearing the 2500 level; and winze No. 1, east of the present stopes, is 75 feet below the 2400 level. The south drift on the 2400 level continues in soft vein-matter, its face 400 feet from the Union shaft.

CROWN POINT.—The winze from the 2700 level has reached a depth of 278 feet on the slope below that level, and is averaging six feet per day.

YELLOW JACKET.—West cross-cut, 2700 level, is in a very likely formation, seams of clay and quartz yielding low assays having been encountered; total length, 250 feet.

CALIFORNIA.—The raise for the north ore vein is in low-grade quartz, 35 feet above the 2100 level. Yield of the mine per day from 35 to 40 tons of ore.

MEXICAN.—The cross-cut east on the 2300 level, joint with Union Consolidated, is 270 feet in length, and has 35 feet yet to run to reach the point from which the joint winze will be sunk to the 2500 level. It is in vein porphyry, carrying stringers of quartz and seams of clay.

GOULD & CURRY.—The G. & C. and B. & B. shaft has attained a depth of 994 feet, and is still in hard rock which lets in an abundant flow of water. The raise from the 1700 level to meet this shaft is up 310 feet, leaving 116 feet yet to be made to connect the two. The rock in the raise is still dry and hard.

CONSOLIDATED VIRGINIA.—The joint California east cross-cut, on the 2200 level, is now 214 feet in length, and in a fine vein formation carrying streaks of clay and quartz.

UTAH.—The south lateral drift on the 1750 level is 300 feet in length, and in porphyry, clay, and quartz.

HALE & NORCROSS.—Connection has been made between the winze from the 2200 level and the raise from the Chollar workings on the 2400 level, and the work of evening up the connection and timbering on down has been begun. The main incline is sinking in hard rock.

BEST & BELCHER.—The joint Consolidated Virginia cross-cut east on the 2000 level continues in hard blasting porphyry, through which, however, it is driven at the rate of 5 feet per day; total length, from the bottom of the winze, 283 feet.

BRISTOL DISTRICT.—The *Pioche Record* says that the Bristol Silver Mining Company has already purchased its hoisting-works, is putting up a ten-stamp mill, and has an improved artesian well apparatus, capable of sinking to a depth of 3000 feet, and intends boring for flowing water in a few days.

COMO NOTES.—We gather the following from the *Lyon County Times* of the 27th ult. : "Work has been resumed on the Belvidere. A tunnel is running to strike the ledge at a depth of 110 feet. It is now in 35 feet. The North Rapid resumed sinking, and is now down 172 feet. The rock improves as they go down. South Eureka still sinking. It is now down 80 feet, and intends to drift for the ledge at 100-foot level. The Gotham shaft is down about 30 feet."

UTAH.

The Salt Lake *Herald* says :

"Good coal prospects have been discovered at a place six miles east of Heber City. So far, the vein has not been struck, though the indications are very good, and three men are engaged in working at the claim. The tunnel is in about 125 feet, and stratified coal formations are encountered, evidencing the proximity of this carbonaceous metalloïd. They are now in iron-stone bands, and the formation, so far, resembles that of the Coalville mines."

BINGHAM NOTES.—A correspondent of the Salt Lake *Tribune*, writing from Bingham under date of March 27th, says :

"The Hamlin tunnel is being driven at a lively rate. Ground was first broken on the 14th, and up to this date it has been driven a distance of sixty feet. It is believed the ledge will be cut in 100 feet further."

"In the Tilwauke, a tunnel cuts the ledge at a distance of 100 feet. From this point, two drifts have been run at right angles on the vein for a distance of seventy-five feet each from the tunnel east and west, thus opening the vein in length 150 feet, the greater part of which is in ore of a very fine quality. In the west drift, a winze has been sunk sixty-five feet, showing ore the entire distance. From the tunnel, a raise has been run fifty-five feet. Two cross-cuts have been run on the vein from this raise, one fifty feet east, the other thirty-five feet west, showing ore the whole distance."

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 :

Dredging at the Mouth of the Pascagoula River, Miss. ; U. S. Engineer's Office, Mobile, Ala.	April 10, 1880.
For Steamboats to Run between New York and Long Branch ; William Ottamann, Executive Committee, Fulton Market, New York City.	" 10, "
For Wagon Transportation ; Office of the Chief Quartermaster, Fort Leavenworth, Kansas.	" 13, "
For Furnishing Thirty Thousand Ties ; J. E. Cole, Buena Vista, Colo.	" 13, "
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.	" 20, "
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 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 Building a Court-House ; Parkins & Bruce, Architects, Healy Building, Atlanta, Ga.	" 4, "
For Tanks and Pumping Machinery ; 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 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, "

ASSAY DEPARTMENT OF THE ENGINEERING AND MINING JOURNAL.

This department is opened for the benefit of miners, prospectors, and others interested in minerals.

Replies will be made in these columns, and *without charge*, to questions asked regarding the nature and commercial value of minerals, and of samples sent.

Assays determining the actual composition and value of ores will be made at the following rates. All assays are made with the utmost care by the most experienced and competent assayers :

Assay for gold.	\$3.50	Assay for copper.	\$3.00	Assay for iron.	\$4.00
" silver.	3.00	" lead (wet).	3.00	" nickel and	
" gold and silver.	5.00	" zinc.	5.00	" cobalt.	10.00

The amount should invariably accompany the order, and *expressage or postage must always be prepaid.*

Communications, samples, etc., to be addressed to
 ENGINEERING AND MINING JOURNAL, 27 Park Pl'ce, New York
 (P. O. Box 4404).

FINANCIAL.

Gold and Silver Stocks.

NEW YORK, Friday Evening, April 9.

There has been but a small business in mining stocks during the past week, and prices have, with but few exceptions, been weak. Although the effect of the recent decline in Little Pittsburg has still an influence on the mining shares market, yet during the past week the decline in railway stocks and the tight money market has had even a greater effect. There are entirely too many "wild-cats" and highly-overrated mines in the market to maintain a healthy condition of affairs. As soon as the stock of a good mine advances upon merit, the prices of the "wild-cats" are also moved up, to give the impression of advancing in sympathy. Then, as confidence becomes established in the market, these "wild-cats," or highly-overrated stocks, are forced upon the market, and demoralization consequently occurs. A large amount of money has been put into low-priced stocks of late, under the belief that these must advance; but the facts are that the insiders have pretty well unloaded, and we now see very important declines in this class of stocks; in fact, the proportion of loss is about as great in these as in Little Pittsburg. The public should benefit by their experience in these stocks, and hereafter insist upon the same class of information that they would in making an investment in a high-priced stock. At the close, it looked as though the market had about reached bottom, and that a proper adjustment of values had taken place. There is no question that there are some good bargains in the better class of stocks that have suffered from the present demoralization.

The Comstock shares have not only been quiet but exceedingly weak. The sales of California aggregate 1985 shares at \$2.85@2.45. Consolidated Virginia has shown a little more business, but has been fully as weak, the sales amounting to 3385 shares at \$3.10@2.60. On Saturday, 50 shares of Sierra Nevada sold at \$21. Consolidated Imperial has been very quiet, the sales amounting to but 200 shares at 41@38c. Leviathan, with stray transactions, records sales of 800 shares at 30c., and on Monday, 100 shares of Union Consolidated sold at \$35.

The Tuscarora stocks have had a moderate business at declining prices. The sales of Belle Isle amount to 4630 shares at 98@75c. On Wednesday, 100 shares of Grand Prize sold at \$1.15. Independence has been considerably neglected; the transactions being confined to but two days, and the sales amounting to 765 shares at 94@85c. On Wednesday, 100 shares of Martin White sold at 30c. Navajo records sales of 1600 shares at 22@50c., the latter figure being secured to-day, as against 23c. on Wednesday. Tuscarora has been largely dealt in and weak; the sales amounting to 20,700 shares at 43@31c.

The Bodie stocks have been largely dealt in, but weak. The sales of Bodie amount to 3015 shares at \$10@8½. Standard has had but a moderate business and has been very weak, selling at \$32 on Monday, and \$28½ to-day, the sales amounting to 2450 shares. Bechtel only records sales of 675 shares at \$1.85@1.70. Bulwer has sold within the range of \$8½@7½, to the extent of 1310 shares. Consolidated Pacific records but 395 shares at \$3.25@3. Goodshaw has had a fair business at very weak prices, the sales amounting to 5600 shares at 40@16c. and recovering to-day to 30c. On Saturday 50 shares of Mono sold at \$7½. South Bodie has had a large business, and has fallen off one half, the sales amounting to 7000 shares at 50@25c. South Bulwer has been fairly active and weak, the sales amounting to 5800 shares, at 76@51c. During the past two days, 110 shares of Tioga sold at \$2.

