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WE notice with pleasure the appointment by the Governor of Colorado of Mr. WILLIAM WESTON, one of our correspondents, to the position of Commissioner of Mines.

THE present address of Mr. R. P. ROTHWELL, the Managing Editor of this JOURNAL, is care of the American Exchange in Europe, 449 Strand, W. C., London, England.

THE Wood River District, Idaho, gives evidence of becoming a leading attraction to miners upon the opening of spring. Our correspondent, "YOSEMITE," touches upon the interest that is being shown toward this camp, in a letter which we publish in this number of the JOURNAL. Those desiring further information on this district will find it by perusing letters by the same correspondent published in previous numbers of the JOURNAL.

MR. ECKLEY B. COXE recently found his conscience too sensitive to admit of his taking the oath of office necessary to secure his seat in the Senate of Pennsylvania. He probably would have sinned less than those who acknowledged no objections in the oath. It is gratifying to see that the citizens of his district were able to appreciate his worth and to return him upon a second election without any effort on his part. Mr. COXE is elected from a mining district, and no one knows better the wants of both miner and operator. Although he is an operator, no one will do greater justice to the miner. It is a pity that our legislatures do not possess more men of the same type.

EDITORIAL CORRESPONDENCE.

PHILADELPHIA, Feb. 18, 1881.

The tendency of a meeting of the Institute to "peter out" in numbers toward the closing sessions is well known. The members begin to worry about scaffolds in their blast-furnaces, or other troublous professional potentialities; and it is usually hard to keep them together for reading and discussing papers after Thursday. In this case, there is special reason for a thin Friday audience; for the Banquet, of which more anon,

came off last night, and a return to "cold steel" might well be deemed an unpleasant prospect. Yet, contrary to all predictions, here is the hall of the American Institute, crammed with eager listeners to the continuing debate of DUDLEY's paper.

The day's work begins with a valuable paper by WILLIAM METCALF, the new President, on the question, "Can the Magnetism of Iron and Steel be used to Determine their Physical Properties?" This he answers, with certain qualifications, in the affirmative, supporting his views, as usual, with abundant and adequate testimony.

A paper from GEORGE WEBB, of Johnstown, read by the Secretary, follows. He criticises DUDLEY's views, recommends physical tests of wearing capacity, and thinks that by Dr. DUDLEY's method the truth will be long a-coming.

One of the cleverest attacks on Dr. DUDLEY's conclusions is now made by WILLIAM KENT, of Pittsburg, who, by a different handling of the same data, shows how they may be made to prove, if not the opposite, at least not the same propositions.

Mr. CLOUD, of Altoona, and Professor EGGLESTON, enter the arena, and confirm DUDLEY's verdict in favor of the longer wear of the softer steel. On this point, we have no doubt, the bold Altoona chemist is right; and it is equally clear that he is not to be scared from his position. After remarks by Messrs. MOSES, FORD, and KOENIG, he rises and blows the final blast of this particular battle. There is no change in his trumpet-tone. Even the handsome conciliatory scarf-pin, presented to him yesterday by some of the speakers who had handled him most roughly in debate, has not produced in him enough emotion to affect the stiffness of the bugler's upper lip. Not for a million scarf-pins would he surrender one phosphorus unit. He rather enjoys the commotion he has created in two hemispheres. He has made people get up, even if they did it only to come down upon him. And he promises that he will keep on furnishing papers—whole files of them, for folks to gnaw at.

Somebody should sum up this memorable debate, endeavoring to estimate impartially the final positions in which it leaves the parties. But this can not be done here and now, while the fight still rages. We will try to survey the field hereafter, and count the dead.

Just at present, a more inspiring yet not less difficult task awaits us. While the reading of papers and annual reports and resolutions and what not goes on around us, we must strive to celebrate the joys and glories of last night's banquet. Now, really, honor bright, this was, what previous occasions have been said to be, the proudest of our Institutional life. Such good times, and so many in 'em! For the first time in its history, the palace of the Union League Club of Philadelphia witnessed a dinner in which ladies sat at table; and if we may trust some of the leading Leaguers, who were guests of the Institute, they never enjoyed themselves more in their lives, and if they had to begin the dinner-business over again, they would adopt the improvement introduced by the Mining Engineers.

The plan of these subscription banquets is peculiar. The arrangement of seats, and even the allotment of partners, are dictated by the committee—a system which involves immense difficulties and some drawbacks, counterbalanced by notable and characteristic advantages. There is an exciting uncertainty about one's ignorance as to one's fair fate until the very moment of revelation, just before dinner; possibly some dreams are dispelled when the moment arrives; but the general result is a most agreeable extension of acquaintanceship and a decided enhancement of social enjoyment. The committee, of course, suffers untold agonies of perplexity and labor in settling things beforehand; but nobody cares for that—not even the committee itself, when the strain is happily over, and affairs are running smoothly. Last night, both the difficulty and the triumph were greater than ever, by reason of the greater numbers to be suitably arranged. Between fifty and sixty ladies were to be assigned to as many fortunate cavaliers, and more than that number of solitary swains were to be made comfortable and contented, if not happy. The solution of this problem reflects much credit upon Professor FRAZER in particular, whose arduous labors, tact, skill, and patience deserve special recognition. The burden was more than he could well bear; and a distressing headache almost disabled him in the hour of victory. It was in the very crisis of this attack that an enterprising reporter insisted on interviewing the Professor, and obtaining from him what he modestly called "full particulars." This untimely inquirer was necessarily told that his prospective victim was "engaged;" and the cur revenged himself by an allusion in print to the "discourtesy." Good heavens! what are we coming to? Must a man with a sick-headache explain to the press just how he is "engaged"?

Not the least happy of the committee's devices for adding interest to the Banquet was the bill of fare, orientally entitled "The Institutes and Ordinances of Menu," and elegantly printed in a little book, which constitutes an exquisite memento of the feast. We copy it entire. If our readers spend an hour in reading its humorous riddles, they will do just what was done by the banqueters, to the great advantage of conversa-

tion. What more delightful occupation for an Expert than the explanation of recondite professional humor to a Lovely Being?

ANNUAL MEETING  
OF THE  
AMERICAN INSTITUTE OF MINING ENGINEERS.

SUBSCRIPTION DINNER HELD AT THE UNION LEAGUE HOUSE, PHILADELPHIA,  
February 17th, 1881.

- "Leave hops behind, all ye who enter here!"—*Old Song.*  
HAUT SAUTERNE.  
"The Juice it is! To be tested in a beaker."—*Fresenius.*  
"Thoroughly matured and well expressed."—*The Nation.*  
SHERRY—AMONTILLADO.  
"Decant carefully and without precipitation."—*Roscoe.*  
"Spanish shore. Preferred for Bessemer Pigs."—*Rural New Yorker.*
- OYSTERS—BLUE POINTS.  
"Economy lies in the direct use of raw material."—*Dr. C. W. Siemens.*  
"Showing semi-conchoidal fracture and mother of pearl luster. Prognostic characters well known. Preferred by collectors to those which occur in quartz."—*Dana.*  
"Removable shells. My patent."—*A. L. Holley.*  
SOUP—A LA REINE.  
"The whole charge may be poured at one operation."—*Sir Henry Bessemer.*  
"A ladle-like washer subject to royalty."—*Webster on Patents.*  
PATE—A LA FINANCIERE.  
"The financial operation at this stage is more important than the chemical one."—*I. Lowthian Bell.*  
"A pay-streak cooked for capitalists."—*Obscure Author.*
- HOCK—NIERSTEINER. LEIDEN.  
"The old acid process will always have a place."—*P. von Tunner.*  
"Standard solution for problems in volumetric analysis."—*Mohr.*  
"Found near the extremities of a horse."—*Prime's Cotta.*  
BORDEAUX—CHATEAU MARGAUX.  
"This produces a good bloom."—*Captain William R. Jones.*  
"Run out, puddled, and brought to nature. Good enough for any bar."—*John Griffin.*
- ROCK FISH—AU GRATIN.  
"A Siemens product."—*G. J. Snelus.*  
"Phosphorus may be added if the charge is deficient."—*E. Windsor Richards.*  
"A fissure-lode."—*Prof. J. S. Newberry.*  
POTATOES—A L'HOLLANDAISE.  
"A Dutch plant above, with a Root blower."—*J. Miller.*  
ROAST—FILET OF BEEF WITH TRUFFLES.  
"You can't put in too much good material."—*John Fritz.*  
"Taken from a cross-cut and improved by roasting and dressing."—*Rittinger.*  
POTATO CROQUETTES.  
"Piled, rolled, and reheated."—*W. E. C. Coxe.*  
"Balled in the Krupp Rotator."—*The Young Punster's Assistant.*  
FRENCH PEAS.  
"A kind of settler operated by agitation."—*Annales des Mines.*  
"Remains of a shelled deposit."—*J. W. Dawson.*  
CHICKEN—A LA ROYALE.  
"A burd'n not to be re-fused."—*Wedding.*  
"Plucked for the benefit of experts."—*Denver Tribune.*
- ROMAN PUNCH.  
"The flow of solids is made apparent by the application of our cold punch."—*William Sellers.*
- CHAMPAGNE—DRY MONOPOLE, JAUNAY.  
"Unless the lining material is dry, explosions will occur."—*Capt. R. W. Hunt.*  
"The Landsman's gas producer."—*W. P. Shinn.*  
"The only formation in which Carbonic Acid is in place."—*Prof. T. Sterry Hunt.*  
"Care should be taken, lest the charge blow out the tamping, causing a waste of force."—*H. S. Drinker.*
- TERRAPIN.  
"A kind of tortas got from slimes."—*Raymond's Glossary.*  
"Hanging and foot-walls are well defined, the vein matter easily detached, and well worth working."—*Clarence King.*  
"The most powerful jaw-crusher in the market."—*Prof. W. P. Blake.*  
CELERY—A LA MAYONAISE.  
"A sort of mixed pickle brought to grass."—*C. Le Neve Foster.*  
CHEESE—ROQUEFORT AND BRIE.  
"Blende with other things."—*Quenstedt.*  
"Reduce the burden gradually."—*Edward William.*  
CHARLOTTE RUSSE.  
"A deposit between well-defined walls with slickensides and a good gouge."—*Leadville Report.*  
"A foreign lady transplanted hither by the blandishments of the Barker Expedition."—*New York Herald.*
- MERINGUE—A LA CREME.  
"A fine suite of the kind."—*Prof. T. Egleston.*  
"At this stage of the process the cinder is very light and fluffy."—*Dr. Percy.*  
"Bomb-like concretions filled with foreign substance."—*Frazer's Weisbach.*
- ICE-CREAM AND WATER ICES.  
"Surface condensation protects the boiler from corrosion."—*Bourne's Catechism.*  
"Pulp from a Chili mill."—*J. Arthur Phillips.*  
FRUITS.  
"The best product of blooms."—*William Metcalf.*  
"Grows on hanging, but frequently found near the foot."—*Oscar J. Heinrich.*  
COFFEE.  
"Adit."—*Prof. Warington Smyth.*  
"Digest the whole with a strong infusion."—*Dr. Charles B. Dudley.*  
LIQUEURS.  
"Dissociation occurs at this stage."—*Dr. T. M. Drown.*  
"After Damp."—*Eckley B. Coxe.*  
TOASTS.  
"The success of the process depends very largely upon the after-blow, during which the remaining phosphorus is eliminated."—*Sidney Gilchrist Thomas.*  
"At this point the bosh begins."—*T. F. Witherbee.*

The dinner was well cooked and well served—a simple but important circumstance, which had much to do with the universally cordial appreciation of the good things which followed. We have heard of dinners—even of famous "New England dinners"—where the guests complained of hunger, and were consequently impatient of eloquence.

The best evidence of the quality of the speeches is the astonishing cir-

cumstance that scarcely a person left the room before the banquet was formally concluded, long after midnight. The air did *not* grow heavy with stale tobacco-smoke, the company did *not* dwindle to a few sleepy and a few noisy participants; the orators were inspired and rewarded with abundant attention and applause, and the last man had an audience not less numerous and appreciative than the first. Who would not do his best, under such circumstances?

It is fortunate that custom forbids the reporting of the speeches. No report would do them justice. Perhaps the most felicitous was that of Mr. WAYNE MACVEAGH, said to be the best after-dinner speaker of Philadelphia. It is a pity he is not a Mining Engineer; such gifts are wasted in the law.

No delicacy need deter us from mentioning the characteristic speech of our own HOLLEY, mingling pathos and fun in an inimitable way. The mere sight of him, standing before us in health and strength, reminded us of the time, so recent, when we had daily waited for tidings of him from a foreign shore, fearing the worst, and scarcely daring to hope for the best. No wonder he was able to evoke tears as well as laughter. It brought motes into all our eyes, merely to behold the happy beam in his!

And there was ECKLEY COXE, radiant with the consciousness of virtue rewarded; for had he not, after refusing to take his seat in the Pennsylvania Senate, been triumphantly re-elected, *without* "illegal expenditures"? There was, of course, no end of gentle ridicule visited upon him—but he could afford to take it jovially, as he did; for he knows very well how thoroughly, beneath all *badinage*, he is admired and beloved by his brethren of the Institute. COXE, by the way, made a capital speech, showing that the stump had quite made an orator of him, and accounting incidentally for that famous missing report on the Waste of Anthracite Coal. According to his ingenious story, it had been delivered to the Secretary, and was destroyed in the conflagration of Pardee Hall, being too heavy to be moved by Dr. DROWN, and too dry to be extinguished by the Easton Fire Department!

But to return to Brother COXE's senatorial career—we mean his first brief term: FRAZER, in acknowledging the toast to the Committee of Arrangements, cited the carbonaceous statesman of Drifton as a bright example of devotion to "Duty," and produced the following "short-hand notes, picked up by the doorkeeper of the Pennsylvania Senate, after having been dropped from the pocket of a man who evidently did not belong there, and who had never been in the room but once." It is evident that GILBERT got from this source the idea of one of the scenes in "The Pirates":

SOLO: Oh! is there not one member's breast  
Which now can feel the moral beauty  
Of making worldly interest  
Subordinate to thoughts of DUTY?  
Who would not give up willingly  
All senatorial ambition  
To rescue such an one as I  
From his unfortunate position!

CHORUS: No, no! There's not one member's breast  
Which yet can feel the moral beauty  
Of making worldly interest  
Subordinate to thoughts of DUTY!

SOLO: Oh! is there not one member here  
Whose crooked work and forged election  
Has caused all hope to disappear  
Of braving, in the end, detection?  
I say to such, if such there be,  
I swear by heaven's blue vault above you,  
If you'll return my cash to me,  
However bad you are, I'll love you!

CHORUS: No, no! There's not one member here  
Whose cooked returns of his election  
Have caused all hope to disappear  
Of braving, to the end, detection!

We ought not to forget the shortest speech of the evening, that of Lieutenant-Commander GORRINGE, concerning whom several young ladies have confided to us that they think he is the nicest sailor they ever met, and they are so glad the Obelisk brought him over. I notice to-day among our lady members a curious tendency to nautical phrases. They cried "ahoy!" to the waiters at breakfast; and one of them hoped that I had got the gallant commander's speech down "in my log"—after which she retired to "set her mainroyal and sky-s'l" (by which she meant, put on her bonnet) before starting for the Institute sessions. "Why shouldn't I go," said she, "and hear all about phosphorus? The Commander says there is phosphorus in the sea!" So here she is, listening to the great steel rail discussion, and whispering to her neighbor that "they needn't make such a fuss about a few years' wear; the Commander says that the Obelisk will wear 9000 years before those sweet hieroglyphics will become illegible!"

Speaking of the ladies brings me back again to the banquet of which they were the ornament and the inspiration. One might well say that the entire proceedings were in their honor, and no special toast to them was needed. Yet such a toast was announced, and a member, leaving

with visible reluctance a *tête-à-tête* which seemed more to his taste, made a response, in the course of which he introduced the following lines :

'Tis only subjects ask for *rights* ; in such a realm as ours,  
The queens that sit upon the throne have but to speak of *powers* ;  
And while in sweet omnipotence they wear the diadem,  
The proudest man grows prouder still, as he bows down to them.

Behold, how at their coming strife departs from every brow !  
The champions of competing rails forget their railing now ;  
The war of hammers *versus* rolls is hushed, and none presume  
To dream that either treatment suits this higher grade of bloom !

While they are near, with gentle grace to soothe the troubled soul,  
We contemplate without a groan the awful "Waste of Coal ;"  
Nay, when their dynasty began, we even ceased to feel  
Concerned about that ancient feud, beginning "What is Steel ?"

Their presence, to the amazement of the chemic analyst,  
A universal solvent, bids all mixtures coexist ;  
And eager acids keep the peace, nor does a bubble rise  
To tell the expiring struggle when any oxide-dies !

The furnace-man forsakes his fires ; the miner drops his drill ;  
Their arts are swift to recognize an art more potent still,  
That finds in life's most gloomy depths rich treasures manifold,  
And, fusing what is crude and base, brings out the shining gold.

Refining is superfluous ; retorting is in vain ;  
*An' kneeling* is the only thing ; for parting were but pain ;  
Yet many a metallurgic wight would yearn, if it were proper,  
In waltz or polka, to show forth a perfect bell-and-hopper !

The geologist tribute brings, of fire and water blent,  
And whispers in a boulder way, "What I have sed-i-ment !"  
"I scorn all traps but that you set ; along *its* magic lines,  
Caught, lifted, metamorphosed, my crusty soul synclines !"

More wondrous still, the editor, who stands from all aloof,  
Offers his columns for your shrine, and altars not the proof.  
The poet—ah, the poet ! he sends his kind regret,  
And says his Ode to Woman is not quite finished yet !

The influence of the obelisk is contagious. Even the grave and dignified SHINN, catching the prevailing taste for antiquities, produced an ancient record, dug up in Central America, and proving the existence of the Institute, with all its present habits, even down to after-dinner doggerel, some centuries ago.

We haven't half described even the describable part of the banquet. But we must come to an end, nevertheless. The last paper has been read ; the Secretary is putting on his hat ; the janitor of the Franklin Institute begins to turn off the gas ; what can a sensitive journalist do, but take the hint, and depart ?

The Commander says, that in all his mingled experiences of obelisks and meetings and dinners, he never ; no, he never—! And we agree with him.

THE PROSPECTS IN THE COAL TRADE.

The very encouraging reports which the coal carrying and coal mining companies have recently issued give the stockholders hopes of remarkably good results in 1881. These hopes, we think, are not without considerable foundation. The report of the Delaware & Hudson Canal Company, for 1880, which has just been issued, reviews the situation, and argues that 1881 should show much larger profits. We extract from it the following :

"The result of the business for the year showing a profit of \$1,351,422, or a fraction over 6½ per cent upon the capital stock, may be regarded as satisfactory, especially when it is considered that in the early part of the year the price of coal was not remunerative, and only became so after the general adoption, in March, of the 'restrictive policy' in production. After this, the buyers of coal, accustomed to the low prices caused by years of unhealthy competition, and lacking faith in the continuance of harmonious action on the part of the producers, took coal only as necessity compelled them. As a consequence of such action, the mines, for the greater part of the year, were worked on half-time ; the old accumulations of coal were exhausted, and the year closed upon bare markets. In addition to the above, the business of this company was seriously affected by a continued drouth, which compelled a long suspension of business on the canal, and reduced our transportation to an extent of not less than 250,000 tons of business and the profits thereon.

"It is gratifying to be able to state that 'the leased lines' have become self-supporting, and that their collateral advantages, as avenues for the distribution of our coal, are annually increasing. It is now safe to assert that the possession of these lines has strengthened the position of the company to an extent that fully justifies the policy that led to their acquisition. The disastrous results which followed the plan called 'open competition' (but which really means wanton waste and destruction) led to the adoption of the 'restrictive policy,' that was foreshadowed in our report of 1879. The producers of coal no longer differ upon the question of 'over-production.' All agree that it leads to general demoralization of the trade and ruinously low prices, and the experience of the last year can only strengthen such conviction. It may therefore be

assumed that the policy of judicious restriction will be continued ; that prices of coal will be made fair alike to the consumer and the producer ; and that the managers of this great interest will so conduct it that, while the interests of the public will be protected on the one hand, the owners of the properties, on the other, may feel assured of reasonable returns upon their investment."

The Delaware, Lackawanna & Western Railroad Company, on a business of 3,539,086 tons, gave a profit of \$2,276,089, or over 8½ per cent on the full capital stock.

