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CONTENTS.

A CORRESPONDENT desires the services of a mining engineer to make a mining survey at once of a Virginia ore property. Applications will be forwarded from this office.

MESSRS. FRASER & CHALMERS, the well-known mining machinery manufacturers of Chicago, have opened a branch office in New York, in the United Bank Building, corner of Wall and Broadway. This office is under the management of Mr. WALTER MCDERMOTT, who is also the General Agent for the Frue Vanning Machine or Concentrator.

THE first number of the third volume of the *School of Mines Quarterly* shows a healthy growth of an enterprise that deserves and, judging from present appearances, is getting full support, not alone among those of the profession who are closely allied with the School of Mines, but also among those who have not been taught the elements of mining and metallurgy there.

FROM Mexico comes the news that the act providing for the coinage of four million dollars' worth of nickel coins of small denominations has passed both branches of the Legislature. When it is carried out, it can not fail to affect the nickel markets of the world somewhat, and to a less degree react upon our own, where, however, the WHARTON metal reigns supreme.

THE New York Academy of Sciences has made a new departure, and is beginning to show signs of a vigor which promises well for the future. It has begun to print its proceedings in the form of *Transactions*, the first number of which is now before us. The little pamphlet contains among other matters of interest a series of geological notes by Dr. NEWBERRY, on places visited in Montana, Idaho, Utah, and Colorado, and a paper on the geology of the copper region of Northern Texas and the Indian Territory, by Mr. JOHN H. FURMAN, who does not think that the copper bed described will prove of any commercial importance.

IT is gratifying to note how promptly the dangers of fire that might arise from the introduction of electric lighting are being dealt with. We have before us two documents bearing on the same subject, both covering the same ground approximately, and both making substantially the same recommendations. The one is the report of a committee of the Franklin Institute of Philadelphia, the other is a paper read by Mr. WILLIAM A. ANDERSON, of New York, at the first annual meeting of the United Fire Underwriters. As the latter document is by far more authoritative and reaches farther, being a report to the New York Board of Fire Underwriters, we need deal with it alone. The requirements of the Board have been precisely formulated, and are now being complied with by the leading illuminating companies as rapidly as circumstances will admit, remodeling old plant and making arrangements to alter the construction of new apparatus turned out. In order to prevent the possibility of heating a wire if it has not conductivity enough, and the dangers of conflagration arising therefrom, it is recommended that "wires have fifty per cent excess of conductivity above the amount calculated as necessary for the number of lights to be supplied by the wire." Experienced electricians state that if the conducting wire is two and one half times greater in weight per foot than the wire wound around the dynamo-electric machine, it will be amply safe. A very important point, insisted upon by all who have given the subject careful study, is to thoroughly insulate the wires. To this Mr. ANDERSON adds that the wire must be doubly coated. He expresses it as his conviction that the wire of the future must be different from any now in use. With the same object in view, thorough insulation, he recommends that all wires be secured to walls, etc., by some approved non-conducting fastening. There appears to have been much negligence in this respect hitherto. Now, however, porcelain fastenings are being rapidly substituted in lieu of metal staples. For the distance between wires, a minimum of two and one half inches for incandescent light wires and eight inches for arc light wires is prescribed. All arc lights must be protected by glass globes inclosed at the bottom, so as to effectually prevent sparks or particles of the carbon from falling from the lamps ; and when necessary, chimneys with spark-arresters must be placed at the top of the globe. The conducting frame-work of chandeliers and lamps must be insulated and covered the same as wires, and an absolute cut-off must be placed at the point of entrance of the electricity into buildings. So far as present experience has shown and can suggest, all possibilities of fires by the introduction of electric lighting have been effectually guarded against by these requirements, and, according to all indications, the light companies are meeting the fire underwriters with a spirit which proves that they fully appreciate the importance of the subject.

A GRAVE DEFECT IN OUR PATENT LAWS.

As we announced in our issue of December 10th, the Examiner of Interferences has decided in favor of Mr. JACOB REESE, in the interference suits between FRITZ OSANN, HENRI HARMET, and PERCY GILCHRIST THOMAS. From this decision an appeal may be taken, first to the Board of Examiners in Chief and to the U. S. Commissioner of Patents in person, or a bill in equity can be filed before the U. S. Circuit Court for a review of proceedings. With further action in this matter pending, it would be improper for a journal to question the justice of this decision, nor do we propose to do so. Still, the case is one of such general interest, and furnishes so striking an illustration of one of the most fatal defects of our patent law and the practice of the Patent-Office, that a presentation of the principal points at issue may well serve to show its scope and its bearing.

Two cases are involved in the present litigation : Case A, for which a patent was granted to Mr. THOMAS, covering the process of desiliconizing phosphoric pig-iron in a Bessemer converter with a siliceous or other lining, and subsequently running the metal into a Bessemer converter with a calcareous basic lining and in the presence of basic additions ; and Case B, being the application of THOMAS, REESE, and OSANN for a patent on the manufacture of steel by first desiliconizing phosphoric pig in an acid converter and dephosphorizing in an open-hearth furnace with a calcareous lining. We need not go into the question who of the various claimants, OSANN, HARMET, or THOMAS, was the prior inventor in either case, as all of them base their claims upon inventions made within the last four years, while the fourth, REESE, insists that he covered the whole ground many years ago We may, however, state, in order to give an idea of the complex relations existing among the litigants, that the Bessemer Steel Company, Limited, that loose confederation of eleven of the American Bessemer steel works, owns the THOMAS patents, including the one referred to in Case A, and that it is also the assignee of Mr. REESE. Mr. THOMAS's

attorney, however, does not dispute the priority of another inventor, so far as Case A is concerned. As for Case B, other parties than the Bessemer Steel Company are interested, and we therefore find that company contesting its own patent in Case A with other claims it controls, possibly for the purpose of keeping rivals from using later improvements in Case B.

The history of THOMAS'S early struggle and his successes is too well known to be placed on record again. By patient efforts, directed by scientific investigations and a close study of technical questions by THOMAS and those who took up and backed his work, one by one, the principal facts, now recognized as essential features, were brought to light. First came the announcement of the necessity of a lime lining and basic additions; then the recognition of the fact that the elimination of phosphorus takes place almost exclusively during the "after-blow;" and finally, the discovery that phosphorus may advantageously replace silicon as the element whose combustion is needed to develop the high temperatures for keeping the charge in a fluid condition to the close, and fit for good casting.

REESE, who has assigned his claims to the Bessemer Steel Company, Limited, the purchasers of the THOMAS patents, in his testimony states that during the early spring of 1865 he experimented with crucibles lined with lime, melting pig in them with ore slag and lime with a view to dephosphorizing. He failed, because the lining shrank away from the crucible. He then constructed a reverberatory furnace lined with lime and heated by oil, by which he was enabled to keep pig-iron and scrap melted, and with it he succeeded in reducing the phosphorus considerably. In 1866, he built a plant for reducing metallic oxides while in a fluid condition by the use of hydrogen and hydrocarbons, and with this plant, consisting of a cupola and a small stationary converter, he melted pig in the cupola with lime and oxide of iron, and ran it down into the converter lined with lime. The results were indifferent, the metal chilling and the lining fluxing very rapidly, on account of the siliceous ash of the fuel. He found that when the slag contained the most phosphorus as a phosphate, and when it contained the least silica, he had the least difficulty in keeping the metal fluid. He relined the converter with fire-brick, and, putting a lime lining into the open hearth adjoining, melted Pine Creek pig, holding 1·6 per cent of phosphorus, ran it down into the converter, blew it until decarbonized and desiliconized, and poured it into the open-hearth furnace, in which he had placed a slag composed of lime and oxide of iron, thus reducing the phosphorus to 0·21 per cent. He then built a second converter, and melting the pig with lime as a flux, blew it first in the acid-lined converter, and then treated a portion of it in the lime-lined vessel, whereby a product holding less than 0·10 per cent of phosphorus was obtained. On the 21st of December, 1867, an explosion of the boilers of the mill damaged the plant; but it was repaired and further experiments were made, until finally it was destroyed by fire on January 8th, 1870. Mr. REESE, in his testimony, says that he used a mixture of petroleum and lime to ram in the lining of his vessels. After the explosion, Mr. REESE made a series of tests, "with a view of producing metal high in phosphorus by the utilization of phosphoric slag, in order to secure a higher temperature in the lime-lined converter, as he had previously noticed that the metal remained in a more fluid condition during and after dephosphorization when the metal treated contained the largest amount of phosphorus."

From this abstract of Mr. REESE'S testimony, it will be noted that almost every point which is now, after years of laborious research by the most skilled metallurgists and chemists of Europe, recognized as essential to dephosphorization, is claimed by Mr. REESE as known to him many years ago. Although American journals closely followed progress for months before the meeting of the American Institute of Mining Engineers at Pittsburg in May, 1879, he states that it was on that occasion that he first learned of what had been going on abroad. It is to be regretted that he did not then enlighten the world as to points then still shrouded in darkness; that he did not then publicly announce his discovery that the more phosphorus there is in the pig the better the blow will be toward the close. Some of the great troubles experienced in the new process at that time were due to the fact that the *rôle* of phosphorus was not yet fully understood.

We have no right to assert that Mr. REESE did not do what he claims to have done, and must accept his statements for the present. From a study of the evidence, we find that he must rest for a vindication of those claims almost entirely upon them. As they stand now, they show as clear an insight of the means and objects of dephosphorization as any one who has some knowledge of metallurgy could form from a close study of published investigations and discussions, and no more. But it is very difficult from any examination of the record of Mr. REESE'S knowledge of metallurgy previous to 1878, as revealed by his patent specifications during that period, to escape the conclusion that before and after his alleged experiments he had any clearer idea of the subject than others. In 1867, in a patent for removing phosphorus and sulphur by blowing hydrocarbons into the converter, he says that "it would be necessary to oxidize all the iron before the phosphorus could be eliminated, and that thus it arises that steel made by the pneumatic process contains as much phosphorus after treatment as before." That was the theory accepted without question for many years by all metallurgists, and in none of the many patents which Mr. REESE took from 1867 to 1878 does he depart from it, though he puts forth a number of schemes. The reason given for not taking out patents for his alleged inventions covering the whole basic process is, that he was financially crippled by the disasters which befell the firm to which he belonged.