The miscellaneous San Francisco stocks have been quiet. In Eureka, the dealings have amounted to 545 shares at \$18½@20. On Tuesday, 108 shares of Leopard sold at 15c. Caledonia (B. H.) shows a moderate business at declining prices. The sales amount to 900 shares at \$2.90@2.50. The dealings in the stocks on our regular lists have been as follows: Yesterday 50 shares of Amie sold at \$2½, this being the only transaction of the week. Caribou has been very quiet, the sales amounting to but 600 shares at \$2½@3. Climax has been quite active and gaining strength; the sales amount to 17,510 shares at \$2@2.75, the latter figure being reached to-day. Dead-

wood only records 20 shares at \$20. Yesterday 50 shares of Excelsior sold at \$19½. Findley has been neglected, the transactions being confined to two days and amounting to 2500 shares, at 61@60c. Great Eastern has been fairly active, at 52@46c.; the sales amounting to 28,600 shares. Green Mountain has been rather steady, under a liberal business, the sales amounting to 3300 shares at \$3.25@3.35. In Homestake, the dealings have amounted to but 370 shares at \$35½@36. Hukill has had but a moderate business at prices somewhat weak, the sales amounting to 4085 at \$2.80@2.65. Leadville has been very quiet and somewhat weak; the sales amounting to 1800 shares at \$3.20@2.95. Little Pittsburg has had a fair business, but has been a shade weak; the sales amount to 8985 shares at \$9½@8¾. Moose has been very active, and, although at times weak, has given indications of an inclination to advance in price. The sales amount to 19,700 shares at \$1.40@1.20@1.35. New York & Colorado has ranged between \$1.70 and \$2.15, with sales of 2000 shares. To-day, 100 shares of Ontario sold at \$35; and 100 shares of Plumas sold on Monday at \$2.10. Calaveras has been very active and quiet; a disappointment to those who went in at high prices. It sold on Saturday at \$1.60, and yesterday at 85c.; the sales amounting to 25,800 shares. Central Arizona has been somewhat neglected; the sales amounting to but 1395 shares at \$7@6½. In the Mariposa stocks, 100 shares of Common sold at \$3½, and 600 shares of Preferred at \$2½. Quicksilver Preferred has been dealt in to the extent of 2600 shares at \$66@60; and Common, 150 shares at \$15. Rappahannock has been very active, and, although steadily weakening, to-day there appears to have been a raid upon it, which has carried it to the subscription price. The sales amount to 33,200 shares at 38@25c. Shamrock has been quiet, although stronger; the sales amount to 1700 shares at \$1.10@1.25. Silver Cliff was very weak during the early portion of the week, but has largely recovered since; the sales amount to 2650, at \$5½@4½@5. South Hite has had a moderate business at steadily weakening prices; the sales amount to 6900 shares at \$2.05@1.60. Sutro Tunnel has been very active and very weak, the sales amounting to 67,695 shares at \$2¼@1¾.

The dealings in the fancies have been as follows: American Flag, 8700 shares at 64@60c.; Buckeye, 47,000 shares at 60@52c.; Dahlonega, 11,350 at 20@15c.; Gold Placer, 24,400 at \$1.15@97c.; Granite, 15,000 shares at 28@25c.; Lacrosse, 12,900 shares at 52@48c.; Lucerne, 1200 shares at 19@18c.

The Governing Committee of the New York Mining Stock Exchange has granted the petition of those members who recently asked that "unlisted" mining stocks might be included in the list authorized to be dealt in. Mining stocks not regularly listed may be called by request of shareholders, whether the companies as such make application or not, provided the status of the mining company is well known. The following resolution expresses the ruling of the committee as announced yesterday: "Resolved, That we hereby enlarge the listing of stocks on private application beyond the restriction to stocks dealt in at other Exchanges, adding thereto such stocks dealt in at the time by the public as shall pass the general investigation of the Committee on Securities, and be reported to this committee for listing, on the application of shareholders of the respective stocks, represented by five members of the Exchange in each case; such stocks to be listed subject to being dropped from the lists at the pleasure of the Exchange as heretofore in the case of stocks listed from other markets."

The Ladies' Bullion Club is following the example of the Bullion Club, and announces Prof. Newberry to lecture on the 14th inst., Hon. R. B. Kimball on the 21st, Prof. McChesney on the 28th, and Prof. Egleson on May 5th.

The capital of the Edison Ore Milling Co. is to be increased from \$350,000 to \$3,500,000.

Messrs. Trask & Francis, 70 Broadway, New York, have opened the subscription-books of the San Juan & New York Mining and Smelting Co., which possesses a large and very promising property in the San Juan region, besides some important smelting works. The capital stock is \$5,000,000, divided into 500,000 shares, at the par value of \$10 each. The subscription price will be \$2 per share. The President and Vice-President of the Denver & Rio Grande RR. Co. are

among the list of directors. This railroad contemplates opening up the San Juan District.

President Ives, of the New York Stock Exchange, has called the attention of the members to the following section of Article 19 of the By-Laws, and threatens to remove the names from the books of the Stock Exchange of any who disregard this law:

"Section 1. Any member uniting, directly or by a partner, with any organization where stocks, bonds, etc., are dealt in, shall cease to be a member of this Exchange. This rule shall not apply to the New York Mining Stock Exchange while its transactions are limited to the class of securities at present dealt in at that Exchange."

The following is a list of names accepted by the new Mining Exchange: Vanderbilt Allen, George Alexander, Franklin Allen, William T. Brown, O. Bailey, M. P. Bush, Williamson Bacon, Oden Bowie, Jr., E. T. Bell, C. C. Broun, Samuel M. Blatchford, Alfred Beattie, Henry M. Cowles, E. A. Corbin, Francis R. Culbert, J. S. Delano, E. G. de Crano, Arthur L. Dieffendorf, R. M. Mitchell, Jr., J. P. Martin, George D. Meeker, William F. Moller, Thomas Marshall, E. C. Machen, George W. Middleton, W. H. McClintock, William J. Osborn, C. E. Orvis, George H. Prentiss, Frederick J. Phillips, J. D. Prescott, Charles A. Page, Hiram Pool, Albert Pulitzer, W. P. Pratt, H. Penock, George W. Douglass, H. B. Denman, Hamilton Disston, B. F. Dalton, George W. Dunn, Frederick J. Epstein, E. G. Emmet, George R. Eager, A. Ebert, Alonzo Follett, Frederick W. Gunther, E. R. Grant, D. B. Gilbert, William E. Gordon, H. Goldthwaite, John H. Gafney, G. Lewis Ring, Clint. Roudebush, Walter S. Richmond, A. E. Reynolds, Ford H. Rogers, J. G. Riley, L. D. Roudebush, George W. Smiley, Edward P. Schmidt, Thomas J. Slaughter, David L. St. John, W. A. Simmons, Andrew Smith, Walter I. Smart, H. S. Sanders, Walter Scranton, Benjamin F. Guyton, Lyons Honigsberger, Furman M. Hunt, John Hewston, Jr., E. E. Hellings, E. Hayden Herrick, C. C. Hastings, J. C. Hall, A. A. Housman, O. H. La Grange, Lewis Leland, Joshua A. Lyons, N. Lowenberg, Ethingam Lawrence, Washington Lee, Henry M. Leverich, Mark L. McDonald, T. F. Sharpe, W. C. Squire, S. B. Sturges, Luther E. Shinn, Juan P. Terry, J. Leslie Thompson, George W. Taylor, C. H. Tompkins, J. C. Ubler, H. L. Underwood, F. S. Van Rensselaer, Schuyler N. Warren, W. J. Welch, William S. Warner, H. Weedleaf, Alfred J. Wolf, J. H. H. Williams.

Although there are many good names in the above list, we think that the remaining 368 which are said to have applied for membership must be of a low order, if the above is the best selection that could be made. There are some names in the accepted list that may command confidence among strangers, but certainly not where their past history, and particularly their past mining operations, are known.

QUOTATIONS OF UNLISTED STOCKS.

Messrs. Trask & Francis, of No. 70 Broadway, New York, report the current quotations of unlisted stocks under date of April 9th, 1880, 3 P. M., as follows:

	Bid.	Off.		Bid.	Off.
Amie	22½	22½	Highland Chief	20	22
Bassick	17	17	Horn-Silver	17½	18
Breece	2.30	2.50	Hortense		95
Bull-Domingo	7	8½	Little Chief	11	11½
Bald Mountain	1.50	1.75	Native Silver		1
Cherokee	1.20	1.35	Penobscot	1½	2
Chrysolite	24	24½	Plata Verde		9½
Carbonate Hill	1.55	1.35	Red Elephant	1.80	3
Dunderberg	2.90	3	Sir R'derick Dhu	1.50	1.90
Father De Smet		19¼	Stormont		4
Freeland	5	5¼	Spring Valley	9¼	9¾
Harshaw	20	22½	Van de Water G.	1½	2¼

OFFICIAL LETTERS.

Alta-Montana.—A dispatch from Alta Montana, dated April 5th, says: "Twenty-ton smelter running splendidly; one day's run, \$1700. We are complete masters of the situation. The small smelter belonging to this mine ran \$3700 in bullion in four days after firing. The tunnels are all in ore on the Alta vein."

Amie.—The manager of this mine, under date of the 8th inst., says: "Second contact is not a break from original ore-body. We are sure it is a distinct pay-streak, now 2 feet thick, high-grade ore."

Big Pittsburg.—A dispatch from the superintendent of this mine, dated Leadville, April 7th, says: "The Big Pittsburg has a 10-inch perpendicular vein of red hematite, with iron-stained porphyry on both sides, in the McCormick drift, and 14 inches of carbonate in the North Lent drift. During the past month, there have been shipped to the smelters 21 tons, and the office, blacksmith-shop, and shaft-work have been completed."

Bassick.—This company has appointed a new superintendent, and also a new foreman. Both are experienced men from the Comstock mines. A contract has been let for a fifty-ton concentrator, to be

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. 3, Apr. 5, Apr. 6, Apr. 7, Apr. 8, Apr. 9), and SALES.

Non-Dividend 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. 3, Apr. 5, Apr. 6, Apr. 7, Apr. 8, Apr. 9), and SALES.

Total Assessments levied to date 63,042,110. Total Dividends paid to date 140,299,605. Total shares sold during the week, 412,393.

in position and running by July 1st. There are now about 6000 tons of ore on the dump.