The Lehigh Coal and Navigation Company does not do so well, but still makes a creditable showing, the net earnings amounting to \$194,236.

The Lehigh Valley Railroad Company, after charging off "accumulated depreciations" of \$990,338, had net earnings of \$1,235,175, enabling the company to pay 10 per cent on its preferred stock and 4 per cent on the common stock. The actual earnings of the year were probably fully 6 per cent on the common stock.

It has been so long since a statement was made by the New Jersey Central Railroad that the public has lost track of its doings, and can only make an approximate estimate of what it is earning.

The Philadelphia & Reading Railroad Company's last statement was for 1879, and shows that the railroad lost in that year, which was the worst in the history of the coal trade, \$1,063,421.73, and the Coal and Iron Company \$699,450.85, making a total for both companies of \$1,762,872.58. As this company did a business of 8,147,579 tons in that year, the loss was but little over 2½c. per ton. The enemies of the company would say that the loss was only represented by the increase of indebtedness, which was \$2,733,906.23, or 33c. per ton. The price of coal in New York is at the present time fully \$1.50 per ton more than the average of 1879, and it would seem safe to say that the Reading should average an increase in receipts on coal of fully 75c. per ton, which would equal about \$6,000,000, and would not only cover all deficiencies, but leave a balance to apply to dividends (assuming the loss in 1879 at over \$2,733,906.23) equal to nearly 10 per cent on the capital.

The total anthracite coal business of 1881 will probably equal the estimate we made in December, namely, 28,000,000 tons. At an advance of \$1 per ton, this will give \$28,000,000 to cover deficiencies and make profits.

The following is the capital of the leading coal carrying and producing companies :

Delaware & Hudson Canal Company.....	\$20,000,000
Delaware, Lackawanna & Western Railroad Company.....	26,200,000
Lehigh Coal and Navigation Company.....	10,448,550
Lehigh Valley Railroad Company.....	27,042,900
New Jersey Central Railroad Company.....	20,600,000
Pennsylvania Coal Company.....	5,000,000
Philadelphia & Reading Railroad Company.....	34,278,150
	\$143,569,600

The losses of these companies, according to the published statements, were much below \$5,000,000 in 1879, while 6 per cent on the aggregated capital only amounts to about \$8,500,000, or about 30c. per ton net profit on a business of 28,000,000 tons.

It is said that Mr. JAY GOULD and his associates have secured a control of New Jersey Central and Delaware, Lackawanna & Western, and it is intimated that he has, or will secure, a control of Reading. If he does, there will be (so long as Mr. GOULD wishes it) some policy in the management of the anthracite coal trade, and present prices, which are quite remunerative to the companies and not oppressive to the public, can easily be maintained.

AMERICAN INSTITUTE OF MINING ENGINEERS—THE PHILADELPHIA MEETING.

On Wednesday morning, the first thing in order on the programme of the Institute was an excursion by special train over the main line of the Reading and Pennsylvania railroads. The train consisted of four new cars of the Eastlake style of decoration, finished in light wood ; they were exceedingly comfortable, and were well filled with the members, ladies, and invited guests of the Institute. The train left the depot, Thirteenth and Callowhill streets, at nine A.M., and proceeded directly to the Pencoyd Iron-Works, where the various departments of the works were carefully inspected by the members and those accompanying the Institute. Mr. PERCIVAL ROBERTS, Jr., acted as guide, and pointed out the leading features of the works. From a pamphlet distributed to the excursionists, we gather the following information :

The erection of the Pencoyd Iron-Works was commenced in the year 1852. The manufacture of hammered car and locomotive axles was added subsequently, as the railroad interest at that time was increasing very rapidly. The first order (for twelve axles) was received from the well-known car-wheel manufacturers, Messrs. A. WHITNEY & SONS. The growth of this branch of business was rapid, and, in the year 1855, the manufacture of rolled scrap axles was added. The product increased annually until the year 1872, in which 45,390 rolled and hammered axles were made. At the close of the year 1880, a total number of 467,026 axles of both kinds had been reached.

In the year 1859, under the title of "The Bridge Company," the manufacture and erection of wrought and cast-iron bridges was begun. The name, "Pencoyd" is of Welsh origin, and signifies "tree-tops ;"

the Roberts homestead (settled in 1683, by grant from WILLIAM PENN) being so called. It is located but a short distance from the works, and still remains in the family, being occupied as a country-seat by Mr. GEORGE B. ROBERTS, President of the Pennsylvania Railroad.

The plant consists of the finishing mills, which contain, at present, one 28-inch three-high roll-train, driven by a 32"×48" vertical engine, with a 25-foot fly-wheel weighing 70,000 pounds. These mills are supplied by three heating furnaces of ordinary type.

One 18 inch two-high roll-train, for bar iron, axles, and shapes of medium size, driven by a 19"×48" horizontal engine. Three heating furnaces are attached to this roll-train.

One 12-inch three-high roll-train, for guide-iron, small bars and shapes, driven by an 18"×22" horizontal engine, and supplied by two heating furnaces.

The forge is designed especially for the manufacture of car and locomotive axles, and contains:

One steam hammer, built by MERRICK & SONS, of the following dimensions: Weight of ram, 3000 pounds; diameter of cylinder, 16 inches; length of stroke, 36 inches.

One steam hammer, built by BEMENT & DOUGHERTY: Weight of ram, 3000 pounds; diameter of cylinder, 14½ inches; length of stroke, 30 inches.

Also, one 2500-lb. steam hammer and one 1000-lb. hammer, at present not in use.

The puddle mill contains twelve double furnaces; two sets of 20½" three-high rolls, driven by a 24"×36" vertical Corliss engine, and one rotary squeeze; driven by a 16"×24" vertical engine.

The scrap-house contains one shears, driven by a 20"×20" engine (capable of shearing, at one stroke, a plate ten feet six inches long by two inches thick); two rumpers, for cleaning scrap; and two shears, for cutting scrap.

The machine-shop is equipped for handling axles and the general repairs of the works.

Besides the special axle tools, it contains two roll-lathes, one 36-inch screw-cutting lathe, several engine lathes, one 50"×50" planer, one 25"×25" planer, a shaping-machine, drill-presses, etc.

The pump-house has two Worthington duplex pumps; also, one duplex pump, built by the Philadelphia Hydraulic Works. The total pumping capacity is 1500 gallons per minute.

The steam power is furnished by twenty-six boilers, placed over heating and puddling furnaces, and also by two large flue boilers.

The works are lighted by electric lamps, of the Thomson-Houston patent.

The products of the works are: Hammered and rolled axles, shafting, squares, flats, channels, angles, tees, and beams. The total annual capacity is about 18,000 gross tons of finished iron.

Particular attention is given to the manufacture of iron of high quality, for special purposes.

Memorial Hall, Main Centennial Exhibition Building, among many other important structures, was composed of Pencoyd iron.

On rejoining the train, a short run over the Richmond Branch of the Reading Railroad brought the party to the Midvale Steel-Works, at Nicetown, where some time was spent witnessing the various processes of interest in the manufacture of steel.

These works were built in 1866. The plant comprises one 4-ton air-furnace for melting pig, and 10 coal and 4 gas heating furnaces; 1 gas-pot muffle, and 1 kiln for drying, melting and annealing shop, with 2 annealing and 4 drying furnaces; 6 steam hammers, from 8 tons to 300 pounds; tire-rolling mill, with capacity for 35 tires, single turn, per day; rolling-mill, with one 23 and one 12-inch train; machine-shop, with five 80-inch boring and turning mills, two 80-inch and four 24-inch lathes, one planer, 36 inches by 10 feet, one drill press, and 2 straightening machines; one 30-ton steel-converting furnace, with a yearly capacity of 500 net tons, 16 4-pot steel-melting holes, one 30-pot Siemens gas steel-melting furnace, and one 6-gross-ton, and one 10-gross-ton Siemens open-hearth steel furnace; 94 pots can be used at each heat in steel works. Product, open-hearth and crucible steel only: tires, axles, forgings, and castings; tool, machinery, and frog steel, etc. Daily capacity, 50 net tons; annual capacity, 15,000 net tons cast-steel.

The visitors, again rejoining the train, were carried to Germantown Junction, where they boarded a special train on the Pennsylvania Railroad and were taken to Malvern. Here about twenty-five of the party visited Bishop's Platinum-Works, to which they were conveyed in carriages. Bishop's Works are the only ones of the kind in the United States. The process of platinum melting was watched with great interest by those who visited the works. Those remaining on the train were carried up to Downingtown, a distance of 32 miles, and brought back again to Malvern, where those from the Platinum-Works rejoined them. This interval was well employed by those who remained on the train in discussing an excellent lunch provided in two cars, one with many small tables for those having ladies with them, and the other with a table the entire length of the car for those *en garçon*. By the time the cigars

were consumed, the train had reached the Thirty-second street depot, West Philadelphia.

A feature worthy of note from an engineering point of view was the alteration, improvement, and the straightening of the line after leaving Malvern. On April 25th, 1879, the Pennsylvania Railroad Company awarded contracts for the graduation and straightening of the track, some five miles from Glenlock to Woodbine, being part of improvements in the Eastern portion of the Philadelphia division of the road. These improvements save over three hundred degrees of curvature, and reduce the distance some one fifth of a mile. The old track was crossed sixteen times by the new one. The permanent way of the new road is of that solid description for which the Pennsylvania Railroad is so justly celebrated, and is stone ballasted. The many unnecessary curves have been done away with, and will afford greatly increased facilities for the ever-increasing traffic of the road.

After a delay at the West Philadelphia depot for a few minutes, the train proceeded slowly out of the station, crossed the viaduct over the river, and reached Fifteenth street station on the new elevated road along Filbert street. This was the first train which ever crossed the river with passengers on board, and the engineers received quite an ovation from the occupants of the windows *en route*.

The train was under the charge of Conductor JUSTUS LAW, assisted by Brakemen THOMAS DONOHUE and DANIEL HARVEY. Besides those from the Institute, among the passengers were CHARLES E. PUGH, General Superintendent Pennsylvania Railroad; THOMAS H. ELY, Superintendent Motive Power Pennsylvania Railroad; E. O. MCCLELLAN, General Agent Pennsylvania Railroad; and E. S. PHELPS, Assistant Train-Master Pennsylvania Railroad.

It is needless to say that the day spent was one of great interest and enjoyment to all, and the arrangements were perfect.

A few made a casual inspection of the public buildings, which will be grand piles "when they are finished," and an afternoon session was held at four P.M., in the Hall of the American Philosophical Society, at which papers were read, particularized in our Editorial Correspondence of last week. The day was brought to a close by a Musical Reception tendered to the Institute by the Philadelphia members, at the Academy of the Fine Arts, which was thoroughly enjoyed by the large and brilliant gathering, numbering over fifteen hundred.

The morning session on Thursday, the 17th, was opened at the Franklin Institute at ten A.M., the lecture-room of which was soon crowded with members interested in Dr. DUDLEY's paper on "The Wearing Power of Steel Rails in Relation to their Chemical Composition and Physical Properties," a printed copy of which was circulated among the members of the Institute in advance of the meeting. From the fact that it produced so much able although adverse criticism, it may safely be put down as the paper of most importance yet read before the Institute, involving as it does questions of such vital interest to producers and consumers. It is quite out of the question, in a general description of the proceedings, to convey any adequate idea of the liveliness of the debate which this paper produced; but as the principal arguments pro and con were in the form of written papers, we feel sure that the indefatigable Secretary of the Institute will place the conclusions embodied in the papers in the hands of the members at the earliest possible moment, when those sufficiently interested in the subject can at leisure do justice to the weighty arguments brought forward. An interesting paper was read by Mr. A. L. HOLLEY "On Rail Patterns," after which the debate on Dr. DUDLEY's paper was fairly started by Mr. ASHBEL WELCH, who was ably followed by Mr. ROBERT HUNT, who in turn gave the floor to Mr. WILLIAM SELLERS. No small amount of witty sarcasm on statistics, technicalities, and the incomprehensibilities of the chemical and physical constitution of steel rails was indulged in during the debate, all of which was given and taken in good part, the climax being reached by Capt. W. R. JONES, who characterized the results of Dr. DUDLEY's researches as "unfortunately deficient and deplorably incomplete." The President-elect, Mr. WILLIAM METCALF, followed, when an adjournment was made.

The afternoon session was taken up with the reading of papers without discussion, which were presented in the following order: "Notes on the Spitzlutte, for the Laboratory," by R. H. RICHARDS, Massachusetts; "Gas Producers Using Blast," by T. N. DANIELS, Massachusetts, read by the Secretary, owing to the author's absence; "Coal Washing," by S. STUTZ, Pittsburg; "Notes on Steel for Bridges," and "Shocks from Express Locomotives," by J. W. CLOUD, Altoona; and "The Origin of Gold Nuggets and Placer Deposits," by THOMAS EGLESTON, New York City.

In the evening, the subscription-dinner of the Institute was held at the Union League Club House, the whole of the second floor having been very gracefully placed at the disposal of the Institute for the purposes of the entertainment. The banquet, to which about one hundred and eighty guests sat down, was of a very *recherché* character, and all of the toasts and speeches were not only appropriate to the occasion but witty and entertaining and fully up to the high standard of former similar occasions. It is needless to add that a most enjoyable evening had been spent when the guests dispersed about midnight.

On Friday, the 18th, at the morning session, the debate on Dr. DUDLEY's paper was resumed. The first paper was read by Mr. WILLIAM METCALF, of Pittsburg, entitled, "Can the Magnetism of Iron and Steel be used to Determine their Physical Properties?" A paper by General GEORGE WEBB was then read by the Secretary, on "Rail Tests," followed by a very able paper read by Mr. WILLIAM KENT, of Pittsburg, who categorically criticised the results obtained by Dr. DUDLEY's formulas, from which he claimed valid conclusions could not be drawn.

Dr. THOMAS DROWN stated that letters from the following gentlemen had been received upon the subject under discussion, who regretted their inability to be present: Dr. A. WENDELL, of Troy, N. Y., on Dr. DUDLEY's paper; FREDERICK G. FIELD, London, on C. P. SANDBERG's paper; and ROBERT H. SAYRE, of the Lehigh Valley Railroad. JOHN W. CLOUD, of Altoona, and Dr. THOMAS EGLESTON, of New York, continued the discussion, and was followed by S. A. FORD, of Pittsburg, and C. E. STAFFORD, of Harrisburg; when Dr. CHARLES B. DUDLEY was called upon to close the discussion for this meeting in reply. After he had answered the criticisms, a vote of thanks was tendered him by the meeting for his able paper.

The closing session of the meeting was opened at 3.30 P.M. by the reading of a paper on the "Whitwell Stove and its Recent Improvements," by FREDERICK W. GORDON, of Pittsburg, which was followed by an interesting paper by JACOB REESE, of Pittsburg, on "Burnishing and Ductilizing Steel," after which the "Brazos Coal-Field of Texas" was discussed by C. A. ASHBURNER, of Philadelphia. Prof. GEORGE A. KOENIG, of Philadelphia, read a paper on the "Occurrence of a Lustrous Coal in a Fissure-Vein," and was succeeded by O. J. HEINRICH, of Drifton, Pa., whose paper on the "Mining School of Drifton" was the last submitted.

The annual reports of the Institute were then read, after which the following officers were elected to serve for the ensuing year: President, WILLIAM METCALF, Pittsburg; Vice-Presidents, J. P. KEMBLE, Baltimore; W. H. PETTY, Ann Arbor, Mich., and C. O. THOMPSON, Worcester, Mass.; Secretary, Dr. THOMAS F. DROWN, Easton; Treasurer, T. D. RAND, Philadelphia; Managers, J. S. ALEXANDER, Philadelphia; H. S. MONROE, New York, and J. C. F. RANDOLPH, New York. During the stay, some of the members availed themselves of the invitation extended to visit the Bullock Lightning-Press, and a great deal of interest was manifested in the machine, patent folder and paster attached.

The most important, interesting, and successful meeting ever held by the American Institute of Mining Engineers was thus brought to a close without any thing interfering to mar the success or pleasure of the participants. The arrangements and the way in which they were carried out reflect the greatest credit on all those who had the laborious task allotted to them.

BRITISH EXPORTS OF IRON AND STEEL.

Messrs. W. W. & C. RICHARDSON, of London, have extracted the following figures from the government returns:

RAILWAY IRON EXPORTED TO	Month ended Jan. 31.		
	1879.	1880.	1881.
United States.....	Tons. 75	Tons. 15,327	Tons. 7,921
Russia.....	.....	.....	74
Turkey.....	440	.....	7
British India.....	4,095	16,486	4,443
British North America.....	401	1,085	298
Egypt.....	21	891	1,873
Australia.....	6,559	2,945	5,840
Brazil.....	1,588	2,338	3,180
Holland.....	.....	.....	23
Spain and Canaries.....	1,787	1,209	105
Sweden and Norway.....	2,637	120	280
Chili.....	507	10	.....
Denmark.....	.....	1	1
Peru.....	169	99	249
Germany.....	206	.....	.....
British Possessions in South Africa.....	822	278	398
Italy.....	11	1,383	3,668
Other countries.....	1,155	4,606	6,775
Total.....	20,473	46,778	35,135
Total exports from Great Britain of iron and steel to all countries.....	128,318	275,979	197,112
Estimated total of iron rails.....	4,475	11,143	7,084
"    "    steel rails.....	10,911	28,016	23,340
Total of rails.....	15,386	40,059	30,324
Exports of the following to the United States:			
Fig-iron.....	3,261	56,570	16,054
Old iron for remanufacture.....	186	24,972	5,534
Steel unwrought.....	468	2,592	3,775
Tin plates.....	8,895	17,013	12,177
Hoops and sheets.....	53	4,985	220
Bar, angle, bolt, and rod.....	159	6,819	1,085

The above figures show a large falling off in all departments. The decline in the shipments to the United States is very marked. The business in this direction is still, however, very much larger than our ironmasters like to see.

PARLEY'S PARK, BINGHAM, AND SILVER REEF, UTAH; AND WOOD RIVER, IDAHO.

Special Correspondence of the Engineering and Mining Journal.

The developments recently made in the Rebellion, in Parley's Park, seem to indicate that the second great mine of that district has at last been struck. The tunnel, in on the vein 300 feet, has opened a body of ore, the extent of which has not yet been demonstrated, but sufficient openings have been made to show a very large quantity of good ore. Some 200 tons have been sent down to the Park City smelter, and the mine is choked with sacked ore, there being no ore-house of any consequence in which to store it. The ore runs from 40 to 60 per cent lead, and carries from 40 to 70 ounces of silver to the ton, while it is perfectly free as a smelting ore.

In Bingham, the Tiewaukee continues the leading mine; but it is in litigation, and may, before it gets out of court, find a new owner.

The base bullion shipments continue steady, but show no increase over the corresponding weeks in the first of last year.

The strike at Silver Reef continues. The companies, however, will probably prove the longest-winded, and miners, before many weeks, will be put to work at reduced wages—\$3.50 per day, instead of \$4. The managements of the Barbee and Stormont companies undoubtedly acted in the interest of the stockholders when they cut the wages of employes. The Christy Company, however, is still paying the Union price (\$4 per day), because it feels that its returns warrant it in doing so. All the mines and mills of this company are now in full operation, and for the five and a half months from August 1st, 1880, to the 15th of January, 1881, the company makes the following showing: The mill ran 158 days, ten days being lost by reason of the severely cold weather. During the run, the mill—five stamps—worked 6273 tons of ore, and produced \$137,945.89 in bullion; the average battery sample, \$27.82 per ton. All the ore came from the company's four mines, the Tecumseh, Silver Flat, Maggie, and California, all of which are in first-rate condition and showing well. "The prospect for a continued supply of ore," says Superintendent Lubbock, "was never better, and we can safely say that our mining situation is in a more prosperous condition to-day than it has been at any time in the past." The company is employing some 40 men at high wages; but notwithstanding this fact, the profits on the business have been about \$15,000 per month.

WOOD RIVER, IDAHO.

The current of excitement from Wyoming to California has set in strongly for Wood River, Idaho. From Utah, every body who is looking for a poor man's mining country, and can get away, is pulling out for the north, where the ores lie upon the surface and are rich and abundant. One citizen of Eureka, Nevada, will take in 400 head of saddle-horses; and two firms of the same place contemplate the erection of smelters at Marshall, the new town; while a number of Salt Lake parties also intend to build reduction-works and samplers in the same town, which gives promise of being made the chief business center of that country. Bellevue is making an effort to maintain itself as the leading town on the river, but capitalists have the new burg in hand, and will spare no effort to make Marshall the key to the entire country.

