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It will be seen by the letter of Prof. R. D. IRVING, published in another column, that he disclaims responsibility for the views of Mr. A. C. CAMPBELL, recently expressed in an article in this JOURNAL, on the iron and copper rocks of Lake Superior. We do not believe that Mr. CAMPBELL intended, by a reference to Professor IRVING, to claim by inference his indorsement. But there is no harm in correcting even a possible misconception. No doubt, in good time and through some appropriate channel, we shall learn whether Professor IRVING has any thing to add to the opinions heretofore expressed by him concerning the rocks in question.

EDITORIAL CORRESPONDENCE.

PHILADELPHIA, Feb. 16, 1881.

It is already evident, although the meeting of the Institute of Mining Engineers is but half over, that the climax of the career of the Institute thus far has been reached. No previous meeting—not even those which were held in the famous Centennial season—has equaled this one in the number of members present or of papers presented; and certainly it may be prophesied that this meeting will not be found to fall behind, even if it should not surpass, all its predecessors in social brilliancy and interest. The number of ladies attending the sessions and excursions is unprecedentedly large, and the members and ladies are all and always in the highest spirits.

The opening address of welcome delivered last night by Hon. WAYNE MACVEAGH, was a fine specimen of polished and graceful oratory. Mr. SHINN, after an appropriate acknowledgment of it, devoted his address as president to the material progress of the last five years in the professions and industries represented by the Institute. The brief session was brilliantly brought to a close by the epigrammatic paper of Mr. MOSES, and the following illumination of the rooms with EDISON lights.

The gentlemen's reception at the Penn Club occupied very delightfully the remainder of the evening, during which period, it is supposed, the ladies were engaged at their various hotels preparing for the campaigns and conquests of the following day. This morning, a large number of them took part in the excursion over the Philadelphia & Reading and

Pennsylvania railroads to the Pencoyd Iron-Works, Midvale Steel-Works, and other points. The musical reception given by the citizens of Philadelphia this evening was, however, the first great occasion on which the ladies came out in force.

Nothing can be better calculated for such a festive gathering than the building of the Academy of the Fine Arts. Convenient dressing-rooms, at the entrance, flank a staircase of truly palatial proportions leading to the suites of apartments filled with pictures and statuary. Abundant decorations of growing plants added beauty to the fine architectural effect of the hall, and an excellent band discoursed music until a late hour. The citizens of Philadelphia, to the extent of more than fifteen hundred, together with perhaps two hundred of the members and their ladies, filled, without crowding, the spacious corridors, sat conversing or listening to the music among the japonicas and azaleas, or studied the statues and pictures which afforded entertainment and instruction in the intervals of lighter amusement. Supper was served in the lower story, and midnight passed before the delightful assembly was over. It is safe to say that every body remarked on departing to every body else how perfectly splendid the whole affair had been; and we leave it to the mathematicians to reckon how many remarks of this kind must have necessarily been uttered, without taking into account a good many fellows whom we overheard saying that sort of thing over and over again to the same person.

Of papers read at the afternoon session to-day the most striking and novel, perhaps, were two, one by Mr. CHARLES H. MORGAN, of Worcester, Mass., the other by Prof. CHARLES O. THOMPSON, of the same place, and Dr. DROWN. Both papers referred to the improvement in the drawing of wire now in operation at the Washburn and Moen mills at Worcester, where salt with lime, etc., has been successfully employed as a lubricator or annealer. The process is not only most interesting and important industrially, but involves also, theoretically, explanations of physical phenomena of an exceedingly fascinating character. Of course, this part of the subject lost nothing in the skillful hands of Professor THOMPSON, who read the paper, in the authorship of which Dr. DROWN was associated with him.

Two papers by Mr. C. A. ASHBURNER and H. MARTYN CHANCE, the former on a new method of mapping the anthracite coal-fields of Pennsylvania, the latter on the construction of geological cross-sections, constituted a fresh addition to the valuable contributions already furnished by the members of the Pennsylvania Geological Survey to the literature of field geology.

The two papers of Mr. S. A. FORD, of Pittsburg, on a method for the estimation of manganese in spiegels, irons, and steels, and on the amount of manganese required to remove the oxygen in the Bessemer process, were excellent. The former particularly, if Mr. FORD's method proves trustworthy in practice (and on this point we understood Dr. DROWN to give it his indorsement), will furnish the Bessemer manufacturers a great desideratum. In these days, when the products of great plants are required to conform on a large scale, within narrow limits of variation, to fixed specifications as to quality, nothing is more important to the manufacturer than the shortening of all tests by which the exact constitution and character of materials and products can be ascertained. The delay involved in analysis by tedious methods is, in some cases, almost prohibitory of such analysis; and the chemist who brings forward a good, quick, new method renders a greater service than if he had discovered a rare new metal.

PHILADELPHIA, Feb. 17, 1881.

The hall of the Franklin Institute is crowded at this moment with members who are listening to Dr. DUDLEY's paper on the wearing power of steel rails. This subject possesses for railway men and manufacturers of rails an intense interest. Money as well as science is at stake. DUDLEY's advocacy of soft steel means business. His laboratory-work and his conclusions can not be disregarded while the great Pennsylvania Railroad Company stands behind him. Nor is there any disposition to underrate his ability and industry, or the conspicuous thoroughness of his investigation. But it is evident that his views will encounter a vigorous and searching debate—to the great advantage, in the end, of all parties.

After presenting the substance of his paper (a full printed copy of which is in the hands of every member), Dr. DUDLEY sits down amid cordial applause, and before the general debate begins, the well-known and well-beloved HOLLEY is called on for a paper of cognate character, on rail patterns. To have him among us alive and well, emerging as it were from the obituary mist of tears which has so lately surrounded him, is matter for universal joy; and the first sentences of his incisive, witty, and luminous paper satisfy all that his recovery of health has been complete. His sarcasms upon the weaknesses of railway engineers and managers not only arouse roars of laughter; each of them is an argument in a nutshell.

The venerable ASHBEL WELCH, formerly the president of the Camden & Amboy Railroad system, opens the debate. He reads deliberately an

distinctly. It is evident, however, that neither this nor any other of the speeches in this debate can be successfully reported. There are too many statistics and technics; and the average reporter, accustomed to condense in his own way the sentiments of diffuse orators, sits aghast as he hears the sentences flow on, incomprehensible, unreportable, and incondensable. Pencils are laid aside in despair. The public must wait for full particulars until the revised and complete publication of the debate shall present the views of each participant with perfect justice and fullness.

"Having heard from the consumers of rails," says President SHINN, "we will now hear from the producers, as represented by Mr. ROBERT HUNT."

Mr. HUNT's manner, as he rises to read his paper, means more than "business;" it means blood! His introduction is a smiling but vicious allusion to the possibilities of error in the determination of chemical constitution. But as he gets fairly into his subject, he drops satire and treats his antagonist with the unconscious respect bred of battle. The burden of his argument is, as in former debates, the greater importance of mechanical treatment in manufacture, as compared with small variations in chemical composition, and the difficulty of manufacturing sound steel ingots according to Dr. DUDLEY's formulas.

This is an affair of the Titans. The next name is that of WILLIAM SELTERS, who presents (also in writing; and the weighty theme and the critical audience forbid loose extemporizing) his suggestions, principally as to the most convenient and satisfactory tests. Without disparaging the chemist's part, he urges that the final tests applied by the consumer should be physical, since the use itself is physical. The manufacturer, on the other hand, must look to chemistry to help him produce the physical qualities demanded. He favors for rail steels a requirement of so much ultimate strength, coupled with so much ductility; and in addition a certain requirement as to acquirement of fatigue from shock. He does not know of any thing better at present in this line, than the drop-test.

Capt. W. R. JONES now arises, and "goes for" Dr. DUDLEY, in a way that convulses the crowded assembly. He asks that comparative tests be made, to prove the *data*, before the arguments based upon them be accepted. He questions the principle on which the selection of Dr. DUDLEY's samples was made, and with blunt but good-natured extravagance of language denounces his work as "unfortunately deficient and deplorably incomplete." DUDLEY stentoriously leads the laugh which greets JONES's declaration that chemists can't be trusted any how. Ananias was the father of chemistry!

WILLIAM METCALF, who follows, is the president-elect of the Institute. He contributes, as usual, valuable data drawn from actual contact with the facts. He does not think Dr. DUDLEY altogether right; but he can not think him altogether wrong; and on the great question of the correspondence between the chemical composition and the physical properties of steel, he defends the chemist from the stand-point of experience in crucible-steel. But he criticises the omission, from Dr. DUDLEY's analysis, of sulphur and copper.

We adjourn for luncheon, with the fight but half begun. \*

#### AMERICAN INSTITUTE OF MINING ENGINEERS—THE PHILADELPHIA MEETING.

The Institute held its ninth annual meeting this year at Philadelphia. The first session was opened in the Hall of the Franklin Institute at 7.30 P.M., on Tuesday last, the 15th inst. There was a larger attendance of members and associates than ever before, numbering over 150.

The meeting having been called to order by the President, WILLIAM P. SHINN, of Pittsburg, Prof. PERSIFOR FRAZER, of Philadelphia, introduced the Hon. WAYNE MACVEAGH, who delivered the address of welcome. In the course of his remarks, he expressed regret that Mr. JOHN WELSH, who had been selected by the Reception Committee to welcome the members of the Institute to Philadelphia, was unable to do so on account of his absence. The speaker gracefully acknowledged the honor done to Philadelphia by the Institute in selecting it as the place for the annual meeting, and said, "To what extent the mere material wealth of the country may be multiplied in the lifetime of the younger members of the Institute, it is beyond any man's capacity to prophesy. But that we are to continue prosperous, and more prosperous with each advancing year, seems to be as well assured as any thing in human affairs;" and ended by saying, "It only remains now for me to discharge the agreeable duty of expressing to you the good wishes of the entire community, and in the name not only of the Committee of Reception, but of all the citizens they represent, to bid you a hearty and cordial welcome to Philadelphia."

In reply to the address of welcome, President W. P. SHINN, in the course of his remarks stated that the first meeting of the Institute was held in Philadelphia in 1872, when at the beginning of that meeting it numbered 135 members. Since then, four meetings have been held in Philadelphia, and this was the opening of the sixth, and the Institute now numbered some 843 members. In a long and interesting paper, the president, who retires from office this meeting, reviewed the increase in the past five years, in mining and in the resources of coal, pig-iron, wrought-

iron, steel rails, the precious metals, and petroleum, and stated that no inconsiderable proportion of the increase in the railroad and Bessemer steel industries of the country was due to the Institute and its members. In conclusion, the president said: "I trust that my successor, five years hence, may be able to give as good an account of progress for the next five years as I have been able to give of the past five."

The following is the list of new members and associates, unanimously elected:

William F. Biddle, Philadelphia, Pa.  
A. T. Enos, Brooklyn, N. Y.  
Henry Roberts, Johnstown, Pa.  
J. Whitaker Wright, Denver, Colo.  
Henry P. Cooper, Parryville, Pa.  
A. J. Corey, Hancock, Mich.  
L. G. Emerson " "  
Ed. H. Lynde, Scranton, Pa.  
O. A. Moses, Menlo Park, N. J.  
E. C. Hegeler, LaSalle, Ill.  
H. N. Brinsmade, Lake Mahopac, N. Y.  
Lewis Stockett, Ashland, Schuylkill Co., Pa.  
F. G. Clemens, Lost Creek P.O., Pa.  
William H. Morris, Pottstown, Pa.  
Alexander Thomas, Boston, Mass.  
W. F. Robertson, Capelton, Quebec, Canada.  
John L. Thompson, " "  
Orleans Longacre, Irontown, West Va.  
John H. Clemes, Alamos, Sonora, Mexico.  
T. H. Graham, Candela, Coahuila, Mexico.  
L. M. Hooper, School of Mines, N. Y. City.  
C. B. Cohen, Salt Lake City, Utah.  
Ferdinand Ruttman, Brewster's Station, N. Y.  
Jules Naville, San Miguel, Colo.  
C. O. Lagerfelt, Reigelsville, Pa.  
J. H. Hammond, San Francisco, Cal.  
Charles O. Brown, U. S. Colombia, South America.  
C. P. Sandberg, London, Eng.  
S. G. Thomas, London, Eng.  
Charles Kennedy, Springfield, Ill.  
Dr. F. V. Hayden, Philadelphia, Pa.  
Prof. E. D. Cope, Philadelphia, Pa.  
N. Allen Stockton, Philadelphia, Pa.  
Henry S. Sterling, New York.  
Washington Jones, Philadelphia, Pa.  
William A. Leavitt, Philadelphia, Pa.  
David B. Lewis, Vulcan, Mich.  
George D. Bolton, Calumet, Mich.  
Horace Brock, Lebanon, Pa.  
Samuel Noble, Amiston, Ala.  
Leslie Warner, Chattanooga, Tenn.  
David Watts, Harrisburg, Pa.  
George S. Comstock, Mechanicsburg, Pa.  
Harry H. Campbell, Steelton, Pa.  
E. C. Felton, Steelton, Pa.  
John L. Kennedy, Rocky Mount, Pa.  
S. M. Prevost, Harrisburg, Pa.  
Spencer Meade, Harrisburg, Pa.  
Charles E. Pugh, Altoona, Pa.  
Robert E. Pettit, Altoona, Pa.  
W. Lesley Sheaffer, Pottsville, Pa.  
Joseph M. Knapp, New York.  
E. C. Jewett, Leadville, Colo.  
N. R. Wilson, " "  
W. W. Culbertson, Ashland, Ky.  
J. W. Revere, Boston, Mass.  
Percival Roberts, Philadelphia, Pa.  
F. P. Davis, Washington, D. C.  
A. E. Foote, Philadelphia, Pa.  
S. H. Chauvenet, Harrisburg, Pa.  
A. Fluemer, Cincinnati, O.  
J. C. Dods, Philadelphia, Pa.

#### ASSOCIATES.

Herman T. Vulte, New York.  
N. B. Walker, " "  
William Lorenz, Jr., Lebanon, Pa.  
J. Trowbridge Barley, Philadelphia, Pa.  
Prof. John Meigs, Pottstown, Pa.  
William A. Shepard, New York.  
Henry E. Wilson, Memphis, Tenn.  
C. W. Davenport, Lafayette College, Easton, Pa.  
W. H. Emanuel, " "  
Hermann A. Keller, Philadelphia, Pa.  
John H. Irwin, Morton, Delaware Co., Pa.

The president then introduced Mr. O. A. MOSES, of Menlo Park, N. J., an assistant to Mr. EDISON, who read an interesting paper, with practical illustrations, "On the Applicability of Edison's System of Electric Lighting to Mines," a digest of which we reproduce elsewhere. The president then announced that the following invitations and courtesies had been extended to the Institute: The use of the Franklin Institute Hall; an invitation from the Philadelphia Press to examine their new Bullock Printing-Press; and the proposition of the Baldwin Locomotive-Works to visit their shops at any time during the meeting.

Messrs. C. H. RAWLEY and H. MARTYN were appointed as inspectors for the election of officers for the ensuing year.

Mr. PERCIVAL ROBERTS, Jr., of the Local Entertainment Committee, explained the arrangements for the excursion on Wednesday, and stated that Messrs. A. WHITNEY & SONS had extended an invitation to visit their Car-Works. Mr. MILES also extended the same courtesy for the inspection of his Hammer-Works. This brought the first session to a close, and the members adjourned at six o'clock to a formal reception tendered by Prof. PERSIFOR FRAZER, at the Penn Club, where, in addition to the members of the Institute, the following prominent citizens were present: Gen. ROBERT PATTERSON, ELI K. PRICE, J. B. LIPPINCOTT, CHARLES CRAMP, Prof. SAMUEL GROSS, and others.

## NEW PUBLICATIONS.

REPORT ON THE GEOLOGY OF THE HIGH PLATEAUS OF UTAH, with Atlas. By C. E. DUTTON, Capt. of Ordnance, U.S.A. (Department of the Interior: U. S. Geographical and Geological Survey of the Rocky Mountain Region. J. W. POWELL in charge). Washington: Government Printing-Office. 1880. 307 pp., quarto. (Indexed.)

This report, transmitted through the Chief of Ordnance to the Secretary of War, by the Secretary of War to the Secretary of the Interior, and referred by the latter official to Major POWELL, at last sees the light as one of the volumes of POWELL'S survey, in connection with which its field-work was performed. It deals with a portion of the second of the three "provinces" into which POWELL divides the region between Denver and the Sierra Nevada, and between the 34th and 43d parallels of latitude. These are called the Park Province, the Plateau Province, and the Great Basin—names which sufficiently explain themselves to those familiar with mid-continental topography. In the Plateau Province, says Captain DUTTON, "great blocks of country have been lifted with a singular uniformity, with comparatively little flexing, and with little disarrangement, except at the fault-planes which bound the different blocks. \* \* \* This small amount of departure from horizontality of the beds as they now lie has played its part in the determination of the topographical features as they appear in the landscape, and justifies the name which has been applied to it with one accord by all observers—the plateau country."

This region, an area of about 9000 square miles, extending from a point about 15 miles east of Mount Nebo in the Wahsatch range, about 175 miles south-southwest, having a breadth varying from 25 to 80 miles, and occupying the central part of Utah, is the subject of Captain DUTTON'S report. An examination of it confirms the statement in the Preface, that stress has been laid upon a few subjects of inquiry. These have been discussed in a very clear and comprehensive style. The structure of the region, its systems of faults and upheavals, constitute one of these; and under this head the well-known views of Major POWELL, expressed in his *Exploration of the Colorado River*, find further illustration. It is, however, the volcanic phenomena to which Captain DUTTON'S attention has principally been given, and which furnish the theme of his most striking chapters. His treatment of the important questions of the order of succession of volcanic eruptions, the formation of conglomerates of volcanic fragments, the metamorphism of elastic beds derived from volcanic detritus, the localities of eruption, and the general theory of volcanism, affords both charming and instructive reading. He writes somewhat diffusely, and with a tendency to the use of long words; but he says exactly what he means. Long words are often necessary for accuracy in scientific statement; it is only when we find the prolixity without the precision that we feel seriously inclined to complain.

With relation to the classification of the volcanic rocks and their order of succession, Captain DUTTON accepts and confirms in the main the views of COTTA and RICHTHOFEN; and in his fifth chapter (*Speculations Concerning the Causes of Volcanic Action*) he presents a trial hypothesis, which seems to him "to explain the sequence in the eruptive rocks now testified to prevail generally throughout the Rocky Mountain region." We shall attempt such an analysis of this chapter as may indicate its scope and nature.

Disclaiming earnestly the intention of propounding a general theory of volcanism, Captain DUTTON discusses, nevertheless, "as partial constituents of a theory in a highly generalized form," certain considerations for which "existing knowledge may afford at least some justification." The first relates to the probable subterranean locus of volcanic activity. Adopting the familiar physical arguments against the "fiery-fluid" hypothesis of the earth's interior, and adding to these the indications of the local nature of volcanic eruptions—the differences in level and in other characters between neighboring craters and their lavas, or successive eruptions of the same volcano, etc.—he concludes that the facts cited are "inconsistent with the assumption that lavas are portions of a primordial, uncongealed earth-liquid, forming either a general fluid nucleus or extensive isolated vesicles." "They point rather," he says, "to many small reservoirs, situated at no very great depth, each of which contains not a primordial liquid, but a liquid secreted, so to speak, from surrounding rocks, or generated by a secondary and progressive fusion of solidified matter occurring in *macule* within the layer of the rocky envelope of the earth."

So far, Captain DUTTON simply states the views and grounds generally accepted by modern geologists. But, if we mistake not, the next argument with which he fortifies these views is to a considerable extent original. It consists in the comparison of metamorphic and igneous rocks as to chemical constitution, mineral components, and mechanical texture. Quartzites, crystalline limestones and dolomites, clay-slates, serpentines, chloritic and mica-schists there are, which do not correspond chemically with the eruptive rocks; but, on the other hand, the true gneissic rocks yield by mass-analysis practically the same results as granite, syenite, rhyolite, and acid trachyte; the hornblende schists agree with the diorites, propylites, and hornblende trachytes; and the more basic (sometimes augitic) schists represent diabase, dolerite, and

augitic andesite. The inference is, that these crystalline schists might, by re-fusion, produce the corresponding eruptive varieties.

With regard to mineral components, the two classes of rocks present in common those species which appear to crystallize indifferently at high or low temperature, such as feldspar, mica, hornblende, while the metamorphic rocks abound in low-temperature minerals (quartz, chlorite, zeolites, certain micas), and the eruptives in high-temperature minerals (leucite, nephelin, olivin, and, less decidedly, augite). In texture, on the other hand, as resulting from the mode of aggregation, the two classes differ radically. The metamorphics either retain their foliation, or present a mass of interlocked crystals, without the non-crystalline base, which is characteristic of the volcanics. Yet there are rocks exhibiting transitional forms in this particular, such as porphyries with micro-crystalline base.

Captain DUTTON points out that the most refractory metamorphic or sedimentary strata are the very ones which have no correlatives among the eruptives. The volcanic heat appears never to have been greater than that required to melt the most refractory rhyolites; since these rocks bear strong evidence that at the time of eruption they were barely fused, while basalts (more fusible because more basic) frequently indicate super-fusion. Quartzites, dolomites, etc., may on this ground be pronounced non-eruptible, because, under the conditions given, infusible. And the formation of volcanic rocks by the re-fusion of the more complex strata, containing in themselves the necessary ingredients of slags, is, as an hypothesis, rather strengthened than impugned by these exceptions.