Bodie.—Telegrams have been sent from the superintendent of this mine upon the dates annexed.

April 3.—Bodie is looking well in bottom. Running drift north on vein two feet wide. Ore average assays high. No change in Mono. Water is troublesome. Nothing new in Standard or Bulwer.

April 4.—In Bodie mine, have reached vein in bottom of fourth level (incline); ore still of good quality. Started drift north; the ore shows up freely—30 inches wide—all shows free gold.

In the Mono, water strong, but diminishing. We are waiting for further drainage before continuing east cross-cut; looks well.

April 4.—Vein in bottom of winze, fourth level, east cross-cut, 30 inches wide this afternoon, and looks well in the north drift. Shipments, \$4884.

Bull-Domingo.—A telegram from this mine, dated April 6th, says: The Bull-Domingo now has its new shaft down 150 feet, where a station 15 by 12 feet is now being cut, preparatory to drifting toward the main ore-body. The usual quality of ore is now being extracted, which will be increased during the month, as the concentration works will be in operation by the 10th inst.

Bald Mountain.—The superintendent of this company, under date of April 3d, says: "Just returned from Gunnison. Road open to mine next Monday. Mines opening up splendidly, especially north end Gold Cup. Am getting very rich ore from breast of middle incline. Will crowd developments."

The Barcelona Mine.—A telegram from this mine, dated Belmont, Nevada, April 6th, says: Another big strike in north drift, 75-foot level, Barcelona, assays \$153.71 per ton. The south drift looks well.

Crowell Gold Mining Company.—The 5-stamp mill of this company started up to-day.

The Chrysolite Mine.—We append various telegrams received from this mine during the week. A letter of April 1st reports that a new cross-cut has been started in five feet of galena and sand carbonate, at a point near the Eva or Triangle shaft. Drifts started both ways from the west end of Roberts's shaft first level. "All in good ore." During the month, 281 feet of drifts and 30 of winzes have been run. Shipped 105 tons on 31st ult.

The ore statements from this mine for the week ending March 31st, and for the month, is as under:

	Tons.
Ore delivered and not paid for as per last week's statement.....	1,246
Ore delivered this week.....	843
Total ore delivered.....	4,073
Ore paid for this week.....	1,139
Total ore paid for this month.....	4,677
Balance delivered but not paid for.....	913
Cash received this week from sale of ore.....	\$39,809
Total cash received this month.....	242,641

A telegram dated the 8th inst. says:

In driving west from Vulture shaft IV., we have encountered mixed iron and clay. We have, therefore, hopes of ore. We to-day found bunches of galena in the east cross-cut one half level on Sec. A 29. This drift is advancing to strike the north end of the drift on the Chief line. The Roberts west drift on first level continues as fine as usual. East drift to-day shows rather more iron. The south drift ore F 31 is to-day pitching downward. Nearly all our ore faces during the last 24 hours have required blasting, so that our output is somewhat less. Every thing indicates that our bonanza is on the new level.

California Water and Mining Company.—A telegram from this company, dated Auburn, Cal., April 7th, says: Accounts of new company opened April 1st. Plenty of water. Upper line of water-shed under snow for a month yet, rendering prospects for season excellent.

The Dunderberg Mine.—It is stated that a vein of ore in this mine, 700 feet east of the main works, is 2 feet in width, solid, the whole of which will average 150 ounces of silver per ton. Drifting is progressing rapidly in an easterly direction, and the mine is in excellent condition generally.

The Father de Smet Mine.—Recent advices from this mine state that the ore on the southeast side, Eureka Chamber, is coming in stronger daily, and takes the same turn to the eastward as it does on the surface. In the south chamber, they are not doing much, and are working only one hammer, exposing a fine body of good ore on the southeast side, which they reserve intact, to work from the surface down.

The Green Mountain Mine.—The president of this

company telegraphs from San Francisco, April 5th, as follows: "Have contracted for double-cylinder air-compressor and two steam drills for Green Mountain; will forward as soon as weather permits. Unprecedented snow-storm raging. Am negotiating for the lease of the Crescent thirty-two-stamp mill for our use."

The Hukill Mine.—Recent advices from this mine state that another shaft is now being sunk, and at a depth of fifteen feet, on March 29th, had a splendid showing of mineral all the way. The north drift from the second station had kept steadily improving in quality and quantity of ore. At the third station, the north drift had fully three feet of fine mineral in the face. The south drift, from the third level, was still in two feet of ore of good quality. Every thing about the mine was looking well.

The first winze from the first level of this mine has been completed.

The Iron Silver Mine.—A dispatch from the manager, dated Leadville, April 7th, says: "The new fourth level drift is all in mineral. In west drift of Bullseye, there are five (5) feet of ore. In south drift of 'Stone,' four feet of ore. Ore-bins overflowing. Can't haul. Shipped sixty-seven tons."

A dispatch dated the 8th inst., says: "'Iron' as usual. Ore-bodies in 'Rock' and 'Stone' growing longer. Shipped 45 tons. Shipments from this mine for the month of March amounted to 1346 tons.

The Little Chief Mine.—A dispatch from the manager of this mine, dated Leadville, April 8th, says: "The bottom of the Daly shaft, at a depth of 130 feet, is to-day entirely iron; we may now hope for ore at any time. The winze on the north drift from Shaft IV., at about 3 P.M., struck fine ore imbedded in the iron. I can not yet determine its extent. This is the deepest point in the mine, and hence is both important and encouraging. The ore-body north from Shaft VII. looks very well. Selected piece assayed from 100 to 800 ounces. The sand streak, south of and above the bottom of Shaft IV. has diminished. The winze from north drift from Shaft III. is in soft clay. The connecting drift from the Roberts shaft is about half iron. We shipped 100 tons to smelters to-day."

A dispatch dated April 9th says: "The connecting drift to Roberts Shaft No. 7, drifts, and north drift, Shaft 4, all good. Shipped 78 tons, and remitted \$25,000. Account Chief."

The March output from this mine shows 33,014 tons, from which 143,946 lbs. were received.

The Little Pittsburg Mine.—Telegraphic advices from the superintendent of this mine states that a body of high-grade galena ore has been struck in shaft No. 6. Whether the discovery was made as the shaft was being sunk, or in drifting from it, is not stated. No. 6 shaft is toward the north or undeveloped end of the property. The ore strike in the Daly shaft of the Little Chief, on the 7th inst., is 75 feet from the Dives claim, belonging to the Little Pittsburg, on which a shaft is being sunk, and a diamond drill is being run to penetrate the same ore-body found in the Daly shaft.

The Lowland Chief Mine.—The superintendent of this mine telegraphs that in No. 1 shaft a body of sand carbonates had been struck, assay 85 ounces, and that the bottom of the body had not been reached. From shaft No. 2 a drift is being pushed toward the Highland Chief, and on a large body of low-grade ore. The mine looks more promising than at any previous time.

The Mohave Mine.—A telegram dated Mineral Park, Arizona Territory, April 4th, very favorably dwells upon the good appearance of the Fontenoy. This mine is the best of the six belonging to the company.

The New York & Calaveras Mine.—By the advices of the resident director of this mine, the clean-up has been postponed for sixty days. Only twenty days of actual work had been performed. It would not be economical to clean up simply for this. The property is now ready for continuous working. The notice of the postponement of the clean-up is given because many interested in the company expected that it would occur about April 1st.

The Plata Verde Mine.—Recent advices from the superintendent of this mine state that rich bodies of ore are being recovered, and that the work on the mill is progressing with the utmost expedition.

The Red Elephant Mine.—We append various telegrams and letters received at this company's office in

this city, from the company's mines during the week:

April 2.—Shipped 5 tons concentrating ore yesterday, which assay 79½ ounces per ton. Shipped to day 27 tons of second-class ore.

The superintendent writes under date of March 31st, and says that he finds the White and Free America looking well, and the Boulder Nest very much better. A drift run 100 feet from the sixth level without encountering walls had cut six separate veins of ore from two to four feet thick and running 200 ounces per ton. The winze between the sixth and seventh levels, a distance of eighty-two feet, was in solid ore. The seventh level, running from the shaft to meet the winze, was also in ore. The upper workings were also in "big" ore, so that above the lower levels there was estimated to be enough ore opened for two years' steady work. A telegram, dated April 4th, states that twenty tons shipped averaged 104 ounces. The connection had been made between the White mine and the Boulder Nest, and the output is to be increased to forty tons daily.

The developments in this mine amounted to 2150 feet, and shafting over 4500 feet in drifts and levels.

The Robinson Consolidated Mining Company.—A dispatch from the general manager of this mine, dated April 2d, says: "Shipped yesterday 24 tons to Leadville. To-day, 7 tons. Hereafter, shipments to Leadville will be limited, it being preferable to hold ores for treatment here.

"We are now sinking main incline, having finished track and dump this morning. Tunnel progress, 3 feet; total, 297 feet. Ground slaty and soft. Foot-wall line carrying a few pyrites of iron. Struck heavy flow of water in tunnel shaft last evening. Very favorable ore indications in bottom of this shaft. Fired a forty-five ton roaster this morning; filling another, and two ready to fill. Ore shipped for week ending March 31st, 153 tons. Number of men employed, seventy-five."

The Sir Roderick Dhu.—A dispatch received at the office of the Sir Roderick Dhu Mining Company this morning says that the new Diamond drill is at work, and is down one hundred feet.

The Silver Cliff Mine.—A dispatch from the superintendent of this mine, dated April 7th, says: "Shipped three bars, 323 pounds bullion; am running at full capacity."