These are simply the impressions which a study of these patents would give to any metallurgist. We do not profess to weigh the testimony or sit in judgment. Let us accept Mr. REESE'S testimony in full faith, as the Examiner of Interferences evidently does. We find that then the case becomes one of that numerous class which has been a standing menace to manufacturers, and has done much injury to inventors and their cause. In case of a contest, an inventor may, according to statute, antedate his invention not more than two years prior to the date of his patent, provided he can show that his invention was completed at that date. If, in the case of a contest, he attempts to antedate his invention prior to two years before he applies for his patent, he must, when that step is finally taken, show that he used his invention secretly in such a manner that no opportunity was offered to the public to learn of it. The law, as interpreted by eminent jurists, discourages secrecy as much as possible, it being, in fact, one of the principles of our patent system that in return for valuable privileges accorded him, the inventor fully communicates the details of his discoveries. How narrowly the lines are drawn will be seen from the following summary of the decision of Judge LOWELL, rendered in the United States Circuit Court on May 15th, 1880, in the case of PERKINS *versus* the Nashua Card and Glazed Paper Company. Judge LOWELL says:

"Use of a machine by a patentee in his business for more than two years before applying for a patent, and by workmen under no pledge of secrecy, though the general public were not permitted to visit the shop where it was being used, is such public use as will vitiate the patent; therefore,

"To constitute public use, actual knowledge of an invention need not have been derived by any one introduced to practice it. It is sufficient if one or more persons, not under the pledge of secrecy, saw the invention practiced or even might have seen it had they used their opportunities, provided it was in fact practiced in the ordinary way after being completed."

Nothing can be more vicious in principle or be more injurious in practice than this provision by which an inventor may for many years hoard important facts until others going over the same ground have unearthed them. Let us assume, and there are many instances of just such a state of affairs, that a manufacturer taking up a new invention against which neither he nor the patentee can find any conflicting claim whatever, invests time and means in plant in perfecting the process, in bringing the product before the public and opening a market for it. When on the eve of reaping the reward for their enterprise, ingenuity, and expenditure, manufacturer and inventor are swooped down upon by some person who declares himself ready to prove that many years ago he, in the secrecy of his back-yard, did the very thing which they have made a commercial success. He may bring forward that pitiful tale of the impecunious inventor who during a long series of years was unable to earn or borrow enough money to pay $60 or $100 to obtain a patent. Let us assume that he actually did make the invention, the position of those who re-invented it, took it up, and brought it to a successful issue is none the less full of hardships. Either they must pay the original inventor damages for past infringements and a royalty for future use, or they must abandon the manufacture and the investment of capital and labor in it. With a patent law as liberal as ours, it is difficult to see how such gross injustice can be allowed to be sanctioned when its leading idea is full publicity, and when it is not likely that any loss to the country will follow a disregard of claims for patents which were allowed to lie idle for more than two years. The patent laws were framed to encourage inventors with a view to doing the greatest good to the largest number. Every facility is given inventors, and they can not conscientiously assert that their labors are not fully recognized and on the whole adequately rewarded. But they should not forget that the liberty of our laws is only the outgrowth of a policy to secure the best means to an end, and that any provisions in the statutes that tend to defeat that end are calculated to do much injury to them.

Even if it had no other objectionable features than to make patent property unsafe, and to discourage men of means and enterprise in aiding inventors, those provisions of our law which make it possible for an inventor to lay claim to priority because at some early date he succeeded in developing an invention with great secrecy are highly dangerous on other grounds. They throw widely open the door to fraud. Unscrupulous men may combine in a scheme to wrest valuable rights from their real owners; and as the very essence of their success is, that they observed the strictest secrecy at the time of the alleged invention, it is very difficult to reach them. It is no wonder that with such defects, and with the tendency to compromising which extensive litigation entails, there is a growing crop of patent sharps whom success is making bolder every day.

LETTERS FROM THE WEST.—III.

Special Correspondence of the Engineering and Mining Journal.

ROCKY MOUNTAIN RAILROADS.

Throughout the Southern territories, railroad building is as vigorously prosecuted as in the middle zones of the West; and here also, rivalry, if not jealousy, promises to cover the country with a net-work of roads which, though they may not all immediately return dividends to their shareholders, will confer the greatest benefits on the district through which they will run, by rendering workable mines now known, but valueless by reason of their position, and lead to the discovery of others through the host of prospectors with which they will people those most repulsive regions.

Ten years ago, the Texas & Pacific Railroad had been chartered, and in 1872 had acquired the property and franchise of the Southern Pacific Railroad and of the Southern Transcontinental Railroad, and was empowered by Congress to build a road from the Mississippi to the Pacific. The Denver & Rio Grande, then in its incipient stage, was the only road projected to feed it from the north. But events have falsified anticipations. The construction of the Texas & Pacific Railroad was undertaken by the California & Texas Railroad Construction Company, a company which went down in the financial hurricane of 1873. The Texas & Pacific Railroad, thus paralyzed, lost valuable time in petitioning government for more aid. Meanwhile, as they were slowly building from the East across the plains of Texas, the Southern Pacific of California, an offshoot from the Central Pacific, without any aid from the federal government, connected Los Angeles with Goshen, the terminal point of the Joaquin branch of the Central Pacific Railroad, and, by leasing that branch from the Central road, obtained immediate access to San Francisco. From Los Angeles to Yuma on the Colorado, a distance of 249 miles, the road was opened in 1879, and since then has been pushed rapidly across the southern portion of Arizona and New Mexico to the Rio Grande, over the route originally decided on by the Texas Pacific, and which offers almost as few construction difficulties as would a prairie road. Between the Colorado and Maricopa Wells, and thence to Tucson, the track traverses a desert, where, at some seasons of the year, the trains are actually detained by sand-storms. From Tucson to the Rio Grande, the surveyors found a route whose maximum elevation is only 4893 feet, by winding between the short mountain ranges which, with north and south trend, rise so abruptly and with such jagged outlines from the plain. From the Colorado to the Rio Grande, almost the only vegetation is the cactus, the yucca, and the soap-weed, except after the rainy season, when seeds prove their vitality by covering the land with verdure. But it requires a sanguine imagination to realize the agricultural and pastoral prosperity predicted by the railroad companies' literature as sure to follow the advent of their roads. At the same time, there is a certain charm in the scenery. The air is generally very clear, and the view toward and over the Mexican frontier is picturesque. The short isolated mountain ranges rise with every variety of profile from the level plain, locking and interlocking as far as the eye can reach till they become hazy as vapor, and can not be distinguished from the clouds which in the far distance mark the retreating line of the Sierra Madre; while the sandy foreground, dotted with aloes and cacti, harmonizes well with the sterility of the distant landscape.

The Southern Pacific and Texas Pacific joined hands and rails on the first of this month at Junction Station, eighty miles east of El Paso, and have thus completed the shortest circuit yet formed between the Atlantic and Pacific; for from Los Angeles to Galveston is only 1684 miles.

But though this was planned to be the second transcontinental route within the Southern territories, it is really the third; for the Texas & Pacific was forestalled by the Atchison & Topeka—another road which, without government aid beyond its Kansas division, followed the old Santa Fé trail over the Rocky Mountains by the Raton Pass, struck the Rio Grande at Albuquerque, and has followed that river down to El Paso, throwing off at Rincon a short branch to make a western connection at Deming with the Southern Pacific Railroad. Like its northern compeers, it has put out feelers to right and left. It is surveying a road from Engel into the Black Hills, believing the truth of the stories of wonderful mineral discoveries there; and it will as promptly connect any other promising district within range of its main line.

This intruder has therefore supplanted the Denver & Rio Grande in New Mexico; for the narrow-gauge road, after crossing the Veta Pass and reaching the valley of the Rio Grande at Embuda, has been obliged to stop construction at Española, being forbidden by compact with its broad-gauge rival to run even into Santa Fé. This short link of twenty miles is, however, to be constructed by another corporation, the Texas, Santa Fé & Northern Railroad.

Thus the Atchison & Topeka is now for the time being the only carrier of Colorado coal and coke from the East to the Southern country; it controls at present the traffic of the Rio Grande, and will soon wring from the Southern Pacific its share of Arizona freight when it has completed its own line into that territory. As yet, the Southern Pacific monopolizes the through mineral freight, carrying it to San Francisco, for transport thence by the Pacific mail steamers. But this monopoly, though perhaps a just reward for enterprise, even when ungenerously used, will not last long; for the Atchison & Topeka is now building its Guaymas extension from Benson on the Southern Pacific Railroad southward down the valley of the San Pedro; and in order to render itself independent of the South road, it is already grading the connecting link from Deming through Tombstone to the Guaymas branch. Then Shakespeare, Tombstone, Bisbee, Harshaw, Patagonia, Oro Blanco, Aravaca, and all the Southern camps will feel the influence of railroad competition, it is to be hoped, in cheap freight and passenger rates, involving cheaper living and cheaper labor. But the Atchison & Topeka does not propose to limit its traffic with the Pacific to Mexican ports. The owners of this road are credited with being the builders of the California Southern Railroad from San Diego to San Bernardino, and thence over the Cajon Pass into the Mohave Desert, where it may be the intention to make connection with the Atlantic & Pacific—another transcontinental enterprise, building if not under the same organization yet out of the same pockets as the Atchison & Topeka Railroad. In all probability, the main line of the Atchison & Topeka will pass through Tucson to San Francisco directly, and thence make some such connection as the above with the Atlantic & Pacific, and run by a common line with it into San Francisco.

San Diego was the objective point of the Texas & Pacific Railroad, whose plans were so ruthlessly curtailed by the Southern road, whose interests lay in San Francisco; and therefore the vaunted advantages of San Diego as a port have heretofore remained matters of assertion, not of proof. Of its capabilities as an harbor there seems to be no doubt, and the growing agricultural importance of Southern California will soon demand a nearer outlet by sea than San Francisco. It would be in keeping, therefore, with the aggressive policy of the Atchison & Topeka combination, which is building the Mexican Central from its terminus at El Paso to the capital of Mexico, which has already well under way the Sonora branch from Deming on a branch of its main line in Arizona to Guaymas on the Gulf of California, to seize on San Diego, the only other point except San Francisco worthy of being called a port.