SALT LAKE CITY, UTAH, Feb. 15.

YOSEMITE.

MINING NEWS FROM THE PATAGONIA MOUNTAINS, ARIZONA.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Late reports from the mines surrounding Harshaw are, that on the 400-foot level of the Hermosa a large body of higher-grade ore has been uncovered, and to this depth is economically worked with a tunnel; the water, thus far, not having given any trouble. After several months of anxious prospecting, the Hardshell, a north extension of the Hermosa group, has developed some fine ore, not dissimilar to the Hermosa ores, namely, chloride of silver in a feldspathic gangue. Its friability is shown by the fact that the Hermosa 20-stamp steam mill is crushing from 90 to 100 tons of ore daily. Several labor-saving devices have lately been added to the mill, saving about \$1200 per month. Now, three men attend the batteries and pans on each shift; formerly, twice that number was employed. The chief improvements are, instead of the pulp being conveyed to tanks alongside of the pans to be shoveled into them, it is brought directly to the first pan and passes through each consecutive pan, settler, and agitator belonging to the respective set, thereby saving silver and labor. The cyanide of potassium and lime are fed to their relative pans by a system of clock-work: salt being dispensed with is another great economy. This is considered by all a model mill. The monthly production of bullion, I am told, is about \$100,000. Nothing is doing on the Alta at present, owing, I am told, to want of agreement as to the best method of developing this fine claim. The Trench is cross-cutting from the 200-foot station to strike the vein, which has a dip of nearly 80 degrees. In the old Mexican workings, a good vein is shown, with well-defined walls. The Washington Pool mines are rapidly developing, and the manager from New York is expected daily. Undoubtedly some of these claims will prove valuable mines. The superintendent of the Davis is in San Francisco; report says to secure a 20-ton smelter. The Holland is working two shafts in ore.

There has been some excitement attending the prospecting and development of the claims on the west side of these mountains. Although old workings are discovered, showing unmistakable signs that a large amount of work was once done, yet sufficient proof does not remain to demonstrate that they yielded a large amount of metal. The formation is granite and porphyry; I believe no limestone. The foothills of this range, in which most of the mines are situated, are lightly covered with live-oak and pine, and roll west and north to the Santa Cruz and Sonoita valleys, which have running water. The veins, generally speaking, are not large, but proportionately higher grade than on the opposite side. Both milling and smelting ores occur. I think that in either case they would require a preliminary treatment in the way of roasting and chloridizing. The Lone Palm and Vega, old Mexican mines, led to this hegira. Almost impossible stories are related regarding the amount of ore extracted from them. No doubt, most of the prospectors and claimants would be satisfied with fair properties, which

at present is the outlook. An old patented mine, Guajolote, belonging to H. D. Bacon, located upon the ridge of this range, in the granite, shows the best defined vein of about three feet of any that I have seen. The vein is perpendicular and walls well defined. The ore is reported not high-grade, but carries some gold, which is not a characteristic of the ores of this range; but it has no doubt depth. Aside from the vein's dip, it is traceable for quite a distance.

One other district remains to be noticed. Red Rock is just north of Harshaw, and the principal mines about eight miles distant. The road leading there is firm and easily traveled. But little timber is found, as they are upon a mesa. Water on the surface sufficient for living purposes; the soil being porous, it disappears. The country-rock is porphyry, with some limestone. While there are a great many locations, there is but little development. The sooner prospectors and owners learn the difference between a location and a mine, and cease to live in hope that they will get a purchaser to take their claims for the latter instead of the former, the better the mining interest will be served. Messrs. Fraser & Roth have long since learned this difference, and by persevering labor and with small means have developed a valuable property. It is in the porphyry, trends northerly, and has good walls. They claim to be on the Hermosa belt, and can trace the croppings in that direction for quite a distance. They are down 80 feet, and now cross-cutting the vein. At the surface, the vein was small; at 6 feet, about 2½ feet wide; at 25 feet, had widened over 6 feet; and at present depth, is supposed to be over 12 feet. Mr. Roth informs me that several reliable parties have sampled the mine thoroughly, giving an average assay not far from \$100 per ton silver. The ore is sulphurets and chloride of silver in a quartzite gangue, not unlike the Comstock. There are other good mines here awaiting pick and powder. The mining laws give dissatisfaction, of which I will write in the future. I can not help referring to our Florida-like weather, when I know of polar waves sweeping over less favorably situated camps.

Jan. 22.

J. M. G.

ANTIMONY IN ARKANSAS.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: In the early part of 1874, a deposit of sulphide of antimony (stibnite) was discovered by Mr. Robert H. Wolf in Sec. 10, T. 7, S. R. 31 West, Sevier County. The ore was found lying on the surface in a small ravine, and was weather-worn and resembled old wood; but upon being broken, presented a bright metallic luster, peculiar to this ore. This discovery, at the time, created some excitement in the neighborhood, and, believing that it was silver, a large amount of prospecting was at once indulged in by old and young; but when they found it was not the ore of that precious metal, their ardor cooled, and only those who had means undertook to sink shafts, with the expectation that the ore would, within a few feet, change into antimonial silver; but it did not, and never will.

Mr. Wolf immediately began mining on a small scale, and at the point of discovery took out several tons of fine ore. At a depth of 15 feet from the surface, a solid vein of quartz of 4 feet thickness was struck. This was stained with oxide of iron, and has received the local name of "antimony quartz." The quartz vein contained a vein of 12 inches of pure stibnite. He followed this vein down a few feet, and then sold the mine to other parties, who continued the work; and at present the shaft is about 84 feet deep, with 18 inches of ore in the bottom. This is called the "Wolf Lode," and has a strike of 13° north of east, and a dip nearly vertical. The vein is a well-defined fissure, having perfect walls of hard siliceous sandstone. I give a few analyses of this ore, by Prof. Charles E. Waite, of the Missouri School of Mines:

	(1)	(2)	(3)	(4)
Sulphur.....	24.43	28.52	20.59	25.641
Antimony.....	57.63	68.58	67.38	66.383
Arsenic.....	.34	.40	Silica..6.13	7.677
Bismuth.....	4.37	.51		.002
Iron.....	.87	.76		.241
Gangue.....	11.47	.95		.056
Silver.....	Trace	None	Trace	Trace
	99.31	99.81	100.17	100.00

Average of antimony 65 per cent.

About two miles east of this shaft, another has been sunk on a high and rugged bluff, on the bank of the Cossatot River, and known as the "Antimony Bluff." The shaft follows the vein in on a bulge in the bluff at an angle of about 50°. Quite a large quantity of ore was taken from this shaft, the vein varying from a few inches to 40 inches of solid stibnite. The ore from this shaft is remarkable for its purity. The ore near the surface was mostly an oxide, but a few feet deeper changed to sulphide. The formation of the oxide is probably due to atmospheric influence. Analyses Nos. 5 and 6 are of the oxide, and Nos. 7 and 8 are of sulphide.

	(5)	(6)	(7)	(8)
Antimony..	76.38	76.15	71.30	Antimony.....71.22
Oxygen.....	20.03	19.85	Sulphur..28.52	Sulphur.....28.51
Sulphur.....	.01			Copper......05
Oxide of iron.....	.12			Bismuth......11
Silica.....	1.19			Iron......24
Water.....	2.23	3.08		Silica......50
Silver.....	None	Residue..92		Silver.....Trace
	99.96	100.00		Arsenic.....Trace
			99.82	100.63

Average of antimony, 74 per cent.

The freedom of these ores from arsenic will be observed and their great purity and high percentage, thus adding quality to their value.

About two miles east of this shaft, the same kind of ore was found lying on the surface. Several shafts were sunk and several hundred tons of ore were taken out. A large quantity was shipped to Messrs. George Hallett & Co., of London. Excellent returns were made. From another shaft, about a thousand yards east, some very good ore was taken, with the exception of the Rice and Ella claims, lying from six to ten miles west. No other antimony has been found in Sevier County. From my examination of this vein, I am satisfied there exists, at no great depth, a large quantity of ore; enough to draw the supplies of this country from for years.

The country is hilly and rough, and is traversed by beautiful streams peculiar to all parts of Arkansas. Any amount of timber, such as pine,

oak, walnut, and ash, cover the entire country, rendering it most available for carrying on mining and smelting operations, and I should not be surprised to see at no distant day these deposits again intruded upon by the sharp point of the miner's drill, and the business of mining and smelting antimony added to the list of Arkansas' paying industries.

The mining of the ore would be exceedingly easy, owing to the even thickness and convenient width of the quartz vein and the regularity of the walls. The water amounts to scarcely any thing; therefore, with a good steam hoist, pump, air-compressor, and a couple of rock-drills, operations could be carried on on a large and profitable scale. But few persons—even experts—are familiar with this metal, its mining, smelting, and uses. Besides its uses as commercial antimony, in which it enters largely into type, electrotypes, stereotype, Babbitt and Britannia metal, it is used to a great extent and in large quantities by concerns which manufacture coffin trimmings, comprising about 20 per cent of the alloy. It also makes a very fine red color, which can be used in place of that made from quicksilver. The ore, when it comes from the mine, carries about twenty to thirty per cent of quartz, etc., and the ore yields about 57 per cent antimony; but in order to make the ore yield a higher percentage and at the same time handle a smaller bulk, a liquation furnace is used. The ore being very volatile and fusing at about 800°, a low temperature is required; the ore melts; antimony and sulphur run out combined and leave the gangue. This is called antimonium crudum, or crude antimony. This contains from 80 to 90 per cent metallic antimony. The ore in this state is very brittle. It is crushed and roasted, and then refined in a reverberatory furnace with salt cake and charcoal. After being poured into molds and starred, it is ready for market. There are a number of processes, but this will serve to illustrate. It should cost about \$100 per ton to mine, smelt, and refine. The metal to-day is worth \$300 per ton. In place of importing all our antimony, we could mine, smelt, and sell it at our very doors. For years, the main supply of the world has been brought from the Sarawak mine, in Borneo, and smelted in London.

There is a small deposit of stibnite in Nova Scotia, but not sufficient to amount to much; there is also a deposit in California. The antimony contained in the silver ores can not be saved, and the antimony found in Nevada and Utah is too impure to make good metal.

I am surprised that the property has been so long idle, as the supply of this country must eventually come from some such deposit as this, and no doubt some of our far-seeing Eastern men will soon look into it.

Parties who worked these mines were looking for silver, and not finding the nature of the ore change, as they had hoped, they sought other fields to satisfy their dreams of wealth.

The mines are in the northern part of Sevier County, and about 65 miles from Hope, on the St. Louis, Iron Mountain & Southern Railroad. The officials of this road, owing to their enterprise and untiring exertions, have drawn a great deal of attention to the mineral wealth of the State, and have aided liberally all those who have ventured in mining on their road. If the legislators of the State had only half the enterprise for development and progress that has been shown by this road, Arkansas would not be long in attaining the rank she so richly deserves.

Kit.

PETROLEUM AS A MARINE FUEL.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Some months since, in conversation with Mr. Joseph D. Weeks, that well-informed authority on industrial matters suggested that petroleum could only be used as fuel through molecular combustion. This has been attained in the unprogressive East, where the iron steamship Constantine, plying on the Caspian Sea, between Russia and Persia, uses petroleum as fuel, by means of a stream pouring into a furnace, which meets a jet of steam, and is thus driven over the fire in spray, realizing in practice the theory of Mr. Weeks. The cost of the fuel, obtained at Baku, a Caspian port, is about one dollar an hour, which is very much less than the cost of coal.

R. F. GAGGIN.

Feb. 18.

[The atomization of petroleum, and its successful combustion, are perfectly well known here, and have been embodied in numerous devices. The question of relative economy is the only one presenting obstacles. "One dollar an hour," is not a sufficiently exact measurement to permit any comparison of Russian with American practice.—Ed.]

PROGRESS IN SCIENCE AND THE ARTS.

**The Lives of Blast-Furnaces.**—At a recent meeting of the Society of Engineers, London, Mr. Joseph Bernays, the President, in his inaugural address, said that the lives of blast-furnaces are of very short duration, compared with what they were in the early part of the present century, and gave two instances of the length of time furnaces lasted without being blown out. At the Alfreton Iron-Works, Derbyshire, a furnace blown in during 1812 was in blast until 1873; while another, at the same works, blown in during 1821, was not blown out until 1866. This latter furnace was visited by the members of the British Association during their visit at Nottingham. After the furnace was blown out, an examination showed that there had been formed a partial lining of plumbago which protected the fire-brick lining—an incident characterized as very remarkable in blast-furnace practice. "I do not find," said the speaker, that "charcoal has been used in smelting during the earlier period of the life of these furnaces. Coke alone was used up to 1829, when equal parts of coal and coke were substituted. The introduction of the hot blast was the cause of all coal being used; at that time, the furnace or Tipton coal mixed with a lower hard coal was the fuel used. The ironstone used was the argillaceous of the coal series, containing from 25 to 37 per cent of metallic iron."

**Economy in Making Pig-Iron and Steel Rails by the Use of Waste Gases.**—Mr. Bernays, in his address, cited in another paragraph, records the fact that the cost of pig-iron has been greatly reduced by the gases

being taken from the furnaces for heating the air in the hot-blast stoves, and also for the blowing engine steam boilers, and for other purposes connected with iron manufacture. The increasing surplus of coal in Great Britain is to a great extent due to this saving in coal in pig-iron making, also in the foundry, and to the enormous saving of fuel in steel making. Taking Mr. Robert Hunt's figures, the average quantities of coal consumed have declined since 1871 as much as 16 cwt. per ton of pig-iron made in the United Kingdom. The annual make of pig being nearly 6,000,000 tons, about 4,800,000 tons are annually saved. As for steel rails made by the Bessemer process, about 65 per cent less coal is required to the ton than for iron rails. As the annual production of steel rails is about 650,000 tons, there is a reduced consumption of about 1,166,500 tons of fuel as compared with iron rails. This leaves out of the account other branches of iron manufacture in which economy of fuel has been effected by using the waste gases from the furnaces and by improved methods of working.

**The First Decision under the Employers' Liability Act.**—The *London Building and Engineering Times* says that the first decision for damages has been a strange one. A "Board" schoolmaster accidentally dropped his pen from the desk, and thereby injured an eye of one of the scholars, the sight being eventually lost. The parents obtained a decision of \$500 damages against the school board, as responsible for the damage done by its servant. Apropos of the Act, the *Engineer* of February 11th states that out of about 40,000 employés on the London & Northwestern system, who are affected by this bill, nearly 37,000 have agreed to the company's proposals for mutual insurance, and less than 1000 have declined. This has been done without compulsion, the men having acted under a sense of their own interest.

**Fleuss's Diving Apparatus.**—This apparatus, described in the *JOURNAL* some time ago, has been successfully used at the Severn Tunnel by a professional diver, who with it reached the bottom of the shaft under thirty-five feet of water, and walked more than a thousand feet up a heading to close some sluices and shut an iron door. For one hour and a half he was cut off from all communication. The ordinary diving gear had been tried for this work without success; for the great length of tubing required in connection with it rendered its use impracticable.

**Subterranean Telegraphy.**—Referring to interruptions to electrical communication by storms and accidents, an instance of the first being fresh in the minds of New Yorkers, Mr. C. W. Siemens, the eminent constructor of telegraph lines, says, in the *London Times*, that the German government, although it failed in 1846, in its efforts to lay underground wires, decided five years ago to try again, and met with a success so complete that, after having laid 8000 miles of underground insulated wire, it has determined upon further extension. The plan consists in closing seven or more separately insulated conductors within a core of moist hemp, surrounded by a complete sheath of iron wire, which in its turn is covered with a layer of hemp yarn, impregnated with a protecting compound. These cables are wound on drums at the sheathing works, and, after careful electrical tests, are laid in trenches three feet deep, and then covered up. Although part of these wires have been down for five years, it is said that the expenditure for maintenance has been nothing, nor is it probable that any repairs will be needed for years to come. Recent information from France is, that the French Chambers voted a grant of several millions of francs for the completion of an underground system of telegraphic wires connecting the principal cities with Paris.

**Solar Heat.**—M. Pifre, a French engineer, has so far improved on the apparatus invented by M. Mouchot for using the solar heat-rays for practical purposes, that he states he obtains 80 per cent of the available sun's heat in Paris, which is equivalent to a gain of 30 per cent in efficiency.

**A NEW COAL MINE IN MANITOBA, CAN.**—From Winnipeg, February 14th, the latest announcement is, that coal has been found some distance east of Dominion City, samples of which have been forwarded to Chicago and pronounced of excellent quality.

**THE STRIKE IN THE WIGAN DISTRICT ENDED.**—A London dispatch, dated February 21st, says that six thousand colliers in the Wigan District resumed work this morning. The strike there is virtually ended, the masters agreeing to pay weekly, and the men temporarily waiving their demand for an advance of wages. Many men have also resumed work in the Hindley District. The military and police protect the workers.

#### GENERAL MINING NEWS.

##### ARIZONA.

From late dates of our Arizona exchanges we condense the following: **MYERS DISTRICT.**—From a letter written to the *Citizen* we condense the following: In the eastern mineral belt the most work is done on the Mineral Bed mine. This vein is capped with iron mixed with quartz carrying pure metal; the width of the vein on the surface is 50 feet, all milling ore; the walls—foot, syenite; hanging, porphyry. The dip of the vein is easterly about 55 degrees; course of vein—northeast by southwest; the croppings are prominent. Developments—one shaft sunk on dip of vein 100 feet, all in ore. At the bottom of the shaft, a cross drift is run 20 feet, showing the foot-wall, but no hanging-wall. This cross drift is all in ore. Several cuts run on different parts of the location show a true fissure-vein. Steam hoisting-works will soon be in place, and reduction-works will speedily follow. The central mineral belt is the richest, so far as opened, in the district, and most developed. The Gunsight mine was the first location made in the district. It has a shaft 182 feet deep. The ore carries horn-silver, chloride silver, antimonial silver, and galena; the country rock is porphyritic granite; the course of the vein is north of east 20 degrees, and south of west 20 degrees, dip westerly 65 degrees.

**ORION COMPANY.**—The prospects of the several mines belonging to this company continue to be favorable. The Alaska has a shaft 200 feet deep and a tunnel 600 feet. The Idaho has a 10-foot shaft and sundry driftings. The Montana—Prof. John A. Church reported very favorably on this mine. The ore is a chloride and carbonate; and although not of a very high grade, there is enough in sight, it is said, to keep the mill going for years. The ledge has been measured to the extent of 60 feet. The Warsaw—There are three shafts, namely, the main shaft, 212 feet deep; Bonanza Point shaft, 110 feet deep, and the third shaft 60 feet deep. Work is now progressing in the 110-foot shaft, from which rich ore is extracted. The ledge runs northeast and southwest, and so far they have extracted at least 150

tons, which are now on the dump awaiting the starting up of the mill for treatment. The ore is rebellious and requires roasting. It also contains a good percentage of native silver.

**PANTHER.**—Philadelphia parties have formed a company to work the Panther mines, situated in the Cave Creek Mining District, thirty-five miles north by east from Phoenix. Work is to be commenced at once.

**SOUTHERN ARIZONA.**—The group of mines owned by this company are situated in Pima County, just across the boundary line between that county and Yuma County, and some 23 miles south of the celebrated Gunsight mine. They are as follows: The Fresh Start, Quien Sabe, El Manto, and Guadalupe. The mines are all worked, but the most work is being done at present on the Fresh Start; two shafts have been sunk to a depth of 30 and 78 feet, and there is also an incline drift of 70 feet. At the bottom of the 70-foot shaft and incline, the ore-vein is 4 feet in width, carrying chloride and black sulphuretted ore, with some galena. Assays show, also, a nominal value in gold per ton. A large amount of ore now lies on the dumps, awaiting shipment to Newark, New Jersey, where the company intends having it reduced in an experimental way. At an early date, reduction-works will be erected at the company's mill-site.