All the new machinery is now in place at this mine, and the mill started again yesterday.

Another dispatch, April 6th, says:

"We have shipped 323 pounds of bullion, making \$30,000 for the month of March, and about \$45,000 for the last two months. During this time, the mill has never run at more than one third of its capacity. This mill is now, however, running at its full capacity."

The Standard Mine.—The superintendent writes, under date of March 28th, that there had been no change of importance in the mine during the week previous. It is expected to cut the West Standard vein within a few days by a cross-cut east from the south drift on the 385-foot level. In the north drift, on this level, very fine ore was being taken out. The ledge in the West Standard stopes was six feet wide, and in the Gilda stopes four feet wide. The stopes throughout the mine were looking well, and yielding the usual amount and grade of ore.

The Spring Valley Mine.—The superintendent of this mine reports, under date of March 24th, that he would on the next day begin work on the bottom gravels. Two powerful derricks were to be put up, to facilitate work among the heavy boulders of the bed-rock. He says: "The recent clean-up of the old company, before surrendering possession, aggregating \$105,000 in gold bar, besides several thousand dollars in 'black gold' (discolored by lead), must surprise every body." A hard blue cement crops out in many places in the bed-rock, and it is thought this can be crushed and made to pay richly. The superintendent proposes to follow his instructions from the home office, and "push ahead such work as will produce immediate results."

DIVIDENDS.

The Green Mountain Mining Company has declared dividend No. 10, of 5c. per share, payable on the 26th inst.

The Deadwood Mining Company announces its usual dividend of 25c. per share (for March), pay-

able at Wells, Fargo & Co.'s, on the 20th. Transfers close on the 15th.

The Natoma Water and Mining Company, of California, has declared a quarterly dividend of \$2 per share, payable April 5th. This is one of the oldest companies in the State, having a capital stock of \$300,000, and has previously paid 104 dividends, aggregating \$470,000.

The Standard Mining Company has declared a dividend of 75 cents per share, payable on April 12th.

Ontario.—The Ontario Silver Mining Company has declared its regular monthly dividend (No. 54) of 50 cents per share, for March, payable at the office of the transfer-agents, Wells, Fargo & Co., on April 15th.

The following mining companies paid dividends in San Francisco during March as annexed:

Table with columns: Name, Cents per share, Amount. Lists companies like Bodie Con, Black Bear Quartz, Deadwood, etc.

In March, 1879, the total was \$230,500, and in March, 1878, it was \$2,540,700.

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

Large table of mining stock quotations with columns for Name of Company, Closing Quotations (April 2-8), and Open ing. April 9.

REVIEW OF THE SAN FRANCISCO MARKET.

The Cornstocks continue dull and depressed, and there does not appear the first indication of an improvement. Assessments continue to be levied, and we are advised by telegraph, this week, of ten separate calls, upon this account, by different companies,

as follows: South Bulwer, 50c. per share; Goodshaw, 25c. per share; Overman, 50c. per share; Raymond & Ely, 25c. per share; Fairfax, 20c. per share; Savage, \$1 per share; Alta, 50c. per share; Leopard, 10c. per share; Bullion, \$1 per share; Idaho (Eureka District), 10c. per share. Our notices, mentioned elsewhere, announcing several dividends on the stocks of those companies which are controlled in this market is in pleasing contrast to the above.

Of a bill before the California Legislature, the Bulletin says: "There is a section requiring monthly statements of a bullion output of claims worked by incorporations. This is a good feature, however obnoxious the other sections of the bill may be. The Legislature ought to provide in some way for monthly reports of the bullion product of the State. It is not necessary to create a new office or incur any extra expense in the collection of such information. The mining companies should be compelled to report to the county assessors, the same as is done in Nevada, and the county assessors should send the reports to the surveyor-general, with the other statistical information gathered by them."

PHILADELPHIA MINING STOCKS.

The subjoined table shows the opening, highest, lowest, and final sales of all the mining stocks dealt in at the Philadelphia Stock Exchange, and at the Philadelphia Mining Exchange, for the week ending the 8th inst.:

Table of Philadelphia Mining Stocks with columns: Stocks, Open ing, High est, Low est, Final, Sales Shares.

Gas Stocks.

NEW YORK, Friday Evening, April 9.

As predicted in late issues of the JOURNAL, the negotiations pending between the competing gas companies have resulted in an amicable settlement of their difficulties, and an agreement has been arrived at by which the New York, Harlem, Municipal, Manhattan, Mutual, and Metropolitan gas companies are to sell gas after April 15th at a uniform rate. The price decided upon was \$2.25 per thousand feet. The Manhattan Company has already issued the following circular:

OFFICE OF THE MANHATTAN GAS-LIGHT CO., No. 4 IRVING PLACE, NEW YORK, April 6, 1880.

To the Consumers of Gas: You are respectfully informed that on and after the 15th day of April, instant, the price of gas supplied by this company will be at the rate of two dollars and twenty-five cents (\$2.25) per thousand cubic feet to all consumers.

JAMES W. SMITH, Secretary.

Upon the announcement of the agreement, gas stocks advanced materially, and to-day's quotations show increases ranging as high as 20 per cent, as compared with last week's prices.

A New Electric Light Corporation.—Articles of incorporation of the Universal Electric Light Company have been filed in the County Clerk's office. The incorporators are Messrs. Thomas F. Carhart, George W. Beardslee, and William F. Jobbins, and the capital stock is to be \$10,000,000, divided into 100,000 shares of \$100 each. The objects of the company are the making, working, selling, licensing, and otherwise utilizing apparatus and mechanism for producing light by electricity. The incorporators are to be the trustees for the first year, and their principal office for transacting business will be in this city. The term of existence of the company is fifty years.

New Gas Company for Baltimore.—The Independent Gaslight Company of Baltimore City has been incorporated. The company proposes to manufacture gas for lighting the streets and highways, public buildings, and private houses of Baltimore city and county and for other purposes. The capital stock is \$3,000,000, divided into 300,000 shares of the par value of \$10 each.

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

Table of New York and vicinity stocks with columns: Companies in New York and Vicinity, Capital Stock, Par, Rate per ann., Dividends (Am. of last, Date of last), Quotations (Bid, As'd).

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 8th inst., are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

Table of Stocks with columns: Stocks, Par Value, High'st, Lowest, Closing, Sales: Shares.

Table of Bonds with columns: Bonds, Price, When Due, Int. est. When Due, High'st, Lowest, Amount.

‡ Assented.

Copper and Silver Stocks.

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

Boston, April 7. The market for copper stocks the past week has been a

COAL STOCKS.

NAME OF COMPANY.	Capital Stock.	SHARES.		Last Dividend.	Rate per Ann.	Quotations of New York stocks are based on the equivalent of \$100. Philadelphia prices are quoted, so much per share.												SALES.
		No.	Par Val.			April 3.		April 5.		April 6.		April 7.		April 8.		April 9.		
		Mo.	Y.			H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Am. Coal Co.	1,500,000	60,000	25															
Buck Mt. Coal	100,000	100	50															
Col. C. & L. Co.	10,000,000	150,000	100															
Ches. & O. RR.	15,000,000	102,500	100	Jan. 77	2 1/2	24	23 1/2	24 1/2	23 1/2	23 1/2	23 1/2	23 1/2	23 1/2	23 1/2	23 1/2	23 1/2	23 1/2	3,569
Consol. Coal	10,250,000	102,500	100	Jan. 77	2 1/2													
Cumb. C. & L.	500,000	5,000	100															
Del. & H. C.	20,000,000	200,000	100	Aug. 76	4	8 1/2	8 1/2	8 3/4	8 3/4	8 3/4	8 3/4	8 3/4	8 3/4	8 3/4	8 3/4	8 3/4	8 3/4	25,380
D. L. & W. RR.	20,000,000	324,000	100	July 76	2 1/2	5	4 3/4	4 3/4	4 3/4	4 3/4	4 3/4	4 3/4	4 3/4	4 3/4	4 3/4	4 3/4	4 3/4	123,431
Lehigh C. & N.	10,148,850	208,871	50	Sept. 76	1 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	1,794
Leh. V. V. R. R.	27,228,855	540,858	50	Sept. 79	1	4	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	4,245
Maryld. Coal	4,400,000	44,000	100	Jan. 76	1 1/2	1 1/2												
Montauk C. I.	2,500,000	25,000	100			51	50											1,400
Morris & Es'x	15,000,000	300,000	50	July 79	3 1/2	7	10 7/8	10 7/8	10 7/8	10 7/8	10 7/8	10 7/8	10 7/8	10 7/8	10 7/8	10 7/8	10 7/8	2,522
Ph. & R. RR.	24,278,175	695,563	50	Jan. 76	2 1/2	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	2,300
New Cen. C. I.	5,000,000	50,000	100	Jan. 79	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	143,200
N. J. C. R. R.	20,000,000	206,000	100	Apr. 76	2 1/2	85	82 1/2	83 1/2	83 1/2	83 1/2	83 1/2	83 1/2	83 1/2	83 1/2	83 1/2	83 1/2	83 1/2	
Penn. Coal.	5,000,000	100,000	50	Oct. 79	3													
Penn. R. R.	68,870,200	1,357,404	50	Nov. 79	2 1/2	10	5 3/4	5 3/4	5 3/4	5 3/4	5 3/4	5 3/4	5 3/4	5 3/4	5 3/4	5 3/4	5 3/4	37,779
Ph. & R. RR.	24,278,175	695,563	50	Jan. 76	2 1/2	10	6 3/4	6 3/4	6 3/4	6 3/4	6 3/4	6 3/4	6 3/4	6 3/4	6 3/4	6 3/4	6 3/4	75,714
Spring Mt. C. I.	1,500,000	30,000	50	Dec. 79	3 1/2													
Spruce H. C. I.																		