But by the Atlantic & Pacific the same group of Boston capitalists—whose wealth, if commensurate with their schemes, must be limitless—is attempting to realize another project, started before the times were ripe for it, namely, a system of railroads from the Atlantic through St. Louis and along the 35th parallel to the Pacific. They have obtained the old franchise, which carries the enormous land-grant of every alternate section within fifty miles of each side of their line, as definitely located, and toward the consummation of this scheme have built 300 miles of road westward of Albuquerque, on the Atchison & Topeka, past Fort Wingate, to near the crossing of the Little Colorado in Northern Arizona. Three surveys have, I believe, been completed of feasible routes for entering the great longitudinal valley of California, but no selection has yet been made. A project has recently been started in San Francisco to build a California Central road which will run from San Francisco down the coast to Santa Cruz: thence cross to the Yosemite, and span the Sierra Nevada at Bridgeport, 40 miles from Bodie. The Nevada division will run from Silver Peak, via Crystal Springs, into Southern Utah, where it will connect at Iron City with the Union Pacific through the Southern Utah; and at Crystal Springs it is conjectured the Atlantic & Pacific may throw its lot in with the combination. A more direct route could hardly be surveyed; and barren as is Southern Nevada of vegetation and, as yet, of good mines, the prospect of way freight from it is as good as from the extreme southwest of Arizona and southeast of California. Whether the Atlantic & Pacific coalesce with it or not, such a road between the great valley of California and Utah across the Sierra Nevada is likely to be built. And whatever route the Atlantic & Pacific decides on, it will be a short one, and one not liable to snow-blockade; for on the possession of these two qualifications depends its prosperity as a through route. When the St. Louis & San Francisco shall have been completed from Venita, its present terminus, across the Indian Territory and Northern Texas to Albuquerque, and the Atlantic & Pacific carried thence across Northern Arizona into Colorado, as short a line as it is possible to construct from a commercial center in the East to tide-water on the Pacific will have been built, through a temperate zone, subject neither to such oppressive heat as smothers the passengers on the Southern road during the summer nor to such cold and snow as make traveling uncomfortable and precarious on the Central and Northern roads in winter.

But we have not yet completed our survey of the rival projects destined to cover these cactus-clad plains with a net-work of roads as close as that which has been thrown over the wheat-growing prairies of the Mississippi Valley. The Texas & Pacific is now under the control of a man who has not heretofore been generally balked in his plans, and whose schemes have yielded in magnitude to none. As we have seen, the Southern Railroad took advantage of the inactivity of the Texas & Pacific, to occupy the very easy route that corporation had long ago selected and surveyed from Yuma to El Paso. The Texas & Pacific has now almost reached the Rio Grande, and after trying legal means in vain to retain what in a certain sense was its own, is now busy surveying an independent route through New Mexico and Arizona. Its surveyors have staked out a line from El Paso northward to Pueblo Viejo, where it strikes the Gila, and thence along the bank of the Gila through the San Carlos Reservation. They thus follow the only strip of agricultural land of any extent in Arizona, but which, despite the paucity of good soil, is nevertheless almost neglected. The banks of the Gila to below Florence, if systematically irrigated, would supply ten times the population of Arizona with fresh fruit and fresh vegetables; but a few cattle only browse upon its grass, and you are fortunate if you get even fresh milk at a Gila ranch. If, therefore, the Texas & Pacific build along this river, it can not but prove in the interest of agriculture; and one would be glad to see the fields occupied, not by Mormons, but by intelligent and independent farmers from the East.

Thus there is now built one line from the Texas border to the southeast angle of California, the Southern Pacific Railroad, at an average distance of about 60 miles from the Mexican frontier; and another, the Atlantic & Pacific, is in course of construction and partly open to traffic at a distance of about 200 miles from the Mexican line; a third, the Atchison & Topeka, is surveying, and it is said grading, in the narrow strip between the State road and the frontier; while a fourth is subdividing the space between the Southern road and the Atlantic & Pacific. Thus, within 300 miles of the frontier, it is proposed that four parallel roads shall run through a country with perhaps one inhabitant to the square mile, whose plains produce only cacti and soapweeds, and whose mountains have not yet given birth to a dozen dividend-paying mines. If the mines in Arizona do not henceforth make rapid progress, it will not be for lack of railroad facilities; and undoubtedly California must outdo itself, if it is to supply through freight for all the transcontinental roads now running or in course of construction. Verily our railroad magnates, and the public which supplies them with money, have unbounded faith in the future of the country!

Our sketch of Western railroads would be incomplete without at least an enumeration of the Mexican railroads, which are corollaries to the Southwestern roads.

There are three great American corporations possessing Mexican charters and subsidies, whose roads and branches will penetrate every Mexican State from the north to the south and from the east to the west. Two of these will be expansions of existing American roads.

The Mexican National Railroad entered into the original plan of General

Palmer and the builders of the Denver & Rio Grande Railroad. Its charter dates back to 1872, when exploratory surveys were actually made. It will be narrow-gauge, like its parent road. It will, by its main trunk, connect Laredo, in Texas, with the City of Mexico, 1018 miles away, and throw so many branches to east and west, to the Atlantic and Pacific, that twelve of the twenty-seven Mexican States will pay it tribute in freight and passengers, and those twelve its most wealthy and populous. Of these 2500 miles projected, about 300 are in running order. The road is heavily subsidized by grants paid in scrip, which is a legal tender for customs dues.

The Mexican Central is the outgrowth of the Atchison & Topeka road. Its two main lines will run, the one from El Paso through Chihuahua to the City of Mexico, with a branch from the capital to Mazatlan; the other, from some point on its central line to Guaymas on the Gulf of California in Sonora. The trunk line and these branches will be about 2000 miles in length. A government subsidy is aiding the construction of this road also, several sections of which are already running. The utmost activity is displayed by both corporations: 40,000 men are said to be now in their employ grading and laying tracks.

The Mexican Southern Railroad, whose leading spirit is General Grant, is a hardly less important corporation than the preceding. But as it confines its operations to the southern zone, it affects less intimately the fortunes of our Western roads.

These are by no means, however, the only Mexican projects to which the American and British public are invited to subscribe; although they will prove costly enough in all probability to absorb a fair share of the earnings of the present generation.

J. D., JR.

SOUTHERN PACIFIC RAILROAD, December, 1881.

THE DEER CREEK COAL-FIELDS, ARIZONA.

Written for the Engineering and Mining Journal, by Walter B. Devereux, E.M.

Coal was discovered in Deer Creek Valley in the early part of the present year by Anderson and Lillie, two prospectors. As soon as the discovery became known, a great deal of excitement ensued, and in a short time the whole valley was staked out into claims. During the month of April, I made a brief visit to Deer Creek, in order to ascertain, if possible, whether its coal veins would afford a desirable fuel for metallurgical purposes, and I have since become more or less acquainted with the surrounding country. So many erroneous statements have been published in regard to these new coal discoveries that I propose to note briefly such observations as I have been able to make, and the conclusions which they seem to indicate. Owing to the lack of development, only surface conditions can be described, and the results of future developments must be considered as more or less problematical.

The Deer Creek coal-fields occupy the eastern half of a narrow elliptical basin, which is surrounded on all sides by high ranges of mountains. This basin is about 30 miles long and from three to five miles wide, and lies nearly east and west. It is divided centrally across its axis by the Gila River, which has cut through the mountain ranges, forming a deep and rugged cañon. The eastern half of the basin is drained by Deer Creek, and the half west of the Gila River is known as Disappointment Valley. Geologically, the whole basin is a most remarkable example of an abrupt synclinal valley. That portion of the sedimentary series which underlies it appears to have sunk nearly 2000 feet with reference to the surrounding country. As the width of subsiding territory was so small, the slope of the sides necessarily became very abrupt; although, at the western end, the strain was relieved by a series of vertical faults, from which resulted monoclinal valleys. The sedimentary series throughout this portion of Arizona is exceedingly simple, being invariably composed of a base of quartzite, or its equivalent, and, resting conformably upon the quartzite, limestone. The quartzite is generally highly metamorphic, and its thickness is at least several thousand feet. It has yielded no traces of fossils that I am aware of. The limestone is of a light gray color, and seldom shows a section over a thousand feet in thickness, although where undisturbed it may exceed that. It contains comparatively few fossils. A few that I obtained at Deer Creek were pronounced Carboniferous by Dr. Newberry, who kindly identified them for me.

The third member of the sedimentary series, and one which I have so far observed only at Deer Creek, is a brownish sandstone, friable in texture and containing occasional quartz pebbles. It is in this sandstone that the coal veins are found. Both appear to conform in their bedding to the underlying limestone, and consequently to the quartzite, thus bearing evidence that the epoch of great geological disturbance took place after the deposition of the coal.

As will be seen from what follows, certain eruptive rocks form some of the most important characteristics of this coal basin, and their age bears a close relation to that of the coal measures. It will be interesting to note in passing that the history of these rocks is inseparably connected with that of the great surface dislocations of this portion of the territory, and also with that of all of our mineral veins; consequently, a careful and critical study of this coal system will be necessary, before satisfactory inferences or generalizations can be deduced from the study of our vein systems. Many valuable mineral deposits are found in the ranges which form the walls of the basin, and it is not unlikely that others will be discovered in the basin itself.

The first discovery of coal was made near the head of Deer Creek. The surroundings render this portion of the valley unapproachable, except over rugged Indian trails, the one from the San Carlos Agency, which is about fifteen miles distant, being generally followed. The valley at this point is about three miles broad, and it is here that the great force of the subsidence is most clearly shown. The inner surface of the inclosing wall is limestone, with its lines of stratification nearly vertical, and in places actually reversed. Back of the limestone are quartzose rocks, those on the north being quartzites, and those on the south schistose; their dip in both cases conforming to that of the limestone. A short distance farther back from the basin, we find the quartzites occupying a position nearly horizontal, with their upper surfaces nearly two thousand feet above the bed of Deer Creek. The disintegration of the surrounding country has left these quartzites standing in great masses like table mountains, with perpendicular walls for hundreds of feet below their tops. From the present appearances, it seems as if the support had been removed from under the strata which overlay the area occupied now by the Deer Creek Valley, and that they had sunk down perpendicularly, breaking off abruptly from the adjoining country. Ten miles farther down, the valley widens out, and the strata on either side dip toward the center at an angle of about 35 degrees. Coal croppings have been discovered at intervals down as far as the Gila River. On the Disappointment Valley side of the river, no discoveries of coal have been made, and, so far, I have found none of the sandstone above described. It may, however, be concealed by the vast amount of disintegrated material which fills the bottom of the valley and extends up the sides. The Valley of Deer Creek, except at the extreme eastern portion, has been greatly changed by intrusions of an eruptive rock, which also appears in a large tract directly south. This rock consists of a gray or greenish matrix, containing large, perfectly-formed crystals of black hornblende, which give it a porphyritic appearance. The matrix does not appear to be orthoclase, and in the absence of the means for making a critical examination, I am inclined to consider the composition of the whole mass as essentially dioritic, as it appears to occupy the same geological position as the diorite found abundantly through the surrounding country. The subsidence of the coal basin bears evidence of being closely connected with the appearance of this eruptive rock, and the same relation seems to exist between the western portion of the basin and the diorite, which is there found unaccompanied by the porphyritic rock.