#### CALIFORNIA.

##### THE BODIE DISTRICT.

Mining operations are pushed energetically in this district. The various reporting mines are sinking and steadily pushing underground development, while all the mills, aggregating 134 stamps, are in operation. The Spaulding, Noonday, Standard, Syndicate, and Bodie mills are running on ore from their own mines; the Silver Hill mill is crushing ore from the Black Hawk mine, the Standard-Bulwer is on ore from the Standard, and the Miners' mill is running on ore from the Bodie tunnel. During the week ending February 15th, the Standard Consolidated made no bullion shipment; but according to the *Free-Press* the product was about \$80,000. The new combination shaft of the Bodie and Mono companies, known as the Lent shaft, is down 460 feet; but sinking has been temporarily suspended till tank and hob stations can be excavated at the 200 and 395 foot levels. We are indebted to the *Bodie Free-Press* for the following reports of operations on these mines for the week ending February 12th:

**BLACK HAWK.**—The winze from the west drift, 700-foot level, is down 74 feet. The ore-vein followed is steadily improving in quality and holds its own in width. The mine is now shipping ore to the Silver Hill mill, having some 50 tons already at the batteries. The mill will start up on Black Hawk ore within a day or two.

**BODIE TUNNEL.**—Still drifting north and south in ore in the Festoon or No. 20 vein. The pulp-assays of the first 13 tons of this ore run through the Miners' mill ran \$18.73 to \$39.50.

**BOSTON CONSOLIDATED.**—Upraise No. 2, on the 200-foot level, has been advanced 5 feet; total length above the drift, 45 feet. This piece of work will not be carried up any farther until necessary to start more stopes. The vein is about 3 feet in width, and the ore of good milling quality. The north drift, 300-foot level, has been advanced 5 feet; total length, 320 feet, without any change to note, and the quality of the ore about the same as reported last week. During the week, the shaft was sunk 5 feet; total depth below the 300-foot station, 10 feet sinking in a good character of porphyry, and, from indications, is getting near the vein.

**BULWER CONSOLIDATED.**—The west cross-cut from the south drift, Ralston ledge, is in 30 feet; progress for the week, 15 feet, in fair working ground.

**CONSOLIDATED PACIFIC.**—The north drift on Pacific Lode No. 1 has been passing through ore of good milling quality, and widening as advance is made, some of it showing coarse free gold. The quartz on the east side of the mine is left standing, and all that is taken down goes to the ore-dump. At the mouth of the tunnel, the vein is from two and a half to three feet wide. On the 600-foot level, the north drift running on the large vein cut by the east cross-cut is in vein with no wall in sight. Are taking from this drift some good milling ore, silver predominating. At a point 50 feet north of the main east cross-cut will run cross-cuts each way from the drift and determine the full width and value of this vein. The west cross-cut, same level, is passing through a belt of porphyry that drills well but breaks badly, and has retarded the usual progress made in this cross-cut. Following are the measurements for the week: North drift, tunnel level, advanced 7 feet; total length, 12 feet; north drift, 600-foot level, advanced 9 feet; total length, 41 feet; west cross-cut, 600-foot level, advanced 5 feet; total length, 87 feet. The machinery is working well and hoisting cars holding one ton of rock from the 600-foot level without apparent strain. It is believed the power is sufficient to hoist from a depth of 1500 feet.

**GLYNN-DALE.**—The advancement the past week was 16 feet. The only change to note is in the north drift, which contains a great deal of clay and bunch quartz, and breaks short.

**GOODSHAW.**—Still drifting south in the ore-vein, 660-foot level, the vein showing some improvement. Preparations are making to begin sinking the main shaft at an early day.

**JUPITER.**—East cross-cut No. 1, on the 600-foot level, was advanced 13 feet during the week; total length, 21 feet. There is no change to note in this work. Will probably cut the favorable ground had in cross-cut No. 2 in 45 feet.

**NOONDAY.**—The 212 and 312-foot level stopes are looking well, and show no change since last report. The 412-foot level stopes continue to look well, the ore being of fine quality and free from any waste. Winze in No. 1 vein, 512-foot level, is down 46 feet. The vein at the bottom was 8 feet wide. Sinking had to be suspended on account of reaching water. Are now sinking the combination shaft, which was, on Saturday, 23 feet below the 512-foot station.

**NORTH NOONDAY.**—There is no change in the 312-foot level stopes. The vein continues large of good milling ore, free from any waste. Have extended the No. 1 drift, 312-foot level, 32 feet north during the week. This vein is again opening into a body of ore, vein 8 feet wide, the assays of which show an improvement in quality during the past few days. The 412-foot level stope has undergone no change since the last report. Are now sinking the combination shaft, which was on Saturday 23 feet below the 512-foot station.

**SOUTH BULWER.**—During the week ending 14th inst., work has been prosecuted vigorously in the mine. The main vertical shaft is steadily advancing. The ground is working well and is of a very favorable-looking character for the near approach of a valuable ledge, having passed through several strata of good quartz since sinking was resumed, and these seem to increase in size as depth is attained. Some of them prospect very well by the horn process. The pumps and machinery in and about the mine are working well, and the water is not increasing.

##### GREENVILLE DISTRICT.

The late storm in California has somewhat retarded the operations of the mines of this district. The ditch of the Round Valley Water Company, which supplies water for the Green Mountain mills, was broken in three places by landslides. In one place it was found necessary to turn across a cañon and build a flume, rather than dig out the buried ditch. Repairs are making energetically and as rapidly as possible, so that the mills can resume operations in the course of a few days.

#### CANADA.

##### PROVINCE OF ONTARIO.

The very successful developments in Canada, by the Canada Consolidated Gold Mining Company, have stimulated mining very much in that vicinity. The Nap-

anee *Standard* says: From different sections come reports of the discovery of these precious metals, but whether in paying quantities or otherwise yet remains to be seen. Mr. John F. Keller, near Croydon, will open up the gold-quartz lead discovered on his farm a year ago. It is stated that the prospects of gold in paying quantities are good. Mr. Grant, who has a farm near the village of Sydenham, has discovered a vein of lead and silver on the premises, and intends to push investigation in the spring. He says that silver can be found there in paying quantities. In the neighborhood of Tamworth, several parties are waiting for favorable weather to open up veins of gold, silver, and iron ore. We have been informed that to the rear of Enterprise, also, some valuable deposits of iron have been discovered.

#### COLORADO.

##### CLEAR CREEK COUNTY.

**BAXTER.**—The Georgetown *Courier* says that the main shaft of this mine is being enlarged and re-timbered, a much needed improvement and one that will greatly facilitate mining operations. As the old timbers have been taken out, a nice vein of ore has been discovered at both ends, which was hidden by the timbers. There are now about 25 men at work in the mine; and as soon as the shaft is repaired sufficiently so that hoisting can be resumed, several more men will commence work. Ore that assays 1500 ounces and over per ton has lately been found in the upper lease, and in Archibald's lease, 120 feet below the Diamond tunnel, 1000-ounce ore has lately been found. More men are at work on this property, and more ore is at present being taken out than at any time during the past eighteen months. A contract will be let this week to drive a level to connect the main workings of the mine with the discovery-shaft working, which will drain the latter and open a large amount of ground that is known to contain good ore.

**HERCULES & SEVEN-THIRTY.**—This mine gives employment to a force of from sixty to seventy men, and a large amount of ore is shipping.

**NEWARK.**—The Idaho Springs *Advance* says: The Newark lode, in Boomerang Gulch, owned by the Newark Mining Company, has not been worked during the winter months. A shaft on this mine has been sunk to the depth of 80 feet, revealing a good vein of ore. Among the improvements on this lode is a commodious shaft-house and hoisting-rig, which is manipulated by a forty horse-power engine. Work will doubtless begin again next spring.

##### GILPIN COUNTY

**CALIFORNIA.**—This well-known mine, near Central City, has become the property of the California Gold Mine Company, an English corporation with a capital of £130,000, divided into 130,000 shares of the par value of £1 each.

**HAZELTINE.**—The new concentration-works of this company are running to their full capacity and giving excellent satisfaction in reducing the low-grade ores from the Hazeltine mine.

##### GUNNISON COUNTY.

**BALD MOUNTAIN.**—The Gold Cup mine, one of the properties of this company, is worked by a force of 12 men, and is producing about 6 tons of ore per day. Work was resumed on the first of the month, and since that time it has been showing up better with each foot of development. A new body of ore, 8 feet in width, has been opened up recently in No. 3 drift at a depth of 50 feet. Twelve car-loads of ore, in classes, are at Alpine sacked and awaiting shipment. It is reported that the working force will be increased greatly at an early day.

**RUBY KING.**—The Elk Mountain *Pilot* of the 10th inst. states that the Ruby King recommenced work about ten days previous. The shaft is deepening, and large quantities of mineral taken out and stored to await the running of the stamp-mill. It is thought that this ore will mill something like 300 ounces per ton. Early in the spring, machinery will be used to keep the water pumped away, and then a large force of men kept constantly employed. Pay-streak at present worked upon is three feet wide, but there is pay-ore scattered throughout the entire width of the 10-foot vein. The shaft is 65 feet deep. The tunnel is 240 feet long, and the end of it is thought to be 50 or 60 feet from the vein. There will be many tons of ore at this mine ready for the stamp-mill to pound on when it starts to work.

**TIN CUP.**—The Denver *Republican* says that it is reported that this mine has cleared \$165,000 within the two months past, and is showing up better than ever before. A force of 10 men is worked continuously, and the mine is producing about 8 tons of high-grade ore per day. The vein, which is a horizontal one, is developed to a depth of 140 feet by a tunnel, and in that distance 8 levels are run at regular intervals. In all of these workings, a body of ore varying in width from 5 to 15 feet is opened. A 2-inch streak of ore that runs from 5000 to 9000 ounces silver to the ton intersects this body, and is found to be continuous. Three tons of this mineral are now in the ore-house awaiting shipment. Several car-loads of ore of an exceptionally high grade are now on the road to the Mather & Geist smelter, at Pueblo. There is no question but what the ore extracted from this mine is of the very richest character, and at the same time easily treated. It carries a large percentage of galena, and in consequence is a good smelting ore. The ore running 75 ounces or less, which, in the existing state of affairs, is worthless to the owners, is given to Piercell & Co., who are operating a primitive sampling-works in close proximity to the mine.

##### LAKE COUNTY.

The Leadville *Democrat* says that Fryer Hill is presenting a more active and busy appearance at the present time than it has for months past. With the exception of the Climax mine, every property on the hill is working, and nearly all of them are producing rich ore and in considerable quantities. It signals the return of an industrious and prosperous season, the beginning of which is just being felt, and which is as sure to make its appearance as the spring season. The reasons of this new life and renewed energy are numerous, but no one incident contributed entirely to its establishment. It was expected many months ago, and all were prepared for it. Notwithstanding the difficulties with the smelters and other obstacles, there now exists a most hopeful and salutary feeling among the mining interests, produced principally by the many rich developments made during the past quarter, the general resumption of work on prospects, and the marked advance in Leadville stocks in the East.

**AMIE.**—This mine continues vigorous work on No. 2 shaft, and very fair progress is made. The shipments of iron had to be suspended some time since, owing to the inactivity of some of the smelters, but will resume again in the course of four or six weeks.

**GLASS-PENDERY.**—The Leadville *Democrat*, speaking of this mine, says: An inspection of the ore-house showed five large bins full of ore, much of it very rich in chloride of silver. No shipments have been made recently, and a large amount of ore has been accumulated both in the ore-bins, which are full, and the unused drifts below ground. Descending the shaft, a tour of the mine was made, which proved very gratifying. The property discloses some magnificent ore-faces, and promises considerable for the future. To the northeast there is a fine body of mineral disclosed to view, running very high in silver and lead. To the west of the main drift connecting with the Pendery shaft and north of the Glass shaft, there are several drifts and raises in mineral, all of which run quite well in silver. About five hundred feet north of the Glass shaft, a large body of iron and shipping ore has recently been encountered, which gives every indication of opening up into a large body of good ore. The drift to the extreme south, and also one of the west drifts, are filled with ore that has been broken down but not yet hoisted, owing to a lack of storage-room above. The mine has received some very good figures

on its ore, but is forced to hold it several weeks more, to obtain the benefit of these favorable terms.

**LITTLE CHIEF.**—This mine continues doing well, and a great deal of work is doing. Some work is going on in the shaft just south of No. 1, besides in various other portions of the mine. The shipments have ranged from 25 to 35 tons per day, and the net profits for January exceeded \$40,000.

**LITTLE PITTSBURG.**—The *Democrat* of the 19th inst. says: This property is now employing from 150 to 175 men, and is shipping considerable good ore. These shipments will be doubled as soon as new ore-bins and other improvements can be made on the surface. A new shaft-house has been erected over No. 6 shaft, and yesterday the work of building additional ore-bins was begun. No work of any consequence can be done on the newly-discovered ore-body until these improvements are completed. A new engine is also required for No. 6 shaft, which will be procured in a few days. Considerable good ore is hoisted from No. 2 Little Pittsburg, which helps to maintain quite a fair product until the new ore-body can be worked successfully.

**LEADVILLE CONSOLIDATED.**—Concerning the properties of this company, the same paper says: The Carbonate mine also received the attention of the mining reporter of the *Democrat* yesterday. The exploration carried on in this property during the past few weeks has been very gratifying, and promises to place the mine on a producing basis again, that will warrant a handsome profit. The mineral from the Carbonate was taken from two separate ore-chutes, running in a north-easterly direction, and crossing the incline about 120 feet apart. The new strike in the mine was made in this territory, a short distance below the second level, and on the north side of the incline. A small stringer of fine ore was first discovered on the south side of the main incline, and was followed around to the westward and eventually to the northward, in a semi-circle, until it passed under the incline and finally opened out into quite a large body. A winze has been sunk at this place about ten feet in depth, showing some magnificent ore, assaying three to four hundred ounces. The breast of the semicircular drift and the winze together show a fifteen-foot perpendicular wall, about one half of which is fine shipping ore, principally hard carbonates. Returning to the incline and entering the second level to the north, another winze is found, some distance from the incline, also showing good ore, and evidently a continuation of the body just described. The first level south also shows some very good hard carbonate ore, lying below any of the present workings, and it would seem that there is still a large body of very rich ore extending from the first to the third levels, in the territory between the two old stopes. This ground is 120 by 175 feet square, abundantly large enough to contain many dividends. The work now carried on is intended to define the ore-body, when preparations will be made to work the property more extensively. The mine only employs eight men, and the product during January was small, but the total shipment averaged 148 ounces to the ton, showing a very good grade. Portions of the incline and some of the drifts are now filled with good ore, that has been reached and will be hoisted to the surface. No work is done on the Shamrock, which also belongs to this company. This property, when last worked, showed some good ore-faces; and if work was resumed on it, there would be no difficulty in making it pay from the start. The Leadville Consolidated Mining Company has one of the finest plants in the camp, consisting of a large engine and three drums, and its property could be worked as economically and on as large a scale as any in the camp. Professor Harker, who is in charge, is of the opinion, now that a good body of mineral has been opened, that operations will be resumed at an early day, with a full force. The mine has more than paid expenses and cost of operation-work, with the limited number of men employed for some time past.

##### SAN JUAN COUNTRY.

**ALLIED MINES.**—The Ouray *Times* says that a concentrating mill is now providing for the Allied Company. It is to have a capacity of fifty tons per diem. It is said the mill will be the finest in the State of Colorado, and will concentrate very cheaply. The mines of the consolidation now showing the best are the Gertrude, Norma, Hidden Treasure, and Talisman.

**GRAND VIEW.**—The Durango *Record* says that the Major, owned by the Grand View Company, and on which assessment-work was done by the company toward the close of the old year, shows up extremely rich in mineral. A four-foot vein carrying galena and silver was struck, and the indications are good that as the work progresses plenty of mineral will be found.

##### SUMMIT COUNTY.

**DELAWARE.**—It is claimed that the Delaware mine, at Chihuahua, is yielding from \$2510 to \$3000 per day, with a force of 30 men.

**ROBINSON CONSOLIDATION.**—But little ore has recently been broken, from the fact that none has been sold or shipped for a long time, and large amounts have accumulated. The smelter at the mine has used considerable ore, but only a small proportion of the production. There are some 1400 tons now on hand, and George Daly has made arrangements to commence shipping at once to the Leadville smelters.

##### DAKOTA.

A correspondent of the Black Hills *Pioneer*, under date of February 10th, sends the following items from Two-Bit Gulch: The Oro Cache Company has bought a half-interest in the Ophir mine, and work will be commenced in a short time. Work has been begun again on the Oro Cache, and a contract has been let to run a tunnel of 50 feet, to the east of the main tunnel, which will fully develop that part of the claim. They are also working the main tunnel. It is said this company will build a 50-stamp mill the coming summer. On the Spruce Gulch side of the divide the prospects are brightening. It is said that the Champion Company has struck it very rich in the vertical vein, discovered a short time since. The gold is coarser than any that has been found heretofore, which will make it easier to save. The mill will start up again in a few days, and will give employment to some 20 or 30 men. Work has been suspended on the Noble Grand mine for the present. The owners have been sinking a shaft at the junction of a north and an east and west vein, which is looking well. The width of the north and south vein is not fully known as yet, but is supposed to be at least ten or twelve feet. The east and west vein have widened out from five inches to two feet, in sinking a distance of twelve feet.

##### IDAHO.

A Bonanza correspondent of the Butte, Mont., *Miner* writes a full description of Idaho's mines and mining districts, from which we take the following:

Several of the mines that passed into the hands of capitalists last fall—among them the Badger, Lucky Boy, and Annie—will be developed sufficiently by spring to justify the erection of mills for the reduction of the rich ores of those mines. The additional machinery required in the Custer mill arrived last week, and the stamps are now at work. The whistle is plainly heard at Bozeman, and sharp ears can even detect the rumbling of the heavy machinery and the dull thump of the stamps at this distance, nearly two miles. The ore-house has 1100 tons of choice ore in it, and there are several thousand tons already out up at the mine, which can be sent down the tramway as fast as it is needed. The bullion is 970 to 978 fine. Besides the mines worked on Mount Custer, there are others in this vicinity that at present are producing large quantities of ore. The Montana is yielding regularly of its high-grade ore, and also much medium and third-class. The main shaft is now at the depth of 150 feet, and the company is sinking on the vein and running levels. The Charles Dickens mine is said to be looking splendid. The lower tunnel, nearly 250 feet from the surface, has reached a distance of about 650 feet, and all the distance on a large and rich vein of quartz.

**BAY HORSE AND KINNIKINIC.**—In the Bay Horse District, many of the promi



nent mines are producing ore this winter, to be in readiness for the smelters, which will start up as early as possible. The reduction-works on Bay Horse Creek, 12 miles from Challis, became noted last fall for the exceedingly successful run made on Ram's Horn and other ores on that famous mineral belt. The Kinnikinic smelter at Clayton, on the Salmon, is completed and will be put in operation in April. The mines on Kinnikinic Creek, as well as many of those on Poverty Flat, and Sugar Creek, are yielding large quantities of ore, to be worked in the Clayton smelter. Taking it altogether, the outlook is favorable for a prosperous mining season throughout the whole of the Salmon River country. So far as I can ascertain, not one of the mines purchased by capitalists has proved a failure. On the contrary, they have invariably increased in value with development, and there seems to be no more doubt of the permanence of our mines.

WOOD RIVER.

While there will doubtless be a large addition to the population of Idaho this season, there is no particular section outside of Wood River that is certain of an old-fashioned stampede. The hundreds of new discoveries throughout that region, many of them of extraordinary richness, and the various sales made, together with the high price obtained for the different lots of carbonate and galena ores shipped to Salt Lake, have all helped to give Wood River a name both at home and abroad. Not only the residents of nearly every section of Idaho are excited over the Wood River discoveries, but in Utah, Nevada, and California, as well as in other States and territories, preparations are going on for an early stampede, and it is predicted that an immense army of fortune-seekers will be in the new mineral field by early summer. Utah capitalists are investing largely there, and have already secured many of the best mines.

MONTANA.

From the *Butte Miner* of late dates we condense the following:

**BELL.**—The east drift from the 60, 100, and 160-foot stations of the whim-shaft are forwarded with the best possible results. In the face of each of them the vein retains its width, the walls their smoothness and regularity, and the ore its remarkable richness. In the face of the 160-foot east drift, 140 feet from the bottom of the whim-shaft, north and south cross-cuts have been extended recently to the foot and hanging-walls, which are found to be exactly 24½ feet apart. Each of them is covered with a clay casing, a certain indication of permanence. The space between is filled with ore, all of a workable quality, much of it being exceedingly rich in silver and copper.

**COLUSA.**—Work is pushed vigorously from the 160-foot level. As high as 100 tons of ore per day have been raised to the surface during the past month, but the average daily output is now 40 tons. The machinery for the further sinking of the three-compartment shaft, which is now 160 feet deep, is being placed in position.