*Of the sales of this stock, 55,614 shares were sold at the Philadelphia Stock Exchange, and 23,100 at the New York Stock Exchange.
+ 108 1/4

Total Sales..... 424,634.

BOSTON MINING STOCKS.

NAME OF COMPANY.	Shares.	Par.	April 2.		April 3.		April 5.		April 6.		April 7.		April 8.		SALES.
			H.	L.	H.	L.	H.	L.	H.	L.	H.	L.			
Allouez, c.	Mich.	20,000	\$25						15	14					160
Atlantic, c.	Me.	40,000	25	23 1/4		23 1/2			22	21					225
Atlas	Mich.			13 1/4											200
Aztec	Mich.			13 1/4		1 1/4									200
Blue Hill, c.	Me.	50,000	10	9 1/4		9 1/4			9	9 1/4		9			675
Brunswick	Me.			21 1/2	20	25 1/2	24	28 1/2	24	25	25	23			3,205
Cal. & Hecla, c.	Mich.	100,000	25	23 1/2		23 1/2	240	239	240	239 1/2	240	240			98
Catalpa	Colo.	300,000	10	2		2	2	2	2	1 1/4	1 1/4	1 1/4			2,785
Central, c.	Mich.	20,000	25						40		40				100
Chrysolite	Colo.														
Copper Falls, c.	Mich.	20,000	50	13		13 1/2	13 1/2	13 1/2	12 1/2	12 1/2	12 1/2	12 1/2			2,850
Copp'r Harbor, c.	Mich.	20,000	25												
Dana, c.	Mich.	20,000	25			87 1/2 c		87 1/2 c							200
Douglas, c.	Me.	100,000	5												
Duncan, s.	Ont.	60,000	20	3 1/2	3										25
Franklin, c.	Mich.	20,000	25			21 1/4	18	21 1/2	21	21	18 1/4	18 1/4	18 1/4		1,970
Great Western	Mich.	20,000	25												
Hanover	Mich.	20,000	25												
Harshaw	Ariz.	100,000	100	24				23			23 1/2				110
Humboldt, c.	Mich.	20,000	25			1 1/2		1 1/2			1				300
Hungarian, c.	Mich.	20,000	25												
Huron	Mich.			9 1/4		9 1/2	9 1/2	9 1/4	9 1/4	8 1/4	8 1/4	8	7 3/4		1,110
International, s.	Ont.	60,000	20						50						200
Madison	Mich.														
Manhattan, c.	Mich.	20,000	25												
Mesnard, c.	Mich.	20,000	25					2 1/2		2 1/4					250
Minnesota, c.	Mich.	20,000	25												
National, c.	Mich.	20,000	25												
Orford	Can.	50,000	20						40		39 1/2				105
Osceola, c.	Mich.	40,000	20			42					26 1/2	24	25	24	805
Pewabic, c.	Mich.	20,000	25	29		28									
Phoenix, c.	Mich.	20,000	50												
Pontiac, c.	Mich.	20,000	25					1							15
Ridge, c.	Mich.	20,000	25					6 1/2				6 1/2			70
Rockland, c.	Mich.	20,000	25												
Quincy, c.	Mich.	40,000	25	34 1/2		34 1/2	34	32	30 1/2	30 1/2	30	30			846
Silver Islet, s.	Mich.	40,000	25			15	14			16		17			148
So. Hite, c.	Cal.	100,000	25												
Star, c.	Mich.	20,000	25			2 1/2									50
Sullivan, s.	Me.	50,000	10					12 1/2							200
Sutro Tunnel	Nev.			25											
Union L. & C. Co.	Mich.														
Washington, c.	Mich.	20,000	25												100
Waukeag	Me.							7 1/2		7 1/2	7	7			125
Superior	Mich.							75c							100

c. Copper. s. Silver. * 2,000,000. † 1 15-16.

declining one, and prices close up very weak. The cause of the depression is twofold; the decline in ingot copper to 2 1/2 cts., and the tightness in the money market, causing stocks held on margins to be forced upon the market for sale. Calumet & Hecla has been an exception to the rule, and has actually advanced from \$237 to \$240, with more than usual doing in it, and closes quite firm at \$239@ \$239 1/4.

Central sales at \$40; closing \$39 1/2 bid.
Copper Falls advanced from \$12 to \$13 1/2, early in the week, but the advance was not sustained, and it shared the fate of the rest of the market, declining to \$12 1/4; closing \$11 1/2 @ \$12 1/4.

Franklin showed considerable strength in the early dealings, selling up to \$21 1/4 on the 7th; but the stock being pressed for sale, resulted in a decline on the 8th to \$18 1/4; sales to-day at \$18 1/4, and closes at \$18 1/4 @ \$18 1/4.

Quincy was also one of the weak spots in the market, opening at \$34 1/2, and declining to \$30, at which sales were made to-day; but closes \$30 1/4 bid.

Osceola, on small sales, shows a decline of \$2 1/2 per share—from \$42 to \$39 1/2, which was bid at the close.
Pewabic has also felt the depression, and has declined from \$29 to \$24, closing \$24 bid.

Atlantic opened at \$23 1/4, and declined to \$21, on sales of about 200 shares.
Allouez declined from \$17 1/2 to \$14, closing, however, stronger at \$15 bid.

Huron was in good demand in the early part of the week, and advanced to \$9 1/4, which brought out more stock than the market could take, and caused a decline to \$7 3/4 @ \$8.

Ridge sold at \$6 1/2.
National sold at \$2 1/2 @ \$3.
Blue Hill declined from \$9 1/4 to \$9.

Brunswick Antimony has been very active, and the stock has fluctuated between \$19 and \$28 1/2, as extremes, closing to-day at \$23 1/2 bid. Over 3000 shares changed hands. Much higher prices for this stock are predicted by the knowing ones. We hear that \$100 was bid for the right to call the stock at \$40 within sixty days, without bringing out any sellers.

The small-priced copper stocks are almost entirely neglected and holders will be obliged to wait until the next "boom" before they can unload.

We note small sales of Aztec at \$1 1/4.
Dana, 7/8.
Humboldt, at \$1 @ \$1 1/4.
Star, at \$2 1/2.
Winthrop, at 3/4.
Mesnard, at \$2 1/4 @ \$2 1/2.
Pontiac, at \$1.
Washington, at 3/4.
West Minnesota, at 3/4.

SILVER STOCKS.

With the exception of Silver Islet, this class of stocks is all lower. Silver Islet opened at \$14 and advanced to \$17, with sales at \$17 to-day, and closes in demand.

Duncan weak, at \$3, closing at \$2 1/2 bid.
International sold at 50c.
Sullivan, sales at \$12 1/2, but was offered at the close at \$12.

Waukeag declined to \$7, and closed at \$6 3/4 @ \$7.
Harshaw declined to \$23.
Catalpa declined from \$2 to \$1 1/4.

Coal Stocks.

NEW YORK, Friday Evening, April 9.

Coal stocks have been very active during the current week, though prices have been weak, and have fluctuated materially. The week opened with a quiet market, and stocks steadily declined, and although, this morning, prices advanced considerably, they have since almost as rapidly fallen off to-day, closing quotations, however, showing considerable improvement over those of the depression of two days ago.

Delaware & Hudson shows sales amounting to 25,380 shares; opening at 85 1/2, it declined to 80, and closes to-day at 82 1/4. Delaware, Lackawana & Western has been dealt in to the extent of 123,431 shares at prices fluctuating between 93 1/2 and 89 1/2; it

closes to-night at 92. New Jersey Central has been very active and extremely weak; with sales aggregating 143,200 shares, the price declined from 85 to 76 1/2 and closes to-day at 78 1/2. Reading has shared to some extent in the general decline; opening at 69 1/2, it fell off to 67 1/2 and closes to-day at 68 1/4; the sales in this market amount to 23,100 shares.

In the minor stocks, there have been sales of 300 shares of Colorado C. & L. at 40 1/4 @ 39, 1400 shares of Montauk Coal at 51 @ 50, and 2300 shares of New Central Coal at 34 1/4 @ 31 1/2.

The Philadelphia market has been firm, and prices steady. Pennsylvania RR. has sold to the extent of 37,779 shares at 53 1/2 @ 52 1/2. Lehigh Navigation has been dull and steady; the sales amount to 1794 shares at 37 1/2 @ 37. Lehigh Valley RR. has been active, the sales amounting to 4245 shares at 51 1/2 @ 51 1/2. The transactions in Reading in this market aggregate 55,614 shares.

Pennsylvania Steel Co.—This company has declared a semi-annual dividend of 6 per cent, payable on the 15th inst.

Uthoff & Co.'s circular reports the following as the average daily output of the camp for the week ending April 3d:

Mines	Tons	Mines	Tons
Chrysolite	130	Little Ella	5
Little Chief	102	Highland Chief	20
Dunkin	7	Argentine	10
Robert E. Lee	40	Little Giant	15
Climax	15	Oro La Plata	20
Carbonate	20	Lulu	4
Morning Star	65	Miner Boy	5
Colorado Prince	5	Double Decker	2 1/2
Crescent & Etna	5	Tucson	10
Long & Derry	10	Bryan Boru	8
Fendery & Glass	10	Niles Augusta	10
Iron Mine	95	J. D. Wood	10
Evening Star	15	Robinson	30
Catalpa	5	Robert Emmet	10
Luella	5	Printer Boy	5
Virginian	5	Others, say altogether	35
Smuggler	12		
Forsaken	10	Total, tons	765 1/2
Silver Wave	10		

Last week's output.....682 1/2
Increase, tons.....83

DAKOTA

The product of the Sir Roderick Dhu mine for 28 days' run was \$10,027 bullion shipped. The diamond drill began work April 5th.