In addition, the upper end of the valley is intersected by two parallel dikes of characteristic quartz porphyry, about three hundred yards apart. These approximate in their direction a parallelism to the axis of the basin, and bear evidence of having appeared after the subsidence had ceased. The porphyry is almost white, and in a hard feldspar matrix carries grains and crystals of quartz and orthoclase. The first discovery of coal was made between these two dikes, at a point about a mile from the northern slope of the valley.

Just on the edge of the western dike, a second vein was discovered. These two veins have about the same dip, namely, 35 degrees to the south, and are apparently from six to eight feet in thickness. At the first discovery, there appeared to be several smaller veins also. Shafts had been sunk on both veins to a depth of thirty feet at the time of my visit. The first-mentioned vein showed a material much decomposed at the surface, but in better condition at the bottom of the shaft. The coal was apparently semi-bituminous, and contained considerable shale throughout the vein; although seams of a better quality could be plainly distinguished. Specimens from these showed a glossy fracture across the seam. They were submitted to a partial analysis with the following results:

Volatile combustible matter and water	14·5
Fixed carbon	61·0
Ash	24·5

The piece from which the above analysis was made was coked in a muffle, and gave a hard gray coke with a prismatic fracture. The average of the whole vein showed too large an amount of ash to permit its use for fuel. I was able to make no determination of sulphur, but have seen analyses of the same, showing the percentage to be small. The shaft near the porphyry dike yielded a material which, upon examination, proved to be an impure anthracite, a result due to the metamorphic action of the porphyry. An analysis from an average sample from the bottom of the shaft (moist) gave the following:

Volatile combustible matter and water	4·6
Fixed carbon	53·4
Ash	42·0

I could not ascertain the perpendicular distance to the underlying limestone at these points, as at the nearest exposed points its dip was nearly vertical, and there were no indications to determine its conformation below. Upon the south side of the valley, these veins reappear, dipping to the north. Water was struck in the discovery-shaft at a depth of thirty feet.

Passing down the valley, we ride over relatively large tracts of the hornblendic rock described above. At a point about eight miles below the discovery, I examined an outcrop which showed some distance up the south slope of the valley. This vein was evidently the base of the coal series, and was distant about one hundred feet perpendicularly from the limestone. The dip of both was about 35 degrees to the north. In a ravine near by, the geological succession could be clearly traced. Passing out into the valley, the *débris* from disintegration of the eruptive rock above has covered the original surface. The coal vein mentioned was much decomposed; but I found a small seam a few feet distant, from which I dug out coal in a fair state of preservation. This coal appeared to be a typical lignite, with a clean and glossy fracture, and ignited readily when placed upon a fire, and continued burning until reduced to ashes of a grayish color. It did not crumble on exposure to heat. An analysis gave the following result:

Volatile combustible matter and water	47·6
Fixed carbon	44·0
Ash	8·4

This analysis evidently approximates the condition of the coal where it has not been subjected to extraordinary metamorphic action, although a better quality may be expected as depth is attained. From this point to the river, coal croppings have been found at intervals, but I have not been able to obtain specimens.

I was able to obtain no fossils from the coal series except a few imperfect leaves, which could scarcely be identified. I can therefore offer no evidence as to the age of the coal itself, except to state that such leaves as I noticed appeared to resemble those of the Tertiary. From the above observations, and from information derived from others, the following inferences seem warranted: The Deer Creek coal series contains several veins, at least one of which is of workable size. The original area occupied by the series was at least thirty square miles. An unknown proportion of this area has been broken up and rendered valueless by the destructive action of eruptive rocks. Where it has not been so disturbed, the coal is a typical lignite, with a moderate amount of ash indicated, and of good furnace qualities. Through local metamorphic action, portions of the coal veins have been changed into bituminous coals with coking

qualities, and even into anthracite, with a corresponding increase of ash. After making due allowance for surface deterioration, it is still uncertain whether the latter varieties will be pure enough to be of economic value. Such as it is, this coal will be brought into competition with wood of an inferior quality and costing from five to ten dollars a cord, the supply of which is constantly decreasing. The coal basin itself contains forests of pifion, which will furnish a good supply of mining timber. It is also centrally located with reference to a large number of mining districts, containing for the largest part base ores which will require processes involving roasting or smelting, or both. The development of the coal-fields has been greatly retarded by the fact that they are, or are said to be, upon the San Carlos Indian Reservation; such a condition preventing the securing of titles. It is due to the people of the territory that the government should have a proper survey made. and decide this question. If the coal-fields are on the reservation, the government should sanction some course by which the coal could be made available for the mining interests of the vicinity. If it is found to be on the reservation, it can be cut off without detriment to the same, as it is near its southern boundary. No agricultural land is involved, and to my knowledge there is not a single Indian hut within ten or twelve miles of the valley. Neither the present nor future value of the reservation as a residence for Indians will be impaired by such action. Until something is done, capital will decline to undertake to make this source of fuel available.

GLOBE, ARIZ., Nov. 30, 1881.

AN ENGLISH INVENTOR AND MANUFACTURER ON TECHNICAL EDUCATION.

Dr. C. W. Siemens, who is so well known as a successful inventor and manufacturer, spoke before a recent meeting of the Midland Institute on technical education, a subject which is deservedly attracting much attention now that the old system of apprenticeship seems about to be lost forever.

Speaking first of the question of the day—technical education—he said he ran considerable risk of disappointing some of its most ardent advocates, who might have looked upon him, a foreigner by birth, as a staunch supporter, if not as the living embodiment, of that particular form of education that the Polytechnicum of Germany and other continental countries imparts to the aspiring engineer and manufacturer, but which, in his opinion, left much to be desired, and was certainly inapplicable to the condition of things which they found in this country. The more ardent advocates of the continental method of technical education went so far as to think that the irksome system of apprenticeship should give way entirely to technical teaching within the college walls, whereby it was assumed much time could be saved and a better knowledge be imparted to the aspiring engineer or manufacturer. Having had some experience of young men brought up at these technical schools, he was bound to say that he had not been favorably impressed with the results produced by the system. The practical knowledge acquired at those establishments was wanting in what might be called the commercial element; that is, due regard to cost of production, of which the teacher himself must be comparatively ignorant, as otherwise they would find him employed at the factory or engineering office, instead of in the school-room. The young polytechnic student was apt to be a dogmatist, a splendid man for coming out first-class in a competitive examination, and likely enough to make a good official in a government administration, but most unlikely to venture of himself on such new embodiments of first principles of nature as are essential to the accomplishment of improved results, and as had animated Watt, Crompton, and Bessemer in enriching the world with new processes. The time was, not long ago, when the opinion prevailed in England that useful knowledge could only be attained in the workshop; that a lad, after having mastered the three Rs at a primary school, had to be bound to a manufacturer or craftsman for a period of seven years, where his time was occupied in routine work or in mechanical repetitions of one and the same operation, causing him to give up thinking altogether, and to become what was dignified by the appellation of practical man—a man of notions, with a supreme contempt for theory or science. The reign of this practical man *par excellence* was happily drawing to a close; and much had been done to hasten his burial, especially by Sir Frederick Bramwell, in making himself the principal promoter of that splendid endowment, the London City Guilds Institute, which, under wise direction, could not fail to exercise a very important influence on the educational development of the country. Having spoken somewhat disparagingly, he feared, of both the old English system and of the more recent continental system of technical education, he would be asked, no doubt, what, in his opinion, should be the plan adopted in preparing the mechanical engineer, the manufacturer, and the artisan of the future for their respective careers. The answer to such a question was one involved in much difficulty, scarcely admitting of universal solution. There were, however, certain principles of general application, which, he submitted, should never be lost sight of. Moral education being provided for, the main object in teaching the young should be to strengthen the power of memory, and after that the reasoning faculty. The first was most appropriately accomplished by the conventional three Rs, and by the teaching of geography, history, and languages, both ancient and modern; and the second, by mathematics, logic, and the natural sciences. Sir John Lubbock, in speaking some years ago, forcibly called attention to the necessity of combining both literary and scientific education in their grammar-schools, suggesting that at least ten hours a week should be given up to the teaching of science. Such a system of education had since been established at Eton, where all pupils attend science classes, and are said to be very fond of what they are pleased to call the "stinks" (in allusion to the chemical laboratory); whereas, at other grammar-schools, a "modern department" had been added to the establishment, where science was taught to those who elected not to go in for a classical career, while the classical scholars remained untaught in science as before. He was of opinion that the Eton system was the better of the two; for he could not regard an education as complete that did not combine literary with scientific training; the one gives the polish and the other the fiber and practical direction to the understanding. But it might be urged that the time available for study was too short to admit of both, and that one or other must, therefore, be chosen. He ventured to doubt the sufficiency of this objection, being of opinion that the study of the one kind of knowledge qualified the mind better for the other, in the same way as in after-life recreative exercise of mind and body was resorted to in order to relieve the drudgery of daily duty. The usefulness of science-teaching depended, of course, to a great extent, upon the teacher and upon the system adopted. Science taught, as it were, by rote was of comparatively little value in after-life; to be beneficial, it should be practical, impressing the mind vividly with the simplicity and the beauty of the laws of nature, and for this purpose each statement of a law should be followed up by ocular demonstration; nay, by active co-operation on the part of the student in the experiment. For this purpose, no school ought to be without its chemical, its physical, and its mechanical laboratories, where students could test for themselves chemical reactions, verify physical laws, and ascertain the mechanical properties of materials used in construction. Nor did those laboratories necessarily involve a large expenditure for apparatus, the most instructive apparatus being that which was built up in the simplest possible manner by means of pulleys, cords, wires, and glass tubes, and, if possible, by calling into requisition the constructive ingenuity of the student himself. Only after the student has attained a thorough knowledge of the first principles would it be desirable to introduce him to elaborate instruments, such as telescopes, polariscopes, electrometers, and delicate weighing machines wherewith to attain numerical results and to commence original research. For this reason, very complete laboratories were of great importance at the universities and superior colleges, where exact science and independent research took the place of mere tuition of first principles. In some technical schools, mechanical workshops were provided, in which students might work at the lathe, the vise, and the planing-machine, and where they were allowed to construct small steam-engines or other pieces of machinery. He doubted very much whether those toy steam-engines were such as would satisfy a mechanical engineer in real practice, and he thought that both the money of the institution and the time of the student could be much better employed if, instead of imitating practical engineering, he were made to experiment with testing machines, in order to obtain a thorough insight into the mechanical nature of materials, their absolute strength, their elastic limits, and the effects produced upon them by the process of annealing, tempering, and welding. As regarded middle-class education, it must be borne in mind that at the age of sixteen the lad was expected to enter upon practical life, and it had been held that, under these circumstances at any rate, it was best to confine the teaching to as many subjects only as could be followed up to a point of efficiency. It was thus that the distinction between the German *Gymnasium* or grammar-school and the *Real-schule*, or technical school, had arisen—a distinction which, though sanctioned to some extent in England also, by the institution of the "modern side," he should like to see abolished. But he would be told that it was impossible to teach every thing properly within the time, and would be reminded of the proverb that says, "A little knowledge is a dangerous thing." He for one did not believe in that proverb, which he considered erroneous, and mischievous in its application. In physical science, a little knowledge might be a matter of the greatest importance to an artisan when he was called upon to set a machine to work, and was stopped by some such accidental cause as the accumulation of air below a valve, or unequal expansion due to a local source of heat. The knowledge of a few fundamental laws of physical science would at once enable him to divine the cause of difficulty, which had only to be recognized in order to be removed. On the whole, he was inclined to agree with Lord Brougham, who, himself a great lawyer and a lover of science, gave origin to the pithy expression, "Try to know something about every thing, and every thing about something." It would be hard, indeed, to realize the latter portion of his saying, but it would be difficult to know even a good deal about something without knowing at least something about a great many other things. The question of education became even more difficult when they approached the condition of the artisan who needed to send his boy into the mine or factory at the tender age of twelve years. He was of opinion that fourteen years should be the minimum age at which lads should be admitted into works, in order that they might have had not less than four years of judicious training at elementary schools, where, in addition to the purely elementary subjects, at least so much of general history, easy mathematics, and natural science should be inculcated as to implant, if possible, the desire to acquire more of those subjects in after-life. School education, whether followed up to one point or another, could, after all, do no more than lay a foundation, and implant, if possible, a desire in the mind of the student to follow up in maturer years the subjects taught, with the experience of life present to give a practical direction to his studies. Technical education such as that was indeed indispensable if England was to maintain the supremacy won for it by men of exceptional genius, enterprise, and perseverance; but which, without it, could hardly be expected to withstand in the long run the competition of foreign nations, with cheaper labor and a higher standard of general education in their favor. The system of pupilage or apprenticeship would still be necessary; but instead of involving the sacrifice of seven of the most important years of a young man's life, half that time, or say three years, would be found amply sufficient to give to the lad imbued with first principles the practical knowledge necessary for his trade. The employer would be amply compensated for the shorter time of gratuitous service by a corresponding improvement in its quality. He should be expected to see to it that, during the term of his authority, the pupil attended Saturday and evening classes, where, in addition to general subjects, the principles underlying the operations of his business of spinning, dyeing, paper-making, or metal-working were taught by competent persons. The importance of a higher education of the working classes would be appreciated by all who have watched the rapid strides by which one branch of industry after another has undergone fundamental change, by which the mere craft-skill acquired yesterday became obsolete to-day, when a new process, involving entirely new modes of operation, took the place