**LXINGTON.**—Work at the mine's old incline-shaft is steadily pursued. The work of extracting ore is now mainly confined to stoping in the 80-foot level east of the shaft. The new 500-foot level double-compartment shaft, after having reached, in good shape, a depth of 130 feet, is temporarily stopped. It will be started up again soon, when the steam hoisting and pumping machinery will be put in successful operation.

**MAGNA CHARTA.**—This mine is the property of the Alice Company. The double-compartment shaft has been dropped only 250 feet deep. At the 200-foot level, a cross-cut to the west is driving forward, and is pushed ahead with vigor and speed.

NEVADA.

COMSTOCK LODE.

The *Gold Hill News* summarizes for the week ending February 16th as follows:

There are few new points of especial interest in the mines, yet the prospect of an immediate resumption of operations in Hale & Norcross, and consequent liberation of the C. N. S. shaft so that work can be resumed in Potosi, preparatory to cross-cutting both in that mine and Chollar, and developing the block there of untouched ground 1400 feet long and 700 feet deep, is a great step in advance. Union shaft is dropping with all speed toward the 2700 level. The joint Sierra Nevada-Union cross-cut east on the 2500 level is still looking for the east clay of the vein, where a winze is to be sunk also to the 2700 level. These two workings will then be connected on that level for a base of operations. Another point will be gained before another report is made. The joint Ophir-Mexican winze will reach the 2700 level; and when a sump is made, explorations from it will be commenced by means of a main lateral drift on that level. Good progress is making also in all the joint east north-end cross-cuts on the 2500 level, and all are seeking points from which to reach the 2700 level by winzes. This, too, is something to be borne in mind. Below will be found authentic and reliable reports of the mines, showing the situation in each up to the hour of going to press.

**ALTA.**—The work of sinking the shaft is making usual progress, and the first 200 feet below the 1550 level has been reached. The material is good ledge-matter, carrying considerable base metal and yielding low assays in gold and silver.

**CALIFORNIA.**—The joint Consolidated Virginia drift west toward the C. & C. shaft and from the main lateral drift south from Ophir on the 2500 level is pushed ahead vigorously; total length from the turning-point, 44 feet. Since connection between the joint Ophir raise from the 2500 level with the joint winze from the 2300 level, the work of enlarging the winze to the size of the raise has been going on. The joint Ophir east cross-cut, 2500 level, is advancing rapidly; total length, 160 feet. For workings joint with Consolidated Virginia, see report of that mine.

**CONSOLIDATED VIRGINIA.**—The south drift on the 2300 level has reached the Best & Belcher line, and now a chamber is excavating at that point from which to make a raise to connect with the joint winze formerly sunk 161 feet below the 2000 level. Cross-cut No. 1 west on the 2300 level is continued; total length, 75 feet. The joint California east cross-cut on this level has been temporarily discontinued to prosecute work more vigorously south on the Best & Belcher line.

**CROWN POINT.**—Extracting from 35 to 40 tons of low-grade ore per day from the upper levels. This ore mills from \$13.50 to \$14 per ton, and just about pays expenses. Two narrow feeders are now worked, and 35 men are employed. The ore of this quality is not expected to continue long, but other veins may be found. The ore is milled at the Mexican.

**HALE & NORCROSS.**—The work of reconstruction is completed even to the shingling of the ore-house. New stays have been put into the pump-shaft from top to bottom, and a new sheave at the head of the incline. To-day, workmen have been put into the 2400 level, and the pumps started. From this time on, the work of development will be prosecuted as before the fire.

**MEXICAN.**—Drifting both east and west joint with Union on the 2500 level, and making usual progress. No change of material to report. For work joint with Ophir, see report of that mine.

**OPHIR.**—In the large east joint Mexican working winze below the 2500 level, work progresses favorably, and the 2700 station set will be placed this week. For workings joint with California, see report of that mine.

**SIERRA NEVADA.**—The incline raise from the 2300 level, to connect with the main shaft at the 1700 level, is making its usual progress; total length to date, 535 feet. The raise on the ore-vein struck in drifting south from the winze between the 2400 and 2500 levels has been followed up a distance of 73 feet above the 2500 level, and still holds out well and yields good ore. The main north drift on the 2500 level was temporarily stopped at a distance of 515 feet from the incline to timber up, but work was resumed in the face yesterday. For workings joint with Union, see report of that mine.

**UNION CONSOLIDATED.**—The joint Sierra Nevada east cross-cut on the 2500

level is making usual progress; total length, 440 feet. When the eastern wall of the vein is reached, a joint winze will be sunk to the 2700 level in accordance with the general plan of development adopted in the adjoining mines south. For workings joint with Mexican, see report of that mine.

NEW MEXICO.

A Taos correspondent of the *Las Vegas Mining World* says that the Aztec Placer Mining Company has its ditch and flumes completed and expects the pipes and giant to arrive soon. It will begin hydraulic washing under a head of about 450 feet, with an ample supply of water. The ground has been repeatedly prospected in a thorough manner, and gives an average of over eighty cents per cubic yard, for nine miles up the Arroyo Hondo from its mouth, and from thence to its source, about twelve miles, it is rich in gold-bearing ground, with abundance of water for mining purposes.

PROPOSALS AND SALES.

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:

Furnishing Street Signs for Corner Lamps in the City of Brooklyn; Department of City Works, Municipal Department Building, Brooklyn.	Feb. 28, 1881.
Furnishing Supplies, namely, Pails, Mats, Brooms, etc., to the Public Schools of Brooklyn for the present year; Board of Education, Brooklyn.	March 1, "
Erection of a New City Hall in the City of Albany; Specifications, etc., furnished on application to H. H. Richardson, Architect, 61 Hawk street, Albany; Commissioners of Building, Albany, N. Y.	" 1, "
Furnishing and Delivering at Port Oram, Morris Co., N. J., the necessary Iron Work for a Magazine Building, consisting of about 122,568 pounds Wrought-iron Beams, Rods, Bars, Angles, Channel, and Plate, with the necessary Bolts, Washers, and Pins, and about 26,782 pounds Iron Castings. Proposals for either or both classes of the Iron above mentioned will be received; F. H. Parker, Major of Ord., Commanding, Office Picatinny Powder Depot, Dover, N. J.	" 3, "
Construction, Grading and Timber-work of the St. Louis, Jerseyville & Springfield Railroad; James A. Locke, President, Jerseyville, Ill.	" 5, "
Enlarging the Record-Room of the Tax Collector's Department, in the Basement of the Municipal Building; Department of City Works, Municipal Building, Brooklyn.	" 7, "
Furnishing on board the Cars at Wellsville, O., two Steam Pumps, with capacity of 250,000 gallons each, one Boiler Feed-Pump, 71 tons 10-inch Cast-Iron Pipe, 127 tons 8-inch Cast-Iron Pipe, 75 4-inch Cast-Iron Pipe, 27 tons Special Castings; Trustee of Water-Works, Wellsville, Columbia Co., O.	" 8, "
Bids will be received at the office of the Long Island Railroad Company, for Steamboat service (Annex) between Pier 17 East River and Hunter's Point, to begin May 1st; bids to be per month for six months or one year; R. Corbin, Receiver, 115 Broadway, New York City.	" 10, "
Designs for a Cotton Exchange to be erected in the City of New Orleans; the sum of \$1000 will be paid for the Drawings chosen, the Association reserving the right to reject any and all plans submitted. A circular giving particulars and explanation, together with ground-plan and sketch-plans suggestive of divisions of the various floors, etc., will be furnished on application to Henry G. Hester, Secretary of the New Orleans Cotton Exchange, New Orleans, La.; Thomas D. Miller, Chairman Committee on Buildings.	" 15, "
Furnishing Materials and Labor necessary to the Construction and Final Completion of the Water-Works of the City of Springfield; Trustees of Water-Works, Bowman's Building, Springfield, O.	" 16, "
Constructing the Sunflower Extension of the Greenville, Columbus & Birmingham Railroad from Stoneville to the Sunflower River, twenty miles; Bids will be received separately for the Grading, Bridging, Cross-ties, and laying Track, or for the entire Work, the iron alone being furnished; H. T. Irish, Secretary, Greenville, Miss.	" 21, "
Designs for Statuary to be placed on the Four Pedestals at Blackfriars Bridge; the designs may be submitted either by drawings or models; if by drawings, to be either in chalk, charcoal, pencil, ink, or sepia; if by models, in clay, plaster, or other convenient material; the designs in either case to be prepared to a scale of one inch and a half to the foot; Architect's Office, Guildhall, London, England.	" 21, "
Monument to be Erected in Rome for late Victor Emanuel II., First King of Italy; President of the Royal Commission, Cairoli, and the Secretary of the Royal Commission, etc., Rome, Italy.	Sept. 21, "

**Elevated Railroad of the Pennsylvania RR.**—It is calculated that 19,000,000 bricks will have been used in the construction of this road, when it is completed. From the brick arches at Shock street to Thirtieth, 7,000,000 pounds of steel have been used. The total length of the bridge across the Schuylkill is 464 feet, and the distance from the rails to the bottom of the western pier is 79 feet, 37 of which are below high-tide mark.

**Railroad from the City of Mexico to Toluca.**—The contractor states that 7000 men are at work on one section of the railroad from the City of Mexico to Toluca. It is supposed that this section will be inaugurated in May next.

**Gold's Tunnel on the Pan-Handle Road.**—The contract for this tunnel, seven miles west of Steubenville, has been awarded to Patterson & Kearns, of Philadelphia.

**New York, Pennsylvania & Ohio Railroad.**—Rumors state that the branch of this railroad running from Sharon to Middlesex is to be extended to New Castle, there to connect with the Pittsburg & Lake Erie Railroad.

**Lake Shore Railroad.**—Surveys are making on the main line of this road in order to bring all its grades within 18 feet to the mile.

**Steamship Line between Brazil and Halifax.**—A recent dispatch from Ottawa, Ont., says a joint-stock company has been formed to run a line of steamers between Brazil and Halifax in the winter and Brazil and Montreal in the summer. The company will probably receive subsidies from the Canadian and Brazilian governments.

**Gas and Illuminating Material for the City of Brooklyn.**—The following proposals for furnishing gas or other illuminating material for street lamps and public buildings in the city of Brooklyn for the year 1881 have been publicly opened and announced as follows: Williamsburg Gas-Light Company, per lamp, \$23; public buildings, per 1000 cubic feet, \$1.75. Citizens' Gas-Light Company, per lamp, \$24; public buildings, per 1000 cubic feet, \$1.75; or for \$23 per lamp, if hours are reduced to same basis as 1880. Brooklyn Gas-Light Company, per lamp, \$20; public buildings, per 1000 cubic feet, \$1.20. People's Gas-Light Company, per lamp, \$24; public buildings, per 1000 cubic feet, \$1.75; or for \$23 per lamp, if hours are reduced to same basis as 1880. Nassau Gas-Light Company, per lamp, \$24; public buildings, per 1000 cubic feet, \$1.75; or for \$23 per lamp, if hours are reduced to same basis as 1880. Metropolitan Gas-Light Company, per lamp, \$24; public buildings, per 1000 cubic feet, \$1.75; or for \$23 per lamp, if hours are reduced to same basis as 1880.

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 Place, New York  
(P.O. Box 4404).

## FINANCIAL.

## Gold and Silver Stocks.

NEW YORK, Friday Evening, Feb. 25.

There has been a very good market for mining stocks during the past week, and prices have, with all the depressing influences which have been in operation, been well maintained. The Leadville stocks have been depressed by the news of the action of the county officials in the enforcement of the payment of what the companies deem exorbitant taxes. A telegram from Charles M. Rolker the Superintendent of Chrysolite, dated yesterday, says: "We are not yet levied upon, but Treasurer said to-day he would shut down all the mines. Managers' and citizens' meeting to-night." The most depressing influence has been the action of Congress on the Funding bill, which has resulted in bringing about an extraordinarily tight money market, as high as 1½ per cent per day having been paid to-day over and above the legal rate for loans. The influence on the mining share market is not shown so much, owing to the fact that most of the stocks are paid for in full by the holders, while in the railroad share market the business is done on a margin. Many mining speculations have shown severe losses to the speculators, but they have seldom seen their capital wiped out more rapidly than many dealing on margins in railroad stocks did to-day. There is certainly a steadily improving interest in mining matters, and a good strong undertone in actual mines.

Amie has been comparatively quiet and irregular, with a weakening tendency; the sales amount to 45,900 shares at 60@50c. Barbee & Walker has only sold to the extent of 300 shares at \$3.50@3.63. Bodie has had a moderate business at declining prices, the sales aggregating 1350 shares at \$7@8. Brece has been fairly steady, with a business of 1000 shares at \$1.30@1.60. California has been exceedingly quiet and steady, the sales amounting to but 2295 shares at \$1.05@1.1. Caribou records sales of 100 shares at \$3. Chrysolite has had but a moderate business at declining prices, the sales aggregating 8275 shares at \$6.50@5.38. Climax has had a fair business at irregular but ultimately weak prices, the sales amounting to 17,900 shares at 82@63c. Consolidated Virginia has been comparatively quiet and weak; the sales amount to 3495 shares at \$1.85@1.55@1.60. Copper Knob has been quiet and steady, with sales of 6400 shares at 6@5c. Dunkin has had a moderate business at declining prices, the sales amounting to 8825 shares at \$1.90@1.40. Father de Smet, under a small business, has been a shade weak; the sales aggregate 600 shares at \$14.50@12.50. Findley has been quiet and steady, with sales of 5500 shares at 29@28c. Gold Stripe has had a moderate business at steady prices, sales amounting to 2400 shares at \$2.90@2.85. Grand Prize has been quiet and a little weak, the sales amounting to 655 shares at \$1.65@1.50. Great Eastern has had a fair business at irregular prices, but inclined to weakness; the sales aggregate 46,300 shares at 23@29@26c. Green Mountain was quite strong during the greater portion of the week, but has suffered in the general decline; the sales amount to 1000 shares at \$7.25@6.50. Hale & Norcross has been quiet and weak with sales of 150 shares at \$4@3.50. Hibernia has been the feature of the market, the sales making the very large aggregate of 375,800 shares, selling on Saturday at \$1.40, and to-day at \$1@73c. Horn-Silver has been quiet and steady, the sales amounting to 1250 shares at \$12. Hukill has been quiet and steady, with sales of 4400 shares at \$1.50@1.45. Independence has been quiet and weak, with sales of 700 shares at 40@27c. Leadville has been very quiet but weak at the close, the sales amounting to 1431 shares at 75@60c. Little Chief has had a very fair business at irregular but ultimately weak prices; the sales amount to 19,250 shares at \$1.70@2.05@1.65. Little Pittsburgh has been quite active, with a strong weakening tendency; the sales amount to 17,120 shares at \$6.50@4.10. Moose has had a fair business at declining prices, the sales aggregating 25,170 shares at \$2.20@1.70. Martin White has only been dealt in to the extent of 200 shares at 52c. Napa Consolidated records sales of 1000 shares at \$5. New York & Colorado appears in the dealings with sales of 540 shares at \$1.40@1.10. Northern Belle has been dealt in to the extent of 725 shares at \$13.75@12.88. North Belle Isle has

been very quiet, the sales amounting to but 150 shares at 40@43c. Ophir has been dealt in to the extent of 400 shares at \$4.88@4.80. Rising Sun records sales of 400 shares at \$3.20@3. Robinson Consolidated was dealt in on Wednesday and to-day to the extent of 2350 shares at \$7.@7.50@7.13. Starr Grove makes its appearance among the dealings at the Exchanges for the first time, the sales aggregating 2000 shares at \$4.50@5.13. Stormont has been very quiet and somewhat weak, the sales amounting to but 800 shares at \$2.50@2.13@2.25. Sierra Nevada has been quiet, with sales of 230 shares at \$6.63@6.50. Spring Valley has been quiet and about steady, the sales amounting to 400 shares at \$3.15@3. Standard, under a small business, has been a shade weak, the sales aggregating 1560 shares at \$26¼@25¼.

Alta-Montana has had a very fair business at steady prices, the sales aggregating 3300 shares at \$1.90@1.85. Alice has been quiet and irregular; the sales amount to 1150 shares at \$7.75@8.50@7.50. American Flag has been dealt in to the extent of 4500 shares at 27@25c. Auburn & Rock Creek only records 100 shares at 25c. Bechtel has had a moderate business at steady prices, the sales amounting to 1800 shares at 55@50c. Bald Mountain has had a liberal business at about steady prices, the sales amounting to 23,600 shares at 10@12c. Bonanza Chief only records sales of 900 shares at 33@31c. Bull-Domingo has had a liberal business at declining prices, the sales amounting to 3866 shares at \$3.80@3.50. Boulder Consolidated has been dealt in to the extent of 1100 shares at 45@50c. Boston Consolidated has been quiet, irregular, and very strong, the sales amounting to 10,000 shares at 70@92c. Buckeye has been quiet and a little weak, the sales amounting to 9700 shares at 24@20c. Bullion was dealt in to the extent of 200 shares at \$1.10. By and By was dealt in on Saturday to the extent of 800 shares at 60@59c. Calaveras has been quiet and weak, the sales amounting to 13,700 shares at 25@21c. Caledonia, B. H., only records sales of 400 shares at \$1.65@1.60. Central Arizona has been very quiet and weak, with sales of 800 shares at \$5¼@4¼. It is said that this company's mill is a failure, and does not successfully treat the ores. Cherokee has had a moderate business at declining prices, the sales aggregating 7300 shares at \$2.25@2. Consolidated Imperial, under a moderate business, has been weak; the sales aggregate 5300 shares at 22@16c. Consolidated Pacific has been quiet and weak, with sales of 1110 shares at 90@80@83c. Crowell only records 100 shares at 5c., and Dhalonega 1100 shares at 9@8c. Durango has had a moderate business at irregular prices, the sales amounting to 8500 shares at 15@17c. Gold Placer has been very quiet, with sales of but 200 shares at 43c. Goodshaw has had a moderate business at improving prices, the sales amounting to 7400 shares at 48@60@54c. Granville has been very quiet at 6@5c., with sales of 1200 shares. Iron Silver only records sales of 325 shares at \$3.25@3. Lucerne has ranged between 11@10c., with sales of 2300 shares. The Mariposa stocks have attracted some attention. Preferred has been dealt in to the extent of 1651 shares at \$4.50@6@5.50, and Common, 3775 shares at \$3.75@4.50@3.50. Mineral Creek has been irregular, under a moderate business, the sales aggregating 8500 shares at 36@30c. Miner Boy records sales of 4500 shares at 92@90c. Mexican, under a small business, was for a time weak, although strengthening toward the close; the sales amount to 680 shares at \$6@4.90@5.55. Moose Silver has been very quiet but strong, the sales aggregating 500 shares at \$2.35@2.50. Navajo has been quiet and weak, with sales of 700 shares at \$1.85@1.45@1.55. North Standard has been weak, with sales of 2100 shares at 28@18c. Quicksilver Preferred has been quiet and weakening, the sales aggregating 400 shares at \$62@60. The Common stock has been very quiet, the sales amounting to but 200 shares at \$16@15. Rappahannock has been steady but very much neglected, the sales aggregating 3900 shares at 12c. Red Elephant has had a moderate business at declining prices, the sales amounting to 7960 shares at 44@34c. Silver Cliff has been liberally dealt in at well-maintained prices, although weak at the close; the sales aggregate 7290 shares at \$5.50@5.58@5. Silver Nugget, under a moderate business, has been steady, the sales amounting to 15,000 shares at 11@10c. South Bul-

wer only records sales of 200 shares at 40@39c. South Hite has been quiet and exceedingly weak, declining from 30@16c., with sales of 300 shares. Sutro Tunnel has been about steady, under a small business, the sales amounting to 1500 shares at \$1.20@1.10. Tuscarora, under a small business, has been weak, the sales amounting to 850 shares at 37@30c. Union Consolidated has had a moderate business at about steady prices; the sales aggregate 1100 shares at \$8.13@8. Vandewater has had a fair business at fairly steady prices, the sales aggregating 10,100 shares at 57@52c. Willshire has been dealt in to the extent of 17,000 shares at \$1.50@1.40. Tioga appears among the dealings with sales of 900 shares at 65@60c. Unadilla has been dealt in to the extent of 15,600 shares at 14@17c. Hortense has been dealt in to the extent of 300 shares at 50c. Barcelona has had a moderate business at prices a little weak; the sales aggregate 5300 shares at \$1.25@1.15. Original Keystone sold on Saturday to the extent of 100 shares at \$1.25. Empire was dealt in to the extent of 200 shares at \$1. Noonday has had a moderate business at improving prices, the sales amounting to 1100 shares at \$2.05@2.25. Black Jack, under sales of 7250 shares, sold at 70@89c. Glass-Pendery has been about steady, with sales of 2100 shares at \$2.30@2.25. Head Center records sales of 200 shares at \$4.10.