The Sir Roderick Dhu is yielding about \$12,000. Other companies: Gopher, \$10,000; High Lode, \$30,000; Esmeralda, \$10,000; other mills about \$50,000 in all.

The Great Eastern turned out a gold brick, weighing 213 ounces, with 15 stamps in 12 days. This is at the rate of \$12,500 per month.

The Durango reports its last clean-up at \$3400, from 500 tons, or \$6.40 per ton. The monthly yield is about \$10,000.

MONTANA

At Butte, Montana, the H. C. M. Co. shipped March 8th 240 bars (20,001 pounds) of bullion. Since then, several cars of bullion and matte have been shipped. The *Miner* says: "They have manufactured twenty-four car-loads of bullion so far this year. The smelter is now making a successful run, turning out 10,000 pounds of bullion daily, and about 2000 pounds of copper matte."

A telegram from the Alta-Montana, April 5th, says: "Twenty-ton smelter running splendidly; one day's yield \$1700." The superintendent is confident that he can, with all machinery running properly, turn out \$3000 per day.

NEVADA

The bullion product of the Raymond & Ely mine for February was \$8941. The furnace is completed, and is reported to be running well.

Materials for two smelters are snow-bound on the Eureka Railroad. They are en route to the Wood River mine, Nevada.

A new mill of ten stamps has been completed by the Mory Mining Company, Nevada. This property is owned by New Yorkers.

UTAH

The bullion shipments from the Stormont for February aggregate \$36,000. The shipments thus far for March amount to \$22,000, and the yield for the month will probably reach \$45,000. The mine is delivering about one hundred tons daily, most of which is taken from the Buckeye claim, the average being about twenty-eight ounces per ton.

The February run of bullion from the Horn-Silver averaged one hundred and fifty ounces. The March returns thus far received average one hundred and seventy ounces. Bullion is being stacked at the smelter, which will not be shipped until the completion of the railroad. About 8000 tons are calcined and ready for the smelter, which reduces from twenty to thirty tons daily.

The new refinery of the Horn-Silver Mining Company at Chicago is about completed, and it is expected that it will be ready for operation about April 1st. It will have a capacity for refining 50 tons of base bullion per day. The capacity of the smelting works at the mine will be increased to about 150 tons of ore per day, by the addition of a number of new stacks.

The Salt Lake Ore Market.—The *Inter-Ocean's* correspondent, under date of March 29th, says: "The shipments of bullion and lead for the week ending March 27th are as follows: 7 cars of Mingo bullion to Pittsburg, 4 cars French Company bullion to Pittsburg, 2 cars Chicago bullion to Omaha, 2 cars Chicago bullion to Omaha, 2 cars Morgan bullion to Omaha, 7 cars of Horn-Silver (Frisco) bullion to Omaha, 1 car Horn-Silver bullion to Chicago, 6 cars Germania lead to New York; bullion, 615,188 pounds; lead, 131,389 pounds; total, 746,577 pounds. The French Company has closed a contract with the Pennsylvania Lead Company for 150 cars of bullion, to be delivered before September 1st next. The price to be paid is said to be \$72 per ton for the lead, and three cents per ounce off of New York quotations for silver. This does not look much like a petered-out mine. This price is a good price for lead; and, knowing the parties making the purchase and their New York connections, who know probably more about the lead market than any other house in the lead business, I feel a confidence in saying lead will go no lower, at least till September. The Frisco Company is to have dry concentration works for its carbonate mine. They will be very complete, with all the latest improvements in this branch of the business. This great outlay is warranted by the wonderfully rich development of this mine. It has not only large bodies of ore, but late discoveries in their deepest workings give over 400-ounce assays."

Silver for Coinage.—WASHINGTON, April 8.—The Treasury Department purchased to-day 500,000 ounces of fine silver for delivery at the Philadelphia and San Francisco mints.

METALS.

NEW YORK, Friday Evening, April 9.

The metal market has been very quiet and considerably demoralized, although there are indications to-day that there has been considerable business that has not been announced to the public. In this branch, as in most others, a majority of operators are momentarily bears, with the expectations of changing tactics at an early day, and although it is impossible to tell

when a change will take place, yet it is not likely to be delayed for a great length of time.

Copper.—There has been a small business in Lake at 21 1/4 c. At the close, 21 1/4 @ 22 c. is asked on spot, and 22 1/4 c. is bid for May and July delivery.

London advices of March 25th say:

Tin.—Straits in London is quoted at £87 10s. @ £88, while Singapore quotes at \$28.50 and Penang at \$27.50. There has been but a small business in this market, say, perhaps 100 tons on private terms. Straits is quoted at 20 1/4 @ 21 c., and L. & F. 20 1/2 @ 20 1/4 c.

Tin Plates.—At a meeting at Birmingham yesterday, the makers fixed the price of cokes at 25s.; notwithstanding this, large orders for American account were accepted at the same meeting at 22s. The market here looks as though it had touched bottom. Bids for very large quantities of B. V. cokes have been made at \$6.37 1/2 @ \$6.50; we quote charcoal tins, third cross, Melyn grade, at \$8.75 @ \$8.87 1/2; Allaway grade, \$8.50 @ \$8.62 1/2; charcoal ternes Allaway grade, \$7.75 @ \$8; coke tins, B. V. grade, \$6.62 1/2 and ternes \$6.87 1/2.

Messrs. Robert Crooks & Co., of Liverpool, under date of March 25th, say of tin and ternes plates:

"Most that can be said for market is that during past week there has been no fresh break of importance. Considerable inquiry and some buying are reported; there can not have been much of this latter, or prices would show reaction. However, without being too sanguine, we think we may say tone is better, and feeling more hopeful."

Lead.—There has been a business of about 500 tons of Common at \$5.65, and at the close \$5.75 is firmly demanded.

Spelter and Zinc.—There has been a break in the prices of the former without any important business; we quote at 6 1/4 c. @ 6 3/4 c. Zinc has also suffered, and is quoted at 7 1/4 c. @ 8c.

Antimony.—There is no Cookson's in the market. Hallett's is quoted at 19c. and Johnson's at 18 1/2 c.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, April 9.

American Pig.—There is the greatest quietness prevailing in this article, and the market can only be described as demoralized. There is not much iron offering, and it would be impossible to sell any large quantity, except at a great concession. We have seen offers to-day upon a basis of about \$30 for No. 1 Foundry iron of good brand, although not as well-known as some. There is a general inclination to quote, however, at about \$34 for No. 1 Foundry. The Glendon Iron Company is quoting Gray Forge at \$30 at the works. In this condition of the market, it is useless to attempt to give a quotation. It is impossible to form any idea of what course prices may take in the early future; at the present time the outlook favors a decline, while, at the same time, the outlook for an active demand is quite encouraging, and it is very probable that, should prices decline much farther, a sharp reaction would set in, to be followed, perhaps, by a further slow recovery. Makers of American iron see that at the high prices they were ruining their market and turning it over to the makers of foreign iron. They have at last come to their senses, and are determined to hold the domestic trade, which they feel they will be fully able to supply, excepting for special purposes where foreign iron is more desirable.

Scotch Pig.—The arrivals are quite large, and nearly all are going into store. The demand is very small, yet there is a quiet confidence displayed by many who are deeply interested in this article. We quote Eglinton at \$26 1/4 @ \$27 1/4; Coltness, \$28 1/4 @ \$29 1/2; Glengarnock, \$27 1/2 @ \$28 1/2; Gartsherrie, \$28 @ \$29.

Messrs. John E. Swan & Co., of Glasgow, under date of March 25th, 1880, report 114 furnaces, against 90 at the same time last year. The quantity of iron in Connal & Co.'s stores was 439,775 tons, a decrease of 1266 tons for the week. The shipments show an increase of 66,152 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 818 tons. The following are the quotations of the leading brands of No. 1 pig-iron: Gartsherrie, 66s.; Coltness, 67s. 6d.; Langloan, 67s. 6d.; Summerlee, 66s.; Carnbroe, 65s.; Glengarnock, 65s.; Eglinton, 60s. Middlesbrough pig-iron was quoted as follows, f. o. Tees: No. 1 Foundry, 60s.; No. 2, 56s. 6d.; No. 54s.; No. 4, 54s.; No. 4 Forge, 54s.

Rails.—We note sales of 2000 tons of American steel rails on private terms, and an outside lot of the same quantity at \$75 per ton. There are reports of sales of several lots of English steel rails. The latter are quoted at £9 5s., c. f. i., equal to about \$75 here. There is a very large inquiry for rails, at prices a little below the market; and the outlook is favorable to an active business at an early date. In iron rails we learn of no particular business. American is quoted at \$60 @ \$63 at mills, and foreign at \$58.50 @ \$59.

Old Rails.—We learn of sales of 1500 tons of D. H. on private terms, and from two to three thousand tons to arrive at about \$37.

Wrought Scrap.—This article is very dull, and quoted at \$34 @ \$35.

We publish the following letters from our regular correspondents:

"BALTIMORE, April 5.
"We have little change to report in the iron market; the demand is moderate."
"R. C. HOFFMAN & Co."