But our author now argues that it is not probable that all eruptive rocks are derived from the fusion of metamorphics, because the vast accumulation of sedimentary strata could only have been effected by successive exposures, through extravasation of primal material, of fresh masses for the action of disintegrating and distributing agencies. This process he thinks may still be going on, as it is highly improbable that "the body of stratified rocks is no longer increasing, but the revolutions of time are simply working over the stratified rocks again and again." And he continues: "But if it is probable that some of the lavas have emanated from primordial rocks, what are they? There is one great group of lavas which quickly furnish ground for suspicion."

The group to which he refers is that of the basalts, which correspond chemically, except in their high proportion of iron oxide, with what is roughly estimated to be the average constitution of all the stratified rocks taken together, while they do not correspond, as do the other eruptives, with any known and abundant single metamorphic species.

The next question is that of the dynamic cause of eruptions. We can not quite agree with Captain DUTTON in refusing to accept the access of water to the locally heated materials as a sufficient proximate cause of explosive energy. But we will not pause to discuss the point, since, after all, it remains true, that there must be heated materials; and if these are not part of a general fused or superheated earth-interior, how can they have come into the state (whatever it be) which would permit their eruption as lava? There are two classes of hypotheses. The first regards the heat of the rocks as residual, and assumes that by relief of pressure or by absorption of water at high pressure, or by some other cause, their melting-point, rather than their temperature, has been changed. The relief of pressure by denudation is the agency made by CLARENCE KING the basis of his theory, which Captain DUTTON rejects, we think upon good grounds, as inadequate to a general explanation of observed facts. Volcanic eruptions do not appear to be or to have been connected characteristically with regions of the greatest denudation. The second class of hypotheses requires a local rise of temperature in the rocks to be erupted. As to the cause of this rise of temperature, Captain DUTTON declares that all his efforts to find an explanation have utterly failed. He does not even say on what grounds he rejects those which have been suggested by others. We remember that he has, on a former occasion, forcibly controverted the mechanical theory of MALLETT; but we do not recall any similar argument on his part against FISHER'S ingenious proposition concerning the emission from the earth's deeper interior of superheated gases; and we are still more at a loss to know why, in his complete despair of any better solution, he should entirely disregard the ordinary chemical theory, according to which the earth consists of an oxidized crust and an unoxidized interior, and the local access of oxidizing agents (water and air) to unoxidized material produces an increment of temperature. It is true that attempts to particularize this process have failed; but to speak in what Captain DUTTON calls "a highly generalized form," what better elements can he ask for the required liberation of heat than fuel and its combustion?

On the mechanics of eruptions, and particularly the quiet flow of lava, without explosive force, our author's suggestions are admirable, and carry conviction with them. He thinks the lavas are "pressed up by the weight of the rocks which overlie their reservoirs," through any passage where they can find vent. It follows that lava which thus reaches the surface must be specifically lighter than the rock above its reservoir.

This leads to the most subtle and original of Captain DUTTON'S arguments. Starting with the propositions, that lava must be fused;

that it must be less dense than the overlying rock; that the acid rocks have the highest fusion-point, but the basic rocks, when cold, the highest specific gravity; and consequently, that a rock light enough for eruption at an early stage of the process of superheating might not yet be fused at that stage; and *vice versa*—and making some not unreasonable assumptions of constants as yet unascertained with precision, he presents a beautiful and plausible theory, built of these elements alone, and accounting with a considerable degree of completeness for the observed succession of volcanic rocks. Future contributors to the literature of this interesting and obscure subject will certainly not be able to disregard the work of Captain DUTTON.

We can give no further space to this volume; but we heartily commend it as a valuable aid to students, and as an excellent model to the makers of books.

A word or two should be given to the Atlas, which is finely planned and executed. Besides contour and geological maps, it contains a relief map and a stereogram, which are very useful in representing the structure and its relation to the topography. There are some very good heliotypes, let us add, in the volume of the report itself. \*

#### CRUDE MINING LEGISLATION IN NOVA SCOTIA.

A short time ago, we referred to late injudicious alterations in the mining laws of Quebec. These seem not to be the only unwise interferences with mining by local legislatures in Canada. Our attention has been directed to an amendment to the Nova Scotia law. The rule lately changed was a copy of the carefully considered English law, and read as follows:

"An adequate amount of ventilation shall be constantly produced in every mine to dilute and render harmless noxious gases to such an extent that the working places of the shafts, levels, stables, winzes, sumps, and workings of such mine, and the traveling roads to and from such working places, shall be in a fit state for working and passing therein."

This rule, if enforced, should be sufficient; but the law-makers of Nova Scotia, looking rather to having laws on their statute-books than to the enforcement of existing laws, struck out this rule, which applied to every class of mines, gold, coal, iron, etc., and substituted the following:

"In every coal or coal ironstone mine (*sic*), the ventilating current or currents shall supply not less than one hundred cubic feet of air per minute for each and every person employed underground, and the ventilation of the working places of the shafts, levels, stables, winzes (*sic*), sumps, and all traveling roads, shall be maintained in a fit state for working and passing therein; and in the case of every coal or coal ironstone mine (*sic*) giving off inflammable or noxious gases, such larger quantities of air must be circulated as may be necessary for the proper dilution and removal of said gases."

This amendment leaves it optional with the gold or iron miner to ventilate his workings or not, as he pleases, a matter perhaps of no great moment in the small mines of Nova Scotia. But the rule is positively mischievous in its relation to coal mines. The mere naming of a definite quantity of air, which may be insufficient, gives a false sense of security, and on that ground alone is objectionable. Further, since the law of Nova Scotia includes in the term "mine" all classes of mining operations, shafts and levels, it follows that shafts in the course of sinking must, under this amended law, have an air-current in proportion to the number of sinkers. The mischievous character of this legislation is at once apparent to practical men. For example, in the case of sinking in wet ground in the winter season, with say eight men on a shaft, the consequent amount of ice produced by such an air-current would be positively dangerous, and might render the progress of work impracticable; while the danger against which the law is supposed to provide protection might not, and in most cases would not, exist under such circumstances; yet the law framed and passed by men ignorant of mining must be obeyed, or the law, as a whole beneficial, brought into contempt.

The term, "coal ironstone mine," we have not met before, not even in the lucid mining reports of the famous McANDREW. Can the framer of the amendment have had in his mind a "clay ironstone mine," of which we have heard in England, but not in Nova Scotia? Doubtless, also, the term "winzes," hitherto unknown in coal mines, is current in the "coal ironstone" mines of Nova Scotia.

It is to be hoped that this exposure of legislative jumbling will shame Nova Scotia's law-makers from making, in future, hasty, crude, useless, and mischievous alterations in their mining law. H.

#### THE COPPER AND IRON-BEARING ROCKS OF LAKE SUPERIOR.

EDITOR ENGINEERING AND MINING JOURNAL:

A recent issue of your paper contains an article on the iron and copper rocks of Lake Superior by Mr. A. C. Campbell, who, during the summer and fall of 1880, was one of my assistants in the collection of data for the United States Census in the Lake Superior region. Mr. Campbell has used my name in such a way that indorsement of his very extraordinary views and authorization to publish them, on my part, might reasonably be inferred. But the inference would be very remote from the truth, since both views and publication were a complete surprise to me. I send this communication to you in the hope of counteracting any impression to the contrary that may have been made. R. D. IRVING.

MADISON, WIS., February 1st.

#### PASSENGER vs. FREIGHT TRAFFIC AS A SOURCE OF RAILROAD REVENUE.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: A writer has to contend with serious disadvantages in taking part in a controversy from the opposite shore of the Atlantic. Inability to revise what has been written, when set up in type, is in itself a serious drawback. The loss of interest occasioned by the long interval between question and reply is another. But notwithstanding these and other inconveniences, the candid and courteous manner in which Mr. Fink has replied to my letter in the JOURNAL of December 11th last, leads me to hope that good may result from my efforts, as the subject is one of cardinal importance to all persons interested in railroads.

It is a much greater satisfaction to me to agree with than to differ from a gentleman of the eminent ability of Mr. Fink. But we have many points on which we are in accord. His remark (*Cost of Railroad Transportation*, p. 40), "the truth is, that the people of this country are furnished with transportation for less than its cost, at the expense of the owners of railroad property," expresses exactly my own views with regard to the conveyance of minerals at all events in England, on main trunk passenger lines of railroad. Although we approach the subject from very different points of view, I hope that we shall finish by complete accord.

I am fully contented with the paragraph in Mr. Fink's letter with regard to the effect of speed on a way in good order, and also with the statement that "the additional cost due to speed" (I should add, "or to weight") is the greater, the more imperfect the roadway and track. But as to the impossibility of being able to ascertain the influence of speed on cost, I have again to call attention to the careful analyses of Herr Szabo. The assumption to which I object, as contrary to such evidence as we have, is, "that the wear of one gross ton of a passenger train moved over the iron at double the speed of a freight train is equal to the wear of two gross tons of a freight train." (*Cost of Railroad Transportation*, p. 16.) Mr. Fink now admits that on a smooth track this cost would be "regardless of speed." This is all for which I contend. On a way that is not smooth, however, we seem to be as yet without data to show how far, if at all, this elementary mechanical rule is modified by a hammering action.

With regard to the total cost of maintenance of way, I agree that the items 4, 5, 9, 10, 11, 12, and 13 are not appreciably affected by the weight of the trains. Neither do I consider them part of the "maintenance of the way." I regard them as going to make up the item of "maintenance of line," which primarily takes the form of an annual expense, and is only brought into relation with work done by some such formula as that given by Mr. Fink, on page 48 of his already cited pamphlet.

But with regard to items 1, 2, 3, 6, 7, and 8, they seem to me to rank materially with 14 and 15, forming together the item "maintenance of way." Of course, ballast and sleepers are affected by weather, and by the condition and magnitude of the works of a line more sensibly than are the metallic portions of the way. But it is within my own experience that their cost is very directly influenced by the volume of the traffic that goes over the line, that is to say, by the weight of the trains. I can see no reason for distinguishing the incidence of these items. If we were to rank them as "maintenance of line," the change would not be to the advantage of the slow traffic, as will soon be seen.

The working costs of a railroad (exclusive of interest of money, as to which I think the American method of calculation far preferable to the English method) are divisible into three categories. These are:

1. Expenses in proportion to the work done; that is to say, to the gross weight transported, multiplied by the distance for which it is transported.
2. Expenses in proportion to the time occupied; that is to say, inversely as the speed.
3. Expenses in proportion to the resistance overcome in doing the work; that is to say, to the inclines and the speed (we may add to the bad condition of the way).

Under the third category rank the price of fuel, etc., and probably the cost of locomotive repairs.

Under the second category rank the wages of engine-men and train attendants, and the maintenance of way.

Under the first category rank all other expenses.

On the railroads of the United Kingdom, the proportion of these three categories is, on the average: 1 = 63 per 100; 2 = 19 per 100; 3 = 18 per 100. For a given load, the expenses (1) are constant; (2) diminish as the speed increases; and (3) increase with the speed, but in a higher proportion. No data have been collected from which to ascertain the mean speed of the English railroads. For the purpose of comparative estimate, I have taken it at 25 miles per hour, and my calculations are liable to some correction if this be too high.

With that reserve, it will be found that the cost of a speed of 25 miles per hour is almost exactly the same as that at 30 miles per hour, the variations in items 2 and 3 counterbalancing one another. Calling this cost 100, the cost of running at 15 miles an hour will be 109 (= 63 + 16 + 30), and that of running at 60 miles per hour will be 117 (= 63 + 47 + 7).

It is obvious that the removal of any item from category (1) into category (2) will show a further economy in higher speeds.

It must also be borne in mind that the calculations are for sustained speed. If a speed between stations of 15 miles an hour be made up by running at 25 miles an hour, with intervals of delay, the cost mounts up to 112 instead of 109.

I agree with Mr. Fink that "the measure of the full capacity and usefulness of the road to the proprietors would be the total number of trains that could be run over the road," with the addition of the words, "of a given earning capacity." To this consideration, moreover, has to be added that of the weight of the trains, or the amount of damage caused to the line by their passage.

I also fully agree that "it is the interval at which trains can be safely run apart that determines the ultimate capacity of the road." But our experience in England is not to the effect that "the greater the speed, the greater should be the interval." On the Metropolitan District Railroad, the average interval between trains in 1879 was five minutes, but the speed attained was 45 miles an hour. The truth is that, while the earning capacity of the working stock is directly in proportion to the speed, the earning capacity of the line depends not on the velocity, but on the homogeneity of the traffic.

This is matter of demonstration. Let us call the interval between trains,  $i$ ; the length of run between stations, or points where a swift train can pass a slow train,  $d$ ; the speed of slow and fast trains,  $t$  and  $t'$ ; and allow  $c$  as a constant for the least interval that can be allowed. We then have the following equation:

$$i = c + d(t-t').$$

As an example, let us take the case of the London & Northwestern Railroad, before the recent quadrupling of the line. Here  $d$  had been reduced to 7.5 miles. Allow  $c = 5$  minutes;  $t$ , a slow train, at 15 miles per hour = 4 minutes;  $t'$ , a fast train, at 45 miles per hour = 1' 20", and we find that the least interval at which the trains can be run is 25 minutes, instead of 5.

It would be possible to run a train every 5 minutes, either at the speed of 15 or at that of 45 miles an hour. But the moment we attempt to do both, we diminish the capacity of the line for traffic by five-fold.

I spoke of looking at this question from a different stand-point from that of Mr. Fink. What I mean is this: To insure the greatest degree of economy in the working of any given line, nothing can be of more value than the minute analysis entered into by that writer. But my object is to show that railroad transport can not economically compete with water transport for objects which can not afford to pay extra for extra speed. For passengers, time is money. Passenger traffic has therefore spontaneously come on every railroad, as soon as opened. For mineral transport, time is of little importance. All sorts of illegitimate means have therefore been adopted by railroad companies for obtaining a traffic which they would have been better without.

For a long time I was alone in the English press in maintaining this view. In 1877, the commissioner of the New South Wales Railroads drew up his accounts in the form that I had proposed, and the official returns show the disproportionate cost of the mineral traffic. The French government have now so wholly adopted my views that they have obtained the sanction of the Chambers to the expenditure of \$240,000,000 (two hundred and forty millions of dollars) for the completion of the internal navigation of France, on the express ground that minerals can be conveyed by canal for less than half the cost of their transport by railway.

I am convinced that it is only a question of time how soon the able engineers and statisticians of the United States will do justice to my arguments. They are based on mechanical law; they are verified by incontestable data; they are acted on by a great nation at an enormous outlay; and they aim only at the welfare of the nation. I am, sir, your obedient servant,

FRANCIS R. CONDER.

GUILDFORD, Jan. 24, 1881.

P. S.—The length to which this letter has extended compels me to defer to some other occasion the general mathematical statement of the railroad problem.

F. R. C.

#### NORTH SHORE OF LAKE SUPERIOR.

##### EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Will you kindly correct, in your columns, a misstatement which has probably carelessly crept into the letter from the North Shore of Lake Superior, signed Charles A. Everitt, and published on page 112 of your last issue?

The passage referred to says: "The Duncan mine is owned principally in Bo-ton, and the gangue now taken out resembles very much the Silver Islet vein. This property was examined by Mr. John C. F. Randolph, of New York, and his report was favorable. He pronounces it a counterpart in all of its characteristics of the Batopilas mine, in Mexico, and is very sanguine of its ultimately proving to be equally valuable."

The writer labors under an evident misapprehension, as I have never examined the property in question, nor have I any special knowledge concerning it. Although several times asked to visit the North Shore of Lake Superior professionally, my engagements have never as yet allowed me the opportunity of so doing. With Batopilas, Mexico, I am, of course, exceedingly familiar, having spent all of last year and part of the preceding one in that locality, examining and advising on various mining properties. In several reports on Batopilas by me (some of which were printed for private circulation, and some of which still remain in manuscript), the statement was made that in but one other locality in the world were found calc-spar veins in the diorite carrying native silver, and that the ores were not there as rich and abundant. Reference was, of course, made to the North Shore of Lake Superior and Silver Islet.

Yours truly,

JOHN C. F. RANDOLPH,

Consulting Mining Engineer.

NO. 35 BROADWAY, NEW YORK, Feb. 14.

#### LABOR TROUBLES.

THE HAMPTON MINES, PA.—The trouble in the Hampton mines, in Wilkesburg, about a pit-boss, wound up on the 12th inst., in discharging 500 miners. They say that if the owners of the mines put other men in their places, they will give trouble.

TRIED FOR CAUSING A STRIKE.—D. R. Jones, General Secretary of the Coal Miners' Association, who has been on trial at Greensburg, Pa., for conspiracy in inducing the miners of the Waverly Coal Company to strike, was this evening (February 14th) found guilty.

THE COLLIERY STRIKES IN ENGLAND.—From London, under date of February 13th, we learn that there are now 35,000 colliers on strike in South and Southeast Lancashire, and the number increases daily. A dispatch, dated February 16th, says that, if the strike of the colliers in South Yorkshire lasts another fortnight, it will affect twenty thousand men. The greatest destitution prevails.

PORTABLE STAMP-MILL.—One of the things desired for a long time by mining men has been a small portable stamp-mill for prospecting purposes—one in sections that could be easily carried by mules over a country inaccessible by road or rail, and worked by mule-power or by hand. Messrs. Ribon & March, mining and mechanical engineers, claim to have fully met this want by their California Stamp-Mill. See their advertisement in this issue.

#### THE VENTILATION OF FIERY MINES.

Written for the Engineering and Mining Journal by A. Wasmuth, Mining Engineer.

Fire-damp occurs in the coal-measures and coal-seams, and most abundantly when the coal-formation is overlaid with more recent rocks. Having a specific gravity of 0.5, it naturally tends to occupy the upper parts of workings.

According to local circumstances or ruling custom, a coal-bed is laid out for extraction either lengthwise, that is, in the direction of its longer dimension or course, or sidewise, that is, upward on the dip toward the outcrop. A modification of the latter is the diagonal arrangement, employed in certain cases to secure the most favorable grade of inclination and to utilize the joints or partings of the coal.

Whichever method is chosen, the first requirement of ventilation is to deliver good air at the working-faces; and this is imperative when the mine is fiery.

In the first system of extraction, the fresh air is conducted, first, into the lower workings, and thence through air-shafts or bore-holes to the upper workings in succession.

In the second system, a separate air-heading is driven parallel with the main gangway, and from this, by means of special air-ways or boxes, a separate current is conducted to each breast or group of breasts.

In the third system, the ventilation may approach, according to circumstances, either of the foregoing. In general, it may be said that combinations of the different plans of ventilation are more common than combinations in one mine of the different systems of extraction.

The specific levity of fire-damp makes it necessary that airways in fiery mines should be carefully constructed and maintained air-tight, to conduct fresh air to the workings.

Under the first system above named, the fresh air, penetrating to the lowest working-faces, takes up the mine-gases, ascends through an airway (not too far in the rear of the workings) to the faces above, and so on to the final upcast and exit. It should be remarked, that the necessary condition of a lively current is the establishment in the upcast of a column of air rarer than the mine-gases. This may be done by heat in the upcast, or by mechanical (blowing or exhausting) ventilators, etc. Concerning the best method of effecting it, opinions have widely varied. It is, however, safe to say that exhaust-fans can be run with less expenditure of power for a given effect than blowers, and that the rarefaction of the ascending column, aided by the heat received by the current in its passage through the workings, can be more rapidly effected and uniformly maintained. The change of atmospheric temperature in the summer time has no great effect in deep mines.

Under the second system of extraction, the air-course is largely formed by means of wooden brattices and weather-doors. This involves much care and expense. The stoppings must be placed near the working-faces; otherwise the air-current, taking the shortest way, will escape without penetrating to the faces and removing the accumulated foul or dangerous gases. In most cases under this method of ventilation, even when the mine is but slightly fiery, the presence of fire-damp can always be detected in the upper corner of the workings, where the face and roof join.

Since a frequent opening of the weather-doors is unavoidable, and it may happen through carelessness that several doors remain open for some time, it follows that the regular ventilation is subject to hindrance or cessation. The workmen, more or less removed from the doors causing this irregularity, frequently do not at once notice the interruption or diminution of the air-supply and the consequent accumulation of fire-damp or its explosive mixture with air over their heads, until a casual light or the firing of a blast causes an explosion. The disaster is greater or smaller according to the duration of the interruption, and the amount of the resulting accumulation. A moderately strong explosion, destroying the weather-stoppings in the vicinity, still further interrupts ventilation, and occasions additional danger, besides requiring great expense and time for the restoration of a normal condition.

The advantages and disadvantages of the ventilation connected with the third system of extraction vary according to the dip of the seam and the diagonal angle of the breasts, and approach the conditions either of the first or of the second system.

In order to conduct the air-current to the working-face as rapidly and cheaply as possible, the experiment has been tried in some districts of making the brattices and stopping of linen soaked in tar.

It follows that the presence of fire-damp renders the operation of a colliery more expensive and less profitable. To a regular increase of current expenses must be added the occasional interruption of production, loss of life, and the costs of restoring the normal ventilation after explosions.

Science has busied itself perseveringly to find the means of preventing these explosions, but so far without success. The largest number of experiments have been directed to the point of constructing safety-lamps in such a manner that they can not be opened by the workmen without being extinguished. This means, however good in itself, would not be an adequate protection.