of a previous one. Nor was there any stability in the process of to-day, which might be again superseded to-morrow by something more nearly approaching ultimate perfection.

PROGRESS IN SCIENCE AND THE ARTS.

Mica Masks as a Protection against Heat.—The English papers report that a well-known German manufacturer of mica wares, Herr Raphael, of Breslau, now makes mica masks for the face, which are quite transparent, very light, and affected neither by heat nor by acids. They afford good protection to all workmen who are liable to be injured by heat, dust, or noxious vapors, all workers with fire, metal and glass melters, stone-masons, etc. In all kinds of grinding and polishing work, the flying fragments rebound from the arched mica plates of the mask without injuring them. These plates are fixed in a metallic frame, which is well isolated by means of asbestos, so as not to be attacked by heat or acid. These masks allow the turning of the eyes in any direction, and, as against mica spectacles, they afford the advantage of protection to the whole face. In certain cases, the neck and shoulders may also be guarded by a sheet of cloth, impregnated with fire-proof material, or by an asbestos sheet, attached to the mask. The interval between the mica and the eyes allows of workmen who have poor eyesight wearing spectacles, and of workers with fire or in melting operations wearing colored glass spectacles under the mask without fear of breakage of the glass, mica being such a bad conductor of heat. Where the mask has to be worn long, it is found desirable to add a caoutchouc tube with mouth-piece for admission of fresh air; the tube passes out to the shoulders, where its funnel-shaped end (sometimes holding a moistened sponge) is supported.

The Photometric Standard.—The British Board of Trade some time since appointed a committee to report upon the different standards for photometric measurements of light proposed by Mr. A. G. Vernon Harcourt, by Messrs. T. W. Keates and Sugg, and by Mr. J. Methven, and the standard candles now generally used. The latter were shown to vary widely, a maximum variation of 22·7 per cent in illuminating power being found between two pairs of candles. The committee concluded, after an examination, that the best standard for comparison was Harcourt's standard air-glass flame, which is produced by burning a mixture of air with that portion of American petroleum which after repeated rectifications distills at a temperature of about 50° C. It is almost entirely composed of pentane: the proportion used is 576 volumes of air to one of pentane, measuring the liquid at 60° F.; the diameter of the burner is a quarter of an inch, and the hight of the flame is brought to 2½ inches. Several experiments on illuminating power were tried with samples of air-gas, made on different days, and the results were found to be very concordant, the greatest difference between two observers being 0·2 of a candle. Other experiments were tried to find the effect of making a too rich or a too poor air-gas, and it was found that, taking the illuminating power of the normal mixture to be 100 candles, if 2·9 cubic feet of air were taken instead of 3, the illuminating power was equal to 100·53 candles, and if 3·1 cubic feet of air were taken to the same quantity of pentane, the light emitted was equal to 99·65 candles. The error in the volume of air being at least ten times greater than that likely to be made by any operator, it will be seen that the light will not be subject to much variation in intensity.

The Influence of Manganese on the Mechanical Properties of Iron.—From the *Verhandlungen des Vereins zur Beförderung des Gewerbfleisses* the *Ironmonger* finds details of a series of experiments as to the influence of ferro-manganese on the resistance of iron, as reported by Dr. H. Wedding. The society offered a prize of 2000 marks for the best manganese alloys, and in making the offer the object in view was to obtain samples which might be tested for their mechanical properties, especially their resistance to tensile strains, and by this means to ascertain the influence of manganese on iron. The competitors were: Gutehoffnungshütte Iron-Works, of Oberhausen; and R. Seelhof, Engineer, of the cast steel and arm factory, Witten. The chemical analyses were conducted by Professor Dr. Finkener, and the results as to the strength of iron with ferro-manganese were given by Professor Spangenberg. No less than 20 iron rods were required, which had all to be 50 centimeters long and 40 millimeters thick. The first lot was to consist of an alloy of manganese and iron, of which the carbon did not reach 0·6 per cent, and all other substances were not allowed to exceed 0·4 per cent. The second set was to consist of carbon containing an alloy, manganese and iron, in which all other substances were not allowed to exceed 0·6 per cent. The results of the chemical analyses did not prove favorable to the competitors, as shown in Professor Finkener's report. They neither agreed with their own statements nor with the conditions of the prize tests. This shows that it is very difficult to mix alloys or different sorts of iron, that manganese is very easily oxidized and disappears from the alloy, and that when the rods were worked in a lathe or with a plane, and prepared for the tearing tests, they exhibited a large number of spots, showing that the amalgamation was imperfect. Notwithstanding these drawbacks, the society agreed to award the prize to the competitors, on account of the trouble they had taken. The Gutehoffnungshütte having come nearer the mark, was awarded two thirds and Seelhof one third of the prize offered.

The Bodie Tunnel and Mining Company *vs.* the Bechtel and Tioga Consolidated Mining Companies.—In this case, the Secretary of the Interior has decided that there can be no such thing as a contest before the Land Department as between two mining claimants for the same tract of land; such claims being adverse, can only be adjudicated in the courts.

GENERAL MINING NEWS.

ARIZONA.

TOMBSTONE DISTRICT.

Silver King.—The Florence *Enterprise* prints the following description of this famous mine: At the discovery point, an open cut, 120 feet long, 60 feet wide and 80 feet deep, was made, and from this cut many thousand dollars' worth of ore was taken. At the bottom of this cut, an incline shaft was sunk to the depth of 46 feet, running down near the foot-wall at an angle of about 45 degrees, and passing through the ore all the way, some of which was very rich. At the bottom of this incline, a drift was run south 60 degrees west, a distance of 47 feet, and shows very rich ore all the way. Another drift was run from this point in a northerly direction 32 feet, and uncovered good ore along the west side. Near the bottom, and on the west side of the incline, a large quantity of pure and native silver, mixed with silver copper glance, antimonial silver, ruby silver, and argentiferous galena, was taken out. This ore, after being sorted, averaged $1000 per ton by assay. From the level at the bottom of the incline shaft, a winze was sunk to a depth of 257 feet from the discovery point, and is in good ore. The winze is in the bottom of the old workings. There is still a wonderful amount of rich ore in the old workings from the surface down; but it is refractory, and at the time these works were abandoned, the company had not facilities for treating it. Hence the opening of the new works. The new workings start in about 200 feet west and below the old ones, and are complete in their appointments. A two-compartment vertical shaft has been sunk to a depth of nearly 800 feet, and is still sinking. The shaft is four by four feet in each compartment, is splendidly timbered, and provided with safety-cages operated by steam hoisting-works. At a depth of 252 feet, a cross-cut was made. It runs 40 degrees east of north, and penetrates the ledge 19 feet from the shaft. The cross-cut was continued some distance, and opened up an ore-body about 80 feet in width. Some of the ore in this level is very rich, and runs up into the thousands. At 356 feet, another level was opened in the same direction, and shows a larger and richer ore-body than that in the level above. From this level we descended through the timbers in the slope to the 430-foot level, and all the way down, in every direction, the walls were lustrous and sparkling with native silver, polybasite, galena, etc. At the 400-foot level, a chamber has been opened over 100 feet in width, and still the end of the ore-body has not been reached at any point. The chamber is a grand sight, and must be seen to be appreciated. It beggars description. The walls are porphyry, and a beautiful white quartz begemmed and bejeweled with scintillant mineral. Everywhere the virgin silver protrudes from or lies imbedded in the surface of the walls in indescribable curls, twists, and flakes, while here and there large pockets of polybasite—which is 80 to 85 per cent silver—are uncovered. This stope, which extends up to the 350-foot level, is the only stope made in the new works. From the 400-foot level down, the ore-body increases in extent and richness. The 500 and 600 levels are repetitions of the level last-named in the character of their mineral, but are richer.