"LOUISVILLE, April 6.
"There is considerable inquiry among consumers for iron, mostly in small lots for immediate use. This may be considered as an indication of an early reaction. Prices are unchanged."
"GEORGE H. HULL & Co."

"PITTSBURG, April 6.
"The condition of this market is far from encouraging; prices have been declining more rapidly during the past week than in any similar period since the advance culminated. The market has changed for the worse fully five dollars per ton, since January; prices are only nominal, as but little metal can be sold."
"A. H. CHILDS."
"RICHMOND, April 5.
"Standard sizes of bar iron are now 3 1/4 c. per pound; otherwise, last week's quotations stand. More steadiness is manifested in this market."
"ASA SNYDER."

"ST. LOUIS, April 3.
"We have no change in condition of market to note. Some new business is developing; but we are unable to report active trade."
"CARD & HOFFER."

THE ENGLISH IRON MARKET.

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

LONDON, E. C., March 25.

STEEL RAILS.—Continue inactive; and until the parcels in outside hands are disposed of, the market will, to all appearances, present an unfavorable aspect. \$9 per ton, f. o. b., would buy to-day.

IRON RAILS.—Without change; very little offering.

OLD RAILS.—In slightly better demand; business done at 120s., prompt shipment to Philadelphia, and still buyers with a good inquiry for O. D. H. as forward shipments; but sellers of these are shy at 130 @ 135s. asked. A report that 10,000 tons had been sold at 120s., c. i. f., New York, is proved to be unfounded.

HEAVY WROUGHT SCRAP-IRON.—Not much inquired for; some odd lots sold, and offering at \$5 5s. per ton, c. i. f.

BESSEMER PIG-IRON, Nos. 1, 2, AND 3.—No inquiry, except at about 90s. per ton, f. o. b.

SCOTCH PIG-IRON.—Very dull, 55s. 3d. @ 55s. 6d. cash.

MIDDLESBROUGH PIG-IRON, No. 3.—In sympathy with Scotch; weak holders selling at 52s., but makers asking 3s. @ 4s. per ton more.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, April 9.

Anthracite.

A full production began on Monday; how long it will be continued is uncertain, but there is already talk of a curtailment during the whole of the last week of this month. At all events, it is thought that the production will be curtailed during May unless the demand should improve to such an extent as to absorb all the coal coming to market. The demand this week has been quiet, and particularly so for stove and chestnut sizes. We do not think, however, that buyers are supplying their normal wants; they have heard so often during the past few years, of agreements between the companies to advance prices, that even now, when there seems to be good ground for the belief that the arrangements will be carried out by the companies, there is little confidence among the buyers that such will be the case. The companies, however, show a strong determination to limit production to the actual requirements of the market; and before long, buyers must realize this.

Some take a discouraging view of the coal market, owing to the rapid decline in iron during the past few weeks; this however, to our mind, is a very encouraging feature, and although the coal companies may not be able to secure from the iron industry such high prices for coal, the lower prices for iron will bring about a much larger consumption, and consequently a much larger use of coal. There has been a very large demand for iron this year, but to our knowledge the high prices which were demanded checked a number of enterprises that had expected to

go ahead. The present basis will, perhaps, revive a number of these.

The production of anthracite coal last week was 371,042 tons, as compared with 360,419 tons for the previous week, and 405,161 tons the corresponding week of 1879. The total production from January 1st to April 3d was 4,696,974 tons, as against 5,132,261 tons for the like period of last year, showing a decrease this year of 435,287 tons.

The following resolution was adopted at a regular meeting of miners and shippers of coal into the Western Market held in New York March 30th, 1880, at the office of the Delaware & Hudson Canal Company:

Resolved, That it is the decision of this meeting that hereafter, and until this action is rescinded, there shall be no bidding for municipal coal, or for coal for public institutions, except on the basis of current prices established by this Board from month to month; in other words, no coal shall be sold at less than current prices at time of delivery. The above is not intended to include lump coal for furnace use.

Our Philadelphia correspondent, under date of April 8th, says:

"The local trade is active, but the demand for shipments does not come up to the expectations of most of the trade. The heavy stocks laid last year at low prices must be out of the way before a good steady demand springs up."

"The heavy decline in iron has somewhat unsettled buyers; but this decline was forced on the producers by the flood of foreign iron attracted by the high prices. At the new prices, it is probable that much more coal will be consumed here by mills and furnaces than would have been the case if it had kept up sufficiently to encourage a continuation of the large importation. Prices of coal will probably have to settle to meet the new condition of the iron market."

"Freights remain at \$1.25 to Boston. Vessels are not in abundant supply, but sufficient for the orders. The Southern trade is very flat."

Bituminous.

The employes of the Cumberland & Pennsylvania Railway have resumed work, and shipments are renewed from the Cumberland region. It is said, however, that, as soon as some pressing orders are supplied, the companies will demand a decrease of miners' wages, which are unreasonably high.

The boatmen on the C. & O. Canal are asking an extraordinary advance in freights over what was paid last year, and the companies are opposing said advance; hence, no coal—or none to speak of—is being moved by that route. We hear of a very active demand for bituminous coal, and of important sales on the basis of \$3.75, at Georgetown, and \$4 at Baltimore—a large advance over the prices which ruled at these points last year.

In the Clearfield region, a number of new miners have been employed under the protection of police. The old miners still stand to their demands for an increase of wages. It is impossible to state when the strike in this region will be terminated, but it is thought it can not last much longer.

The demands of the Cumberland companies for reduction of the miners' wages in that district will probably tend to weaken the Clearfield miners in their position.

Messrs. C. A. Miltenberger & Co., under date of New Orleans, La., April 3d, say:

"Since our last to you, the coal market has remained quiet without any change in schedule of prices. The demand has been fair, but we may look for a decrease in the consumption from this time on, as the season advances. The sugar planters above the city have mostly laid in their supply of coal for next year's crop, and quite a number below have also bought, so that we look for a light demand for some time to come. The stock on hand is not as heavy as at the same time last year; but with a good stage of water now in the upper rivers, and the Pittsburg miners being all at work, we can anticipate an abundant supply of Pittsburg coal during the spring and summer months."

"Coal on hand in this city, April 1st, Pittsburg coal, 97 boats, 3 barges, French Creek; St. Bernard coal, 2 boats."

"Consumption during March: Pittsburg coal, 26 boats, 1 barge, 2 French Creeks."

"Arrivals during March: Pittsburg coal, 35 boats, 1 French Creek."

"We should be glad if you would correct the statements of the American Manufacturer correspondent in his reports about this market. The wholesale price of coal afloat is 32½¢@35¢, and the retail, delivered, 55¢, and not 30 and 50¢, as he stated; 2 4-7 bushels to the barrel is the correct standard of a barrel of coal, when we want to reduce bushels to barrels, from the Louisville to the New Orleans gauge measurement. Bushels are not considered at all here. All the coal that arrives by boat or barge load is gauged by a city gauge, at 4 cubic feet to the barrel. This being weighed as it comes out of the boat, gives, on the average, but 180 lbs. Consequently, 11 1-9 barrels make a ton of 2000 pounds, and not 9½ barrels, as reported."

C. M. Underhill, Esq., under date of Buffalo, April 1st, says:

"On and after this date, until further notice, the prices of the coals of the Anthracite Coal Association will be as follows, per ton of 2000 pounds, subject to the usual conditions of shipment and sale:

	Free on board at Buffalo.	On cars at Buffalo and bridges.	Retail Deliv'd.
Lump.....			
Grate.....	\$4.25	\$3.98	\$5.00
Egg.....	4.25	3.98	5.00
Stove.....	4.50	4.23	5.25
Chestnut.....	4.50	4.23	5.25
Pea.....	4.25	3.23	4.25
Blossburg.....	3.25	3.00	3.75

"On and after this date, until further notice, the prices of the coals of the Anthracite Coal Association will be as follows, per ton of 2000 pounds, subject to the usual conditions of shipment and sale:

	Free on board at Buffalo.	On cars at Buffalo and bridges.	Retail Deliv'd.
Lump.....			
Grate.....	\$4.25	\$3.98	\$5.00
Egg.....	4.25	3.98	5.00
Stove.....	4.50	4.23	5.25
Chestnut.....	4.50	4.23	5.25
Pea.....	4.25	3.23	4.25
Blossburg.....	3.25	3.00	3.75

"On and after this date, until further notice, the prices of the coals of the Anthracite Coal Association will be as follows, per ton of 2000 pounds, subject to the usual conditions of shipment and sale:

	Free on board at Buffalo.	On cars at Buffalo and bridges.	Retail Deliv'd.
Lump.....			
Grate.....	\$4.25	\$3.98	\$5.00
Egg.....	4.25	3.98	5.00
Stove.....	4.50	4.23	5.25
Chestnut.....	4.50	4.23	5.25
Pea.....	4.25	3.23	4.25
Blossburg.....	3.25	3.00	3.75

"On and after this date, until further notice, the prices of the coals of the Anthracite Coal Association will be as follows, per ton of 2000 pounds, subject to the usual conditions of shipment and sale:

	Free on board at Buffalo.	On cars at Buffalo and bridges.	Retail Deliv'd.
Lump.....			
Grate.....	\$4.25	\$3.98	\$5.00
Egg.....	4.25	3.98	5.00
Stove.....	4.50	4.23	5.25
Chestnut.....	4.50	4.23	5.25
Pea.....	4.25	3.23	4.25
Blossburg.....	3.25	3.00	3.75