The majority of explosions occur, as is well known, through the careless opening of the lamps, the firing of blasts, or the use of lucifer matches in the mine. In most cases, the means of maintaining a rapid circulation of air are at hand, and yet heavy explosions occur.

It is probable, however, that in many instances the amount of the air-current, although theoretically able to neutralize the fiery gases, is not great enough to take up and remove them from the mine as rapidly as they are generated.

Moreover, the artificial ventilation should correspond as nearly as possible with the natural air-currents which would be established without mechanical aid. These considerations are as important as those which concern the opening of lamps or other use of fire.

It can scarcely be said in which coal district the dangerous gases are most abundant.

The number of explosions is not a reliable indication of the amount of gas; or we may well conclude that a reduction of this number in any district gives proof of improved ventilation methods.

It is not sufficient to have machinery in abundance if any fundamental condition is lacking in the place of ventilation; and the one funda-

mental condition may be expressed as the proper adaptation of the system of ventilation to the system of extraction. In laying out a deep coal-mining operation, the ventilation should be made a chief factor in the choice of the system of extraction, and under all circumstances should be continually kept in view.

The consequence of a mistake in this particular may be connected with far greater expenses than the original establishment of proper conditions. The incidental economies of a suitable system are manifold. A fiery mine, securely and abundantly ventilated, can command labor at a lower price. In the long run, considerations of economy as well as humanity recommend the establishment in advance of thorough protection.

This subject is now assuming, with the increase in depth of the coal mines of many countries, a special and pressing importance. The recent report of a Belgian commission on the subject, and other voices from many quarters, as well as the frequent reports of disastrous colliery explosions, call for a careful study, in which all mining engineers should co-operate, of the facts and their relations, especially with respect to the question whether predominant systems of extraction are not largely connected with the increase of this peril.

#### ON THE APPLICABILITY OF EDISON'S SYSTEM OF ELECTRIC LIGHTING TO MINES.\*

By O. A. Moses.

After stating that Sir Humphry Davy himself, in a paper read before the Royal Society, said, "If it be necessary to be in a part of the mine where fire-damp is explosive, \* \* \* the workmen may be lighted by a fire made of charcoal which burns without flame; or by the steel mill, though this does not afford such entire security from injury as the charcoal fire;" the speaker continued: This acknowledgment contained a germ of prophecy. The outcome of this prophecy has been the electric light, and Sir Humphry Davy, had he lived, would have seen the fullest fruition of his scientific hopes combined in one invention; a tiny thread of carbon, excluded from air, shedding a steady flood of light in the darkened mine, surrounded by danger and unaffected by it; a light burning on a keg of gunpowder, immersed in alcohol, or suspended in the most inflammable gaseous mixtures; a mine-lamp which will fulfill all the following conditions:

1. It must be free from danger. 2. It should afford an abundant, clear, white, and penetrating light. 3. It should not render impure or heat the air. 4. It should be perfectly reliable as a source of light in all varying conditions of the atmosphere. 5. It should be available as an instantaneous danger-signal.

Before describing Edison's lamp, the systems in general use were enumerated in the order of their introduction, and the advantages and disadvantages were stated, as follows:

First. Open lights of various forms, more or less protective, and burning oils and fats. Their manifest defectiveness and insufficient illuminating power were noted.

Second. The phosphorescent lamp, suggested by Davy, who, before employing the wire-gauze envelope, experimented with Cauter's phosphorus.

Third. The Davy safety-lamp and its congeners, so well known. It is very safe, provided the light is kept low, say to one half candle, and is not allowed to raise the surrounding gauze to a red heat, and further, that it be not exposed to currents of air. But as these conditions are just such as exist during the times when most light is required, it is sadly wanting in essential particulars. As modified by Müseler and others, who substituted glass for the wire-gauze immediately around the flame, it has been much improved; so much so that in Belgium it has been entirely superseded by the Müseler lamp; although, in England, the weight of Davy's name and gratitude have combined to keep it in general use. This lamp may still be employed as a fire-damp indicator; but more perfect ones, such as Ansell's, may be used automatically, and in connection with a better system of illumination.

Fourth. The fluorescent lamp, probably due to Reitlinger, was first practically applied by Dumas and Benoit. It consists of appropriate Geissler tubes set aglow by a continuous flow of sparks from an induction coil; but from the fact that it takes at least 25 of them to equal a standard candle, it will never attract attention excepting as a scientific toy.

Fifth. The hermetically sealed voltaic arc light has been employed by De la Rive, though it was first suggested by Louyat and Boussingault. Mechanical difficulties prevented this system from being tested.

Sixth. The voltaic arc has been used as a source of light in open cuts and otherwise; but even when subdivided, its application is extremely limited.

Seventh. Finally there remains Edison's electric light, which combines all desiderata, and supplies the requirements of the mine-owner in practical and economic form. Edison's sixteen-candle lamp is too well known to need description. I will show some with some modifications, intended for mine illumination. Mr. Edison makes what are known as whole, half, third, and quarter lamps, which are respectively, sixteen, eight, five and one third, and four candle-power. The electro-motive force employed in his system is standardized at 110 volts, and his lamp at 120 ohms resistance. Such a combination yields him his sixteen candle-power lamp in multiple arc, giving the light of an ordinary gas-jet. It is intended for domestic purposes, but is far too powerful for the necessities of the mine. An arrangement in which four quarter lamps, of 30 ohms resistance each, are united in series, answers admirably. In applying the Edison light to mines, the wires run directly from the dynamo-electric machine to the different workings, supplying light to the shaft on their way. Each lamp may, if desired, be immersed in water or be protected from fracture by a coarse wire screen; the connections can all be made under water, and thus lamps may be put in or out of circuit without the slightest danger from the electric spark.

In conclusion, it was stated that the deductions of Mr. Preece, the Eng-

lish telegraph engineer, against consequences arising from leading wires into mines are not sustained by facts. He also pointed out the importance of the electric light in the saving of money in coal mines filled with fire-damp, as well as in the saving of lives after explosions.

#### PROGRESS IN SCIENCE AND THE ARTS.

**Prevention of London Smoke.**—At a recent meeting of the Society of Arts in London, Mr. W. D. Scott-Moncrieff, F.R.S.A., said that, leaving out the question of coke, about four million tons of coal were consumed in London yearly, the gas companies using about two million tons more. After this latter quantity was passed through retorts, and a large amount of bad gas extracted, it was converted into coke and cinders, 10,000 cubic feet of gas being extracted, on the average, from a ton of coal. As the result of practical experiment, Mr. Moncrieff asserted that, by extracting only from 3000 to 5000 cubic feet per ton, an excellent and smokeless coal would remain; the gas extracted being 24-candle strong, instead of 16-candle strong, as at present. He proposed, therefore, that, instead of extracting 10,000 cubic feet of gas per ton from 2,000,000 tons of coal, the gas-makers should extract 3333 cubic feet per ton from 6,000,000 tons, the whole quantity consumed yearly. In this case, besides twice the quantity of tar and ammoniacal liquids remaining to the companies, the community would have 24-candle instead of 16-candle gas, and the fuel itself would light readily, would make a more cheerful fire, with 20 per cent more heat than the coal now in use, and there would be no smoke from it. He showed by figures that if the 6,000,000 tons were thus treated, the gas would be worth \$8,750,000 more than now, and the coal could be sold at a cheaper rate. He affirmed that, under the system proposed, the saving annually would amount to \$10,625,000, which might be taken as the yearly value of London smoke. No estimate was given of the damage saved by the smokeless fuel. The cost of carrying out the plan would be confined to a few items, and London would then be a smokeless city.

**Suez Canal Statistics.**—Joseph Nimmo, Jr., Chief of the United States Bureau of Statistics, gives the cost of the Suez Canal as \$92,273,907. Last year, the receipts were \$5,973,186, and the expenditures, including 5 per cent interest on the share capital, as a sinking fund, \$5,415,542, leaving a net balance of \$557,644.

**The First American-built Railroad in Asia.**—The first section has been opened of the twenty-three miles of railroad ordered to be constructed in the island of Yeso. The line extends from Oturunai harbor on the west coast, via Sapparo, the capital, to the Parona coal-fields, and has cost \$20,000 per mile, including rolling stock, etc. The construction of the line has been supervised by a Pennsylvania engineer, his assistants being also Americans.

**Production of Steel Rails in 1879.**—The *American Manufacturer*, in correcting the statements of a Pittsburg contemporary, which it says was "wrong in all three of its statements: first, as to the quantity of rails made in the entire country; second, as to the proportion made in Pennsylvania; and third, as to the proportion made in Pittsburg and its environs," says that there were 1,113,273 net tons of rails of all kinds produced in this country in 1879, and that of this amount Pennsylvania produced 498,336 tons, or less than half, and that, although no figures are at hand, showing how many tons of rails were made in Alleghany County, it was undoubtedly under 150,000 tons, since the Edgar Thomson Steel-Works is the only establishment in the county making rails exclusively, and its production in 1880, the year of the largest production, was 100,094 tons, the product of the other mills in the county not bringing the aggregate up to 150,000 tons.

**Ancient Miners' Tools.**—The *Arizona Miner* of recent date says that the miners in the Silver Belt mine have made a remarkable discovery, showing that the mine was worked ages ago. The 10-foot bonanza recently uncovered, continuing to widen at every stroke of the pick, left an overhanging wall on one side that appeared more like loam than the ordinary wall or vein matter of a quartz ledge, and so soft that it caved in such a way as to obstruct the work. They then went up above the cave and decided to run down on the ledge in a new place, so as to get under the cave, in order to have solid ground to work on; and in cleaning away a place to start in, they found lying on the ore, on top of the ledge, in the soft loam three feet from the surface, five stone hammers such as are found in the ancient ruins and abandoned mines of the Aztecs all over the country, showing clearly that the Silver Belt has been worked in prehistoric times. This is the first and only indication that has been found that the "Belt" was ever disturbed before the present owners uncovered it. Dan Thorne exhibited one of the hammers, which a miner had broken in order to see the quality of the stone of which it was made. The material is a dark, tough, slaty-looking rock, such as the ancients used in making all their hammers and axes.

**Steel Rail Manufacture in Germany.**—While the revival in the German iron and steel industries appears to be spreading to all branches, the most active is the steel rail manufacture. An order for 25,000 tons has been taken jointly by the Phoenix, Bochum, and Krupp works, and a contract for 9000 tons for Russia has likewise been booked at the last-named. Contracts for 20,000 tons for the German railroads are expected to be given out this month. It is now said, however, that the orders expected from the United States have not yet arrived.

**New Railroad Construction.**—The *Railroad Gazette* of February 18th gives a total of 63 miles of new railroads, making the total for the year 173 miles.

**MINE FIRE.**—The Chase Run coal mine, in British Columbia, continued burning fiercely at last accounts, all efforts to extinguish it having failed.

**COAL FAMINE FEARED AT OMAHA.**—A dispatch from Chicago, dated February 15th, says that a dispatch to the *News* from Omaha, Neb., says there is not a ton of coal for sale in that city, and a coal famine is feared before a supply can reach there.

**IRON ORE DISCOVERED IN NEW JERSEY.**—A press dispatch, dated Flemington, N. J., February 13th, says that a valuable vein of iron ore has

\* A paper read before the meeting of the American Institute of Mining Engineers, at Philadelphia, Feb. 15th, 1881, and condensed for the ENGINEERING AND MINING JOURNAL.

just been discovered on the farm of David D. Burd, a wealthy land owner living a mile west of Quakertown, Hunterdon County, six miles from this place. The deposit is pronounced to be rich.

**THE GEORGE'S CREEK & CUMBERLAND RAILROAD.**—This road, 23 miles long, from the Narrows to the lands of the American & Maryland Coal Company at Lonaconing, Md., has been completed by the contractors, Phelps & Co., of New York.

#### GENERAL MINING NEWS.

##### ARIZONA.

From late dates of our Arizona exchanges, we condense the following:  
**GOLDEN EAGLE.**—The original shaft on this property is now at a depth of 270 feet. A tunnel taps the shaft on the 100-foot level, running along the course of the vein, and is in 700 feet. At this level there is a station 23 x 40 feet, in which is placed a whim, for the purpose of hoisting from the main shaft and 200-foot level. About midway between the 100 and 200-foot levels, the vein has been cross-cut, and shows an ore-body 16½ feet in width. At the 200-foot level, a drift has been run west 90 feet, and one east, which is now in about 300 feet. These drifts show a continuous ore-vein nearly the entire length, from one to six feet wide.

The ore recently worked by the company's mill was taken out in simply prospecting the mine and stoping above the 100-foot level, and it is stated that there yet remains a large quantity of it in sight, which could be easily extracted. Reports are that 50 tons of ore can be taken out daily for a period of three months without opening any more ground.

**GOLD NUGGET.**—This company has let out a contract to sink a shaft upon the Carmania 50 feet deep upon the ledge. The shaft is down six feet, and it is said that the ledge is widening out favorably. Work on some of the six ledges will begin shortly and the property be developed according to its merits.

**WASHINGTON CAMP.**—The reports from this camp state that the mines are improving. The Ohio mine is developing well. In drifting to strike the hanging-wall, ten feet of sand carbonates and galena were encountered, assaying, it is said, 200 ounces per ton. Work is now going on in the drift to strike the foot-wall. The Grasshopper is being opened in four places, all in ore, the average assays being one hundred per cent better than any previous ones, which ran from 88 to 117 ounces to the ton. The ledge is 35 feet wide.

##### CALIFORNIA.

###### THE BODIE DISTRICT.

Active operations are going forward on most of the mines of this district, every stamp being at work. The *Free-Press* reports that 23 mines are worked, 17 of which have steam hoisting-works of their own, two are worked through adjacent mines having steam works, one is worked by tunnel, one by whim, and two by windlass. It says: The Syndicate is still stoping ore from the Osceola vein, 300-foot level, but will probably run the mill on custom ore next month, and resume work in the west cross-cut, 950-foot level, to cut the same vein at that depth. On Tuesday of last week, the Standard Consolidated shipped \$59,943.26, and on Monday of this week, \$121,963.28, and the average pulp-assay jumped from \$49.76 to \$75.58. The west cross-cut, 1000-foot level, is in favorable ground, and will probably reach the ore-body within 10 days or two weeks. Bodie still holds its own, the ore milling about \$115 per ton. The Lent shaft is down 430 feet, and a second installment of heavy machinery is on the road near Bridgeport. The north drift, 600-foot level, of the Consolidated Pacific is showing some fine silver ore. Tioga is still driving the west cross-cut, 982-foot level, and stringers of quartz and clay are coming in. In Concordia, the Taylor vein is strong 70 feet above the 400-foot level, and the porphyry for several inches each side of the vein is strongly mineralized, being coated with silver. The east or main Concordia vein is also improving in the north drift. In Boston Consolidated, sinking for the 400-foot level has been commenced, the vein on the 300-foot level having proved to be a good one for a distance of 315 feet. Jupiter has started a new cross-cut, 230 feet south of the shaft, to prospect the favorable-looking ground to the east of the south drift. The rich strike on the 512-foot level of Noonday is growing in importance. The winze following the foot-wall in this ore is down 35 feet, and on Monday a cross-cut was driven 8 feet into the ore without the slightest indication of the near proximity of the hanging-wall, the ore in the face of the cross-cut being fully as rich as at any other point. It will be remembered that the same ore-body was 35 feet wide on the 412-foot level, and the ore was of much lower grade, though of good milling quality. All the stopes in both Noonday and North Noonday are looking well. Goodshaw will clean up to-day (Tuesday), the result of a crushing of 95 tons of ore. The south drift, 660-foot level of this mine, is still pushed, and the work of sinking the shaft will be commenced next week. The Champion has not yet commenced sinking, but will probably do so in a short time. South Bulwer is still sinking. Bodie Tunnel is shipping ore to the Miners' mill, the ore being taken from north and south drifts in the Pestoon or No. 20 vein. Black Hawk is showing an improvement, both in quantity and quality of ore, in the winze from the west cross-cut, 700-foot level, the winze being down 70 feet.

Below will be found reports of the superintendents of mines named for the week ending February 5th:

**BODIE CONSOLIDATED.**—During the week ending on the 5th instant, the west cross-cut from the north drift at the sixth incline level was driven 10 feet; total length, 31 feet. The rock is hard in the face, and the cross-cut will probably have to be driven about 25 feet farther before it will strike the Fortuna vein. In the south upraise, between the fourth and fifth levels, they have advanced 11 feet, making its length 45 feet above the vertical upraise. The vein is of about the same width and character as last reported. Have raised four feet upon the Vulcan vein, making the total height of the upraise 20 feet. The greater part of the week was occupied here in clearing out the cross-cut, putting in turn-plate, and making other preparations for working the vein and saving the ore. In the top, the vein is about 18 inches wide; the rich ore, however, is very irregularly distributed, as in the Burgess vein. During several days, no ore was hauled to the mill, on account of the storm and condition of the roads, so that the ore-house at the mine is still very full. The ore milled, however, holds up to a high standard. The stopes continue to yield well, both as to quantity and quality, showing only such variations between very profitable limits as are to be expected in every vein.

**BODIE TUNNEL.**—Still drifting north and south in ore in the Pestoon or No. 20 vein. Commenced on Monday to ship ore to the Miners' mill, and will run through 100 tons in order to make a practical mill test.

**BOSTON CONSOLIDATED.**—Work on the 200-foot level is confined to stoping and upraising in ore. Upraise No. 2 is now 40 feet above the drift, and the vein in the top is from two and a half to three feet in width. The vein is well defined and free from waste. The north drift, 300-foot level, has been advanced five feet; total length, 315 feet, driving on the west side of vein with east side of drift in ore. The work of sinking for the 400-foot level is under headway, and four feet have been added to depth of shaft; total depth below 300-foot level, 13 feet.

**BULWER CONSOLIDATED.**—During the week, a cross-cut was started from the south drift on the Ralston ledge, 200-foot level, at a point 335 feet south of the upraise. This cross-cut is now in 15 feet, in a westerly direction, and is intended to cut the Homestake ledge at that depth.

**CONSOLIDATED PACIFIC.**—The west cross-cut on the 600-foot level continues in the same favorable character of porphyry as heretofore reported, with face of cross-cut in harder rock; progress for the week, 7 feet; total length, 82 feet. The north drift from east cross-cut has been advanced 7 feet; total length, 32

feet. This drift is on the east side of the vein, following the east wall. The ore maintains about the same character and value as last reported, but contains a large percentage of silver. The east wall of the vein is well defined, with a clay parting from four to six inches thick. The work on the face of the drift from east cross-cut, tunnel level, has been interrupted from storms and other causes, and very little progress has been made.

**GOODSHAW.**—This mine has run 95 tons of ore through the Miners' mill. A clean-up is now making, and the result will be known in a day or two. The south drift, 660-foot level, is still pushed, there being about eight inches of good ore on one side of the central porphyry horse and sixteen inches on the other. The work of sinking the main shaft will be resumed inside of two weeks, and the shaft can be driven 75 feet deeper without the interference of water.

**GLYNN-DALE.**—The ground continues as favorable as at last report, with no particular change to note. Progress for the past week was 13 feet. Same number of men employed and every thing in fine order.

**NOONDAY.**—The 212 and 312-foot level stopes are looking well and have undergone no change since last report. The 412-foot level stope is looking well, and shows a large amount of good ore on this level. The winze on No. 1 vein, 512-foot level, is now down 35 feet. There has been a constant and steady improvement in this winze since it was started. The ore, which above was low grade, is now showing native silver through it.

**SOUTH BULWER.**—Sinking the main shaft at the rate of about ten feet per week. The water is easily handled, and every thing about the mine is running smoothly.

**TIOGA CONSOLIDATED.**—The west cross-cut from the 982-foot level was advanced 26 feet during the week. There is but little change to note in the material encountered. The porphyry, however, is becoming much harder and more thoroughly mineralized than heretofore, and several stringers or feeders of quartz and clay were cut during the week which prospected well. The flow of water still continues strong, there being no material change from former reports.

##### COLORADO.

###### CLEAR CREEK COUNTY.

**ATLANTIC-PACIFIC.**—The Georgetown *Courier* of the 10th says: The Atlantic-Pacific tunnel is in 165 feet, and is going ahead at the rate of two feet per day. Another lode has been struck, which shows a 5-foot crevice and a nice looking vein of gouge about a foot thick. A drift going west has been started on it, which gains depth very fast as it enters the hill; and as this lode is supposed to be identical with one that is known to have produced rich assays at the surface, it is confidently believed that it will prove valuable. The twenty horse-power steam boiler is at the mine waiting for the engine, compressor, and diamond drill which are blockaded somewhere on the K. P. road.

**FREELAND.**—Sampling-works are being put in the new concentration mill of the Freeland Company, on Clear Creek, and arrangements are making for an active season.

**HUKILL.**—The Idaho Springs *Advance* of the 10th says: Last week, a fine body of mineral, the major part being concentration ore, was struck on the Hukill, the ore-body lying the full width of the vein, five feet. From thirty to forty tons are sent daily to the Stephens mill for treatment. The daily shipments to the mill would be largely increased could the railroad haul more.