The *Epitaph*, in a final summary of admirable articles on the mines of its district, prints the following figures concerning their output:

PRODUCT

Tombstone Company, official.	$2,462,843.60	Western, official..	$2,437,144.39
Corbin, official	40,000.00	Ingersoll, estimated	15,000.00
Grand Central, official	848,176.46	Sunset, estimated	15,000.00
Head Center, official	156,520.52		
Vizina, official	424,693.00	Total	$6,488,361.30
Boston Mill, official	88,983.33		

DIVIDENDS.

Tombstone	$1,000.000	Vizina	$20,000
Western	1,375,000		
Grand Central	500,000	Total	$2,895,000

TONS OF ORE WORKED.

Tombstone, official	37,000	Western, official	35,016
Corbin, official	600	Ingersoll, estimated	150
Grand Central, official	18,000	Sunset, estimated	300
Head Center, official	5,876		
Vizina, official	4,594	Total	103,442
Boston Mill, official	1,906	Average per ton	$62.70

CALIFORNIA.

THE BODIE DISTRICT.

Official letters of December 3d say:

Bodie Consolidated.—There were crushed at the mill 110·4 tons of ore during the past week, which yielded $5947.29, or an aggregate yield of $53.97 per ton. The amount of ore hauled to the mill was 99 tons, extracted from the 5th and 6th levels and the winzes and drifts below. Winze No. 9 was sunk 9 feet; total length, 78 feet. There are six inches of quartz on the hanging-wall. It is of better quality than was found in No. 6 winze at the same depth. The vein is not so flat as in the latter winze. From winze No. 9 the north drift is now 45 feet long. There is no change in the ore. Winze No. 13 was sunk 18 feet during the week. It is now 47 feet long. The vein continues narrow, but the ore is excellent. After sinking 30 feet farther, cross-cutting the red vein will be commenced, in order to open stopes in the Fortuna west of the fault at that depth.

Bulwer Consolidated.—The west cross-cut from the south drift on the 500-foot level of the Standard mine has been run during the week 8 feet, and is in 230 feet. The ground continues hard. The east cross-cut from the 1000-foot level of the Standard has been driven 10 feet; total length, 455 feet, and still in hard blasting rock.

Noonday.—The uprise on vein No. 1 from the 512 to the 412-foot levels is advancing. Work in other portions of the mine is going on as usual. The stopes continue to yield ore for the mill, which is running regularly.

Standard Consolidated.—There were extracted and shipped to the mills during the past week 1176 tons of ore from the 300, 385, 500, and 550-foot levels. The average pulp-assay for the week was $24.01. The amount of bullion shipped to the company at San Francisco was $65,834.44. The shaft has been sunk during the week 10 feet, and is now down 1126 feet. The appearance of the rock is unchanged. The east cross-cut, 1000-foot level, has been driven 10 feet; total length, 455 feet, and is still in hard blasting rock. The west cross-cut, 1000-foot level, is in 366 feet; progress, 8 feet. There is no change to note at this point. The south drift from the east cross-cut, 700-foot level, is in 270 feet. The south drift, 300-foot level, has been advanced during the week 25 feet; total length, 476 feet. The ledge in the face is 4 feet wide. The west cross-cut from this south drift has been driven 8 feet; total length, 230 feet, and in very hard ground. Uprise on the Bullion vein, 550-foot level (incline), is up 86 feet; progress, 8 feet. The vein is 2½ feet wide of good ore. The uprise on the Cook ledge, 385-foot level, is up 80 feet, showing 5 feet of good ore. The stopes are yielding as usual. On the 385-foot level, the ledge is from 10 to 30 feet wide, and on the 350-foot level about 15 feet wide.

Tioga.—Since last report, a west cross-cut, No. 4, has been started at a point 463 feet north of the shaft from the east north lateral drift, 982-foot level, which has been driven 14 feet. From the same point, an east cross-cut, No. 2, has been started, which is now in 5 feet. During the week, the mine was shut down 24 hours for necessary repairs to the boiler. The work of repairing the Syndicate tunnel has been completed. There is a slight decrease in the flow of water.

CANADA.

Beauce.—A Montreal paper has the following: It is said that Mr. Fortin, of the Palais, formerly of the shoe manufacturing firm of Fortin & Contant in this city, has sold a one half interest in his gold mine in Beauce, near the American frontier, for $100,000. Another report states that Mr. Fry, of the well-known firm of Glover, Fry & Company, has sold his mine in Beauce to a French company, probably the Credit Mobilier. A few gentlemen in this city have recently purchased, it is said, some 357,000 acres of mining lands in Beauce, and Thetford, Megantic, including gold, mica, and asbestos deposits, which it is said to be their intention to open and work and then offer for public sale. Another report states that an office for the sale of mining lands is shortly to be opened in this city.

Canada Consolidated Gold Mining Company.—The *Intelligencer* says: About 300 men are now employed at the mine. A post-office has been opened also, bearing the name of Deloro.

COLORADO.

CLEAR CREEK COUNTY.

A TUNNEL ENTERPRISE.—The Colorado *Miner* says that a scheme is on foot for a tunnel six miles in length, its initial point being near the Hukill lode, on South Clear Creek, which in its course will intersect the veins of Belleview Mountain, the upper portion of Russell District, and on a trifle west of north under Quartz Hill. It is said that capitalists in Boston and Philadelphia stand ready to put up a working capital sufficient to carry the project through. This enterprise will have many advantages over similar projects, the main one being the utilizing of the water coursing down South Clear Creek for running air-compressors. The preliminary surveys have been made.

CUSTER COUNTY.

Mining matters in the vicinity of Silver Cliff do not present a very encouraging appearance, judging from the following notes, which we clip from the *Gazette* of the 10th inst.:

BULL-DOMINGO.—The *Gazette* was advised last week that the concentrating mill of the Bull-Domingo Mining Company and all the surface appendages at the mine had been attached by creditors, but we deemed it best to await full particulars before referring to the matter. The facts appear to be, that work was suspended between pay-days, and, in response to questions of employés, some of the officers said that the company would probably resume work soon, but could not say when. Some of the men claimed full time for the period since work was suspended, and this claim the company would not allow. A few turbulent spirits, therefore, brought suit and attached the property. Their act was a signal for all creditors, as is usual in such cases, and all followed suit. The aggregate sum involved was about $7000; and as soon as the facts in the case were communicated to the New York office, the requisite sum was telegraphed to the company's bankers at Silver Cliff, and the claims were promptly liquidated, the plaintiffs in the several suits ordering them dismissed at their cost. There is no likelihood that operations will be resumed at the mine until after January 1st, as the stockholders' option on the proposed issue of $300,000 in mortgage bonds will not expire until that time.

SILVER CLIFF.—Things about the mine and mill have a gloomy look. All the employés except one watchman have been discharged. The balances in the assay office were taken down and packed away by the man in charge of that department, and we are informed by citizens that all the fuel on hand and many other portable articles have been sold. If these statements are all true—and we have no reason to doubt their truth—they embody a virtual admission on the part of the management that the property has not been profitably productive for the two months ended the 1st inst., whatever may have been the case prior to that time. This assumption is strengthened, if not proved, by the statement that only 700 pounds of bullion were produced during the period mentioned above. This latter statement is not official, but we believe it to be authentic and susceptible of proof. As the sum of operating expenses must have been equal to once and a half the coin value of the bullion produced, one of two things must be true: either the rich pockets so common in the mine during last summer have not been recurrent recently, or the mill has not been working so close as was once represented.

GUNNISON COUNTY.

STANDARD.—The Elk Mountain *Pilot* reports that the Standard Mining Company's property that was sold the other day under execution was for the payment of debts incurred by buying machinery and building houses. The miners who worked on the Hopewell are yet unpaid. Had the company put the money it lavished on the buildings into developing the mine, it would have had a producing mine by this time; but instead of that, it spent $6000 on the surface and sank the shaft about 80 feet, and then in its report it shows an expenditure of about $50,000. The Hopewell is yet unpaid for, and will probably revert to the original owners, who, we understand, have received about $10,000.

LAKE COUNTY.

ADLAIDE.—According to the Leadville *Democrat*, this mine, on Iron Hill, is doing well, now making $3000 per month over expenses. Recently, in the west drift, a body of galena was struck which was scattered for fifteen feet.

BIG PITTSBURG.—This company has leased a considerable part of its property. The Heystrosser shaft and surroundings have been leased, and work commenced by the lessees. A portion of the Big Pittsburg claim has also been leased to the Stonewall Jackson owners. No ore has been found as yet by either of the lessees. From the Joe Bates shaft, which is also leased, a small quantity of low-grade ore has been shipped.

IRON SILVER.—The mine delivered for the week ending November 30th, 1448 tons of ore; for the month, 4084 tons; received for the week, $35,656; for month, $106,443; ore shipped and unpaid for, 2466 tons. The Leadville *Democrat* says that this mine is in a most prosperous condition; every thing is indicative that the coming year will be as prosperous as the past. The company is now, and has been for the past year, taking out 200 tons of ore per day, and it is thought from all appearances that there will be no decrease in the output during the coming year. The ore is shipped to the various smelters in the city, where it is treated, and the bullion shipped to market. There are now about 500 men employed on the company's property, which consists of the Iron mine, with various tributary ones, on Iron Hill, and the Rock, Dome, and Stone on the other side of California Gulch. Mr. William Arenz, the general manager, has certainly done a good year's work, and has every reason to be pleased with the result of his labor.

LITTLE CHIEF.—The Leadville *Herald* says that a level is driving south from the Daly shaft, passing through the large porphyry dike, to connect with the seventh shaft. When this is completed, no doubt a large output of ore will be the result. During October, $6000 were earned above expenses; but in November, expenses were not quite earned. This month, there will not likely be any profit.