NEW YORK, Friday Evening, Feb. 25.

Mr. L. V. Deforeest, No. 70 Broadway, under date of February 25th, 3 P.M., reports the current quotations of unlisted stocks as follows:

	Bid.	Offer'd		Bid.	Offer'd
Barcelona.....	\$1.10	\$1.20	North Hite.....	.....	\$ .75
Big Pittsburgh..	1.80	2.00	O. K. & Winne-	.....	1.00
Breece.....	1.35	.....	bago.....	.....	1.00
Bald Mountain..	.11	.12	Patagonia.....	.....	2.75
Carbonate Hill..	.....	.50	Plata Verde....	.....	2.25
Con. Arizona....	.....	2.00	Rico.....	.....	1.00
Empire, Utah....	.....	2.25	Sacramento....	.....	1.75
Freeland.....	1.96	.....	Santa Cruz.....	.....	.75
GrandView.....	.....	.70	SirRodr'k Dhu..	.15	.35
Highland Chief..	.....	8.00	Stormont.....	.....	3.25
Julian.....	1.00	2.00	Spring Valley..	2.75	3.10
Lowland Chief..	.25	.50	Silver Nugget..	.....	.10
Mack Morris....	.....	4.46	Trinity.....	.....	1.50
Native Silver...	.....	.50	Van de Water..	.51	.53
New Philadel..	.....	.25			

The Stein's Pass Mining Company has been organized under the laws of the State of New York with a capital of \$1,000,000, divided into 200,000 shares of the par value of \$5 each. The board of trustees is a very strong one, and composed of the following gentlemen: H. B. Hammond, President Boston & New York Air Line RR. Co.; Joseph Richardson, of New York; A. B. Chandler, President Atlantic & Pacific Telegraph Co.; Royal M. Bassett, President Birmingham Iron Foundry; Henry N. Baker, of Ellison, Baker & Coolidge, Boston; William Barker, of New York; and J. S. Sherburne, of New York. The officers of the company are as follows: President, H. B. Hammond; Treasurer, A. Duprat; Secretary, William Barker; General Manager, J. S. Sherburne. The property of the company is located in the San Simon District, Grant County, New Mexico, three miles east of the boundary-line between Arizona and New Mexico, and within two miles of the station of Stein's Pass on the Southern Pacific Railroad. The company has had a number of assays of its ore made, some of which run very high.

The interest manifested in the mines which are listed on the New York mining stock exchanges has been quite active of late, and increasing attention is being paid to the new mines which are offered for sale.

We specially notice a growing interest in Mexican mines among American investors, and some of the reports, which are being circulated, are certainly very flattering in their promises. A number of mines, or groups of mines, have been sold in the New York market within a comparatively recent time, and the reports received of the latest developments are highly encouraging. The Jocuistita, Minas Prietas, Yedras, El Oro, and others, are claimed to have fully warranted the statements of the vendors. All of these mines were carefully examined before a purchase was consummated. As it is highly probable that a great number of other Mexican mining properties will be brought to this market, we can not urge too strongly upon investors to touch no mine, unless well recommended by known engineers.

The railroad projects in Mexico naturally call attention to the mines of that country. We hear of pros-

GENERAL MINING STOCKS.

Dividend-Paying Mines.

Table listing mining companies with columns for Name and Location, Feet on Vein, Capital Stock, Shares, Assessments, Dividends, and Highest and Lowest Prices per Share. Includes companies like Amie Con. S. L., Argenta, Barbee & Walker, etc.

Non-Dividend-Paying Mines.

Table listing mining companies with columns for Name and Location, Feet on Vein, Capital Stock, Shares, Assessments, Dividends, and Highest and Lowest Prices per Share. Includes companies like Alta, Alta-Montana, Alice, Am. Flag, etc.

g. Gold, Silver, s. L, Lead, c. Copper. \*Non-Assessable. †The Deadwood mine paid in dividends, previous to the consolidation, \$27 000. Total shares sold during the week, 888,138.

pectors and purchasers of mines pushing their way into nearly all of its States. Many of the Western miners are seeking their fortune in this new El Dorado, and a number of our leading mining engineers either have been or are now engaged to report upon properties.

The mines of Sonora, Chihuahua, and Sinaloa attract apparently the most attention, although some of the mines of Michoacan and the State of Mexico itself are worked by Americans. Among others, the Messrs. Janin, the well-known mining engineers of California, have devoted their attention almost exclusively to the mines of Mexico for upward of a year, and have already placed a number of properties which have proved to be very valuable. They have now in hand the Zambona mines of Alamos, State of Sonora, and are represented in this city by Mr. Louis Janin. Instead of selling this mine as a whole to New York purchasers, they offer one half thereof for a working capital of \$150,000, and prefer to retain for themselves a large proportion of the capital stock, as well as the management. Shares for working capital are now offered, and are being subscribed for by prominent business men, who believe in the future of Mexican mining properties. The property is reported upon and the scheme endorsed by able engineers, men who have a reputation to lose, and who have long stood well before the public. The fact that the shares of this mine are being subscribed for by strong men of Boston and New York, in spite of the distrust which has been recently manifested for all mining schemes, proves the correctness of our repeated assertion, that well-recommended properties will always obtain a hearing.

The Zambona mines are near Alamos, a city of 6000 inhabitants, the chief mining district of the State of Sonora, Mexico, distant about fifty miles from the seaport of Agiavampo, Gulf of California, with which it is connected by an excellent wagon-road. When the projected railroads are finished, there will be a direct railroad communication between Alamos and all points of the United States. Miners are here in abundance. Freight is forwarded in ships from San Francisco to Agiavampo, and thence in wagons to the mines. The place has also a mint. There are three claims, aggregating a length of 2160 feet on a belt of silver-bearing veins which have yielded largely in the past. The vein is from 10 to 40 feet in width. The silver occurs in hard seams of quartz running throughout the vein-mass, easily assorted from the waste and into different grades by mere screening. The ore-bearing portion of the vein aggregates 40 to 80 per cent of the vein-mass. Fuel and labor are abundant at all times and cheap. Wood costs \$3.50 per cord; miners, from 50 to 75 cents per day. The cost of mining and milling is from \$12 to \$15 a ton.

In addition to the Zambona mines proper, a large extent of neighboring property has been bonded, and there seems to be every assurance of a long and prosperous life to the enterprise. We also understand that the Quintero, which is in the immediate vicinity of the Zambona, has recently been bonded to New York parties.

An English company has been at work in this section of the country for many years past, and has made large profits from ores which assayed only \$22 per ton.

#### OFFICIAL LETTERS.

*Alice.*—The superintendent says :

The ore-faces on the 100, 200, 300, 400, and 500 foot levels are reported as presenting their usual appearance. Hoisting of ore from these levels continues daily, without interruption. The amount of ore lifted from these levels, per diem, is sufficient to supply both of the 60 and 20-stamp mills, and the amount of ore on the dump-pile, which is huge, remains comparatively intact. Eighty tons per day is about the output of the mine—three fourths of that amount being reduced daily by the 60-stamp mill. At the 500-foot level, work has been commenced on the sinking of a winze to connect with the 700-foot level. The mills are both running to their full capacity, and are doing very thorough, systematic, and satisfactory work. Two hundred and sixty-five men are on the pay-rolls of this company. An engine has been ordered from San Francisco, which is to be placed at the 500-foot level, and used for hoisting purposes.

*Alta-Montana.*—These works are in full operation. The Krom mill, two reverberatories, three Bruckner cylinders, and the smelter are at work, and the prod-

uct is enlarged on account of the better quality of fluxes and the richer ore at command.

*Caledonia.*—The superintendent writes :

During the week ended February 5th, the work in the mine has been confined to getting out ore, most of which has come from the open cut that I have started. We are running 60 stamps, with every prospect of continuing to do so for a long time. We have employed during the week, at the mill and mine, 82 men.

The statement of this company for the month of January shows a cash balance on hand of \$248. The company's assets consist of the cash balance and a portion of an assessment yet to come in, amounting to \$19,389, making a total of \$19,637, against liabilities, consisting of a bank account overdraft amounting to \$19,239, and the balance of the Clara purchase money, which amounts to \$15,000, both making a total of \$34,239, and leaving a deficit of \$14,601.

*Bull-Domingo.*—The superintendent of the Bull-Domingo reports, February 14th, that the stopes above the 250 level were producing about 80 tons per day. The mill during the week turned out 154 tons of concentrations, the largest run ever made by it. This company is reported to have expended \$300,000 in improvements, and the mine has furnished all but \$75,000 of the amount.

*Green Mountain.*—This mine is sending the entire face of No. 5 tunnel to the mills. The ore-body is reported to be 100 feet wide. Both mills had been running steadily until the interruption occasioned by the late storm. About 100 square feet of silver plates have lately been added to the big mill, and the results have proved so satisfactory that more will be put in at once. The mine is in fine condition, and the indications in the face of the main drift of No. 5 tunnel continue highly encouraging.

*Canada Consolidated.*—The superintendent says, under date of February 19th : The mine looks splendid in the four levels, and the sump could not be better.

*Dunderberg.*—The superintendent, under recent date, says :

The fourth level shows a vein from 6 to 8 inches in width and a little mixed with rock. The vein does not look so good in the third level, being very much mixed with quartz. I am drifting north on the vein in the fourth level, the ledge showing about 1 foot wide, but also mixed with rock. I have no changes to report in the stopes.

*Glass-Pendery.*—A dispatch says :

The Glass-Pendery strike is north and near the Pendery shaft. Several upraises show an ore-body above the former level, and prove it to be continuous for 700 feet.

*Head Center.*—The superintendent of the Head Center mine, Tombstone, Ariz., telegraphed on the 16th inst. :

Have bought the Sunset mill, and will begin crushing ore the 15th. Hoisting-works will be ready in ten days.

*Hibernia.*—The superintendent telegraphs under date of February 25th, denying the report that outside parties have examined the property, and states that only persons directly employed by the company have been in the mine. He has just shipped 10 tons of high-grade ore. President Faber declares that there is sufficient money in the treasury to pay three more dividends.

*Little Chief.*—The manager reports by telegraph for week ending February 19th :

One hundred and seven tons ore shipped. Settled for, 210 tons, producing \$13,000. Streak in block 2-26 improves in quality and quantity. It now shows three feet good sand and galena across face of drift.

In his letter dated February 13th he writes :

I have made one new discovery during the week, but it is not up to this time worthy of mention as a strike. It consists of a small stringer of gray sand carbonate mixed with porphyry and carrying sulphurets running south into block 2-26. I estimate the average value of the streak at 50 ounces silver and 40 per cent lead. I regard this as good territory, and shall prospect it thoroughly.

*Little Pittsburg.*—The manager writes under date of February 17th :

Hoisted thirty tons of ore from new strike to-day, and shipped twenty tons. Shall be able to work more men hereafter, and shall increase shipment to-morrow.

*Moulton.*—Of this mine, which adjoins the Alice in Montana, we learn that the main shaft has attained a depth of 160 feet on the 10th inst., and sinking is rapidly progressing at the rate of eighteen feet per week. At a depth of 154 feet, the north ledge was tapped. It dips to the north at an angle of 75 degrees. The vein is three feet wide, with an average assay value of 160 ounces. The present hoisting-machinery is considered adequate for sinking to the depth of 400

feet, but will be replaced by other of greater capacity, now *en route*. One 75 horse-power boiler of new design and lately patented is now upon the ground ; two more of equal capacity and same pattern will arrive in about three weeks.

*Pelican-Dives.*—Reports to the Mining Associated Press from Georgetown, Colo., state that the new hoisting-machinery of the Pelican-Dives mine, on Republican Mountain, was completed last week. This consists of an engine of 40 horse-power, which can readily be increased to sixty ; two boilers, each of 40 horse-power ; and an iron skip or giraffe running on an iron track laid on the incline of the vein. This skip accomplishes its work thoroughly and expeditiously. The engine, boilers, and dumping gear are in an underground chamber about 280 feet below the surface of the mountain. This is 24 x 40 feet in length and 25 feet high, and is one of the finest works of the kind in the State. The shaft on which the company will now resume sinking extends downward from the engine-chamber something over 400 feet, on the incline of the vein, which averages about 10 degrees from the perpendicular. An examination of the mine shows that the work of improvement has been thoroughly carried on. The main shaft shows from one to four feet of nearly solid galena and blende, with some pyrites ; and the drifts west of the shaft show from a few inches to two feet of solid ore, in addition to which there is usually a considerable quantity of scattered mineral, which concentrates unusually well in this mine. The ore hitherto produced has ranged from 50 to 70 ounces of silver per ton. No ore has yet been stoped from the lower workings. The consolidated properties composing the Pelican-Dives have yielded \$2,500,000.

*Plata Verde.*—A meeting of the stockholders of the Plata Verde Mining Company was held yesterday, at which it was decided to reduce the capital stock to \$1,000,000. Work will be vigorously prosecuted at the mine, and the new mill started immediately.

*Plumas National.*—A letter dated February 17th, from the engineer of the Plumas National gold mine, states that the chlorination-works and concentrators were all working well, and that every thing was in good condition.

*Quicksilver.*—At the annual meeting of the stockholders, held on the 23d inst., the following directors were chosen : A. B. Baylis, David Mahany, James H. Banker, S. W. Boccock, James D. Smith, George W. Butts, Edward Brandon, Charles Fries, George G. Hoven, Frank K. Sturgis, F. N. Lawrence. Subsequently the following officers were chosen for the ensuing year : David Mahany, President ; George W. Butts, Vice-President ; Abram B. Baylis, Treasurer ; M. M. Weed, Secretary. The annual report of the company shows that the total product of the mine for the year 1880 amounted to 23,465 flasks. The net profits amounted to \$225,779.28. The company has no debt whatever, and has on hand, in cash and quicksilver, \$591,321.08, also ore and materials amounting to \$119,742.81.

*Robinson Consolidated.*—The manager of the Robinson Consolidated Company reports, under date of February 14th, that the total depth of south incline is now 87 feet. The ore-vein in the bottom shows an average thickness of 3 feet of fine ore, assaying about 100 ounces of silver per ton. During the previous week, the mine was overrun with lawyers, experts, surveyors, etc., preparing for the suit soon to be brought by the Jacque party. This greatly retarded work and increased the expenses, as, by the direction, of the Robinson attorneys, a considerable number of men were put upon work useless for every thing except the purposes of the lawsuit. Oxidized ores are now being extracted from the upper end levels for the purpose of filling a contract for 300 tons made with the La Plata smelting-works in Leadville.

*Standard Consolidated.*—The superintendent of the Standard Company reports, under date of February 14th, that the east cross-cut, 1000 level, is now in 92 feet. The total length of the west cross-cut is 63 feet, with face in good-looking porphyry. There was a very marked increase in the flow of water from the face of this cross-cut during the week. The main east cross-cut, 700 level, is in from the shaft 509 feet. The total length of the south drift from the east cross-cut, 500 level, is 134 feet, with ledge in face 4 feet wide. Upraise No. 6, from north drift, 385 level, is up 111 feet, showing the vein 20 feet wide. Upraise No. 1,

south drift, has reached a height of 224 feet, showing the vein 15 feet wide. The stopes on the 385 level look well. On the 550 level, the ledge shows its usual width of from 10 to 25 feet of clean ore.

**Spring Valley.**—The superintendent, under recent date says :

The work on the mine has gone on uninterruptedly, and the abundance of rain has enabled me to dispose of immense quantities of pipe-clay. The severe storms have done no material damage to the property.

**Silver King.**—Report No. 5 of the superintendent of the Silver King Mining Company, of Colorado, dated February 21st, states that the "C" tunnel drift to the southwest is now in about 40 feet, the vein holding as strong and rich as ever. The ore-house foundations are being hewn out, and the building will soon be ready for ore. In "B" level, there are now several feet of nearly solid ore, with richer grade of mineral showing throughout the heading. This level is now in 245 feet, and the vein has been drifted on for a distance of some 60 feet. About 60 tons of ore have been mined here, and this has been stored in a rough ore-shed beside the tunnel opening.

**Tombstone.**—A telegram from the superintendent states that a winze which is sinking on the 190 level is now 30 feet deep and in a new ore-body.

**Unadilla.**—The superintendent reports :

Have hoisting-apparatus in shape and running over the west shaft. I find the mineral continues the same as telegraphed (10 inches) on this shaft. I also find the top quartz for some 30 feet down to run high in gold. It has been worked in arrastras here, and \$40 to the ton taken out. It will assay about \$100 to the ton. On the main shaft have driven 140-foot level 25 feet in some mineral all the way, high grade, but scant as yet. Can ship from other shaft by 10th.

**Willshire.**—The superintendent writes, under date of February 8th, that they are running day and night with two "giants" and a full head of water; that because of their perfect condition, the ditches had only very small slides, and that they had run full time with the exception of one day and three nights. The superintendent has been very watchful, and the property is worked with great skill and economy, the January expenses having been only \$515. This shows the advantages of a well-managed hydraulic mine, where it is necessary to employ only a few men, the water doing all the work.

REVIEW OF THE SAN FRANCISCO MARKET.

There is nothing of interest to observe regarding the stocks enumerated under this head. The market continues tame both as regards prices and transactions. A dispatch says :

Union Consolidated will not open the 2600 level, but will go to the 2700 level and run under the ore-body and develop it by upraises.

Alta complains that Silver Hill pumps water into the Justice shaft, which runs into the Alta shaft, and increases the water three-fold.

The Yellow Jacket has advanced 80 feet toward the Sutro Tunnel, and is only 450 feet distant.

Belcher has commenced work on the upper levels, from which the superintendent expects to keep two mills running on low-grade ore when the stopes are opened. Propositions will be submitted to the miners to work these at reduced wages.

Candelaria District shares and Silver King of Arizona steadily improve.

The Commercial Herald of the 17th inst. says :

In mining stocks the market is flat. It is quite surprising to compare present prices with those of a year ago. The former cry that bonanzas are covered up waiting the word of those in control to reveal them is all sheer nonsense. The lesson of the past year has been altogether too severe, even to those who possess millions in coin, not to avail themselves of such an advantage if they had it; for the uncovering of a pound of ore in the lower levels of the Comstock, where it was heretofore believed these deposits lay, would make a boom of no small magnitude, notwithstanding all the severe lessons of the past. The low prices now ruling would be discounted a hundred fold, and the wise would reap the benefit by realizing on the advanced prices, while the mass of dealers, as has been the case time and again, would hold for still higher rates.

The retimbering of the swelling ground in the south header of the Sutro Tunnel has been completed, and work in the face has been resumed. At the Yellow Jacket, the drift to meet this header is advanced at the rate of 55 feet per week. The Sutro folks will probably be able to make equal progress. Thus the two drifts will near a connection at the rate of over 100 feet per week. The connection should be made in about five weeks.

The Gold Hill News reports the Crown Point mine shipping from 35 to 40 tons per day of low-grade

ore, milling from \$13.50 to \$14, and just about paying expenses.

The Enterprise says :

In speaking of the proposed rates of wages in the mines in accordance with depth, etc., through a misunderstanding we said it was fair that all miners working below the 2500 level should receive \$4 per day, as at present. We should have included in this all on the 2500 and up to the 2400; therefore, it would really be \$4 per day for all miners working below the 2400 level. As most of the leading mining companies are already below the 2400 level, there are quite a number of mines that would not be affected in the least, nearly all the men now employed being at work below the 2400 level. Also, regarding the tunnel through which it is proposed to work the Gould & Curry upper levels and croppings, instead of it being run by the bonanza firm and the Virginia & Gold Hill Water Company, we learn that it was run by the Gould & Curry Company in conjunction with the water company.