**ROCHESTER & BEAVER.**—This company, according to the Georgetown *Miner*, has resumed work on its property located in Virginia Cañon. A shaft has been sunk to a depth of 160 feet, and two levels have been started, one at 80 and another at 100 feet. From eight to ten thousand dollars have been expended in permanent improvements and in developing the mine. Ten acres of ground were recently purchased by the company and the erection of large concentration-works will be the next thing on the programme. This is known as the Curran claim, and is located a short distance above Idaho Springs, near the Star mill. The water-power is 1700 feet in length. The erection of the mill will be proceeded with at once, the president of the company superintending the work. It is stated that, in addition to the ordinary process of concentration, stamps will be used in crushing the tailings and fine mineral, in order to save as large a percentage of the ore as possible.

**SHIRLEY.**—The Georgetown *Courier* says that this mine continues to yield an average quantity of ore, the product of last month having been over 10 tons, which milled 383 and 399 ounces per ton. The 185-foot level is pushed both east and west, the east drift being in good ore, and the west one has just passed through a porphyry dike, and now a cross-cut is driving for the ore-vein. The various stopes look well. A force of 17 men is employed, partly as lessees and partly on company account.

**VICTOR.**—The group of claims owned and operated by this company consists of Victor, Silver Center, Mary Gill, King of the West, and Silver Cloud lodes, and a three-fourths interest in each the Jupiter and Woodstock lodes, all situated upon the western slope of Democrat Mountain and lying closely together. The *Courier*, in a description of these properties, says that the deepest workings on the property are conducted through the Silver Cloud tunnel, formerly known as the Yellow Jacket tunnel, which is 896 feet long, and intersects the Silver Cloud at a depth of 350 feet. As is a common experience with tunnels in this country, the lode was cut in a lean place, and the tunnel level, which has been driven 152 feet above by the main shaft, which intersects it near the end of the tunnel, and a raise at the east end of the level. Another raise near the west end is now 45 feet above the level, and will be continued to the upper one. All of these workings above the level show good ore-veins; but there is a vast difference in the quality of the ore produced from the different workings. The ore-veins range from 3 to 10 inches in thickness, some of it being low-grade galena, and some of it copper ore that mills from 600 to 900 ounces of silver per ton. The level 115 feet above the tunnel has been driven 155 feet west of the shaft and 165 feet east. Stoping is going forward on the west side, the vein being of a high grade, in places from three to 8 inches thick, and other places divided into veins ½ to 1¼ inches thick, which are scattered through 4 feet of crevice rock. From the east level a raise to a height of 45 feet shows two veins of a fair grade, each about 3 inches thick. This level is being driven east; and by going 150 feet farther, it is expected to pass through a porphyry dike which was found in the upper workings, and directly east of the dike the ore found has been of a very high grade, milling as high as 3000 ounces of silver to the ton. A drift is driving on the Jupiter lode, which is connected with the Silver Cloud on the engine level of the latter by a cross-cut 189 feet long. The drift is now 285 feet long, and in places shows considerable galena ore, the vein ranging from 1 to 14 inches in thickness.

###### FREMONT COUNTY.

The Cañon City Coal Company began pumping oil on the 5th inst. The indications are, that from 50 to 150 barrels of oil and salt water per day can be produced.

###### LAKE COUNTY.

The Leadville *Herald*, speaking of the outlook of that camp, says: Although through the past year the production of precious metals has far exceeded any thing before known, there was a loss of confidence that it has been difficult to restore. The continued regular output of ore and shipment of bullion has done much to restore confidence, but what is now to change the entire aspect of mining is the great number of rich strikes recently made. On upper Carbonate Hill, several rich developments have recently been made; to the east from Fryer Hill, a large district is opening that promises to prove the richest and most productive section ever known about Leadville; the strike just made in the Little Pittsburg also gives promise of again placing that property—the one that built Leadville, and that afterward dashed the hopes of many to the ground—to the front again, and place it on an equal footing with its

former prosperity. Such changes as these can have but one effect, and that will be to again produce an excitement regarding Leadville mines and give once more a boom to this camp. Unlike the districts of California, which in former times had an immense excitement for a short period and then completely petered out, never to be revived, Leadville has, even during the time after its first excitement, kept on increasing its production, and instead of ever failing has added to its prosperity. This fact is beginning to be appreciated, and it is becoming known that instead of worked-out deposits remaining, the country in this vicinity is scarcely yet prospected, and the wealth here buried is yet but little known. It can be depended upon that these facts are becoming known in the East as they have for a long time been believed here, and that the effect will be to bring a rush of people here and an increased prosperity in the early spring. A boom in stocks and mining properties is sure to come.

**AMIE.**—The Leadville Herald says that the manager of this mine has started a force at work on the north drifts from the No. 1 shaft, and will there make upraises, with a view of attempting to find the ore-vein which has recently been found in the Dives claim of the Little Pittsburg. In the No. 2 shaft, the bucket is kept constantly running, dipping out the water, and in the lower workings of this a force will soon be put on. A number of men, formerly working on iron ore, have been let off, from the fact that there is no longer a market for this class of ore.

**BREECE.**—The Brece iron mine has commenced with a night shift, and is now working a full force. A great deal of work is accomplished, and a large amount of ore is accumulating on the dumps.

**CLIMAX.**—The Herald says: The mine is developing a fine ore-body in the south end, near the Hibernia. Some wonderfully rich ore is mined. The manager yesterday showed the reporter an ore settlement just made with August R. Meyer & Co. The lot weighed 23,083 pounds, or a trifle over eleven and one half tons. The net price received was \$1177.87 per ton, or a total amount for the lot of \$13,594.35. With the exception of a few small lots, this equals the best ore ever mined from the Robert E. Lee. In addition to this selected ore, the mine is regularly shipping large quantities of good-grade ore. It is said the average profits from the mine amount to from twenty-five to thirty thousand dollars a month.

**DENVER CITY.**—The Leadville Democrat of the 9th says: The new shaft-house over the discovery-shaft of the Denver City will be completed to-day. The work of preparing the shaft for cages is also finished, and the shaft is now ready for their introduction. The building of the engines and machinery is making good progress, and will be pushed along just as rapidly as possible. The mine will be supplied with a good double-acting 10-inch pump, and in the opinion of experienced men will do the work required without any difficulty, but will not be any too large.

**EVENING STAR.**—The Leadville Democrat says that the work of exploring and developing the territory of the Evening Star mine, on Carbonate Hill, is vigorously carried forward. The drifts which were begun some time since, with a view to connecting the workings in the vicinity of the upper shaft with the main developments of the mine, are making good progress, and the two will soon be connected. The work carried on in the lower end of the claim has been productive of good results, and increased ore-reserves are continually developed. The improvements on the surface are fully keeping pace with the amount of work done under ground, and the mine will soon have a capacity which will be exceeded by few in the State. The new ore-bins at the upper shaft have been completed, and are among the best appointed in the camp. A new twenty-five horse-power upright engine and hoisting rig have been ordered from the Colorado Iron-Works, also a large horizontal boiler to replace the "baby" hoister now in use.

**GLASS-PENDERY.**—The Leadville Herald reports that in the north end of the main level of the Glass-Pendery a very important strike has been made. The ore here comes down from the roof of the drift and pitches below. This is at a point about 100 feet south from the Pendery shaft. The ore is followed by a sharp incline, and has developed a good ore-body about 20 feet below the level of the drift. As soon as connection is made with the Pendery shaft beyond, a large amount of ore can be mined from this ore-body. At present, what is taken out has to be raised up this incline and then wheeled to the Glass shaft, a distance of nearly 700 feet, before it can be hoisted to the surface.

**HIGHLAND CHIEF.**—This mine has commenced sinking the main shaft to a greater depth. The shaft has a total depth of 300 feet, and extends 120 feet below the tunnel level. The bottom of the shaft is in low-grade mineral. The mine is employing quite a large force and shipping considerable ore.

**LITTLE PITTSBURG.**—In view of the recent developments in this mine, the following report of a visit through the underground workings by a Democrat reporter on the 6th will be of interest: The mining reporter of the Democrat visited the Little Pittsburg mine yesterday morning, and was highly gratified by the fine ore-faces presented in the two raises in the Dives ground, constituting the new strike which has caused such a sensation. The newly-discovered ore-body is approached through No. 6 Little Pittsburg shaft, from which considerable prospect-work has been done during the past four months. One hundred and sixty feet from the surface, a drift was driven in a northwesterly direction, for a distance of 126 feet, reaching a point within 10 feet of the Little Chief line. The course of the drift was then headed to the southward, bearing a trifle to the east and continued 60 feet. The indications here showed that the work was too low, and a raise of 24 feet was made, when the drift was again pushed forward for a distance of 20 feet. At this point, the drift is 25 feet from the Little Chief line, and a spur was driven bearing westward, which, about 40 feet farther south, struck the stope where the Little Chief miners trespassed on the territory of the Pittsburg, and stoped out some rich ore. Another spur of the drift was continued southward, connecting with the workings adjacent to No. 4 shaft. A cross-cut was then started to the eastward, and at 65 feet from the drift, or 90 feet east of the Little Chief line, and about 40 feet north of the place crossed over by the miners under Mr. Herrick's management, an upraise was made and the rich ore discovered. The cross-cut from which the raise was made is in iron, and, only a few feet above the roof, a hard carbonate was struck, and immediately above this ore about ten feet of fine lead carbonates, galena, and sand. The raise is about five feet square, and was made perfectly perpendicular, right up into the ore-body, showing four perfect walls of magnificent ore, the appearance of which is not marred by even the smallest piece of waste rock or barren iron ore. When this raise was completed, the miners retraced their steps about 25 feet back in the drift and commenced another raise, to nearly the same height, which showed the same ore-body, looking equally well. The ore was first encountered in the eastern raise, on the morning of January 30th, and assays were made from time to time as the work progressed, with the following results:

No.	Date.	Kind of Ore.	Ozs.
1125	Jan. 30	Sand from upraise No. 1	237
1126	Jan. 30	Sand from upraise No. 1	265
1128	Jan. 30	Carbonate from upraise No. 1	456
1131	Jan. 31	Sand from upraise No. 1	389
1132	Jan. 31	Sand from upraise No. 1	199
1145	Feb. 1	Sand from upraise No. 1	334
1146	Feb. 1	Galena from upraise No. 2	1225
1168	Feb. 2	Lead carbonate from upraise No. 1	168
1175	Feb. 3	Sand from upraise No. 2	280
1176	Feb. 3	Carbonate from upraise No. 1	1033
1177	Feb. 3	Sand carbonate from upraise No. 1	178
1180	Feb. 4	Sand carbonates from upraise No. 2	200
1180	Feb. 4	Hard carbonates from upraise No. 2	352
1194	Feb. 4	Soft carbonates from upraise No. 2	375
1195	Feb. 4	Hard carbonates from upraise No. 2	225
1196	Feb. 4	Soft carbonates from upraise No. 2	346

Six assays for lead were made, the lowest of which was 48 per cent and the highest 69 per cent; average, 58 per cent. The average of the 16 silver assays is 895 ounces to the ton. The size of the ore-body it is impossible to determine. That the two upraises have pierced the same ore-chute there is no question. The territory surrounding it is almost beyond limit. From raise No. 1 it is 325 feet to the Amie line on the east, 85 feet to the Little Chief line on the west, and over 500 feet to the northern end-line of the claim. Quite a distance to the south are the stopes in the vicinity of No. 4 shaft, but the lowest of these is full 40 feet above this newly-discovered ore-body. The other developments extending from No. 6 shaft are, a short drift to the north, which is now idle, and another to the east, which is vigorously pushed forward, and is expected to soon connect with No. 5 shaft, which is located 65 feet from the side-line of the Amie mine and No. 1 shaft-house of that property. The bottom of No. 6 shaft extends 50 feet below the level from which these drifts radiate, and is now worked by three shifts of men. No. 6 shaft, having heretofore been purely a prospect-shaft, the surface improvements are rather limited, and the ore from the newly-discovered body, amounting to about 75 tons, is still all stowed away in the drifts underground. Arrangements have, however, been made for the erection of new shaft-house and ore-bins. The ore-bins will be erected independently of the shaft-house. The old fifteen horse-power engine now doing the work is to be replaced by one of twenty-five horse-power, and the machinery and buildings arranged for a rapid and economic production. No. 5 shaft is also sinking to greater depth, and drifts are driving to make available several fine ore-bodies in the immediate vicinity. This shaft will connect with No. 6 shaft, through which all the hoisting for the northern ground of the Little Pittsburg, Dives, and Winemuck is to be done. No. 4 shaft, on Little Pittsburg, has been abandoned during the last two weeks, and a shaft-house has been erected over No. 2 shaft, and supplied with a steam-boiler. There is still a great deal of ore contiguous to the shaft, and between it and No. 4, which can be hoisted through No. 2 shaft to much better advantage. The New Discovery is showing up a great deal of ore, and there are several ore-bodies that promise well. The principal work is doing in the northern and eastern portion of the claim, where there are some five or six places that show from five to six feet of fine ore, in bodies of considerable extent. This mineral is all hoisted through No. 1 New Discovery shaft. No. 6, New Discovery shaft, located over on Yankee Hill, is still idle, but will doubtless be started up within a few days. The shaft is 250 feet in depth. A pump and additional boiler have been procured, and will be placed in position as soon as possible. The recent developments in the territory of the Little Pittsburg may safely be heralded as the dawn of a new era in the history of this property. The amount of ore in sight in the old workings of the Little Pittsburg and New Discovery claims is very large and daily increasing, giving every indication of soon placing the mine on a dividend-paying basis. Added to these resources now is the large new body, considerably to the north, and entirely independent of any thing heretofore discovered. This makes the success of the property doubly sure, and leaves no avenue for failure or disappointment.

PARK COUNTY.

The Congress lode, on Mosquito Mountain, has been sold to Eastern parties for \$10,000 cash. We are indebted to the Fairplay Flume of the 10th inst. for the following notes regarding the mines of this county:

**FANNY BARRET.**—The latest strike on the Fanny Barret property has caused quite a sensation, and is unmistakably a good thing in several ways. The ore last struck is by far the richest ever mined on the property so far as the eye of numerous professionals can determine, the lack of practical test so far being due to the fact that the foreman sent the samples to W. A. H. Loveland for determination of their value and has no returns as yet. The manner of striking this ore was somewhat peculiar. In sinking the main shaft, the vein pitched off to the south; but from its appearance at this point it was conjectured that the vein that had been followed was only a "slip," and that the mother vein was to the north of the shaft. A drift run fifteen feet in that direction from the bottom of the shaft, which is now 102 feet down, proved the truth of this belief and disclosed a two-foot vein of genuine sulphuretted ore, the value of which is variously estimated at from two to five hundred ounces of silver per ton.

**NEW YORK.**—The various workings on the New York mine show up better than ever. What are known as the upper workings have been opened by drifts to the extent of 100 feet, principally upon mineral that runs from one to two hundred ounces of silver per ton. The face of the main tunnel shows a compact body of this grade of mineral, it being almost entirely free from barren rock. The shaft on the vein is now down 100 feet with the rich mineral heretofore reported holding out and growing richer. This rich streak of ore is ten inches in thickness, and besides it there are in the shaft 6 feet of pay-ore that assays from 60 to 190 ounces. The work of development goes steadily on, and will be continued all winter.

**OHIO CONSOLIDATED.**—The Dolly Varden mine is producing more ore at present than in many months before. It is only since the first of the year that the superintendent has authorized the breaking of any ore, and now it is accumulating so fast that the jack train frequently makes two trips a day in order to keep the ore-house clear.

**RUSSIA.**—A single shot put into one of the levels of the Russia threw out a piece of mineral weighing nearly two tons and of a grade not under 150 ounces per ton.

MONTANA.

**The Butte Miner says:**  
**ANSELMO.**—The east shaft is steadily pushed to the deep, and shows in the bottom a well-defined ore-body four feet wide. The shaft is 210 feet deep. At a depth of 170 feet, east and west drifts have been extended to a total length of 85 feet. The vein, though a foot less in width than at the bottom of the shaft, is producing ore of excellent quality. The west shaft is sinking as fast as the hoisting capacity of the whim will permit, and recently reached a depth of 150 feet. Within the next 50 feet, it will be connected with the old shaft by the 170-foot level, after which a fine body of ore between the latter and the 100-foot level will be available for stoping.

**ALICE.**—No definite information is given concerning the developments in 700-foot cross-cut. It is known, however, that the hanging-wall of the north ledge has not yet been reached, and that drifts have been started on the vein. It is expected that all the facts in connection with recent developments will be made public before long.

**MOULTON.**—The main shaft reached a depth of 140 feet on the 3d ult. The two-foot "feeder" recently encountered has dipped south. It is stated that another one, showing equally rich ore, came into the shaft several days ago.

NEVADA.

THE COMSTOCK LODE.

The Gold Hill News summarizes the situation for the week ending February 9th as follows:

Since last report, the diamond drill and the pumps and all appliances have been taken from Union winze No. 1, and so strong a flow of water was there into it that in fifteen hours after it was abandoned it was filled with water. Nothing remains to be done now but to get over from the 2600 station of the Union shaft as soon as possible and explore the ore shown by the drill to be on that level. The shaft is not quite deep enough yet to admit of the starting of excavations on the 2600 level, but next week will witness the inauguration of the work. Sierra Nevada has another narrow vein of ore. It was struck over a hundred feet south of the winze from the 2400 to the 2500 level, and by the drift south from that

winze. It is to be followed by a raise, which has been started. The situation in Gould & Curry and Best & Belcher will soon excite renewed interest. In about thirty days, sinking the joint shaft will be resumed. It is already 1970 feet deep, and has for a considerable distance been in good ground, the quartz of which gave encouraging assays. But too much water was encountered to be raised economically by donkey-pumps; hence the present preparations for business. To put in the seven balance-bobs required, to extend the pumps from the bottom to the Suro Tunnel level, new pump-rods, a new cable, etc., will cost about \$25,000. The pumping-engine is in place and ready for use. Expenses thereafter will be light. Following is the programme of work from this shaft: The shaft will be sunk 150 1/2 feet deeper to the 2126 1/2 level, which is equivalent to the 2300 level of the C. & C. shaft and the north end mines; a drift will then be run to connect with those mines, and from this drift exploring cross-cuts will be made. The lowest explorations made in the Gould & Curry and Best & Belcher are on the 1900 level from the old shaft. The difference in surface levels between the two shafts is 245 feet. To this add the 246 1/2 feet lower depth gained, and we have in these mines a solid and most promising block of ground, 491 1/2 feet in depth, into which no prospecting pick has ever been struck, save as the shaft has been sunk. This fact is worthy of consideration in connection with the prospects in the shaft itself. Another fact worthy of consideration is, that within the week Hale & Norcross will have finished reconstructing its works and will renew operations stopped less than a month ago by the burning of its buildings. The situation in that mine is also one of intense interest. The starting up of the Hale & Norcross will relieve the C. N. S. shaft, moreover, from the work of bailing, and prospecting in Chollar and Potosi can then be resumed. The situation there is too well known to need comment. The beginning of the end of the present want of interest in the Comstock is not so very far away, after all; and no one can deny that the general outlook here is good. Below will be found authentic and reliable reports of the mines named, showing the situation in each up to the hour of going to press:

**ALTA.**—Sinking is making usual progress, the shaft continuing in vein-matter carrying a large amount of base metal and giving low assays in gold and silver; total depth, 170 feet below the 1550 level.

**BULLION.**—The diamond drill is still running east from the face of the east cross-cut on the 2340 level. Assays of borings have not yet been made. The work of timbering up the north drift, which encountered soft ground, is continued.

**CALIFORNIA.**—The drift south on the 2500 level and from the Ophir has reached a point east of the C. & C. shaft, and has been turned into a west drift toward that shaft. Between the top of the joint Ophir raise from the 2500 level and the bottom of the joint winze from the 2300 level, a hole has been knocked through and the connection is enlarging. For other workings joint with Ophir see report of that mine.

**CONSOLIDATED IMPERIAL.**—Keeping every thing in good working order, and running the pumps to keep the 2000 level dry.

**CONSOLIDATED VIRGINIA.**—The drift south on the 2300 level is very near the Best & Belcher line and the point from which the raise is to be made to connect with the joint winze down from the 2000 level. Cross-cut No. 1 west, to explore a vein of quartz encountered in sinking the C. & C. shaft, is continued; total length, 60 feet. The joint California cross-cut east on this level progresses well; total length, 110 feet.

**OPHIR.**—The joint California east cross-cut on the 2500 level is making a rapid advance, and continues in vein material; total length, 100 feet. The joint Mexican winze from this level is still sinking, and has 25 feet yet to reach the 2700 level. After that level is reached and a sump made, the 2700 station will be opened preparatory to exploring that level.

**OVERMAN.**—Running east on the 2275 level through tough ground, which breaks badly; total length of the drift, 260 feet.

**SIERRA NEVADA.**—The north drift on the 2500 level is in good vein-material; total length, 480 feet from the incline. The joint Union east cross-cut on this level is 400 feet in length, and still in the vein and making good progress. In running south between the 2400 and 2500 levels, and from the winze, a streak of pay-ore has been encountered, which is to be followed up. The main incline has been raised from the 2300 level a total of 520 feet.

**SURO TUNNEL.**—The work of continuing the south lateral branch of the tunnel will be resumed early next week. At present, the usual repairs are going on.