LA PLATA.—A reporter from the same paper visited these works, and found all busy activity. Never since these works have been started has so large a business been done as at present. All the furnaces are in full blast, and it seems probable that additions to the works will have to be made. The ore receipts are said to be enormous, and at the time the reporter was present yesterday eight wagon-loads of ore were unloading at one time. The quantity of ore reaches several thousand tons. Several hundred feet to the west from the ore-house is a large pile of Robinson ore, for which the company has paid over fifty thousand dollars. In all directions from the smelter, ore is piled up on the ground, coming from nearly all of the mines of this and neighboring districts. The extensive ore-house is also completely filled, while ore is received daily by both wagons and cars. The mines of this company on California Gulch are also doing well at the present time, and are turning out about fifty tons of ore a day.

MORNING STAR CONSOLIDATION.—The Leadville *Democrat* says that on the 8th these two mines shipped 318 tons of ore, 149 tons being from the Morning Star and 169 tons from the Evening Star, making a total shipment for one day of 318 tons, which netted the owners the sum of $12,000. After the first of January, it is expected the output for the year will be 150 tons per day for each of the mines. Up to this time, the Evening Star has paid twenty-two dividends of $25,000 each, amounting to $550,000 in dividends paid within the last fifteen months. It was estimated when the mine first commenced paying dividends that there were $2,000,000 in sight. The most of the ore taken out during the past year has been taken out in doing development-work. The Morning Star has twenty-seven acres of territory, with only five acres of it developed. There are now about 250 men employed on the mines, 150 being on the Evening Star and 100 on the Morning Star, many of whom are doing dead-work, which should not be charged against the ore taken out. There are four engines on the Evening Star, two hoisting-shafts, and two prospect-shafts. On the Morning Star, there are three engines. In 1879, when the Evening Star came under Mr. Ward's management, it had nothing done, except that a shaft had been sunk. The company paid for the mine $60,000, and from that time not a dollar has been paid for litigation.

DAKOTA.

ESTRELLA DEL NORTE.—The Black Hills *Journal* announces that this company is about to drive a tunnel 26 feet long through the Edson bar, about three miles and a half below Pactola.

HARNEY HYDRAULIC.—Work is progressing rapidly along Battle Creek. It is estimated that the yield will be about $3.84 per cubic yard. Machinery is now building by Fraser & Chalmers.

RAPID MICA.—The Celia and Alice claims on Grizzly Gulch are to be worked for mica, Ingersoll drills to be used.

IDAHO.

WOOD RIVER REGION.

THE GUY MINE.—This mine, discovered in August, 1880, made a good record soon after by the shipment of ten tons of its ore to Scott & Anderson, smelters, of Salt Lake City, who paid $305 per ton for it. The mine was bonded in September last to Isaac Whisler, of California, and F. J. Scott, of Toledo, O. It has been purchased and incorporated in the latter city by the Guy Silver Mining Company, and capitalized at $100,000, in 1000 shares of $100 each. The mine is in the foot-hills ten miles southwest of Hailey, and five miles south of the Bullion group; altitude, 6000 feet. The country-rock is granite or soft quartzose granite. The vein is large, nearly all picking-ground, and the clay seams above the foot-wall are very marked and numerous. The company has about 50 tons of high-grade ore out, which runs about 30 per cent in lead, and has first-class ore at the bottom of both inclines of the vein 84 feet apart, and 60 feet below surface. The company will work a small force through the winter.

MICHIGAN.

ATLANTIC.—The product of copper for November was 162 tons 955 pounds.

CALUMET & HECLA.—The product for November was 1568 tons 189 pounds.

SHIPMENTS OF IRON ORE.—The Norway *Iron Chronicle* has the following: Shipments by lake have ceased for the season at all the ports. The total lake shipments of the two districts are 2,225,087 gross tons, of which amount Escanaba shipped 1,459,815, Marquette 711,609, and L'Anse 53,663 gross tons. Of this quantity shipped by lake, Marquette County furnished 1,564,341, and Menominee County 702,967 gross tons. The lake shipments of 1881 are 374,462 gross tons in excess of those of 1880. Adding to these lake shipments the shipments by rail to local furnaces, which are not yet reported, and the total product of the two districts will not fall far short of 2,360,000 gross tons.

MONTANA.

The Barker smelter has started up.

ALTA-MONTANA.—A dispatch dated December 12th says that the smelter has been running a week, and is producing 5 tons of bullion daily.

LEXINGTON.—Of this mine the *Suter Mountain*, in its issue of December 3d, says: The sinking of the shaft continues, and from a reliable authority it is learned that the foot-wall of the ledge encountered about two weeks ago has not yet been reached. The volume of water continues heavy. In the 200-foot north cross-cut, the ledge was encountered at a distance of about 40 feet from the shaft, and is stated to be over 20 feet wide. The lowest sample taken in the cross-cut was $60 in silver and $50 in gold. Drifts east and west have been extended, and the air now being bad, an uprise to connect with the 80-foot level has been started.

MAGNA CHARTA.—The *Miner* of December 4th reports the late strikes already reported in the south vein, on the 200 and 300-foot levels, are increasing in importance with development. The pay ore-body in this vein, at the points struck, is on an average 4½ feet wide, showing native silver throughout. On the 200-foot level, this vein has been opened about 30 feet, and on the 300-foot level about 50 feet. The assay value of the ore is about $83 to the ton. A small streak of very rich ore has just been struck in the foot of the shaft.

NEVADA.

THE COMSTOCK LODE.

The Gold Hill *News* prints the following weekly summary to December 7th: The connection so long waited for between the joint Union Consolidated Sierra Nevada winze and the Union shaft will soon be made. It is expected now that every blast fired will knock a hole through. This connection not only secures good ventilation, but permits of the opening up of the 2700 level, which work will be at once commenced. The usual work is in progress elsewhere along the lode. Savage, Crown Point, and Belcher continue to extract their daily quota of ore. From the extreme south end is reported an excellent improvement. Ore was found on the 200 level of the Regent mine last night, assaying $240, in which gold largely predominates. The strike was in the south shaft. How great it will turn out to be is not known, but owners of the stock are very jubilant over the prospects, as well they may be. The first levels (north and south shafts) of the mine continue to yield ore enough to keep Briggs's mill in constant operation.

NEW MEXICO.

CLIFTON.—A narrow gauge road, four miles long, is projected between the Longfellow and the Coronado mines.

VALVERDE.—According to a correspondent of the Silver City *Chronicle*, this group of copper mines on the Burro Mountains will be developed rapidly. Machinery and material for a smelter are already on the ground.

MINING AND MILL SUPPLIES.

GRASS VALLEY, CAL.—The following are the prices paid at Grass Valley by a large mine for mining and mill supplies, and for labor in mine and mill:

SUPPLIES:

Powder.—Vulcan, 27c. per pound.
Candles.—17c. per pound
Steel.—Sanderson's, 14c. per pound.
Wire Rope.—Halliday's, 1¼ inch, 50c. per foot.
Lubricating Oil.—$1.50 per gallon.
Lard Oil.—76c. per gallon.
Fuse.—7½c. per 1000 feet.
Cord-wood.—$3.87½ per cord.
Lagging.—5c. a piece.
Poles.—7c. a piece.
Quicksilver.—37c. per pound.
Screens.—80c. per square foot.
Coke.—$30 per ton.
Charcoal.—15c. per bushel.

WAGES:

Miners.—$3 per day.
Car-men.—$2.16 per day.
Drifting.—By contract, $5 per foot.
Day Mine Foremen.—$150 per month.
Night Mine Foremen.—$3.50 per day.
Blacksmith.—$3.50 per day.
Blacksmith's Helper.—$2 per day.
Engineers.—$3.75 per day.
Firemen.—$2.25 per day.
Lander.—$2.50 per day.
Mill Boss.—$4 per day.
Mill Men.—$3 per day.
Chinamen.—$1.50.

FINANCIAL.

Gold and Silver Stocks.

NEW YORK, Friday Evening, Dec. 16.

The business of the past week has not been quite as large as that of previous ones, the total sales footing up to 1,207,255 shares. There were some signs of weakness during the first days of the week. At the close, however, a general recovery is apparent.

The Tuscarora stocks have been very quiet and have attracted no special attention.

The Bodie stocks have been quite active and steady. Bodie, with sales of 1920 shares, has been irregular and strong, ranging between $2.60@$3.25@$3. Standard has been quite active and steady; the sales aggregate 1765 shares at $21⅜@$20½. Bulwer only records sales of 800 shares at $3@$2.60. Boston Consolidated has been very active and irregular; the sales aggregating 32,350 shares, at prices ranging from 68@57@64c. Goodshaw was quoted at 40@45c., with sales of 300 shares.

The Comstock shares have been steady and have shown much activity. California, weak in the beginning of the week, gained strength toward its close, the prices having been 40@53@50c. Consolidated Virginia was quite active and strong, the sales amounting to 16,150 shares at $1.50@$1.65. Sierra Nevada was dealt in only to the extent of 400 shares, at $10@$11.75. Union, with sales of 1202 shares, rose from $14@$17½. Sutro Tunnel was moderately active and quite steady, with sales of 8700 shares at $1.10@$1.20. Amie has been quiet and steady, with sales of 6950 shares at 12@20@18c. Chrysolite has been moderately active and weak, ranging between $4.80@$3.75, the latter figure being reached to-day. Green Mountain has been quite active and irregular, with sales aggregating 16,850 shares at $3@$1.80@$2.35.

A circular dated December 13th, issued by the order of the Board of Trustees of the Green Mountain Gold Mining Company, announces the following:

The trustees a short time ago were compelled, by reason of the necessities of the mill for more space, to dump the large quantities of tailings therefrom, to secure additional ground for this purpose. The only property available was the adjoining ranch, through which the tailings had to run, and over portions of which they had on several occasions caused inundation. This state of affairs left the company liable to litigation and damages. To avoid this and provide the necessary space, the company was compelled to purchase the entire ranch, consisting of 560 acres of land, at a cost of $10,500. The production of bullion has not been sufficient above the dividend to provide for this indebtedness, which has to be met. Also, the expenses the past month have been larger than usual, owing to a greater quantity of supplies received for the winter season. The trustees are averse to increasing the present indebtedness of the mine, and after due consideration, have determined that in lieu of a dividend the net earnings should be applied to the liquidation of these obligations, and to temporarily pass its payment. No reserve fund has as yet been accumulated; the larger stockholders having from time to time insisted the full net earnings be paid out to the shareholders in dividends.