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

NAME OF COMPANY	CLOSING QUOTATIONS.						Open- ing. Feb. 25.
	Feb. 18.	Feb. 19.	Feb. 21.	Feb. 22.	Feb. 23.	Feb. 24.	
Alpha.....			2 3/4		2 3/4	2 3/4	
Alta.....			2 3/4		2 3/4	2 3/4	
Argenta.....							
Bechtel.....				11-32	13-32		
Belcher.....			15-16		29-32	15-16	
Belle Isle.....							
Belvidere.....			13-32		13-32		
Best & Bel.....			7 1/4		7 1/4	7 1/4	
Black Hawk.....							
Bodie.....			6 3/4		6 1/2	5 3/4	
Boston Con.....							
Bullion.....			15-16		15-16		
Bulwer.....			2		2	2	
Caledonia.....							
California.....			1		1	15-16	
Cal. E. H.....							
Chollar.....			1 3/4		1 3/4	1 1/2	
Columbus.....							
Con. Imp.....							
Con. Pacific.....					29-32		
Con. Va.....			1 3/4		1 3/4	1 3/4	
Crown P'int.....			1 1/4		1 1/4	1 1/4	
Dudley.....							
Eureka Con.....			2 3/4		2 1/2	2 3/4	
Exchequer.....					1 1/2	1	
Goodshaw.....			9-16		19-32	19-32	
Gould & Cur.....			3		3	3 1/4	
Grand Prize.....			1 1/2		1 1/2	1 1/2	
Hale & Nor.....			3 3/4		3 3/4	3 3/4	
Hillside.....							
Indep'd'nce.....							
Jackson.....							
Julia Con.....							
Justice.....							
Kentuck.....							
Lady Wash.....							
Leeds.....							
Leopard.....							
Leviathan.....							
Mammoth.....							
Manhattan.....							
May Belle.....						1	
Mar. White.....							
McClinton.....							
Mexican.....			5 1/2		5 1/2	5 1/2	
Mono.....			1 3/4		1 3/4	1 3/4	
Navajo.....							
North Belle.....			12 3/4		12 3/4	12 3/4	
N. Bonanza.....							
N. Standard.....			2		2 1/2	2 1/4	
Noonday.....					4 3/4	4 3/4	
Ophir.....			4 3/4		4 3/4	4 3/4	
Orig. K'y's'e.....					1 1/4	7-16	
Oro.....			19-32		21-32	19-32	
Overman.....			2		2	1 3/4	
Potosi.....							
Ray & Ely.....							
R. de Monte.....							
Savage.....			2		2	1 3/4	
Scorpion.....			1		1		
Seg. Belcher.....							
Sierra Nev.....			6 3/4		6 3/4	6 3/4	
Silver Hill.....							
Silver King.....			20 3/4		20 1/4	20 3/4	
So. Bulwer.....						11-32	
Summit.....							
S. Noonday.....							
Syndicate.....							
Toga.....							
Tip Top.....					2 3/4	3	
Trojan.....							
Tuscarora.....			11-32		11-32		
Union Con.....			7 3/4		8	7 3/4	
Utah.....							
Wales.....					15-16		
Yel. Jacket.....			2 3/4		2 3/4	2 1/2	

Copper and Silver Stocks.

Reported by C. H. Smith, 15 Congress street, Boston, Stock Broker and Member of the Boston Mining and Stock Exchanges.

Boston, Feb. 24.

The market the past week for copper stocks has ruled extremely dull, with a lower tendency in prices. This condition of the market is, in a great measure, due to the tight money market, causing a closing out of long stocks by weak holders. Ingot copper continues to rule firm, and there is every reason to look for an advance in the producing copper stocks over the present prices. The market to-day was very heavy at lower prices than have prevailed for some time, and the whole market is a purchase. Silver stocks have been more active, but they have also felt the

general depression and close at the lowest prices for the week.

Calumet & Hecla declined from \$250@249.

Copper Falls declined from \$145@144.

Franklin very dull at \$16 1/4, and declined to-day to \$15 1/4.

Pewabic declined from \$21@18 1/4 on sales of only 200 shares.

Quincy declined from \$37 1/2@35 1/2.

Atlantic declined from \$17@16.

Osceola was also heavy and declined from \$30 1/2@33 1/2.

Allouez declined from \$4 1/2@4.

Blue Hill from \$5 1/2@4 1/2.

We note sales of Aztec at \$1 3/4; Huron, 5/8; Mesnard, \$1 1/2; Madison, \$1 1/4; Star, \$2 1/4; National, \$2 1/2; Hungarian, \$2; Atlas, \$1 1/4; Washington, \$ 1/2.

Brunswick Antimony sold at \$22 1/4, but later declined to \$21.

In silver stocks, Catalpa opened quite firm at \$2 3/4@2 3/4, but on larger offerings it fell off to \$2 3/8@2 1/2. Contentment declined from \$3 1/2 to \$2 1/2. Crescent sold at \$1 7/8@ \$2.

Harshaw, at the opening, was quite strong at \$14 1/4@ \$15, but declined to \$13.

Silver Islet in the early dealings was firm at \$32 1/2@32. Later it was heavy, and declined to-day to \$30. Mass. & New Mexico sold at \$1@3/4. Duncan steady at \$3 1/2. Empire declined from \$1.20@95c. International sold at 35@40c.

3 P. M.—The market this afternoon was dull, with no improvement in prices. Aztec sold at \$1 1/4; Cal. & H., \$249; Catalpa, \$2 1/2; Franklin, \$15 1/2; Harshaw, weak and declined to \$12; Huron sold at \$5; Madison, \$1 3/4. Closing prices:

Allouez, \$4@4 1/2.

Atlantic, \$15@16.

Antimony, \$20@22.

Blue Hill, \$4 1/2@4 3/4.

Central Falls, \$13.

Contentment, \$2 1/2.

Douglass, \$3@3 1/4.

Duncan, \$3 1/2@3 3/4.

Franklin, \$15 1/4@15 1/2.

Harshaw, \$11 1/4@12 1/4.

Pewabic, \$18.

Quincy, \$35@36.

Silver Islet, \$30.

At the Boston Mining and Stock Exchange, the volume of business has been very large, confined, however, to a few specialties, Empire Mining and Milling Company declining on large sales from \$1.20@72c. Massachusetts & New Mexico has been quite prominent, starting at about 55c., and running up to 85c., and falling off with the general decline to 65c. Boston Gold and Silver, which was quiet and steady at about \$4.15@4.17, started yesterday on the announcement of the purchase of the Dolly Varden mines, of Colorado, and was in active demand at \$5, and this afternoon large sales were made at \$5 1/4, closing same bid. Bald Mountain was also largely dealt in at 12@ 22 1/2c.

Coal Stocks.

NEW YORK, Friday Evening, Feb. 25.

Owing to the prevailing tightness of the money market, these stocks have the past few days participated in the general decline, the values in some instances falling off 10 per cent. The sales have been very heavy, aggregating 655,207 shares for a business week of but five days. Delaware, Lackawanna & Western, which sold last Saturday at \$127 1/2, sold to-day down to \$115; the sales amount to 125,145 shares. Delaware & Hudson Canal, on sales of 47,685 shares, has declined to \$104 1/2 as against \$112 1/2 on Saturday. Reading has had sales in this market of 137,341 shares at \$73 1/2@64. New Jersey Central records sales of 133,040 shares at \$110@96 1/2. The sales in the various coal companies' stocks have been but few, and are pretty evenly distributed.

At the annual meeting of the stockholders of the Lehigh & Wilkes-Barre Coal Company, held in Philadelphia yesterday, the following were elected officers: President, F. S. Lathrop; directors, F. A. Potts, G. G. Haven, Charles Farrish, J. N. A. Griswold, John Kean, and J. S. Baines.

The London Times (money column) of the 5th inst. has the following :

At the meeting of bond and shareholders of the Philadelphia & Reading Railroad Company, held to-day, the request of Messrs. McCalmont Brothers & Co., that the important letter addressed by them to Mr. Gowen should be read, was not complied with. It was hardly fair that their side of the case should not be heard. Holding, as they do, some 27 per cent of the entire stock, besides large amounts of bonds, it is not to be supposed that they have assumed an attitude of hostility toward Mr. Gowen on frivolous grounds, and shareholders will, at all events, do well to possess themselves of the contents of Messrs. Mc

COAL STOCKS.

Table of Coal Stocks with columns for Name of Company, Capital Stock, Shares, Par Val, Last Dividend, Rate per Ann., and Quotations for Feb. 18-25. Includes companies like Am. Coal Co., Col. C. & L., Ches. & C. RR, etc.

\*Of the sales of this stock, 73,250 shares were sold at the Philadelphia Stock Exchange, and 137,341 shares at the New York Stock Exchange. Total Sales..... 655,907.

BOSTON MINING STOCKS.

Table of Boston Mining Stocks with columns for Name of Company, Shares, Par, and Quotations for Feb. 18-24. Includes companies like Allouez, Atlantic, Arizona Queen, Atrata, Aztec, etc.

c. Copper. s. Silver.

Calmont's letter before committing themselves to a leader who has done nothing in the past save lead the Philadelphia & Reading Company from one disaster to another.

At the annual meeting of the stockholders of the Lehigh Coal and Navigation Company, on the 21st inst., the annual report of the board of managers was read and adopted. It showed that the total revenues of the year were \$1,609,676.52; disbursements, \$1,287,664.56; earnings, \$322,011.96; less depreciation on coal improvements, etc., \$127,775.86; surplus for the year, \$194,236.38.

An election for president and board of managers then took place, in which the following were chosen: President, E. W. Clark; Managers, Francis R. Cope, Francis C. Yarnall, Fisher Hazard, Charles Parrish, Charles Wheeler, George Whitney, John Leisenring, James M. Wilcox, Edward Lewis, T. Charlton Henry, Samuel Dickson.

Gas Stocks.

NEW YORK, Friday Evening, Feb. 25.

These stocks are a little off, and under free offerings the entire list, with the exception of Manhattan and Harlem, are a little weaker. Sales are reported of 14 shares of Metropolitan at \$147, and 200 shares of Manhattan selling in lots from \$189 up to \$195 1/2.

The Electric Light in Denver, Colo.—A dispatch from Denver dated February 18th states that the City Council has accepted the proposition of C. C. Ruthrauff and others for lighting the entire city with the Brush Electric Light for two years, at \$14,000 per annum. The light to be furnished is guaranteed to be four times greater in the aggregate than the same number of gas lamps. The city is to have a 30 days' trial of the light before its final acceptance.

The following list of companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 19 Broad street, New York. Quotations are based on the equivalent of \$100.

Table of Gas Stocks with columns for Companies in New York and Vicinity, Capital Stock, Par, Rate per Ann., Dividends, and Quotations. Includes Mutual N. Y., Bonds, N. York, Metrop., etc.

BULLION MARKET.

NEW YORK, Friday Evening, Feb. 25.

The movement in the silver market, noted in our last week's issue, has continued the past week, as will be seen by the figures of the annexed table, and the market may be reported as firm, on the expectation that the coming International Congress will reach some basis more favorable to silver than the present ratio between gold and silver, and perhaps, also, by an agreement to increase the legal tender amount in those countries where now only a very limited amount may thus be used.

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

Table of Bullion Market with columns for Date, London Pence, N. Y. Cents, Date, London Pence, N. Y. Cents. Includes data for Feb. 19, 21, 22.

BULLION SHIPMENTS.

We give below a statement showing the latest bullion shipments. These are officially obtained from the companies, where that is possible; and where official statements can not be procured, we take the latest shipments published in those papers nearest to the mines reported. The table gives the amount shipped for the week up to the date given, as well as the aggregate shipments to such date, from the first of January, 1881.

The shipments of silver bullion are valued at \$1.29-29 per ounce, Troy; gold at the standard \$20.67 per ounce, Troy. The actual value of the silver in the following table is therefore subject to a discount, depending on the market price of silver. The price of silver being now about \$1.12 per ounce, the following figures, where they

relate to silver bullion, should be diminished by about 13 1/4 per cent to arrive at actual value :

	For the week.	Month of February.	Year from 1881.
Alice	Mont. 26,338	\$26,338	\$68,338
Barbee & Walker	Utah 7,748	26,641	52,421
Belmont	Mont. 5,000	5,000	15,270
Bodie	Cal. 9,800	30,520	64,210
Bos. & Colo. S. Wks.	Colo.		253,000
Crismon-Mammoth	Utah	4,750	8,100
Connor	"		14,610
Christy	"	11,083	36,956
Con. Virginia	Nev.	19,300	67,739
Custer Mill	Ariz.	1,850	1,850
Contention	Ariz.	33,500	105,180
Dexter Mill	Mont.		11,000
Derbic	Cal.		13,200
Eureka Con.	Nev.	29,870	92,970
Elkhorn Mill			5,000
Exchange Silver	Nev.		43,000
Frisco M. and S. Co.	Utah	14,463	32,179
Germani	Utah	18,940	44,340
Grand Prize	Nev.	14,270	21,870
Horn Silver	Utah	22,500	97,003
Hale & Norcross	Nev.		33,090
Hermosa Mill	Ariz.		12,000
Indian Queen	Nev.		2,156
Iron Silver	Colo.	49,241	171,717
Little Chief	"		19,900
Lexington	Mont.		7,000
Morning Star	Colo.		15,200
Mount Potosi		9,900	19,800
Morgan	Utah	24,179	24,179
Northern Belle	Nev.	25,400	64,380
North	Cal.	8,200	21,000
Navajo	Nev.	6,000	18,000
Ontario	Utah	31,921	104,730
Ophir	Nev.		5,170
Oneda			8,684
Pascoe	Utah		1,650
Richmond	Nev.	49,177	85,193
Stormont	Utah		24,536
Silver Bow	Mont.		15,000
Sierra Nevada	Nev.		16,775
Standard	Cal.	79,450	162,307
Syndicate	"		5,000
Silver King	Ariz.	21,050	34,915
Star	Nev.		4,600
Tip Top	Ariz.		30,200
Tintic M. and M. Co.	Utah	6,481	13,964
Tombstone M. & M. Co.	Ariz.		11,528
Union Con.	Nev.		43,100
Wood River	Idaho		6,450

CALIFORNIA.

**Bodie Consolidated.**—The superintendent reports that the pulp-assays for the past week averaged \$97 per ton.

**Plymouth.**—The 80-stamp mill at Plymouth, Amador County, is steadily running. Forty stamps are crushing ore from the Pacific, and the other forty are running on Empire rock. The yield of bullion, according to all accounts, is fully up to the average.

**Standard.**—The superintendent reports that during the past week 1342 tons of ore were shipped to the mill; average pulp-assay, \$29.67; crude bullion received, 4595 ounces; shipments to San Francisco amounted to about \$79,457.

**Bodie Mines.**—The *Free-Press* of February 8th says: Twenty-three mines in Bodie are now being actively worked. Of this number, seventeen have steam hoisting-works of their own, two are being worked through adjacent mines having steam works, one is worked by tunnel, one by whim, and two by windlass. A singular coincidence is, that the two windlass mines (Union Con. and Jackson), one at the extreme north and the other at the extreme south end, have each recently made rich and important developments. Eighteen mines in the district having steam hoisting-works and fair prospects are lying idle—chiefly for the want of means.

COLORADO.

**Basick.**—The concentrating mill is to be enlarged to 75 tons daily capacity.

**Iron Silver.**—The manager reports that for the first fourteen days of the present month, 2742 tons of ore were shipped; 2160 tons settled for brought \$49,241.

**Little Pittsburg.**—This mine has shipped 50 tons of rich ore from the recent new strike.

**Matchless.**—During the past week, 1100 pounds of ore were shipped that milled, it is stated, 9540 ounces per ton.

**Taylor & Brunton.**—The product of this mill from September 18th, 1880, up to February 11th, has been \$145,000 worth of silver bullion.

The Leadville *Circular* in speaking of the smelters' product for January says: The total output of the smelters for January is estimated at \$817,000, representing 2625 tons of base bullion. Adding to this \$65,000 for refined bullion shipped by the mills we have an aggregate output for the camp of \$882,000 during the month. This, our readers will understand, is only an estimate. But few of the smelters are willing to give reports, and in their absence estimates must be taken for what they are worth. We do not think ours varies far from the fact. No men are better qualified to judge of the probable future output of the camp than the smelters, and their opinion on the subject may be inferred from the fact that four new furnaces of large capacity are being erected at the American, La Plata, Harrison, and Ohio & Missouri, while the Grant Smelting Company has spent a

fortune in enlarging its establishment to a capacity of 250 to 300 tons of ore per day.

**Gilpin County Stamp Mills.**—From one of our exchanges we take the following: It is with regret we notice from the tables which we give below, derived from Colorado exchanges, that so many stamps have remained unemployed during the last year in this important mining county of Colorado; a county whose aggregate products, chiefly in gold, from the first of June 1871 to the 31st of December 1880—ten years—foots up about \$87,500,000. The tables in question we have made into one, as best showing what we regret to see:

	Total number Stamps in of stamps. operation.	
Waterman—Eureka gulch	20	20
Mackey—Nevadaville	37	37
Con. Kansas—Nevadaville	52	40
Whitecomb Mill Company	25	25
Kip & Buell—Central	60	none
United Gregory—Central	50	25
N. Y. & Colorado Company—Central	40	40
Bobtail Mining Company—Black Hawk	125	125
Empire Mining Company—Black Hawk	25	25
Kimber Mining Company—Black Hawk	35	35
Bostwick Mining Company—Black Hawk	25	none
Fullerton Mining Company—Black Hawk	77	40
Midas Mining Company—Black Hawk	20	20
Hidden Treasure	20	20
Arrighi	15	none
Wheeler	20	none
Tomlinson	32	none
Gregory	50	none
New York	75	25
Randolph	50	50
Cashier	35	25
Rollins	16	none
Golden Flint	15	none
Harkaway	10	none

Total number of stamps..... 929 552  
It is stated that the majority of these are custom mills run under the management of lessees of mining properties, and it is given in excuse for the number of idle stamps (377), that at this season of the year few of the mines are working their full force.

DAKOTA.

**Caledonia.**—The manager reports that for the week ending February 12th this mine shipped to the mill 582 tons of ore.

**Father de Smet.**—This mine crushed during the past year 90,754 tons of ore, returning an average of \$717.50 per ton, and bullion valued at \$600,011.97. The total expenses of mine and mill for the year were \$313,108.65, giving a profit of \$286,893.35. This, less office expenses, leaves about \$200,000 net profit.

IDAHO.

**Wood River.**—From one of our exchanges we take the following: The new Wood River District, of Idaho Territory, was opened in the spring of 1880. During the remainder of that year nineteen different mines shipped ore to Salt Lake (where they are mostly owned) at a cost of about \$60 per ton. The total aggregated 358 tons and 1391 pounds of ore, which sold for \$59,870.41, an average of \$168 per ton. Next summer, production will begin in earnest; for the veins will then be much better opened, and reduction-works may be in operation.

**Custer Mill.**—The first shipment of bullion, consisting of one bar valued at \$1850, was shipped from this mill February 16th.

NEVADA.

**Comstock Mines.**—The *Virginia Chronicle* of February 15th gives the following interesting statement of the bullion yield of the Comstock mines during the quarter ended December 31st, 1880, as reported by the county assessor:

MINE OR COMPANY.	Tons extracted.	Gross yield or value.	Net yield.
Belcher	1,636	\$22,901.46	\$4,520.29
Crown Point	308	3,830.24	766.04
Consolidated Virginia	13,208	337,875.16	47,575.03
California	12,252	189,750.61	37,950.03
Consolidated Imperial	2,844	31,281.00	3,128.10
Monte Cristo	480	6,210.00	1,242.00
Savage	53	1,463.02	292.60
Sierra Nevada	668	16,788.39	3,357.98
Union Consolidated	1,621	49,240.31	19,996.13
Tellings:			
Bastian & Pfeiffer	300	1,500.00	150.00
J. H. Hitchcock	250	1,250.00	125.00
George Jennings	189	1,167.00	116.70
Mariposa	3,322	12,686.17	1,919.78
Omega	10,509	52,447.02	10,866.77
Peter Secord	30	150.00	15.75

For the week ending February 20th, the Sierra Nevada mine raised 322 tons of ore, having an assay value of \$101 per ton.

**Exchange Silver.**—This company intends to enlarge its stamp-mill, in order to insure a larger product of bullion. The weekly shipments continue to be regular.

MONTANA.

**Algonquin.**—The mines of this company are reported to be looking well, and it is stated that lumps of good ore are ready for the mill. The new hoisting-works are completed.

**Montana Copper.**—This company is erecting a second furnace of the same size as its first. It will be completed by the 1st of March. With these two furnaces going, the daily output of copper matte will be between ten and twelve tons. At the east end of the works, another apartment is erecting in which will be built, as soon as the

weather will permit, a blast-furnace which will still further increase the productiveness of the smelter.