**UNION CONSOLIDATED.**—Winze No. 1 has been abandoned and is filled with water. The drill was run from its bottom and on the 2600 level in nine directions. Water was found in greater or less abundance in them all, and, although borings were filled with washings from the sides of the holes, it was ascertained that there was, beyond question, ore on that level; how much and how valuable can only be ascertained by running in from the Union shaft. The drift east, joint with Sierra Nevada, on the 2500 level, will be continued as long as it is in vein-material. It is in already over 400 feet, and, should indications of water be encountered, the diamond drill will be sent ahead.

**UTAH.**—The drift east on the 1950 level continues to make about 25 feet per week, and shows no particular change of material. The same progress is made on the 2150 level.

**YELLOW JACKET.**—In running to meet the Suro Tunnel south header, excellent progress is made, although the ground is hard, and clay slips necessitate prompt timbering. The face of the drift is already over 300 feet from the switch. The bailing tanks are running to their full capacity, in order to keep the water from raising to the Belcher 2160 level. Bailing will be continued till the Belcher pumps start up.

NEW MEXICO.

The Sterling Price property consists of forty-two acres, rich in copper and gold, and located in San Simon, Grant County, southwest corner of New Mexico, on the borders of Arizona and old Mexico, and on the line of the Southern Pacific and Atchison & Topeka roads—the camp being five miles from both railroad stations, the Steins Pass and also the Granite Pass in the Sierra Madre Region. The general average of ores, as far as developed, shows 30 per cent in copper, \$200 in gold, \$46 in silver, although as high as \$1000 in gold and 60 per cent in copper has been shown. The developments under way at present consist of a finely timbered combination shaft, being put down to a depth of two hundred feet, on the line of the South Virginia and Sterling Price—developing two immense mines. The veins are true fissures, and immense deposits of ore-bodies—principally smelting ores—consisting of lead, copper, gold, iron, and silver. The average temperature is only sixty-five degrees all the year around—the climate of Italy—an advantage over the snow and ice-bound regions of Colorado, thereby enabling developments all the year. Prof. Silliman, Prof. Mott, Jr., A. R. Phye, practical assayer and refiner, Prof. Kidwell, and other authorities who have tested the ores from the Sterling Price, pronounce it the richest and easiest worked ore ever handled, by reason of its combining all the elements for fluxing. The copper will cover the whole expense of smelting and leave a handsome surplus, aside from the precious metals of gold and silver. A fine lot of ore from the shaft at a depth of 60 feet, and also from the tunnel, was received this week at the company's office, in the Bennett Building, which is now on exhibition. Work is progressing in developing this property.

UTAH.

**CARBONATE.**—The Southern Utah Times says: Work is prosecuted vigorously upon all the levels although ore for works is now taken from the upper levels only. The work of developing goes steadily on, and from the present outlook it is probable that ere long complete hoisting-works will be erected. In Carbonate No. 2, the first east extension, although but partially opened, enough sinking and

drifting have been done to prove that the ledge-matter, the walls, and width of ledge were identical with the Carbonate, and there can be but little doubt that early in the summer machinery will be purchased and arrangements made to push work vigorously.

**MARYSVALE COUNTY.**—A correspondent of the Southern Utah Times says: Many who read of Marysvale confound the prospects of the present with the locations of ten years ago when the mines were first discovered, which is all a mistake. The locations then and since, up to two years ago, were made in Bullion Cañon, near Bullion City, which was then the county-seat. The refractory character of the ores, and many other causes, led to the temporary abandonment of the camp. This state of affairs continued until the fall of 1878, when the Deer Trail mine was discovered and led to the discovery of such mines as the Parnell, Emerald, Cervantes, Pluto, Affonte Del Rey, and Josephine. The ores in this quarter are of an entirely different character from those in Bullion District, the same being free milling and carrying much gold.

**SILVER REEF.**—From Silver Reef, recent news is, that the miners employed on the mines of the Stormont and Barbee & Walker companies are striking against a reduction of wages from \$4 to \$3.50 per day. The Stormont Company has discharge 1 all its hands, and 200 men are idle.

**SUPERIOR.**—The Salt Lake Tribune says: This mine is fifteen miles north of Ogden. A shaft was sunk 60 feet deep which proved worthless, and was abandoned because away from the ledge. The company has since sunk an incline 40 feet from the bottom, from which a drift was run 60 feet. From this drift, a cross-cut was made 16 feet, and now they are down 40 feet on an incline from the main drift. The company has been pushing work on this mine all winter. The ledge has a trend from the northwest to the southeast, upon which is located, beginning at the north end, the following claims in rotation: Rosa Lee, Superior, Florence, Black Bess, and Highland Chief. The two former and last one named belong to the same company, and each has had work done on it.

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:

Grading, Macadamizing, Graveling, and Masonry of Ross Avenue, Mill-Creek Township; M. S. Cappeller, County Auditor, Commissioner's Office, Hamilton County, O.	Feb. 19, 1881.
Furnishing and Laying or Setting Pipe-valves and Hydrants at the Water-Works of the City of Springfield; Trustees of Water-Works, Bowman's Building, Springfield, O.	" 22, "
Furnishing the following items to the Water Department: Items 1 to 5, Painting at the various works; Item 6, Painting Tin Roofs in the Department; Item 7, Repairing Wharf at Delaware Works; Item 8, Furnishing about 100,000 pounds of American refined Lead, not smelted, by the pound; Item 9, Cobble Paving at various Works, per square yard; Item 10, Cleaning Spring and Reservoirs at Chestnut Hill Works; Item 11, Boiler for Chestnut Hill Works; Item 12, For the Removal of a part of the Delaware Stand Pipe and Capping the remaining portion; Item 13, Special Buff Peerless Brick, as per models; Item 14, Terra Cotta Cornices, as per drawing; Item 15, Hauling Ashes, Cinders, and Slack at various Works; Item 16, Coal Cars (for firing at Works); William H. McFadden, Chief-Engineer of Water Department, northwest corner Thirtieth and Spring Garden street, Philadelphia, Pa.	" 23, "
Furnishing and delivering at the Jeffersonville Depot, the following articles: Army-Wagon Axles, Spring-Wagon Axles, Ambulance Axles, Dump-Carts, Sand-Boards, Bolsters, King-Bolts, Tongue-Bolts, Hounds, Linch-Pins, Coupling-Poles, Tongues and Wheels for Army Wagons, Ambulance Tongues, Riding-Bridles, Head-Halters, Cart-Harness, Riding-Saddles, Wagon-Saddles, Coupling-Straps, Horse-Blankets, Horse and Mule Collars, Large Paulins and Army-Wagon Covers; James A. Ekin, Deputy Quartermaster-General U. S. Army, Jeffersonville, Ind.	" 23, "
Furnishing Street Signs for Corner Lamps in the City of Brooklyn; Department of City Works, Municipal Department Building, Brooklyn.	" 28, "
Erection of a New City Hall in the City of Albany; Specification, etc., furnished on application to H. H. Richardson, Architect, 91 Hawk street, Albany; Commissioners of Building, Albany, N. Y.	March 1, "
Furnishing and Delivering at Port Oram, Morris Co., N. J., the necessary Iron Work for a Magazine Building, consisting of about 122,508 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, "
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 for 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, "
Decoration of Washington for the Induguration of President-elect Garfield.—A contract to decorate Washington for the inauguration of the President-elect has been given to A. G. Scheible, of South Second street, Philadelphia. The plan among other things contemplates the erection of thirty-eight triumphal arches on cross-streets running directly off of Pennsylvania avenue. These will be modeled from designs drawn by Mr. Charles Risdon, of Philadelphia, who will also superintend their erection.	
Canadian Pacific Railroad.—A dispatch to the Herald dated Ottawa, February 15th, says: At half-past three this afternoon, the Governor-General proceeded to the bar of the Senate and gave his assent to the Pacific Railroad bill.	
Philadelphia Bridge-Works, Fottstown.—These works have received contracts for building an iron bridge of six spans, 100 feet in length, and a draw span of 200 feet, for the New Orleans & Pacific Railroad Company; also for a bridge of three spans, of 150 feet in length each, for the Texas Pacific Railroad. Another contract has been received for making 350 tons of iron for the Pennsylvania Railroad Company's elevated branch.	
Ohio Central Railroad.—Contracts have been made for a number of steam vessels, to be used on Lake Erie to supply coal to northern cities and Canada in connection with the road.	
Hose for Fire Department of Brooklyn.—The following proposals for furnishing hose for the use of the Fire Department have been publicly opened and announced as follows: C. A. Righter, for the sum of \$1.10 per foot complete. Fireka Fire Hose Company, by Julius Schenck, General Agent, for the sum of \$1 per foot complete. New York Felt, and Packing Company, by James G. Jones, Superintendent, for the sum of \$1 per foot complete. Smith & Galof & Co., for the sum of \$1.09 1/2 per foot complete. Allen & Murphy Company, Providence, R. I., by D. A. Woodhouse, Agent, for the sum of \$1.07 1/2 per foot complete. Fabric Fire Hose Company, by Isaac B. Markey, General Agent, for the sum of \$1 per foot complete. Jacob Wozna, Commissioner of the Fire Department,	

## FINANCIAL.

## Gold and Silver Stocks.

NEW YORK, Friday Evening, Feb. 18.

There has been a very active interest in mining stocks displayed during the past week by the public, and considerable transactions took place for a time at "booming" prices, although later at some reaction. The Leadville shares have been the attraction, but there has been attention turned to all of the prominent districts. The extra speculative natures appear to turn their attention with renewed interest to the Comstock. With the opening of spring in the mining districts, many of the mines will be able to make very satisfactory comparisons, and as mining stocks are, as a rule, but a little above bottom, those with any real merit will become a very plausible speculation.

Amie has continued to be quite active, and was for a time very strong, weakening, however, during the latter portion of the week; the sales aggregate 109,980 shares at 64@49c. Argenta has been quiet, with sales of but 500 shares at 40@35c. Barbee & Walker has been more extensively dealt in than for some weeks past, but at a lower range of prices than at any time since it was listed; the sales amount to 700 shares at 33.25@33.63. Belle Isle has been quiet and weak, with sales of 500 shares at 65@40@60c. Bodie Consolidated has had a moderate business at very much improved prices, the sales aggregating 1995 shares at 86.13@88@86.88. Breece has been quite active and fairly steady, with sales of 7400 shares at 1.15@1.30. California has been moderately active and steady, the sales amounting to 5580 shares at 1.10@1. Caribou has been very quiet, the sales amounting to but 100 shares at 33. Chrysolite has had a moderate business at prices a little lower at the end of the week; the sales aggregate 16,320 shares at 66.50@65.63. Climax has been fairly active and irregular, the sales amounting to 44,570 shares at 63@77@68c. Consolidated Virginia has been about steady, with sales of 8040 shares at 1.70@1.50. Copper Knob shows but small fluctuations, with a business of 22,600 shares at 5@8@6c. Deadwood has been dealt in to the extent of 500 shares at 12 1/2@12 1/4. Dunkin has had a fair business at very strong prices, the sales aggregating 16,798 shares at 1.50@1.95. Eureka has been quiet but strong, with sales of 75 shares at 23@23.50. Excelsior has only been dealt in to the extent of 200 shares at 86. Father de Smet appears in the dealings with sales of 940 shares at 12.50@14.50. Fndley has been dealt in to the extent of 2300 shares at 30@27c. Gold Stripe has been active and strong, with sales of 10,900 shares at 26.65@29.00. Grand Prize has been weak, with sales of 1550 shares at 1.95@1.65. Great Eastern has been liberally dealt in at 20@24c., with sales of 22,600 shares. Green Mountain, under a fair business, has been exceedingly strong; the sales aggregate 4250 shares at 68.88@73.88. Hibernia has been very active, but, like most of the Leadville stocks, has had a weakening tendency toward the end; the sales aggregate 106,245 shares at 1.60@1.30. Homestake only records 30 shares at 27 1/2@27 1/4. Horn-Silver has been dealt in to the extent of 1035 shares at 12.75@12. Hukill has been quiet and a little weak, with sales of 6330 shares at 1.65@1.50. Independence has been quiet and weak, the sales amounting to 1650 shares at 48@40c. Leadville has been moderately active at improving prices; the sales aggregate 15,033 shares at 55@96@75c. Little Chief has been very active and, for a time, quite strong, showing, however, a large decline toward the end; the sales aggregate 100,490 shares at 2.60@1.60. Little Pittsburg has had a very liberal business at declining prices, the sales amounting to 17,458 shares at 7.63@5. Moose, under a very good business, has been somewhat irregular; the sales amount to 34,430 shares at 1.55@1.80@1.75. Moose Silver has been very quiet, the sales amounting to but 600 shares at 2.20@2.25. New York & Colorado records sales of 700 shares at 1.05@1.40. Northern Belle has been dealt in to the extent of 620 shares at 12.50@13.75. North Belle Isle records sales of 100 shares at 40c. Ontario has only been dealt in to the extent of 25 shares at 39c. Ophir has had a liberal business at improving prices; the sales aggregate 1230 shares at 4.25@5. Plumas has been dealt in to the

extent of 400 shares at 1.55@1.50. Rising Sun has been fairly active and steady, the sales aggregating 9000 shares at 33.25@34.40. Robinson Consolidated has had a moderate business at improving prices; the sales aggregate 3500 shares at 66.50@75.50. Stormont has had a moderate business at quite irregular prices; the sales aggregate 4950 shares at 2.50@2. Sierra Nevada has been quiet but strong, with sales of 610 shares at 5.75@6.75. Spring Valley has been quiet the sales amounting to 400 shares at 33.25@33. Standard has been quiet but strong, the sales amounting to 1992 shares at 26@27 1/4@26 1/2. The improvement in this stock is due to an improvement in the class of ore milled.

Alta-Montana has had a moderate business at irregular though steady, prices; the sales amount to 6323 shares at 1.85@1.50@1.85. Alice has been active and quite strong; the sales amount to 4200 shares at 7@8.75@8. American Flag has been quiet and irregular, the sales aggregating 6200 shares at 23@27c. Bald Mountain has had a moderate business at steady prices, the sales aggregating 30,700 shares at 10@12c. Bonanza Chief has been a little weak, with sales of 8250 shares at 33@25c. Bull-Domingo has had a moderate business at irregular prices, the sales amounting to 5420 shares at 4@3.60. Boulder Consolidated has been steady with sales of 3500 shares at 49@50c. Boston Consolidated has been very active and irregular; the sales aggregate 127,900 shares at 77@98@83c. Buckeye has had a moderate business at steady prices, the sales amounting to 12,300 shares at 22@24c. Bulwer, under a moderate business, has been a little stronger; the sales amount to 2770 shares at 2.05@2.25. By and By has been dealt in to the extent of 2500 shares at 60@59c. Calaveras has had a moderate business at improving prices, the sales aggregating 23,150 shares at 23@26@24c. Caledonia, B. H., has been quiet but stronger, with sales of 900 shares at 1.40@1.70. Central Arizona has had a moderate business at declining prices; the sales amount to 9758 shares at 7@5.25@5.50. Cherokee has been very active and strong with sales of 23,737 shares at 1.80@2.30. Cosette has been almost neglected, the sales amounting to but 100 shares at 1.85. Consolidated Imperial has been quiet and irregular, with sales of 5600 shares at 18@22@16c. Consolidated Pacific has been dealt in to the extent of 2900 shares at 85@95c. Crowell has been quiet, with sales of 1000 shares at 5c. Dahlenega has been dealt in to the extent of 2500 shares at 11@9c. Dunderberg has been very quiet at 1.30, with sales of 200 shares. Durango has had a moderate business at quite irregular prices, the sales aggregating 25,900 shares at 13@21@17c. Gold Placer has been quiet, the sales amounting to but 200 shares at 44c. Goodshaw has been slightly weak, under a fair business, the sales aggregating 11,970 shares at 52@43c. Granville, under a moderate business, shows but little change; the sales amount to 7400 shares at 5@6c. Harshaw has been dealt in to the extent of 100 shares at 15.50. Iron Silver has been fairly steady, under a moderate business, the sales amounting to 7770 shares at 3.40@3.50@3.45. Lacrosse has had a moderate business at steady prices; the sales amount to 6200 shares at 30@22c. Lucerne has been dealt in to the extent of 3500 shares at 13@11c. The Mariposa stocks have been quiet and very weak. The sales of Preferred amount to 1425 shares at 9@4, and of Common 3584 shares at 6@2.50@3.25. May Belle was dealt in to the extent of 100 shares at 20c. Mineral Creek was dealt in to the extent of 6000 shares at 36@32c. The sales of Miner Boy amount to 4500 shares at 86@84c. Mexican has been sold to the extent of 900 shares at 5.25@5.50. Navajo has been weak, under a small business; the sales amount to 1400 shares at 2.20@1.75. North Standard has been irregular under a moderate business, the sales amounting to 22,200 shares at 26@17@29c. The Quicksilver stocks have been quiet and weak. The sales of Preferred amount to 2150 shares at 63@61 1/2, and of Common 2350 shares at 19@15 1/2. Rappahannock has been quiet and steady, the sales amounting to 4500 shares at 13@12c. Red Elephant has had a moderate business at about steady

prices, the sales amounting to 16,900 shares at 39@50@40c. Silver Cliff has been quite active and, although for a time strong, inclined to weakness toward the end. The sales aggregate 20,695 shares at 36@35. Silver Nugget has had a moderate business, the sales amounting to 22,300 shares at 12@9c. South Bodie has been quiet and strong, with sales of 2100 shares at 26@32c. South Bulwer has been a little weak, with sales of 1350 shares at 41@30c. South Hite has been about steady, with sales of 1900 shares at 40@35@38c. Sutro Tunnel has been quiet and weak, with sales of 6800 shares at 1.30@1.13. Tioga has been quiet and weak, with sales of 1800 shares at 70@63c. Tuscarora has been steady, with sales of 2800 shares at 33@37c. Unadilla has been irregular under a moderate business, the sales aggregating 8300 shares at 12@17@15c. Union Consolidated has been quite active under strong prices, the sales aggregating 4220 shares at 7.13@8@7.50. Vandewater has been active and strong, with sales of 37,400 shares at 49@60c. Willshire has had a very liberal business at strong prices; the sales amount to 7500 shares at 1.30@1.60. Hortense has been weak with sales of 430 shares at 60@47c. Barcelona has had a moderate business at prices somewhat weak; the sales amount to 9500 shares at 1.50@1.20. Original Keystone has been dealt in to the extent of 200 shares at 1.25@1.30. Noonday records sales of 1900 shares at 2.10@1.95. Glass-Pendery has been dealt in to the extent of 2900 shares at 2.40@2.20.

Mr. L. V. Deforeest, No. 70 Broadway, under date of February 18th, 3 P.M., reports the current quotations of unlisted stocks as follows:

	Bid.	Offer'd		Bid.	Offer'd
Barcelona.....	\$1.15	\$1.20	New Philadel....	.....	\$0.60
Big Pittsburg..	2.00	2.50	North Hite.....	.....	.75
Breece.....	1.30	.....	O. K. & Winne- bago.....	.....	1.00
Bald Mountain..	.11	.....	Patagonia.....	.....	.75
Carbonate Hill..	.....	4.	Rico.....	.....	2.50
Con. Arizona....	2.00	.....	Rocker.....	.....	.50
Empire, Utah...	2 1/4	.....	Sacramento....	.....	1.77
Grand View....	.35	.75	Santa Cruz.....	.....	.75
Hibernia.....	1.30	1.40	SirRodr'k Dhu..	.15	.30
Highland Chief..	.....	8.00	Standby.....	.....	.75
Julian.....	1.00	2.00	Stormont.....	2.00	2.50
Lowland Chief..	.25	.50	Spring Valley..	2.80	3.00
Mack Morris....	.....	3 1/4	Silver Nugget..	.09	.10
May Flower....	.40	.50	Trinity.....	.50	1.75
Mohave.....	.....	.30	Van de Water..	.56	.57
Native Silver...	.....	.50			

The members of the New York Mining Stock Exchange are considering a proposition to limit the membership to 500. The present roll numbers 470, and it is proposed to offer the extra thirty seats to the highest bidders at an upset price of not less than \$2000 each, the fund thus created to be devoted to the purchase of a building for the purposes of the Exchange. It is also proposed to increase the amount to be paid to heirs of deceased members to \$4000.

A letter has been issued by the Chrysolite Mining Company to its stockholders, in which it is stated that the surplus this month, after paying expenses, will be about \$200,000. In January, there was an "incidental profit of \$24,000" on the month's work. The output was increased in February, in order to accommodate the smelters, but will now be cut down, and dead-work and prospecting will be resumed. The directors do not think it prudent to declare a dividend, partly because of the dispute as to the amount of tax levied by the Leadville Commissioners. This amounts to \$38,000, while the company claims that they are liable only to a tax of \$1000, which they have paid, and, in connection with other companies who have been subjected to burdensome assessments, will contest as to the balance.

The Vandewater Gold and Silver Mining Company of Nevada owed \$21,000 January 11th, and held 32,500 shares that could be used to liquidate the same; 100 debentures of \$500 each have been issued, and a per cent of the company receipts is set aside quarterly until the debentures are paid.

We call attention to the card of the Haverly Golden Group Mining Company, which introduces a novel feature. The working capital stock is made a preferred stock, and is guaranteed at 7 per cent.

The Silver Nugget Mine and Milling Company's 65 shares of new stock for 100 shares of old stock and \$15 cash. An advertisement says:

The old Silver Nugget Company had an indebtedness of \$101,000. Its property was in the hands of the sheriff, advertised to be sold on February 17th, to satisfy judgments and liens amounting to \$26,000. The sale of the property would have left the shareholders with certificates of stock in a company \$75,000 worse off than nothing. The new company, organized in accordance with the plan adopted by the stockholders at its meeting held on the 25th of January, after using the 1000 shares of stock which have

GENERAL MINING STOCKS.