"On and after this date, until further notice, the prices of the coals of the Anthracite Coal Association will be as follows, per ton of 2000 pounds, subject to the usual conditions of shipment and sale:

	Free on board at Buffalo.	On cars at Buffalo and bridges.	Retail Deliv'd.
Lump.....			
Grate.....	\$4.25	\$3.98	\$5.00
Egg.....	4.25	3.98	5.00
Stove.....	4.50	4.23	5.25
Chestnut.....	4.50	4.23	5.25
Pea.....	4.25	3.23	4.25
Blossburg.....	3.25	3.00	3.75

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 3d, and years from January 1st:

Tons of 2240 lbs.	1880.		1879.	
	Week.	Year.	Week.	Year.
<i>Wyoming Region.</i>				
D. & H. Canal Co.	50,581	754,418	42,436	677,494
D. L. & W. RR. Co.	61,158	803,387	63,434	797,198
Penn. Coal Co.	22,529	184,730	23,940	270,307
L. V. RR. Co.	13,748	229,131	10,820	211,106
P. & N. Y. RR. Co.	464	3,622		4,770
C. RR. of N. J.	26,115	337,887	23,678	412,342
	174,595	2,313,175	164,308	2,373,217
<i>Lehigh Region.</i>				
L. V. RR. Co.	49,089	612,544	50,055	609,393
C. RR. of N. J.	32,682	424,704	28,840	473,524
S. H. & W. B. RR.		3,841		8,514
	81,771	1,041,089	78,895	1,089,431
<i>Schuylkill Region.</i>				
P. & R. RR. Co.	98,228	1,170,238	142,362	1,501,252
Stamokin & Lykens Val.	15,384	161,394	18,847	155,228
	113,612	1,331,632	161,209	1,656,480
<i>Sullivan Region.</i>				
St Line & Sul. RR. Co.	1,064	11,078	749	13,733
Total	371,042	4,696,974	405,161	5,132,261
Increase.....				
Decrease.....	34,119	435,287		

Total same time in 1875..... 2,493,119 tons.
 " " " 1876..... 2,570,713 "
 " " " 1877..... 3,897,455 "
 " " " 1878..... 3,040,249 "
 " " " 1879..... 5,132,261 "

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.

Receipts and Shipments of Coal at Chicago, Ill., for the week ending April 3d, and year from January 1st:

	Week.	Year.
Receipts.....	43,305	557,718
Shipments.....	12,005	163,768

The increase in shipments of Cumberland coal over the Cumberland Branch and Cumberland and Pennsylvania railroads amounts to 91,480 tons, as compared with the corresponding period in 1879.

The Production of Bituminous Coal for the week ending April 3d was as follows:

*Tons of 2000 lbs., unless otherwise designated.

	Week.	Year.
Tons of 2240 lbs.	Tons.	Tons.
<i>Cumberland Region, Md.</i>		
Barclay RR., Pa.	11,080	363,957
<i>Broad Top Region, Pa.</i>		
Huntingdon & Broad Top RR.	9,176	114,494
*East Broad Top.....	5,555	57,548
<i>Clearfield Region, Pa.</i>		
*Snow Shoe.....	1,802	18,329
*Tyone and Clearfield.....	1,956	17,755
<i>Allegheny Region, Pa.</i>		
*Allegheny RR.	4,603	330,079
<i>Pittsburg Region, Pa.</i>		
*West Penn RR.	8,000	84,280
*Southwest Penn. RR.	6,039	68,336
*Penn & Westmoreland gas-coal, Pa.	1,925	15,497
RR.	23,115	274,539
*Pennsylvania RR.	13,658	111,761
*For the week ending March 28th.		

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

	Week.	Year.
Tons of 2000 lbs.	Tons.	Tons.
Penn. R.R. (Allegheny Region).....	1,320	16,217
West Penn RR.....	2,057	24,102
Southwest Penn. RR.....	24,224	230,242
Penn. & Westmoreland Region, Pa. RR.	2,978	33,482
Pittsburg, Penn. RR.....	12,492	149,106
Total	43,071	453,149

FREIGHTS.

Rates of Transportation on Coal for Northern and Western Shipments.

Per ton of 2240 lbs.

GENEVA, ITHACA & SAYRE RAILROAD.

From Coxtan, subject to regulations printed below, will be as follows:

To East Waverly, N. Y.....	\$2.25
" Ithaca (local).....	1.95
" " for shipment via Erie Canal (except for Buffalo).....	1.33
" Geneva (local).....	2.10
" " for stations on Auburn Branch.....	1.72
" Lyons Branch stations.....	2.22
" " (local).....	2.22
" " for Ontario Southern Railroad and Canal points on the N. Y. C. & H. R. RR., and north of Erie Canal on the S. P. & S. RR.	1.91
" " for Rochester.....	1.89
" " for Genesee & Charlotte Docks.....	1.67
" " for Buffalo, Tonawanda, and Black Rock.....	1.65
" Cayuga (via Cayuga Branch).....	1.46
Returning box-car rate:	
Coxtan to Lyons, when consigned via Buffalo for points beyond.....	1.46
Coxtan to Lyons, when consigned via Suspension Bridge for points beyond.....	1.44
Coxtan to Lyons, when consigned via International Bridge for points beyond.....	1.41

Regulations.

A charge of 15 cents per ton will be collected of each consignee on all coal not unloaded within 24 hours after its arrival, and an additional charge of 10 cents per ton for every 24 hours thereafter; Sundays and legal holidays excepted.

No allowance will be made for coal lost from cars on account of broken doors or other defects existing when the cars are loaded.

On coal consigned to Buffalo via Ithaca docks, the rate from Coxtan will be the same as the Ithaca local rate

A charge will be made at Ithaca Docks for shipping coal direct from cars to vessels, of 15 cents per ton. 12 cents per ton additional will be charged on what is shipped from stock.

All freights to be collected weekly, by drafts on shippers, from Coxtan, to destination on this road.

ROBERT A. PACKER, President.

SAYRE, Pa., April 1.

SOUTHERN CENTRAL RR., IN CONNECTION WITH THE LEHIGH VALLEY, PENNSYLVANIA & NEW YORK, UTICA & ELMIRA, NEW YORK CENTRAL & HUDSON RIVER, AND ROME, WATER-TOWN & ODGENSBURG RAILROADS.

On a consignment of not less than 25 tons, from Lackawanna Junction, subject to regulations printed below, will be as follows:

To Auburn (local).....	\$2.10
" " for shipment N. Y. C. & H. R. RR.....	1.72
" " points east of and including Syracuse.....	1.72
" Weedsport (local).....	2.10
" " for shipment.....	1.91
" " Rochester.....	1.74
" " points between Rochester and Buffalo	1.91
" " for Charlotte and Genesee Docks.....	1.53
" " Buffalo, International Bridge, and Suspension Bridge.....	1.50
" Sterling (local).....	2.70
" " for shipment R. W. & O. RR.....	2.07
" " Oswego.....	2.07
" Fair Haven for shipment.....	2.10
Rate, L. & B. Junction, to Buffalo, Black Rock, Suspension Bridge (via Weedsport), \$2.62 per gross ton.	
Rate, L. & B. Junction, to Rochester (via Weedsport) \$2.35 per gross ton.	

Regulations.

A charge of 15 cents per ton will be collected of each consignee, on all coal not unloaded within 24 hours after its arrival, and an additional charge of 10 cents per ton for every 24 hours thereafter, Sunday and legal holidays excepted.

No allowance will be made for coal lost from cars on account of broken doors or other defects existing when the coal is loaded.

Claims for lost coal will be settled with shippers only. Charges for freight or tolls will follow the coal from State line to destination, when consigned to points on and beyond the New York Central Railroad.

Ten cents per ton will be charged, at Weedsport docks, for shipping coal direct from cars to boats, and 12 cents per ton additional from stock, making a total charge on what is shipped from stock of 22 cents per ton.

Freight charges to destination via Weedsport and canal will, at all times, be made as low as the rates via Ithaca and canal, to same destination.

Rates for coal in line cars running over this road will be as low to western points from Lackawanna Junction as via competing rates.

CHARLES A. WARREN, General Freight Agent, S. C. RR.

AUBURN, N. Y., April 1.

PENNSYLVANIA & NEW YORK RR. CO.

On and after this date, the rate on coal for Buffalo, for Watkins, Ithaca, and Weedsport, for water shipment; Auburn, for New York Central RR.; Sterling, for Lake Ontario Shore RR., and Fair Haven, will be 95 cents per gross ton, between Coxtan and Waverly. On coal for Rochester, via Erie RR., Salamanca, and points west thereof, an additional charge of 10 cents per ton will be made to cover transhipment charges at Waverly. The full rate from Coxtan to Buffalo is \$2.62; to Rochester, \$2.36; to Fair Haven, \$2.10.

Rates in returning box cars, Coxtan to Buffalo, and the Bridges, when consigned to points beyond, \$2.32, Pennsylvania & New York RR. proportion, 86 cents.

ROBERT H. SAYRE, President.

BETHLEHEM, April 1.

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 (1½) 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 550,000 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.

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.

OFFICE OF THE GREEN MOUNTAIN GOLD MINING COMPANY OF CALIFORNIA.
 No. 54 BROAD STREET, }
 NEW YORK, April 9, 1880. }
 DIVIDEND NO. 10.
 The Board of Trustees have this day declared a monthly dividend of FIVE CENTS PER SHARE on the capital stock of this company from the net earnings for the month of March, payable on the 26th inst. Transfer-books close on the 17th and reopen on the 28th inst.
 L. D. CORTRIGHT, Secretary.