**Silver Creek District.**—The bullion shipments from this district for the past week were as follows:

Albion	\$2,000
Belmont	5,000
Gloster	2,500
Hickey & Bluebird	4,000

**Summit Valley District.**—The reports from the mines worked in this district are decidedly favorable.

UTAH.

**Flagstaff.**—It is reported that a number of Salt Lake capitalists have purchased this smelter, and intend to remodel it for the purpose of adopting the Stephens system.

**Ontario.**—The superintendent reports the following bullion shipments for the week ending February 11th:

Feb. 5	\$7,700.02
Feb. 6	8,149.78
Feb. 7	4,591.62
Feb. 8	7,328.47
Feb. 9	7,526.27
Feb. 10	4,861.32
Feb. 11	4,447.06

Total.....\$44,604.54

**Salt Lake.**—The *Salt Lake Tribune* of February 18th says: The outlook for mining this spring is more promising than at any time since the discovery of precious metals in Utah. Lead commands a good price, silver is advancing, and gold is all that can be desired.

**Silver Reef.**—The bullion shipments from Silver Reef, through the office of Wells, Fargo & Co., from February 1st to the 9th inclusive, aggregated \$23,953.76.

MISCELLANEOUS.

**Bullion Receipts from the Mines to New York.**—The bullion received from the mines at the various offices in this city during the week ending with yesterday, as compiled from various sources, amounts to \$174,364.64, a gain against \$336,986.34, reported in our last.

The following statement is published showing the bullion receipts and products of the Newark Smelting and Refining Works, for 1880:

MONTH.	Lbs. Bullion.	Dwt. Gold.	Oz. Silver.	Lbs. Lead.
January	3,705,144	30,535.2	572,734.3	3,440,404
February	2,622,164	24,988.2	460,905.1	2,449,912
March	2,160,101	33,111.1	402,109.4	2,009,807
April	2,619,243	41,957.2	419,388.5	2,453,767
May	1,805,543	28,470.7	314,592.6	1,684,698
June	3,157,110	60,736.2	448,896.1	2,942,428
July	4,379,636	51,815.1	520,299.7	4,045,074
August	4,212,121	52,622.7	590,971.3	3,938,954
September	2,550,767	64,284.6	387,173.9	2,360,734
October	2,585,064	18,048.1	330,796.7	2,426,577
November	4,562,673	55,823.8	615,704.3	4,311,391
December	3,359,082	57,798.4	428,428.4	3,045,322
Total	37,718,648	520,191.3	5,492,060.3	35,100,158

STATE.	Lbs. Bullion.	Dwts. Gold.	Oz. Silver.	Lbs. Lead.
Colo.	28,522,873	228,801.07	4,689,030.00	26,810,891
Calif'a	1,191,326	39,645.03	88,985.01	1,088,321
Nevada	5,177,659	247,083.01	319,172.07	4,712,644
Montana	6,289,962	2,604.05	348,144.00	2,001,124
Utah	536,828	2,056.07	46,828.05	487,178
Total	37,718,648	520,121.03	5,492,060.03	35,100,158

Out of the above total from Colorado, the following was received from Leadville: Pounds bullion, 24,231,456; dwts. gold, 10,861.00; ozs. silver, 3,642,014.00; pounds lead, 22,796,146.

**San Francisco.**—The *San Francisco Daily Exchange* of February 5th says: The January returns from the mines bought and sold at the San Francisco Stock and Exchange Board are now all in, and we close the record for the month. The total is as follows:

	Amt.	Total.
Bodie, January 31	\$10,283	\$39,887
Christy, January 19	10,384	22,338
California, January 1	41,965	41,965
Consolidated Virginia, January 13	56,794	90,339
Eureka Consolidated, January 31	5,058	151,826
Grand Prize, January 7	24,956	45,956
Modoc, January 25	34,808	44,979
May Lundy, January 6	4,600	4,600
Northern Belle, January 31	11,138	119,015
Noonday, January 19	4,612	14,046
Paradise Valley, January 24	1,400	1,400
Silver King, January 30	13,000	49,718
Standard, January 25	65,553	225,301
Star, January 31	5,020	32,822
Syndicate, January 24	4,712	10,481
Sierra Nevada, January 3	16,715	16,715
Union Consolidated, January 30	22,529	43,153
Western, January 30	20,097	154,116

Total for January.....\$1,100,183

**Fractional Silver.**—The total amount of fractional silver issued under the act of April 17th, 1878, was \$42,983,618.50; to which should be added at least 25 per cent more represented by coins of dates prior to 1875, which have found their way into circulation since the resumption of specie payments. Of this coin there is in the Treasury at this date \$24,629,469.89, of which \$17,296,671.13 has been withdrawn from circulation since the passage of the act of June 9th, 1879, providing for the exchange of fractional silver for lawful money. Since July 31st, 1880, the amount in the Treasury has decreased about \$500,000, that amount in excess of redemption having been issued under a demand which has sprung up by reason of reduced transportation charges and an improved condition of business. At the date of the act of April, 1876, authorizing the exchange of fractional silver coin for fractional currency, there was in circulation \$41,506,737.48 of fractional currency. The amount outstanding at this







mined on the Pacific Coast, and compares favorably with any of the best domestic or foreign bituminous coals. There is a slight decline to be noticed in Coos Bay and other coast coals, resulting in a break of the combination ring, so far, at least, that some one or more of the dealers, both here and in Oakland, have kicked out of the traces and broken the jobbing price that has been ruling here for two months past. The arrivals of coal for the week past include the following: Empire, from British Columbia, with 740 tons Wellington; Gatherer, 2200 tons do.; Fremont, 550 tons Carbon Hill from New Tacoma; Arcata, with 550 tons Coos Bay; Benmore, from Glasgow, 1040 tons Scotch; Joseph S. Spinney, from New York, has 200 tons Lehigh. Prices for cargoes to arrive have declined, as well as for shipments. Sales are reported at \$6.75 for Liverpool Steam, and \$7@7.50 for Australian; at the same time dealers are disinclined to make any reasonable offers for Scotch or West Hartley to arrive months hence. We omit spot quotations, as at best they are but retail prices, no large transactions being made. The Antioch has 973 tons Seattle.—*Commercial Herald.*

**COAL AND IRON NOTES.**

*The Delaware & Hudson Canal Company's Statement for 1880.*—From the full report issued by this company we extract the following:

The business of the company for the year ending December 31st, 1880, is herewith respectfully submitted:

	Tons.
Coal mined and sold for account of the company	2,674,704
Transported for other parties	372,889
<b>Total</b>	<b>3,047,594</b>
Which was distributed as follows:	
	Tons.
From Honesdale by way of canal and railroads	1,531,951
South from mines	59,398
Erie and west	480,576
North by way of Albany & Susquehanna Railroad	402,785
Local sales, etc.	199,993
	2,674,704
Add transported for other parties	372,889
<b>Total</b>	<b>3,047,594</b>

To correct a general but unfounded belief that the debt of the company has been increased about \$5,000,000 since the suspension of dividends, your managers take this opportunity to state that the \$5,000,000 loan (known as bonds of 1917) was made for the purpose of retiring the floating debt and other maturing obligations of the company. For details of the purposes for which the proceeds of the \$5,000,000 bonds were applied, and for the actual increase of the debt, which amounts to only \$177,978, you are referred to the annexed statement.

Following is the condensed balance-sheet of the company:

	Dr.	Cr.
Canal and equipment	\$6,339,210	
Railroad and equipment	6,414,759	
Real estate	8,846,316	
Mine improvements	2,404,962	
Mine fixtures and equipment	308,295	
Boats, barges, and steamboats	579,436	
Coal yards and fixtures	167,355	
Lackawanna & Susquehanna Railroad	1,022,938	
Cherry Valley, Sharon & Albany Railroad	300,000	
New York & Canada Railroad	3,597,074	
Lackawanna Palace-Car Company	54,675	
Telegraph lines	14,734	
Supplies on hand	962,130	
Coal on hand	727,283	
Advances to leased lines	608,894	
Miscellaneous assets, namely:		
Boston, Hartford & Erie bonds (1400)	\$786,727	
Jefferson Railroad bonds (108)	86,710	
Albany & Susquehanna consols (275)	275,000	
Delaware & Hudson Canal Company bonds (963)	962,773	
Sundry assets	373,881	2,487,092
Stock as follows:		
8540 shares Albany & Susquehanna	\$854,000	
8241 shares Rensselaer & Saratoga	822,137	
Sundry stocks	131,477	1,807,614
Advances on coal royalties	613,181	
Cash on hand	2,620,701	
Bills and accounts receivable	1,164,955	
	\$41,041,614	
		Cr.
Capital stock		\$20,000,000
Bonds, 1884		\$3,500,000
Bonds, 1891		6,481,600
Bonds, 1894		4,856,000
Bonds, 1917		5,000,000
Interest and dividends payable January, 1881		697,416
Depositors		249,339
Dividends and interest unclaimed		41,071
Notes payable		16,001
General profit and loss		200,786
	\$41,041,614	

The comparative profit and loss account of the company for 1879 and 1880 is as follows:

	1879.	1880.	Differences.
To coal on hand December 31st, 1878	\$673,651	\$535,264	\$138,387
To mining coal	3,038,893	3,171,369	*167,476
To transportation	641,951	596,827	45,124
To freight of coal and canal expenses	533,768	801,306	132,462
To Rondout expenses	117,636	120,934	*12,298
To freight paid other lines	712,790	637,005	75,785
To taxes	206,071	181,078	24,093
To salaries, rent and miscellaneous and law expenses	144,845	141,350	3,486
To harbor and yard expenses		43,241	*43,241
To interest	1,234,440	1,343,973	*109,524
To loss on leased lines	316,059	14,642	301,417
To balance		1,351,422	
<b>Total</b>	<b>\$7,985,118</b>	<b>\$8,948,327</b>	

\*Increase

	1879.	1880.	Differences.
By sales of coal to December 31st, 1879	\$5,764,477	\$7,210,524	\$1,446,047
By canal tolls	41,025	42,810	1,785
By net earnings, Pennsylvania Railroad	595,663	561,948	*33,715
By interest on investments	326,635	312,243	*14,392
By miscellaneous profits	88,668	93,516	4,848
By coal on hand December 31st, 1879	535,264	727,283	*192,019
By harbor and yard expenses	2,740		2,740
By balance	\$630,643		
	7,985,118	\$8,948,327	

\* Decrease.

*The Delaware, Lackawanna & Western Railroad Company's Statement for 1880.*—At the annual meeting of the stockholders of the Delaware, Lackawanna & Western Railroad Company, which was held February 23d, the following managers were elected to serve for the ensuing year: William E. Dodge, Moses Taylor, George Bulkley, John I. Blair, George Bliss, Percy R. Pyne, William Walter Phelps, Wilson G. Hunt, Benjamin G. Clarke, E. W. Holbrook, E. S. Higgins, Jay Gould, Sidney Dillon, Russell Sage. Changes in the management include the retirement of S. B. Chittenden, A. L. Bennett, and William Kyle, whose places are taken by Jay Gould, Sidney Dillon, and Russell Sage. The executive officers are: President, Samuel Sloan; Secretary, Frederick F. Chambers; and Treasurer, Frederick H. Gibbens. The following statement of the operations of the past year was made:

	1879.	1880.	Differences.
Earnings:			Increase.
Transportation and coal	\$19,050,469	\$21,257,891	\$2,207,422
Miscellaneous	1,176,238	398,713	*777,525
<b>Total</b>	<b>\$20,226,708</b>	<b>\$21,656,604</b>	<b>\$1,429,896</b>
Expenses:			
Transportation and coal	15,598,493	15,437,060	*161,433
Miscellaneous	817,757	316,073	*501,684
<b>Total</b>	<b>\$16,416,256</b>	<b>\$15,753,133</b>	<b>*\$663,122</b>
Balance, net earnings	\$3,810,451	\$5,903,471	\$2,093,020
Deduct interest and rentals, including payments due January 1st	3,624,430	3,627,381	2,951
<b>Profit for year</b>	<b>\$186,021</b>	<b>\$2,276,089</b>	<b>\$2,090,068</b>
Capital stock	\$26,200,000	\$26,200,000	
Bonds	5,887,100	5,677,900	*\$209,200

\* Decrease.

*The Iron Industries of the Philadelphia & Reading Railroad.*—So much has been written about the Philadelphia & Reading Railroad of late that it would seem as though nothing new could be said. In referring to the resources of the road, the anthracite coal interest has received so much of the attention bestowed that other features have naturally fallen in the background. The extent and character of the iron industries of the road are much greater than we had supposed, and a résumé of them will probably surprise many of our readers. As we rode in the cars up the Schuylkill Valley a short time ago, we were impressed by the succession of furnaces, rolling-mills, etc., and by the amount of ore, limestone, rails, bars, and pig-iron which we encountered in transit, not to speak of the long trains of anthracite coal following one another. These suggested inquiries as to the number of iron-works along the road, but we were unable to obtain the desired information, so we set about solving the problem by the aid of a map, Mr. Swank's admirable directory of iron-works, and our own limited knowledge, supplemented by verifications obtained wherever possible. We present below a recapitulation of what we determined must be of interest to all who are connected with the iron trade, and for convenience, we divide the subject into sections.

**1. Ore and Flux.**—As the Philadelphia & Reading is primarily a coal road, we confess to surprise upon learning how much iron ore is found in the territory covered by its various branches. Hematite ore is extensively mined on the main line, Bethlehem, East Penn, Lebanon Valley, and Columbia branches, and considerable deposits of magnetic ore occur along the line of the two last named, of which Cornwall is the most noted. Probably 250,000 tons of ore are mined at the Cornwall ore banks annually. Flourtown on the Bethlehem branch, Alburtis, Emaus, Topton, and Fleetwood, on the East Penn branch, are large shipping points, and considerable amounts of ore are raised near Conshohocken, and back of Phoenixville and Pottstown. At Danville, on the Catawissa branch, fossil ores are extensively mined. The limestone of the Schuylkill and Lebanon valleys furnishes excellent flux in abundant quantity. There is, therefore, good reason for the Philadelphia & Reading Railroad being not only a coal-road, but also one with many and varied iron industries.

**2. Blast-Furnaces.**—There are in Pennsylvania 156 completed anthracite furnaces. Of this number, there are 65 on the line of the Philadelphia & Reading having to depend solely on this railroad for supplies of ore, flux, and fuel, or for transportation of product. The aggregate capacity of these furnaces is 651,300 net tons annually. There are also three uncompleted stacks and two new furnaces building. These will add 75,600 tons to the output when finished, giving a total of 826,900 net tons. There are also 37 furnaces on the line of the Philadelphia & Reading, or connected with its tracks, which also have the advantage of connections with other railroads, as at Harrisburg, Philadelphia, Bethlehem, Danville, etc. These furnaces can produce 410,700 net tons per annum, and the completion of three new stacks will augment this to 461,000 net tons.

The Philadelphia & Reading Railroad therefore will furnish all the transportation (A) for 70 anthracite furnaces, with 826,300 net tons capacity, and (B) a part at least of the transportation for 36 anthracite furnaces, with 461,000 net tons capacity. In these estimates, furnaces close to the line of the Philadelphia & Reading Railroad, but not directly connected with it, as those near Allentown, Columbia, etc., are not included, but such furnaces were grouped in another class (C), and we found that besides the above there were 24 anthracite furnaces, with an aggregate annual capacity of 215,200 tons, all within distances less than five miles of the Philadelphia & Reading Railroad, but not connected with its tracks except by lines of other rail-

roads. Mr. Swank gives as the capacity of the 226 blast-furnaces tabulated as "anthracite," 2,600,000 net tons. The Philadelphia & Reading tracks are therefore connected with furnaces having 48 per cent of the total capacity of the anthracite furnaces of the country, and other furnaces representing 8 per cent of the total output may fairly be assumed as contributing to the business of the road. What this business amounts to, is a matter of interesting calculation. It is fair to assume that the average material required to make a ton of pig-iron in these furnaces is 2 1/2 tons ore, 1 1/2 tons anthracite, 0.9 ton limestone. As some of the ore and flux obtained adjacent to a few of the furnaces does not pass over the railroad, we may safely count on at least 4 1/2 tons of raw material as freight being required for each ton of pig-iron. Assuming that all the materials are transported for Class A, the furnaces which have no other railroad connection, that one third of the materials for furnaces on the road but having other connections are carried, and that the furnaces connected with the road from other lines transport over it one eighth of what is required, we have the following aggregate:

A. Capacity of furnaces on Philadelphia & Reading Railroad	826,300
B. 1/3 capacity of furnaces on Philadelphia & Reading Railroad, but having other connections (461,000 tons)	153,700
C. 1/8 capacity of furnaces within five miles of Philadelphia & Reading Railroad (215,200)	26,900
<b>Total</b>	<b>1,006,900</b>

which, multiplied by 4 1/2, gives an aggregate of 4,480,980 net tons of freighting for blast-furnaces alone. But to this should be added the pig-iron transported from the furnaces. Some of the product is consumed in mills connected with the furnaces, but presumably 820,000 tons are carried by the railroad. This augments the traffic to 5,301,000 net tons per annum. But as all furnaces are not running at one time, or not working full capacity, we may safely consider that the Philadelphia & Reading Railroad obtains 4,000,000 tons of freight annually on account of the blast-furnaces with which it is connected.

In addition to the above, 18 charcoal blast-furnaces, with an aggregate annual capacity of 25,000 tons, transport their product and a part of the raw materials over this road.

**3. Rolling-Mills.**—We attempted to follow up the same course of calculation as to rolling-mills and steel works, but to simplify the data was found to be very troublesome, as such a variety of products was produced. We, however, found that the tracks of the Philadelphia & Reading Railroad reached about 70 mills, equipped with over 1000 heating, puddling, and melting furnaces, with an annual capacity of 850,000 net tons of product, passing through 230 trains of rolls. Now, if we could get at the amount of freight which these mills give to the railroad, we should have another large sum to add to the above aggregate; and this would be still further augmented by the foundries, machine-shops, forges, and other industries. A road with such a trade accessible is in position to foster and encourage its iron work, so that those now in existence may enlarge their plants and that new establishments may be constructed.—*American Manufacturer.*

**DIVIDENDS.**

**OFFICE OF THE GREEN MOUNTAIN GOLD MINING COMPANY, OF CALIFORNIA.**  
No. 18 Wall street, New York, Feb. 14, 1881.

DIVIDEND No. 20.

The Board of Trustees have this day declared a dividend of 10 cents per share for the month of January, on the capital stock of this company, payable on the 26th inst. Transfer-books close on the 19th, and reopen on the 28th of February. J. J. PARDLE, Secretary.

**OFFICE OF THE RISING SUN GOLD MINING COMPANY OF CALIFORNIA, No. 18 Wall Street, New York, February 15th, 1881.**

DIVIDEND No. 4.

The Board of Trustees have this day declared a quarterly dividend of FIFTEEN CENTS per share on the capital stock of this company for the quarter ending January 31st, payable on the 1st day of March, 1881. Transfer books close on the 23d inst., and reopen on the 4th of March, 1881. L. D. CORTRIGHT, Secretary.

SAN FRANCISCO, Feb. 15, 1881.

**THE FATHER DE SMET CONSOLIDATED GOLD MINING COMPANY** has declared Dividend No. 9 of TWENTY-FIVE CENTS PER SHARE, payable at the office of LAIDLAW & CO., 14 Wall street, New York, March 1, 1881, on all stock issued from the New York Agency. Transfer-books will close on the 19th inst. and reopen on the 2d March. J. B. HAGGIN, President.

**OFFICE OF THE STARR-GROVE MINING COMPANY, No. 2 Nassau street, corner Wall street, New York, February 16th, 1881.**

DIVIDEND No. 4.

The Board of Trustees have this day declared the regular monthly dividend of \$20.00, being ONE PER CENT ON THE CAPITAL STOCK of the Company, or TEN CENTS PER SHARE, payable on the 28th inst., at this office. The transfer-books will be closed from the 23d to the 28th, inclusive. JOHN R. BOWWELL, Secretary. WM. S. CLARKE, President.

NEW YORK, Feb. 2, 1881.

**IN ACCORDANCE WITH A RESOLUTION** of the stockholders of the New Jersey Iron Mining Company, dated March 20th, 1880, the Directors of the Company give notice that they are prepared to purchase a certain amount of the capital stock of the company, and will receive sealed proposals of sale specifying the price asked and number of shares offered until the 20th day of March, 1881, at 12 o'clock, m., when the same will be opened. All such proposals to be addressed to CARL VIETOR, Treasurer, 60 Leonard Street, New York.