Dividend-Paying Mines.

Table with columns: NAME AND LOCATION OF COMPANY, Feet on Vein, Capital Stock, SHARES (No., Par Val), ASSESSMENTS (Total levied to date, Date and amount per share of last), DIVIDENDS (Total paid to date, Last Dividend), HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE (Feb. 12, Feb. 14, Feb. 15, Feb. 16, Feb. 17, Feb. 18), SALES.

Non-Dividend-Paying Mines.

Table with columns: NAME AND LOCATION OF COMPANY, Feet on Vein, Capital Stock, SHARES (No., Par Val), ASSESSMENTS (Total levied to date, Date and amount per share of last), DIVIDENDS (Total paid to date, Last Dividend), HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE (Feb. 12, Feb. 14, Feb. 15, Feb. 16, Feb. 17, Feb. 18), SALES.

G. Gold. U. Uter. 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, 1,079,068.

been set aside for the satisfaction of the liens upon its property, will be free from debt. It will have a property worth \$250,000, and will have in its treasury 20,000 shares of stock and \$20,000 in cash for the working of its mine and mill.

A dispatch from San Francisco, dated February 16th, says:

A dispatch from Eureka, Nev., says there is a likelihood of a conflict between the Richmond and Aldron (This should probably be Aldron.—Ed.) mining companies over a body of rich ore developed in disputed ground. Both companies claim it, and have resorted to the smoking out of the workmen on the lower levels with such success that both mines are virtually abandoned. The Miners' Union has taken steps to have the matter compromised, but so far without result, and an old-fashioned fight is thought more than probable soon, as both parties are stubborn, and the ore-body worth fighting for.

OFFICIAL LETTERS.

**Boston Consolidated.**—A dispatch, dated February 14th, says:

Upraise No. 2 is up 42 feet, showing vein four feet wide; average value of ore, \$45 per ton. Average car samples from the stopes for the past week assayed \$39 per ton. North drift, 300 level, is in 320 feet, showing the vein five feet wide; average assay value of ore, \$41 per ton. The shaft has been sunk 22 feet below the 300 level.

**Father de Smet.**—At the annual meeting of the stockholders of the Father de Smet Mining Company, which was held on Saturday, J. B. Haggin was elected President, and Thomas Brown, Thomas Menzies, Joseph Clark and Thomas Bell, Directors for the ensuing year. The cash surplus of the company was reported to be \$60,000.

**Sutro Tunnel.**—The following is the report of weekly progress on the Sutro Tunnel, ending February 1st:

Main Tunnel—A shift of timbermen was employed a portion of the week retimbering near the Combination connection. The usual force was employed on general repairs along the main line. Flow of water in standard gallons, 3,351,000.

North Lateral—The usual repairs were made to keep the drift in good order.

South Lateral—Total number of feet from Julia connection, 2064. Nature of ground, heavy and swelling. Nature of rock, andesite, with frequent clay seams.

The nature of the ground run through during the last month proved to be of the worst character, and it was found impossible to keep the ground open with the ordinary method of timbering.

**Little Pittsburg.**—The managing director, under date of February 13th, telegraphs:

Little Pittsburg has started a new upraise 120 feet north from the great strike, which will in a few days determine the extent of the ore-body. The mine will be hoisting ore by Wednesday.

And under date of the 15th, he says:

Will commence raising and shipping ore from new strike to-morrow. The regular meeting of the board of trustees of the Little Pittsburg Mining Company was held yesterday. In view of the large increase probable in the receipts of the company, in consequence of the late strike in the mine, the board was unanimously of the opinion that before any dividends were declared a sum of not less than \$100,000 should be set aside for future prospecting-work. The surplus now on hand amounts to about \$34,000, derived from the workings of the mine before the new strike was made. The Little Pittsburg mine during January shipped 524 tons of ore. The amount settled for was 491 tons; net receipts, \$19,798; average per ton, gross weight, \$40; total net receipts for the past seven months, \$111,270.

**Little Chief.**—The manager reports for week ending Saturday, February 12th:

Sixty-two tons shipped. Contractor's teamster sick and has not delivered as fast as produced; 35 tons on hand in bins. No settlement.

**Robinson Consolidated.**—The Robinson mine, at Ten-Mile, has made arrangements for the sale of ore, and begins shipping by rail to-morrow. This mine has just been examined by experts and attorneys. A suit is to be brought for an injunction by the Jacques party immediately.

**Standard.**—The superintendent of the Standard Consolidated Company reports, under date of February 7th, that the cross-cut, 1000 level, is now in 79 feet. The west cross-cut is in 47 feet, with face in very favorable ground. The total length of main east cross-cut, 700 level, is 499 feet, with face in very hard rock. The south drift from the east cross-cut, 500 level, is in 123 feet, showing the ledge four feet wide. North drift No. 1, 385 level, is being timbered. The total height of upraise No. 1 from the main north drift, 385 level, is 311 feet, showing about 20 feet of ore. Upraise No. 6 has reached a height of 97 feet. The ledge here is about 25 feet wide. Upraise No. 1, south drift, is up 214 feet, showing the ledge 15 feet wide. The ledge in the stopes on the 385 level holds its usual width, and on the 550 level the ledge is from 12 to 20 feet wide and looks well.

**Chrysolite.**—The officers of the Chrysolite Company officially report, to the stockholders, that ore-extraction has been suspended at its mine, as the month's expenses have been earned, and that the whole force has been put upon dead-work, principally exploration. There is still ore exposed at many points in the present workings, but not enough to justify the attempt to

resume active extraction on a large scale. The indications that large bodies will yet be developed are encouraging, as one or two promising strikes have been made. Since the 1st of January, the object of the management has been to develop the ground of the company, and to take out only ore enough to pay all the expenses of that work. The daily output of ore was increased in February; but this was done solely to accommodate smelters, who objected to receiving and sampling small lots. The cash surplus of the company will be about \$200,000, after paying the February expenses, and the management believes that this surplus should not be diminished by the payment of a dividend while the necessities of the work of development remain uncertain, and the tax claims now contested by the company are unsettled. These claims amount to \$38,000 in Leadville over and above the proper taxes, which have been paid.

DIVIDENDS.

The Dunkin Mining Company has declared its regular monthly dividend of \$15,000, or 7½ cents per share, payable on March 1st, and an extra dividend of \$10,000, or 5 cents per share, payable at the same time. Transfer-books close on February 21st, and reopen on March 21.

The Starr-Grove Silver Mining Company yesterday declared its fourth regular monthly dividend of \$20,000, being 1 per cent on the capital stock, or 10 cents per share, payable on February 28th. Transfer-books will be closed from the 23d to the 28th, inclusive.

The Eureka Consolidated Mining Company has declared its regular monthly dividend of 50 cents per share.

The Father de Smet Consolidated Gold Mining Company has declared dividend No. 9, of 25 cents per share, payable at the office of Laidlaw & Co., No. 14 Wall street, New York, March 1st, 1881, on all stock issued from the New York agency. Transfer-books will close on the 19th inst., and reopen on March 2d.

The Green Mountain Mining Company yesterday declared a dividend of 10 cents per share on the capital stock, payable on the 26th inst. Transfer-books close on the 19th, and reopen on the 28th. The 19 previous dividends were five cents per share.

The Evening Star Mining Company has declared dividend No. 7, of 5 per cent on the capital stock of the company, payable February 25th to stockholders of record February 21st.

The Homestake Mining Company, of Dakota, announces its thirtieth dividend of 30 cents per share for the month of January, payable at Wells, Fargo & Co.'s on the 25th inst. Transfers will close on the 19th inst.

The Rising Sun Gold Mining Company has declared its fourth dividend of 15 cents per share, payable on the 1st of March, 1881.

The Contention mine, Tombstone District, Arizona, has paid seven consecutive dividends, \$75,000 each, and an extra one at Christmas, making eight in all, aggregating \$600,000, which have been distributed among the shareholders since the mine was placed on a dividend-paying basis. It has besides on hand in bullion and coin a sum equaling \$400,000.

The January dividends paid in New York, San Francisco, Boston, Philadelphia, and Colorado amounted to about \$750,000.

The financial condition on February 1st of some of the leading mining companies is reported as follows: Northern Belle (actual cash balance above liabilities), \$178,441.41; Western (Contention), \$131,475.44 in cash and \$43,800 in unsold bullion; Standard, \$58,148.25; Silver King, \$78,241.07; Consolidated Virginia, \$10,168.70 in cash and \$118,091 in unsold bullion; California, \$538.05 in cash and \$34,359.03 in unsold bullion; Bulwer, \$16,127.03; Best & Belcher, \$13,493.63; Bullion, \$25,755.32. (The Bullion Company has liabilities of \$248,775.32, including \$235,000 due the Ward Company.) Bodie Consolidated, \$38,000.37 in coin and bullion; Booker, \$4779.47; Bechtel, \$1569.52; Tioga, \$9881.94; Mono, \$11,512.92; North Bonanza, \$7500.69; Chollar, \$36,423.18; Challenge, \$6245.13; Julia, \$18,351.89. (The Julia Company's notes are out for \$35,000, due for Ward shaft.) Northern King, \$117.33; Mount Potosi, \$660.69; Benton, \$28,320.28; Alta, \$37,181.60; Silver Hill, \$6482.47; Potosi, \$32,975.67; Crown Point, \$20,000; New York, \$2700; Belcher, \$6742.54; Cham-

pon, \$1557.51; Exchequer, \$9783.96; Caledonia, \$3872.01; Overman, \$22,340.87; Justice, \$5067.50; Navajo, \$85,585; Argenta, \$1624.86; Ward, \$121,635.17; North Belle Isle, \$12,732.75; Belle Isle, \$269.88. The following mining companies had an indebtedness on February 1st: Union Consolidated, \$52,349.47; Lady Washington, \$6298.69; Mexican, \$19,921.45; Sierra Nevada, \$44,627.63. (The Sierra Nevada Company has \$6083.60 in unsold bullion and is collecting an assessment.) Consolidated Imperial, \$2518.21; Alpha Consolidated, \$9475.43; Independence, \$3407.03; Grand Prize, \$13,204.81. (The Grand Prize mill is about to start on a very large amount of rich ore.) Mount Diablo, \$4,071.90.

During February, twenty-nine assessments, aggregating a levy of \$886,400, become delinquent in San Francisco, Nevada, as usual, comes in for the lion's share, \$633,400; California mines demand \$143,000; those of Arizona; \$35,060, and Dakota, \$75,000. In January, thirty assessments became due, aggregating \$780,500.

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

NAME OF COMPANY	CLOSING QUOTATIONS.						Open- ing, Feb. 18.
	Feb. 11.	Feb. 12.	Feb. 14.	Feb. 15.	Feb. 16.	Feb. 17.	
Alpha.....	3	3	3	3	3	3	.....
Alta.....	1½	1½	2	2	2½	2½	.....
Argenta.....	11-16	11-16	.....	.....	.....	.....	.....
Bechtel.....	1½	1½	1½	1	1	1	.....
Belle Isle.....	.....	.....	.....	.....	.....	.....	.....
Belvidere.....	.....	.....	.....	.....	.....	.....	.....
Best & Bel.....	6¾	7¾	7¾	7¾	7¾	7¾	.....
Blackhawk.....	.....	.....	.....	.....	.....	.....	.....
Bodie.....	6¼	6¼	7	6¾	6¾	6¾	.....
Boston Con.....	.....	.....	.....	.....	.....	.....	.....
Bullion.....	1½	1½	1½	1½	1½	1½	.....
Bulwer.....	2¼	2¼	2¼	2¼	2¼	2¼	.....
Caledonia.....	.....	.....	.....	.....	.....	.....	.....
California.....	1	1	1	1	1	1	.....
Cal. B. H.....	.....	.....	.....	.....	.....	.....	.....
Chollar.....	1½	2	2½	2	.....	.....	.....
Columbus.....	.....	.....	.....	.....	.....	.....	.....
Con. Imp.....	.....	.....	.....	.....	.....	.....	.....
Con. Pacific.....	.....	.....	.....	.....	.....	.....	.....
Con. Va.....	1½	1½	1½	1½	1½	1½	.....
Crown Point.....	1½	1½	1½	1½	1½	1½	.....
Dudley.....	.....	.....	.....	.....	.....	.....	.....
Eureka Con.....	23	22½	22	22½	23¼	23½	.....
Exchequer.....	1½	.....	1½	1½	1½	1½	.....
Goodshaw.....	.....	.....	.....	13-32	13-32	7-16	.....
Gold & Cue.....	2½	3½	3½	3½	3½	3½	.....
Grand Prize.....	1½	1½	1½	1½	1½	1½	.....
Hale & Nor.....	3¾	4¾	4¾	4¾	4¾	5¾	.....
Hillside.....	.....	.....	.....	.....	.....	.....	.....
Independence.....	.....	.....	.....	.....	.....	.....	.....
Jackson.....	.....	.....	.....	.....	.....	.....	.....
Julia Con.....	.....	.....	.....	.....	.....	.....	.....
Justice.....	.....	.....	.....	.....	.....	.....	.....
Kentuck.....	.....	.....	.....	.....	.....	.....	.....
Lady Wash.....	.....	.....	.....	.....	.....	.....	.....
Leeds.....	.....	.....	.....	.....	.....	.....	.....
Leonard.....	.....	.....	.....	.....	.....	.....	.....
Leviathan.....	.....	.....	.....	.....	.....	.....	.....
Mammoth.....	.....	.....	.....	.....	.....	.....	.....
Manhattan.....	.....	.....	.....	.....	1½	.....	.....
May Belle.....	.....	.....	.....	.....	.....	.....	.....
Mar. White.....	.....	.....	.....	13-32	13-32	7-16	.....
McClinton.....	.....	.....	.....	.....	.....	.....	.....
Mexican.....	4¾	5¾	5¾	5¾	5¾	5¾	.....
Mono.....	1½	1½	1½	1½	1½	1½	.....
Navajo.....	.....	.....	.....	.....	.....	.....	.....
North Belle.....	12¼	12¼	13	.....	1¾	12¾	.....
N. Bonanza.....	.....	.....	.....	.....	.....	.....	.....
N. Standard.....	2	2	2½	2½	2½	2½	.....
Noonday.....	4½	4½	5	5½	4¾	4¾	.....
Ophir.....	1¼	1	1½	1½	1½	1½	.....
Prig. K's's'e.....	.....	.....	.....	.....	.....	.....	.....
Oro.....	11-32	11-32	13-32	7-16	7-16	13-32	.....
Overman.....	11-16	11-16	13-16	11-16	19-32	21-32	.....
Potosi.....	2	2¼	2¼	2¼	2	2	.....
Ray & Ely.....	.....	.....	.....	.....	.....	.....	.....
R. de Monte.....	.....	.....	.....	.....	.....	.....	.....
Savage.....	1½	2¼	2¼	2¼	2¼	2	.....
Scorpion.....	.....	1½	1½	1½	1	31-37	.....
Seg. Belcher.....	.....	.....	.....	.....	.....	.....	.....
Sierra Nev.....	5¾	6¾	7	6¾	6¾	6¾	.....
Silver Hill.....	.....	.....	.....	.....	.....	.....	.....
Silver King.....	17¾	18	17¾	18	18	18¾	.....
So Bulwer.....	.....	.....	11-32	.....	.....	.....	.....
Summit.....	.....	.....	.....	.....	.....	.....	.....
S. Noonday.....	.....	.....	.....	.....	.....	.....	.....
Syndicate.....	.....	.....	.....	.....	.....	.....	.....
Tioga.....	.....	.....	.....	.....	.....	.....	.....
Tip Top.....	.....	1½	1½	2	2¼	2½	.....
Trojan.....	.....	.....	.....	.....	.....	.....	.....
Fuscaira.....	13-32	13-32	13-32	.....	.....	11-32	.....
Union Con.....	7¾	7¾	7¾	7¾	7¾	7¾	.....
Utah.....	.....	.....	.....	.....	.....	.....	.....
Wales.....	.....	.....	.....	.....	.....	.....	.....
Vel Jacket.....	3	3¾	3¾	3¾	3	2½	.....

REVIEW OF THE SAN FRANCISCO MARKET.

Beyond an occasional spurt in a few stocks, the San Francisco list continues depressed.

It is said that the Union Consolidated mine No. 1 has been abandoned and is full of water, but that drifting will be begun next week from the shaft on the 2600 level.

In Hale & Norcross, considerable activity is reported, and the stock shows some strength in consequence. Considerable activity is noted in Alta, with an improvement in price, but nothing is heard from the mine upon which to base the advance. A general

press dispatch, dated San Francisco, February 17th, says:

The Enterprise publishes an article on the question now being agitated of reducing the wages of miners in order to work the low-grade ore of the Comstock mines at a profit. The article states that the proposition is to reduce wages on upper levels to from \$2.50 to \$3.50 per day, according to depth and the difficulty of the work, continuing the present rate of \$4 for work in the shafts at any depth and for all work below 2500-foot levels. The Enterprise claims that with such a reduction there is an immense amount of ore that could be extracted at a profit, notably in the Crown Point, Kentuck, Imperial, Jacket, Ophir, Mexican, Gould & Curry, Savage, Chollar, Consolidated Virginia, and California mines. It also holds that the question of a reduction of wages may be settled without any conflict of mine managers, and the Miners' Union can be brought together with a view to business. The Virginia Chronicle approves the Enterprise's article, and suggests that the Miners' Union take the initiative in the consideration of the question.

SAN FRANCISCO, Feb. 13.—Reports from Arizona continue good. There is great anxiety manifested here now by California mine operators to turn the tide of Arizona and Northern Mexico mining speculation to this city. Their ability to do so, however, is doubted, as they made themselves very unpopular in the early days of Arizona prospecting by refusing to advance money to develop the country. The rush to the Southwest promises to be greater this spring than during the Colorado boom.

The following is of interest:

The San Francisco Daily Report of February 7th, in its money article, says: The value of Comstock shares is mostly prospective, and the market is in accordance with this statement. There is no excitement, merely a long and weary wait, borne with more or less patience by the strongest-backed of the speculative community. Occasionally somebody's back gives out, and more rarely, new music or renewed hope comes to the rescue; but every body feels that the time is critical, and that the next few weeks, at most months, will virtually settle the question. In the mean time, surplus or diverted capital is taking a large but very quiet interest in Arizona, and is regarding Bodie with some attention and not a little hope. It is holding itself quite ready for a development and a boom in that quarter, and some of the best informed men and shrewdest operators are putting a large number of eggs in the Bodie basket.

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. 17.

The market for coppers the past week has been rather dull, but prices have been well maintained, and operators are not disposed to part with their stocks unless at much higher figures. The attention of speculators is more largely given to the silver mines, and at the Boston Mining Exchange the wildest excitement has prevailed throughout the entire week. The Arizona mines have been most active, and large sales are daily reported—Empire being the leading specialty. At the regular stock board, Harshaw continues to be active, with wide fluctuations, and Contentment shows a handsome advance over last week.

Calumet & Hecla firm at \$25 3/4 @ \$25 1/2. Copper Falls very dull, with sales at \$14 1/2. Franklin declined from \$17 1/2 to \$16 1/2, and closed offered at the latter price. Pewabic declined from \$22 1/2 to \$21, but closed \$21 bid. Quincy advanced from \$37 to \$37 1/2, declined to \$37, rallied to \$37 1/2, and closed offered at \$37 1/2. Atlantic declined to \$17, but is firm at that price bid. Osceola dull at \$39. Blue Hill sold at \$54. Huron sold at \$3 3/4 @ \$3 1/2. Ridge sold at \$6 1/2 @ \$6 1/4. Allouez sold at \$1 1/2 @ \$1 1/4. Madison sold at \$1 1/2 @ \$1 1/4. Aztec sold at \$1 1/2. National sold at \$2 1/4. Douglas sold at \$3. Star sold at \$2 1/4.

Brunswick Antimony, \$21 @ \$22. In silver stocks, Catalpa continues to rule steady and firm at \$2 13-16 @ \$2 1/2. A quarterly dividend of 20 cents per share is announced. Harshaw opened quit firm at \$17, declined to \$16, advanced to \$17 1/2, and again declined to \$16, when it had one of its "sick spells," and declined to \$13 1/2, from which it rallied to day to \$14 1/2.

Contentment, which has been quiet for a long time, started last week and advanced from \$14 to \$3 1/2, with quite an active demand for the stock at both boards. Silver Islet opened at \$3 1/2 and declined to \$3. Sullivan & Waukeag declined from \$7 1/2 to \$7. Duncan Silver Company advanced from \$3 1/2 @ \$4. P. M.—At the afternoon Board, Calumet & Hecla sold at \$25; Catalpa, \$2 13-16; Contentment, \$3 1/2; Harshaw, \$13 1/2 @ \$14 1/4; National, \$2 1/4; Pewabic, \$2 1/2; Silver Islet, \$3 1/2 @ \$3 1/2, closing at \$3 3/4 bid; Brunswick Antimony, \$22; Empire, \$1 1/2.

At the Boston Mining Exchange, the sales of Empire have been very large, the stock advancing from 64c. to \$1.32 regular, and \$1.50, buyer 30. At the afternoon Board to-day, the market was rather dull, and sales were made at \$1.25 @ \$1.27. The other specialties of the Board were also active, the sales aggregating for the week over 150,000 shares.

Coal Stocks.

NEW YORK, Friday Evening, Feb. 18.

A very great degree of activity has prevailed in these stocks during the past week, and prices have been strong and advancing. The sales aggregate 682,226 shares. The principal transactions have been in New Jersey Central, which stock has been the feature of the market. It opened Saturday at \$97 1/2, and on heavy sales the price advanced to \$112 yesterday, and closes to-day at \$109 1/2. The sales amount to 235,112 shares.

Delaware, Lackawanna & Western has been active and strong, the sales amounting to 100,317 at \$124 1/2 @ \$128 1/2.

Reading has been very strong and active to-day, on reports that Jay Gould has purchased the entire inter-

COAL STOCKS.

Table of Coal Stocks with columns for Name of Company, Capital Stock, Shares, Last Dividend, Rate per Ann., and Quotations for Feb. 12, 14, 15, 16, 17, 18. Includes companies like Am. Coal Co., Col. C. & I., Ches. & C. RR., etc.

\*Of the sales of this stock, 44,342 shares were sold at the Philadelphia Stock Exchange, and 49,880 shares at the New York Stock Exchange. †11 1/4. ‡12 3/4. Total Sales... 682,226.

BOSTON MINING STOCKS.

Table of Boston Mining Stocks with columns for Name of Company, Shares, Par, and Quotations for Feb. 11, 12, 14, 15, 16, 17. Includes companies like Allouez, Atlantic, Arizona Queen, etc.

\*233,374

c. Copper.

s. Silver.

est of the Messrs. McCalmont, of London, in the company. It is stated that this company has been earning largely of late, and that, as the issue of its deferred bonds will relieve it of the pressure of a floating debt, it will soon present a very favorable financial condition. The sales of the stock in this market during the past week amount to 49,860 shares, selling at \$61½ Wednesday, and to-day at \$72¾.

Delaware & Hudson has had sales of 70,531 shares at \$109¼@ \$114.

Of the miscellaneous coal companies, there have been sales of 3700 shares Maryland Coal at \$31¼@ \$30¼, 3460 shares New Central Coal at \$33¼@ \$31¼, 27,230 shares of Colorado Coal and Iron at \$55¼@ \$50¼, and 1000 shares of Consolidated Coal at \$41¼@ \$42@ \$41¼.

The recent rise in New Jersey Central is due to the fact that a movement is on foot to reorganize the company and take it out of the hands of the receiver. At a meeting of the directors yesterday, the resignations of Messrs. E. C. Knight and Edward Clark were received, and Messrs. Jay Gould and Sidney Dillon were elected to fill the vacancies. At 3 P.M., the new board met to organize, and ex-Judge Francis S. Lathrop was elected president. The board then discussed several plans for the future of the property, and among them was the advisability of taking the road out of the hands of the receiver. Upon this point no definite conclusion was reached. One director who was present said that an application to the chancellor for the discharge of the receiver might be made any day, as the property and affairs of the company are in a condition to warrant such a course. Considerations of policy alone, he added, are the reason for delay. The attention of the board was principally given to plans for the extension and improvement of the road, which were presented by Mr. Gould, and which he had in view in obtaining control of the company. According to an associate of his, Mr. Gould's plan is to unite the Central of New Jersey and the Delaware, Lackawanna & Western railroads, and utilize them as an outlet to tide-water for the Western and Southwestern systems that he controls. This plan contemplates the extension of one of the Central's leased lines to Binghamton, N. Y.

The Delaware, Lackawanna & Western is now building an extension from Binghamton to Buffalo. It is proposed to build this extension on joint account of the two companies, that it may be tributary to both of them.

After the plans had been discussed for some time yesterday, it was decided to refer the entire subject of extensions, improvements, consolidation, as well as the feasibility of taking the property out of the hands of the receiver, to a committee of five. The committee appointed consists of President Lathrop, Jay Gould, Sidney Dillon, G. G. Haven, and Frederick A. Potts.

The project of consolidating these two companies was discussed several years ago, but a plan suitable to both parties could not be agreed upon, and the scheme was abandoned.

An annual election for a president and six directors of the Lehigh & Wilkesbarre Coal Company will be held at the office of the Lehigh Valley Railroad Company, Philadelphia, on Thursday, February 24th, at 12 o'clock M., closing at 1 o'clock P.M. of that day. The transfer-books closed on the 15th instant, and will re-open on the 25th.

The Honeybrook Coal Company's bonds, due March 1st, payment of which was assumed by the Lehigh & Wilkes-Barre Coal Company, will be paid on that date, at the office of the Fidelity Trust Company, Philadelphia, and interest on them will then cease.

The Philadelphia correspondent of the *American Exchange*, writing under date of February 17th, says:

The two newspapers in this city which blindly sustain President Gowen, of the Philadelphia & Reading Railroad Company, published this morning a circular addressed to the stockholders of the company, under date of February 14th, requesting their proxies in the interest of the present management to be voted at the election on March. Mr. Gowen starts out with the information that two lists of candidates for the board will be presented—first, that of the supporters of the present management; second, that of Messrs. McCalmont Brothers & Co., who seem to be controlled by their American attorneys, possibly without knowing that the latter have for years represented an interest adverse to the company.

Mr. Gowen says that the Messrs. McCalmont are so completely under the influence of their attorneys that they have permitted the latter to use their names in legal and other proceedings, to oppose a postponement of the annual meeting called for January 10th, which Messrs. McCalmont

had themselves personally suggested; to apply for a mandamus to compel the managers to call a meeting so early that he (Mr. Gowen) could not attend, and thus, he says, disfranchise a very large number of their fellow shareholders; to secure an injunction restraining the company from carrying out the deferred bond and the new funding schemes, as well as injunctions to restrain the company from building its Jersey Shore & Pacific Creek Railroad, and from entering into contracts with other companies, and finally to allege that the company is still practically insolvent—an allegation, he contends, which is unfounded in fact. The alleged object of the McCalmont Brothers & Co., says Mr. Gowen, is to change the administration of the company, and he adds:

But I have informed them that it was my intention to resign as soon as I have placed the finances of the company in a sound condition, and if they only desired my retirement, the quickest way to secure it would be to aid me in restoring the company to good credit and prosperity. It can not be that the real object of those who represent them is merely to secure my retirement; for they further propose to turn out four of the present managers, one of whom has held office for sixteen years and two for twenty years, during the last eighteen of which Messrs. McCalmont Brothers & Co. have received in dividends upon their common stock, as the result of the management they seek to displace, 130 per cent, equal to an average of 7½ per cent per annum for each year of the eighteen, including the last five years of depression. It would seem, therefore, that, even if they desired my removal, they had no reason to attack their old friends, from whose long and unrequited labor they have realized, in dividends alone, the sum of \$11,149,000.

But they not only propose to remove these old and experienced managers, who together own and represent an interest in the company second in amount only to that of Messrs. McCalmont Brothers & Co., but they propose to elect in their places three new and inexperienced managers, two of whom are affiliated to rival companies, and not one of whom, so far as I have been able to discover, has any interest in the Philadelphia & Reading Railroad Company, each having purchased, about five weeks ago, from 25 to 50 shares, the possession of which is his chief qualification for the office he seeks to fill.

Mr. Gowen's circular closes with a tabulated statement to prove the wisdom of the deferred bond and blanket-bond schemes, to show how the plan he has outlined for the redemption of the company can successfully be fulfilled, and then makes a vigorous call upon all stockholders for their proxies. His intimation that the attorneys of the McCalmonts are interested in the Pennsylvania Railroad Company is brought out by the fact that Messrs. Alexander & Green, of New York, counsel for McCalmont Brothers & Co., were many years ago the New York counsel for the Pennsylvania Railroad Company.

It is announced that Mr. Gowen will sail for home on Saturday.

**Gas Stocks.**

NEW YORK, Friday Evening, Feb. 18.

The market for these stocks is strong and advancing. A sale is reported of 23 shares of Municipal at 159.

*Brooklyn (N. Y.) Gas.*—The gas companies of Brooklyn have handed in a second set of proposals for lighting the streets. The new set of bids in the aggregate exceed the appropriation, and the gas companies refuse to come down in their prices unless there is stricken out of the contract a specification requiring them to keep the lamps lighted 110 hours longer than last year.

*Massachusetts Gas Stocks.*—We learn of sales of Boston Gas Company at \$817¼@ \$820; Dorchester Gas Company, at \$94¼@ \$95¼; Brookline Gas Company, at \$107; and Lawrence Gas Company, at \$138.

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.

COMPANIES IN NEW YORK AND VICINITY.	Capital Stock.	Par.	Rate per ann.	DIVIDENDS.		QUOTATIONS.	
				Am. of last.	Date of last.	Bid.	As'd.
Mutual, N. Y.	\$5,000,000	\$100	6	1½	Jan., '81	65	70
" Bonds.	900,000	1,000	6	3½	Aug., '80	100	105
N. York	4,000,000	100	2	6	Nov., '80	90	101
Metrop.	2,500,000	100	10	6	Feb., '81	145	150
" Certs.	1,000,000	100	7	3½	Feb., '81	100	105
Harlem	1,850,000	50	5	3	Feb., '80	64	68
Manhat.	4,000,000	50	5	5	Dec., '80	185	190
Brooklyn, Bkin.	2,000,000	50	5	5	Nov., '80	113	115
Nassau	1,000,000	25	5	2½	Jan., '80	45	50
" Certs.	700,000	1,000	7	3½	Nov., '80	90	95
People's	1,000,000	10	3	3½	Jan., '79	27	30
" 1st m. Bonds	400,000	100	7	3½	Nov., '80	100	103
Metrop.	1,000,000	100	5	3	Jan., '81	75	80
" Bonds	1,000,000	100	5	2½	Jan., '81	15	20
Wm'sb's	1,000,000	50	2	2	Jan., '81	60	65
" Bonds	1,000,000	1,000	6	3	Oct., '80	101	104
Citizens	1,200,000	20	2½	2½	Aug., '80	40	45
" Bonds	315,000	1,000	5	3	Oct., '80	100	105
I. C. N.	750,000	20	7½	7½	Jan., '81	140	147
Municipal, N. Y.	2,000,000	100	5	5	Jan., '81	163	168
" Bonds	750,000	100	7	3½	Nov., '80	105	110
Fid't'n Municipal.	1,500,000	100	.....	.....	.....	50	55

**BULLION MARKET.**

NEW YORK, Friday Evening, Feb. 18.

As will be seen by the figures of the annexed table, there has been an important advance in the market for silver abroad and here. This rise is mainly owing to the improved chances that the proposed international convention will be able to reach a basis acceptable to the leading nations for a partial remonetization of silver.

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

DATE.	London		DATE.	New York	
	Pence.	Cents.		Pence.	Cents.
Feb. 12	51 11-16	112¾	Feb. 16	"	↑
Feb. 14	51¾	112¾	Feb. 17	52 3-16	113¾
Feb. 15	51 13-16	112¾	Feb. 18	52¼	113¾

\*51¼@52¼      ↑112¾@113¾

**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 \$1.20-29 per ounce, Troy; gold at the standard \$20.07 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 13½ per cent to arrive at actual value:

		For the week.	Month of February.	Year from Jan. 1st, 1881.
Alice	Mont	\$18,128	\$20,338	\$68,338
Barbee & Walker	Utah	5,072	18,801	44,073
Bodie	Cal	12,350	20,720	54,410
Bos. & Colo. S. W'ks.	Colo.	.....	.....	253,000
Crismon-Mammoth	Utah	.....	4,750	8,100
Connor	"	.....	.....	14,610
Christy	"	10,187	25,273	50,056
Con. Virginia	Ariz.	10,300	10,300	78,000
Contention	Nev.	34,800	71,080	234,810
Dexter Mill	Mont	.....	.....	11,000
Derbie	Cal.	13,200	13,200	31,892
Eureka Con.	Nev.	31,800	63,100	213,340
Elkhorn Mill	.....	.....	.....	5,000
Exchange Silver	Nev.	.....	.....	43,000
Frisco M. and S. Co.	Utah	17,716	17,716	17,716
Germani	"	18,930	25,400	73,975
Grand Prize	Nev.	7,600	7,600	32,565
Horn Silver	Utah	42,503	74,503	112,003
Hale & Norcross	Nev.	33,090	33,090	35,000
Hermosa Mill	Ariz.	.....	.....	12,000
Indian Queen	Nev.	.....	.....	23,150
Little Chief	Colo.	.....	.....	19,900
Lexington	Mont	7,000	7,000	7,000
Morning Star	Colo.	.....	.....	15,200
Mount Potosi	.....	9,900	9,900	9,900
Northern Belle	Nev.	24,900	39,980	151,180
Noonday	Cal.	.....	12,800	37,340
Navajo	Nev.	6,000	12,000	12,000
Ontario	Utah	54,480	72,805	178,421
Ophir	Nev.	.....	5,170	5,170
Pascoe	Utah	.....	.....	1,650
Richmond	Nev.	10,746	30,016	150,219
Stormont	Utah	15,000	24,536	85,435
Indian Queen	Mont.	.....	15,000	51,342
Sierra Nevada	Cal.	.....	.....	16,775
Standard	Cal.	20,457	62,857	289,917
Syndicate	"	.....	5,000	9,700
Silver King	Ariz.	.....	13,865	102,748
Star	Nev.	1,600	4,600	33,413
Tip Top	Ariz.	30,200	30,200	58,900
Tintic M. and M. Co.	Utah	7,483	7,483	9,707
Tombstone M. & M. Co.	Ariz.	.....	.....	53,333
Union Con.	Nev.	.....	.....	43,100
Wood River	Idaho	.....	.....	6,450

**CALIFORNIA.**

*Concordia.*—Four tons of ore milled recently by the ordinary wet process yielded, it is stated, \$1746.26, or \$436.56½ per ton. The metal saved was less than 50 per cent of the assay, the balance being in tailings, which were saved, and are now being experimented on by the superintendent of the Noonday mill.

*Standard.*—The superintendent reports that during the past week 1282 tons of ore were shipped to the mill; average pulp-assay, \$50.90. Crude bullion received, 7490 ounces; shipments to San Francisco amounted to about \$29,457.43.

**COLORADO.**

*Climax.*—It is reported by Leadville papers that this mine is again shipping good-grade ore, and that some rich ore has lately been taken from the mine.

*Dunkin.*—The manager reports that, for the first ten days of February, 207 tons were produced; net value, \$12,000.

*Grant Smelter.*—This smelter has received 50 tons of rich ore from Georgetown, averaging from 300 to 375 ounces of silver per ton. Small quantities of these sulphurets or galena ores can be smelted along with the immense masses of carbonates at the cheap rates prevailing there—one fourth or more less than the usual cost at the works nearer Georgetown. Railway freights, however, deduct from the apparent gain.

*Kate Consolidated.*—40 tons of ore are mined daily; the Adelia mill has been running on Kate ore since about January 20th; the capacity is 20 tons.

*Robinson Smelter.*—One furnace is in operation at this smelter; the other will be started as soon as a blower can be received.

*White Quail.*—Recent reports state that this mine has been sold in Philadelphia.

**MONTANA.**

*Alice.*—This mine, it is stated, produces daily 60 tons of ore, assaying from \$40 to \$80.

*Bell.*—This mine produces 10 tons of silver copper ore daily, and it is stated that this mine has reserves of first and second-class ore sufficient to keep a 30-ton smelter in operation for upward of two years.

*Butte.*—The bullion shipments for the week ending February 4th aggregated \$74,256.20.

**NEVADA.**

*Comstock Mines.*—For the week ending February 13th, these mines raised ore as follows:

	Tons.	Assay value per ton.
California	.....	.....
Con. Virginia	.....	.....
Sierra Nevada	92	\$17 to \$105

*Hale & Norcross.*—It is stated that the new hoisting-works at the construction shaft of this mine are expected to be in operation by the 25th of February.

**UTAH.**

Our correspondent reports the following statement of

bullion and lead shipped north from Salt Lake City during the week ending Saturday, January 29th, 1881:

CONSIGNORS.	No. cars.	Bullion.	Lead.
Mingo F. Co.....	11	\$236,410	.....
Brooks.....	10	217,551	.....
Horn S. M. Co.....	5	.....	.....
Germania L. & K. Co.....	1	.....	\$21,834
<b>Totals.....</b>	<b>26</b>	<b>\$538,963</b>	<b>\$21,834</b>

Ontario.—The superintendent reports the following bullion shipments for the week ending February 4th:

January 29.....	\$7,300.82
January 30.....	7,550.58
January 31.....	7,092.37
February 1.....	4,641.90
February 2.....	6,066.98
February 3.....	9,786.81
February 4.....	7,483.40
<b>Total.....</b>	<b>\$47,522.95</b>

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 \$336,986.74, as against \$242,236.40, reported in our last.

LONDON, Feb. 18.—The Manchester Guardian, discussing the Monetary Conference, says: A section in the Bank of England Charter Act provides that the issue department may emit notes upon silver to the extent of one fourth the amount of gold coin and bullion held by that department. The practice for many years has fallen into desuetude. If, however, it is now enforced, the bank might immediately buy over six million pounds worth of silver.

It appears, therefore, that, without joining the ranks of the bi-metallist countries, we can render them very substantial help. We do not say that it would be wise to use the powers of the bank to the full extent, and still less to do so all at once. The above section of the act was intended to rectify the disproportion in the supply of the two metals. There is nothing improbable in the supposition that the government may see, in the present circumstances, an occasion for using powers which have long been in abeyance.

BERLIN, Feb. 18.—Advices from St. Petersburg state that Russia, in reply to a preliminary inquiry, has signified her willingness to send a representative to the International Monetary Conference.

WASHINGTON, Feb. 12.—The Assay Commissioners who have been engaged in the United States Mint at Philadelphia for several days in testing the coinage of the various mints of the country, have completed their work and will report the result of the test to the President in a few days. It is understood that certain defects were discovered in the coinage executed at the Carson Mint, but that none of such coin has been put into circulation.

During the week ending to-day, there were 120,495 standard silver dollars circulated, against 138,997 for the corresponding week in 1880.

The Treasury Department has ordered another transfer of gold bullion, amounting to \$4,510,000, from the New York Assay Office to the mint at Philadelphia, for coinage into eagles and half-eagles. This makes an aggregate of nearly \$10,000,000 of gold transferred to the Philadelphia Mint during this month.

The San Francisco Mint purchased over a million ounces of silver during the month of January, and 102,935 ounces of gold. During the month, the coinage was \$2,870,000, being—eagles, \$880,000; half eagles, \$990,000; standard dollars, \$1,000,000. This is the first month for a long time that double eagles have been omitted in the coinage of this mint. There has been an increased demand for small gold, and orders have been given to turn all the gold received into eagles and half-eagles.

WASHINGTON, Feb. 17.—The Treasury Department today purchased 112,000 ounces of fine silver for delivery at the San Francisco Mint.

Exports of Gold and Silver from New York.

Week ending Feb. 12th.....	\$258,900.00
Corresponding week last year.....	100,300.00
Since Jan. 1st this year.....	1,320,675.00
Corresponding period last year.....	995,593.00

Gold Interest Paid Out by the Treasury.

Week ending Feb. 12th.....	\$1,084,898.93
Corresponding week last year.....	670,502.52
Since Jan. 1 this year.....	8,934,971.64
Corresponding period last year.....	10,774,917.25

As the result of Secretary Evarts's interview with the Appropriation Committee yesterday, the following paragraph was inserted in the Sundry Civil bill: For commissioners, not exceeding three in number, to represent the United States at a conference to be called to adopt a common ratio between gold and silver, for the purpose of establishing internationally the use of bi-metallic money and securing fixity of relative value between those metals, the sum of \$5000 each and their reasonable expenses, to be approved by the Secretary of State, and for a secretary to each of such commissioners the sum of \$3000; the amount necessary to pay such compensation and expenses to be immediately available out of any money in the Treasury not otherwise appropriated. For the proportion to be paid by the United States of the joint expenses of such, the sum of \$7500; and the report of said commissioners shall be made to Congress for ratification or rejection.

The Silver Question in Europe.—LONDON, Feb. 12.—The Economist says: If we can not enter the Monetary Conference on the same footing as some other parties, we shall at least exercise toward it a very benevolent neutrality. Should, for instance, such a proposal be made to us as to increase the quantity of fineness of the silver in our coinage so as to make it less of a mere token currency, we should hardly object, or to increase somewhat the amount to which silver may be a legal tender.

A dispatch from Paris to the Economist says: The idea of abandoning the proportion of 15½ to 1 between gold and silver, as recommended in Secretary Sherman's late report, is supported by an apparently official note published in the Journal des Débats. A telegram received in Paris from Berlin states that Prince Bismarck has said, if

the United States accepted a return to the bi-metallic system, he would support the representation of Germany in the conference.

Paris, Feb. 16.—The Bourse says that both France and the United States accept the proportion between gold and silver of 15½ to 1.

METALS.

NEW YORK, Friday Evening, Feb. 18.

The week under review is no improvement on that of its predecessor. There is nothing at the present moment to indicate when marked activity will set in. The consumption of all kinds of metals is very great, and the effect of this must eventually be felt.

Copper.—The business in this article has been almost entirely of a jobbing nature. Lake is quoted at 19½@19¼c. and Baltimore at 18½@18¼c., the latter being quite firm at quotations.

Our English advices by mail include the 3d inst.

Jan. 31st. On Saturday g. o. bs. sold at £61½ sharp cash, and a further quantity to-day changed hands at £61½ sharp cash, a great portion for net money without allowance of interest, which virtually enhanced the cost about 8s. 9d. per ton beyond the contract rates.

Chili charters were announced this morning as 2200 tons, of which 1400 tons bars and ingots, 450 tons in ores and regulus for England, 350 tons bars for France.

	1881.	1880.	1879.	1878.
Charters, January.....	3,700	5,953	4,194	4,180

Prices at Valparaiso quite nominal, and sellers scarce.

Feb. 1st. Chili bars steady, without animation, sales at full prices, partly £61½ net sharp cash without interest, closing at £62@£62½ for g. o. bs.

Feb. 2d. Market steady, sellers scarce, sales g. o. bs. at £61½ and £61¼ net and sharp cash, some at £62 cash; closing buyers at £62, sellers at £62½, usual terms.

Feb. 3d. Fair trade and steady market, g. o. bs. opening at £61½ net, £62 cash, closing buyers at £62 full terms.

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

	—Jan. 1 to Jan. 31.—		
	Imports.	Deliveries.	
Fine foreign, chiefly Australian	352	486	London.
Chili Bars and Ingots.....	550	1,782	Liverpool
Chili In Ores and Regulus.....	193	563	& Swansea.
<b>Totals, England.....</b>	<b>1,095</b>	<b>2,831</b>	
Fine foreign, chiefly American	Nil	Nil	France.
Chili Bars, Ingots, and Barilla.....	585	806	
	<b>1,680</b>	<b>3,637</b>	

	—Jan. 31, Jan. 1.—		
	Stocks.	Stocks.	
Fine foreign, chiefly Australian	6,980	7,114	London.
Chili Bars and Ingots.....	30,544	31,776	Liverpool
Chili In Ores and Regulus.....	796	1,166	& Swansea
<b>Totals, England.....</b>	<b>38,320</b>	<b>40,056</b>	
Fine foreign, chiefly American	425	425	France.
Chili Bars, Ingots, and Barilla	5,816	6,037	

Chili, chartered by Mail.....	44,561	46,518
and afloat.....	7,993	7,378
Telegrams.....	3,500	1,900
	<b>56,054</b>	<b>55,796</b>
	£62	£61½
Wallaroo cake.....	72	72

	—Jan. 1 to Jan. 31.—		
	1881.	1880.	1879.
Imports } Chili.....	1,328	1,334	5,308
Other foreign.....	352	169	898
Deliveries } Chili.....	1,680	1,503	6,206
Other foreign.....	3,151	5,274	3,217
	486	779	1,137
	<b>3,637</b>	<b>6,053</b>	<b>4,354</b>

STOCKS.

1880.	England.	France.	Total, England and France.	Chili afloat.	Total, England, France, and Chili afloat.
February 28.....	34,732	3,164	37,896	19,606	57,502
March 31.....	37,831	4,187	42,018	16,479	58,497
April 30.....	38,978	3,937	42,915	14,225	57,140
May 31.....	37,172	4,756	41,928	16,430	58,358
June 30.....	39,618	5,174	44,792	12,925	57,717
July 31.....	38,437	5,239	43,676	15,302	58,978
August 31.....	38,657	4,690	43,347	14,353	57,700
September 30.....	39,953	5,631	45,584	10,424	56,008
October 31.....	38,859	6,518	45,377	12,472	57,849
November 30.....	40,012	6,295	46,307	11,014	57,321
December 31.....	40,056	6,482	46,538	9,278	55,816

TOTALS PER MONTH.

1880.	Imports.	Deliveries.	Chilling, o. bs.	Wallaroo Cake.
January 31.....	1,503	5,424	273	282
February 28.....	5,968	5,277	71	82
March 31.....	6,337	3,944	66	70
April 30.....	3,332	5,435	60½	76
May 31.....	2,379	3,266	50½	72
June 30.....	7,808	5,004	50½	72
July 31.....	2,415	3,531	61½	73
August 31.....	3,400	3,840	61½	73
September 30.....	6,903	4,036	60½	72
October 31.....	2,803	3,100	61	72
November 30.....	5,370	4,440	61½	72
December 31.....	4,022	3,811	61½	72

Tin.—There has been only a jobbing business at 30@30½c. for all brands. The shipments of tin from the Straits to the U. S. for the first fortnight of this month were 50 tons, as compared with 900 tons for the corresponding period of 1880. The shipments to Great Britain for first fortnight of this month were 125 tons. Singapore quotes \$27½ and Penang \$27½. Exchange, owing to the rise in silver, has advanced from 3s. 9d. to 3s. 9½d. London quotes on spot £88 10s. and to arrive, £89 10s.

Our English advices by mail include the 3d inst.

Jan. 31st. Dutch deliveries for January are 517 tons; London deliveries of foreign were about 1100 tons. Present stock, 7013 tons. On 29th, business was done at 90@90½s. cash. To-day, prices a little easier, opening at 90½s. sharp, 90½s. ordinary cash, closing at 90½@90½s. respectively.

Feb. 1st. Transactions at 90@89½s. sharp cash; 90@90½s., usual 14 days.

Feb. 2d. America did not draw her usual supply from the Straits during January, but about 400 tons were shipped from New York to this country. This caused an increase of about 1500 tons in the European statistics since 1st ult.; whilst American figures have improved to nearly the same extent. Should the demand in the States again improve, a reaction would probably ensue, and quotations once more rise toward £100 per ton. Transactions to-day at 88½s. sharp, 89½@89½s. ordinary prompt, 90½s. down to 90s. three months.

Feb. 3d. Market completely in the hands of speculators; sales from 89s., usual 14 days, down to 88s. sharp cash; closing prices were 88@85½s.

STATISTICS OF FOREIGN TIN IN LONDON AND HOLLAND.

	—Jan. 1 to 31.—	
	Imports.	Deliveries.
Australian and Straits.....	1,119	1,101
Banca (ex sale).....	572	288
Billiton.....	273	229
Australian.....	Nil	Nil
	<b>1,964</b>	<b>1,618</b>
In transit—Straits, 646 tons;		
Australian, 163 tons.....	809	809
Tons.....	<b>2,773</b>	<b>2,427</b>

	—Stocks.—	
	Jan. 31.	Jan. 1.
Australian and Straits.....	7,013	6,995
Banca (ex sale).....	1,571	1,287
Billiton.....	1,841	1,797
Australian.....	Nil	Nil
	<b>10,425</b>	<b>10,079</b>
In transit.....	Nil	Nil
Tons.....	<b>10,425</b>	<b>10,079</b>
Approximate quantity afloat, as estimated from telegram.....	Australian, 2,100	1,900
Straits.....	2,000	825
Billiton.....	1,000	1,300
Tons.....	<b>15,525</b>	<b>14,104</b>

	—1881.—			—1880.—			—1879.—		
	1881.	1880.	1879.	1881.	1880.	1879.	1881.	1880.	1879.
Sales of Banca by Trading Co.....	572	624	669	572	624	669	572	624	669
Imports—Billiton.....	273	88	260	273	88	260	273	88	260
“ Straits.....	405	258	632	405	258	632	405	258	632
“ Australian.....	714	1,321	484	714	1,321	484	714	1,321	484
<b>Total brought to market.....</b>	<b>1,964</b>	<b>2,291</b>	<b>2,015</b>	<b>1,964</b>	<b>2,291</b>	<b>2,015</b>	<b>1,964</b>	<b>2,291</b>	<b>2,015</b>
Actual deliveries of foreign.....	1,618	1,822	1,397	1,618	1,822	1,397	1,618	1,822	1,397
In transit—Straits and Australian.....	809	641	147	809	641	147	809	641	147

January. Imports. Approximate shipments.

Australian.....	714	925
Straits.....	405	1,600
Tons.....	<b>1,119</b>	<b>2,525</b>

N. B.—Straits "imports" include 100 tons, and "shipments" 300 tons from America.

	STOCKS.					Totals per month.		
	England.	Holland.	Afloat for Europe.	Total, England and Holland, afloat for Europe.	Arrivals.	Deliv'ed.	Ans. and Straits.	
1880.								
Jan. 31.....	8,170	3,855	4,370	16,095	2,290	1,822	£98	
Feb. 28.....	8,284	3,391	3,800	15,535	1,486	1,636	93	
March 31.....	8,250	3,569	2,800	14,619	1,538	1,594	85½	
April 30.....	7,880	3,296	2,749	13,916	1,117	1,760	82½	
May 31.....	7,233	3,397	3,220	13,850	1,204	1,750	70	
June 30.....	6,931	3,230	3,235	13,396	1,487	1,956	84½	
July 31.....	7,103	3,518	3,175	13,796	1,756	1,296	90½	
Aug. 31.....	7,408	3,629	3,300	14,337	1,847	1,431	87	
Sept. 30.....	7,013	4,126	2,850	13,989	1,762	1,660	84½	
Oct. 31.....	7,065	3,264	3,250	13,579	1,706	2,516	89½	
Nov. 30.....	6,657	3,275	3,475	13,407	1,757	2,154	93¼	
Dec. 31.....	6,995	3,084	4,025	14,104	1,705	1,558	91½	

**Tin Plates.**—Consumers are buying quite largely. In a large way, however, there is no business doing. We quote Charcoal tins, Melyn grade, ½ cross, at \$6½@8½; Allaway grade, \$5½@8. Charcoal roofing, Dean grade, \$5½ for 14 x 20, and \$10½ for 20 x 28; Allaway grade, \$5½@ \$5½ for 14 x 20, and \$10½@ \$10½ for 20 x 28. Coke roofing, B. V. grade, \$4½ for 14 x 20, and \$9½ for 20 x 28. Coke tins, B. V. grade, \$4½@ \$4.95 for IC, and \$4.40 for ICW.

**Spelter and Zinc.**—There is practically nothing doing in either. We quote the former at 5½c., and the latter at 6½@7c.

**Antimony.**—There has been a break in the market for this article, without bringing business. We quote Cookson's at 14½c., and Hallett's and Johnson's at 14½c. At the close, the market is quite unsettled.

**Lead.**—Sales of 400 tons of common domestic are reported at 4.90@4.95c.

The San Francisco Commercial Herald, under date of February 10th, says:

We remark a limited export inquiry at the late advance, the nominal asking price being 40c., sales at 38½c. Receipts are light, owing to the impassable condition of the roads.

The exports for the week, by sea, were as follows:

	Flasks.	Value.
Totals.....	661	\$18,929
Previously since January 1st, 1881.....	4,029	113,956
Totals.....	4,690	\$132,885
Totals same period, 1880.....	2,695	79,855
Increase in 1881.....	1,995	\$53,030

Receipts since January 1st, 1881, 3,380 flasks.  
Overland shipments from January 1st to December 31st, 1880, 11,640 flasks.

**IRON MARKET REVIEW.**

New York, Friday Evening, Feb. 18.

But very little business is reported in iron. Some articles are strong, while others are a shade weak. The severe weather of this winter has curtailed production somewhat, while there is still great difficulty in moving iron, although not nearly so great as several weeks past. The trade will unquestionably see an improvement later in the year, but the indications do not favor so early an appearance as was expected.

**American Pig.**—We note sales of 1000 tons of No. 2 Foundry, and 1000 tons of No. 1 Foundry, both Thomas iron, at \$22 and \$25 respectively; also 1200 tons of Forge, good brands, at \$20.50 at furnace. A large number of consumers have contracted for their year's supply, and those who are unsupplied do not show an eagerness to purchase. Makers, however, do not show any weakness, although their winter's production was large and the consumption not so great as during the fall. We quote No. 1 Foundry at \$25@26; No. 2 Foundry, \$22@23; and Forge, \$20@21.

**Scotch Pig.**—This article is quiet and tending to weakness. The arrivals are small, and mostly absorbed. We quote Eglinton at \$22@22½; Coltness, \$24@24½; Glengarnock, \$23½; and Gartsherrie, \$23½@24. Most of the arrivals of foreign iron are hematite brands for making Bessemer steel. It is stated that several thousand tons of this iron have been ordered from the other side this week.

**Rails.**—We hear of a sale of 5000 tons of steel rails at £7 5s. c. f. i. equal to about \$63.50 at the present rate of exchange. We note a sale of 2000 tons at \$59 at an Eastern mill, fall delivery. There has been some business in iron rails, which are higher. We quote English here at \$47, and American at Eastern mills \$48@50.

**Old Rails.**—These have been quiet and weak. We quote Ts. at \$28, and D. Hs. \$29.

**Wrought Scrap.**—We quote at \$30@31.

We publish the following letters received from our regular correspondents:

**Baltimore.** Feb. 14.  
[Specially reported by R. C. HOFFMAN & Co.]  
The demand for iron continues good, and prices for best grades are advancing.

**Columbus, O.** Feb. 16.  
[Specially reported by KING, GILBERT & WARNER.]  
The demand continues moderately active, with a slight advance in price on best grades of foundry iron. Producers complain of small margins at present prices, owing to the high price of ores and labor.

**Louisville.** Feb. 15.  
[Specially reported by GEORGE H. HULL & Co.]  
The last week has witnessed considerable activity in the iron market, with some large sales, principally mill and No. 2 Foundry, although prices are a shade lower on some inferior brands. The demand for cold blast is still very light, but as far as sales indicate, prices are unchanged.

**St. Louis.** Feb. 15.  
[Specially reported by HOFFER, PLUMB & Co.]  
The demand continues good, and the firmness to which we have previously alluded is fully maintained.

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

LONDON, E. C., Feb. 3.  
**STEEL RAILS.**—£6 10s. @ £7 per ton, according to weight per yard. The market continues firm, but the late rise has checked business so far as America is concerned. Light sections have been wanted, but our makers are too full to quote for that class of rails at present.

**IRON RAILS.**—£5 10s. @ £6 15s per ton for rails 50 lbs. per yard and upward. Not much inquiry, but makers full of work for some time ahead.

**BAR IRON.**—£5 2s. 6d. @ £5 5s. per ton; very quiet.  
**OLD RAILS.**—Continue to be inquired for, chiefly D. Hs., wanted for shipment to Baltimore and Philadelphia; but buyers and sellers can not meet, the latter requiring 90@92s. 6d. per ton c. i. f.

**HEAVY WROUGHT SCRAP-IRON.**—In good demand, 85@90s. per ton now asked c. i. f. U. S. ports.

**OLD RAILWAY LEAF SPRING STEEL.**—£5 5s. @ £5 10s. per ton.

**OLD CAST-IRON RAILWAY CHAIRS.**—43@45s. per ton.  
**STEEL BLOOMS, 7" x 7" AND UPWARD.**—£6 per ton, and very few offerings.

**BESSEMER PIG-IRON, Nos. 1, 2, and 3.**—65@70s. per ton; quiet but steady market.

**SCOTCH PIG-IRON.**—Unsettled market at 51s. 9d. @ 52s.  
**MIDDLESBROUGH PIG-IRON, No. 3.**—38s. 9d. @ 40s. per ton.

**COAL TRADE REVIEW.**

**Anthracite.**  
New York, Friday Evening, Feb. 18.

There is a large amount of coal wanted that the companies are still unable to deliver. The milder weather of the past week has reduced consumption at points like this city where there has been no serious fears of a famine, while it has not opened ports where coal is very scarce. The consequence is, that there has been a falling off in new orders. The West is calling for more coal than it can get. Every day of mild weather will tend to open markets that have been closed for months; and when all of the rivers and canals are opened, there will be a very active demand for some time. Prices are very firm, and there is a strong feeling in favor of an advance. We think, however, that the conservative element will prevail. The managers of the companies find no necessity of meetings to regulate matters, it being the feeling that every tub can stand on its own bottom now.

Not including the shipments over the Central Railroad of New Jersey, the report of which we have not received this week, the coal product for the week ending February 12th was 444,995 tons. The total production from January 1st to February 12th was 2,407,059 tons, as against 2,357,012 tons for the like period last year, showing an increase this year of 50,047.

**Bituminous.**

There has been a very large business done in bituminous coal during the past two weeks, amounting probably to 300,000 tons, in contracts for delivery during the year. From all we can learn, this was mostly, if not entirely, for Clearfield coal. The Cumberland interest appears to be considerably demoralized by the manner in which their competitors have been taking orders, while they were apparently unable to say what they could do. The shipments from both regions show a falling off. There is an improving supply of cars in the Clearfield region, and no difficulty is experienced in moving coal from Amboy. There has been great difficulty in moving Cumberland coal in any way whatsoever.

**San Francisco.** Feb. 10.

The situation remains unchanged. Spot prices are kept up fictitiously by the local ring at exorbitant figures.

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. Coos Bay and Seattle sell to the dealers in a jobbing way at \$10; Wellington, \$12. The Nainimo Free Press of January 22d says: The shipments of coal for the year 1880 by the Vancouver Coal Company and Dunsuir, Diggle & Co. amounted to the grand total of 272,364 tons, 189,540 tons being the product of the Wellington collieries and 82,822 tons the Nainimo colliery. Aid to the 272,364 the 9764 tons on hand, and we have a total for 1880 of 282,128 tons. During the past year, a six weeks' strike at the Nainimo colliery militated considerably against the output of that colliery, while the scarcity of available shipping last fall necessitated the curtailment of the output of the Wellington collieries. But for the two adverse circumstances, the shipments from the before-mentioned mines would have reached the high total of 300,000 tons. The shipments for the year 1880 are the highest yet reached by the mines in this district, as the following table will show:

1880.....	272,364
1879.....	228,974
1878.....	190,640
1877.....	166,691
1876.....	140,087
1875.....	113,000
1874.....	81,397
Total for seven years.....	1,195,137

**STATISTICS OF COAL PRODUCTION.**

Comparative statement of the production of anthracite coal for the week ending Feb. 12th, and years from January 1st:

TONS OF 2240 LBS.	1881.		1880.	
	Week.	Year.	Week.	Year.
<b>Wyoming Region.</b>				
D. & H. Canal Co.....	77,897	344,922	66,525	428,636
D. L. & W. RR. Co.....	101,382	412,533	68,403	407,271
Penn. Coal Co.....	22,589	103,927	10,845	62,906
L. V. RR. Co.....	18,627	110,157	27,191	140,008
P. & N. Y. RR. Co.....	831	4,211	.....	1,247
C. RR. of N. J.....	.....	172,850	11,966	160,858
	221,326	1,148,600	184,960	1,200,926
<b>Lehigh Region.</b>				
L. V. RR. Co.....	94,267	424,325	51,555	315,197
C. RR. of N. J.....	.....	130,394	37,116	206,936
S. H. & W. B. RR.....	352	676	.....	1,946
	94,619	555,395	88,671	524,079
<b>Schuylkill Region.</b>				
P. & R. RR. Co.....	108,002	578,851	91,171	571,343
Shamokin & Lykens Val.....	19,706	117,329	9,068	56,007
	127,708	696,180	100,239	627,350
<b>Sullivan Region.</b>				
St. Louis & Sul. RR. Co.	1,342	6,884	1,302	4,657
Total.....	444,995	2,407,059	375,172	2,357,012
Increase.....				
Decrease.....		50,047		

\* These reports were not received this week.  
The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.  
Total same time in 1876..... 1,424,415 tons.  
" " " " 1877..... 1,746,280 "  
" " " " 1878..... 1,567,596 "  
" " " " 1879..... 2,201,274 "  
" " " " 1880..... 2,357,012 "

Belvidere Delaware Railroad Report for the week ending Feb. 12th:

	Week.	Year.	Year.
	1881.	1881.	1880.
Coal for shipment at Coal Port (Trenton).....			
Coal for shipment at South Amboy.....	7,996	14,671	29,722
Coal for distribution.....	24,501	38,658	33,104
Coal for company's use.....	3,436	5,748	6,782

The decrease in shipments of Cumberland Coal over the Cumberland Branch and Cumberland & Pennsylvania Railroad amounts to 81,271 tons, as compared with the corresponding period in 1880.

The Production of Bituminous Coal for the week ending Feb. 12th was as follows:

Tons of 2000 lbs., unless otherwise designated.		
	Week.	Year.
	Tons.	Tons.
<b>Cumberland Region, Md.</b>		
Barclay Region, Pa.	19696	143,940
Barclay RR., tons of 2240 lbs.....	11,015	55,693
Broad Top Region, Pa.		
Huntingdon & Broad Top RR.....	5,100	26,753
East Broad Top.....	1,568	7,150
Clearfield Region, Pa.		
Snow Shoe.....	1,354	5,149
Tyrone and Clearfield.....	35,783	192,103
Alleghany Region, Pa.		
Pennsylvania RR.....	6,020	29,412
Pittsburg Region Pa.		
West Penn RR.....	7,035	42,895
Southwest Penn. RR.....	1,587	5,996
Penn & Westmoreland gas-coal, Pa.		
RR.....	16,782	105,573
Pennsylvania RR.....	11,688	74,359

The Production of Coke for the week and year ending Feb. 12th, 1881:

Tons of 2000 lbs.		
	Week.	Year.
	1881.	1880.
Penn. RR. (Alleghany Region).....	2,252	11,454
West Penn. RR.....	2,127	10,260
South west Penn. RR.....	28,994	176,242
Penn. & Westmoreland Region, Pa. RR.....	4,058	20,638
Pittsburg, Penn. RR.....	6,176	45,768
Snow Shoe (Clearfield Region).....	187	1,120
Total.....	43,794	295,443