Homestake only records one transaction of 10 shares at $15.50. Horn-Silver has been quiet and strong, with sales of 910 shares at $15.13 @$16.25. Iron Silver has been quite active and strong, ranging between $2.10@$2.20, with sales of 12,300 shares. Leadville has been fairly active, with sales of 7900 shares at $1.10 @$1.25@$1.20. Little Pittsburg shows a further decline from $1.75@$1.66, with little business doing. Moose has been active and irregular, with transactions footing up to 11,800 shares, at prices varying from 65@72@71c. Northern Belle has been weak, and has displayed some activity, declining from $10.50@$9.13, with sales of 1435 shares. Robinson Consolidated still continues to be the feature of the dealings, declining from $5@$2.75, and recovering to-day to $4.63, the last quotation being $3.85; the aggregate transactions were 358,440 shares.

The most conflicting statements concerning the Robinson continue to find their way into the public prints, and the assertions and counter-statements are positively bewildering. It is asserted freely that by some trickery Mr. Ashburner was deceived, and the president of the company is given as authority for the announcement that Mr. Ashburner has been requested to revisit the mine immediately and make a supplementary examination and report, and that he has, by telegraph from San Francisco, agreed to do so at once.

Vizina has been very active and strong, ranging from $2.45@$2.80, with sales of 12,700 shares.

Barcelona has been weaker, falling from 29@20c. Bradshaw has been a little weak, declining from 76 @68c., with sales of 8500 shares. Central Arizona has shown much activity, beginning the week somewhat irregularly, but growing stronger at the close. Miner Boy has been very active and irregular, sales footing up to 215,875 shares, at prices ranging from 6@12@9c. North State has been active and steady, with sales of 14,900 shares at 28@22@27c. Oriental & Miller has been stronger this week, with a rise from 33@43c. Silver Cliff was irregular and active; sales were 11,400 at $2.90@$2.25@$2.65. Silver Nugget, new, has been quite active and irregular. South Pacific has been moderately active, and as the price, $3.80@$2.90@$3.80, shows, it was irregular, sales aggregating 15,050 shares. There has been less interest in the State Line stocks this week. Nos. 1 and 4 are on record with 11,200 shares at 33@26@33c.; Nos. 2 and 3 sold to the extent of 118,915 shares at $15.0@$1.75. Vandewater has been quite active and strong, sales amounting to 18,500 shares at 31@45c.

The action of the Stock Exchange Governing Committee in discharging their sub-committee on mining stocks gave rise to many rumors adverse to such stocks, and created much misunderstanding. The facts, so far as we can ascertain them, are, that while there appears to be a strong sentiment in the Stock Exchange against listing mining securities there, in view of the existence of other exchanges which make such stocks a specialty, no change is really contemplated. Applications from mining companies for listing will still be entertained; but the application goes to the General Committee on the Stock List instead of to the Special Committee on Mining Matters which has heretofore existed. Applicant mining companies will save money by this change. Under the Special Mining Committee, $500 were charged for listing; under the General Stock Committee, only $100 are demanded.

There has been some talk in mining stock circles of taking measures of reform concerning the present prevailing system of excessive capitalization, although there seems to be considerable conflict of opinion concerning the best means by which such an improvement could be brought about. The remedy, it would seem, lies almost wholly with the incorporators themselves. The sooner they reach the conclusion that public opinion is strongly adverse to fancy stock capital, the earlier a reform may be looked for. That there should be such agitation, is a convincing proof that the evils wrought by the present system are beginning to be realized more generally, an encouraging sign for the future.

DIVIDENDS.

The Copper Queen Mining Company has declared a monthly dividend (No. 7) of 10c. per share, and an extra dividend of like amount, payable January 3d, 1882. Transfer-books close on the 29th.

DIVIDEND-PAYING MINES.

Name and Location of Company.	Shares. No. in 1000's	Shares. Par Value.	Assessments. Levied to date in 1000's.	Assessments. Date and amount per share of last.	Dividends. Total paid to date in 1000's.	Dividends. Date and amount per share.	Highest and Lowest Prices per Share at which Sales were Made. Dec. 10. H.	Dec. 10. L.	Dec. 12. H.	Dec. 12. L.	Dec. 13. H.	Dec. 13. L.	Dec. 14. H.	Dec. 14. L.	Dec. 15. H.	Dec. 15. L.	Dec. 16. H.	Dec. 16. L.
Alice, Mon..	400	25	*	.....	400	De 81 10	3.75	3.50	.....	.....	.....	.....	3.85	3.75	4.00	3.85	3.75	.....
Amie Con., Co.	500	10	*	.....	305	My 80 10	.18	.12	.20	.18	.19	.....	.18	.....	.18	.....	.....	.....
Argenta, Ne.	100	100	140	Se 81 10	40	Fe 80 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bar & Walker, Ut.	100	10	*	.....	60	No 80 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bassick, Co.	100	100	*	.....	25	Fe 80 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belle Isle, Ne.	100	100	55	Se 81 10	300	De 79 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Black Bear, Ca.	30	100	15	Se 79 50	832	Se 81	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belcher, Ne.	104	100	2330	Se 81 1 00	15397	Ap 76 75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bodie Cons., Ca.	100	100	125	De 81 50	1200	Mr 80 25	3.25	2.75	2.75	2.60	3.25	3.00	3.00	.....	3.00	.....	3.13	3.00
Breece, Co.	200	25	*	.....	2	Fe 80 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bulwer, Ca.	100	100	30	De 77 50	10	De 81 10	3.00	2.80	.....	.....	.....	.....	.....	.....	2.60	.....	2.75	2.65
California, Ne.	540	100	162	Je 81 30	31320	De 79 50	.45	.35	.44	.40	.50	.41	.53	.42	.52	.43	.50	.45
Cal. & Hecla, Mch.	100	25	.....	.....	20350	No 81 5 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Caribou Con., Co.	100	10	*	.....	50	Mr 80 10	.....	.....	2.35	.....	.....	.....	.....	.....	2.25	.....	.....	.....
Catalpa, Co.	300	10	*	.....	180	My 81 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chrysolite, Co.	200	50	*	.....	1600	De 81 50	4.75	4.55	4.50	4.35	4.80	4.50	4.70	4.65	4.50	.....	4.35	3.75
Climax, Co.	200	10	*	.....	180	Au 80 30	.20	.....	.....	.....	.....	.....	.....	.....	.23	.22	.24	.....
Cons. Va., Ne.	540	100	573	Au 81 30	42930	Au 80 50	1.50	.....	1.60	1.50	1.50	.....	1.55	1.50	1.60	1.50	1.62	1.50
Copper K'b, N.C.	1000	1	*	.....	15	No 80 02	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Copper Queen, Ar.	250	10	*	.....	150	De 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crown Point, Ne.	100	100	2573	Se 81 75	11588	Ja 75 2 00	.....	.....	1.35	.....	.....	.....	.....	.....	.....	.....	.....	.....
Drawd'-Terra, Dk	200	25	.....	.....	4576	De 81 15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dunkin, Co.	200	25	*	.....	200	Ju 81 7½	.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eureka Cons., Ne.	50	100	100	My 76 1 00	4730	Se 81 50	12.25	.....	12.50	10.88	.....	.....	11.50	11.00	12.00	.....	.....	.....
Excelsior Co., Ca.	100	100	200	Oc 81 1 00	850	Se 80 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.50	.....
Exchange, Ne.	100	10	*	.....	9	Au 81 03	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fa. de Smet, Dk.	100	100	.....	.....	365	De 81 25	8.00	.....	.....	.....	.....	.....	7.50	.....	.....	.....	.....	.....
Findley, Ga.	200	1	*	.....	8	My 79 1c	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Freeland, Co.	200	25	*	.....	50	My 80 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gem Co.	.....	.....	.....	.....	4	De 81	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Glass-Pend., Co.	250	20	*	.....	50	My 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gold Stripe, Ca.	150	10	*	.....	90	Jy 81 15	.....	.....	.....	.....	.35	.33	.....	.....	.....	.....	.....	.....
Gild & Curry, Ne.	108	100	3314	Jy 81 50	3826	Oc 70 $10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grand Prize, Ne.	100	100	$40	Oc 81 25	450	Se 80 25	.....	.....	.....	.....	.15	.....	.25	.....	.....	.....	.....	.....
Great Eastern, Dk	300	1	*	.....	16	Jy 80 01	.....	.....	.08	.....	.09	.08	.09	.08	.08	.....	.....	.....
Gr. Mountain, Ca.	125	10	*	.....	211	No 81 7½	.....	.....	3.00	2.75	2.55	1.95	2.15	1.80	2.50	2.10	2.35	2.20
Hale & Nor., Ne.	112	100	3754	Oc 81 50	1598	Ap 71 5 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hibernia, Co.	300	25	*	.....	180	Jy 81 10	.26	.25	.25	.23	.25	.24	.25	.24	.25	.23	.23	.....
Homestake, Dk.	100	100	200	Ap 78 1 00	1200	De 81 30	15.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Horn Silver, Ut.	400	25	*	.....	500	No 81 75	15.13	.....	.....	.....	15.75	.....	16.25	16.00	16.25	16.00	16.25	.....
Hukill, Co.	200	5	*	.....	210	De 78 10	.65	.60	.....	.....	.65	.....	.....	.....	.....	.....	.65	.....
Idaho	3100	100	.....	.....	3055	No 81 7 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indep., Ne.	100	100	170	Au 81 15	225	Se 79 25	.....	.....	.....	.....	.....	.....	.10	.....	.....	.....	.....	.....
In. Queen, Ne.	120	2	.....	Fe 80 15	294	Se 81 05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Inyo, Ca.	100	5	*	.....	35	No 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iron Silver, Co.	500	20	*	.....	500	De 81 20	2.20	.....	2.15	2.10	2.15	2.10	2.15	2.10	2.15	.....	2.20	2.15
Jocuistitla, Mex.	100	100	.....	.....	200	No 81 1 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
La Plata, Co.	200	10	*	.....	405	De 81 7½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.13	.....
Leadville C., Co.	400	10	*	.....	170	De 81 05	1.20	.....	1.25	1.20	1.20	1.10	1.25	1.20	2.10	1.15	1.20	.....
Leeds, Ut.	60	100	51	Je 81 25	78	Oc 78 15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Little Chief, Co.	200	50	*	.....	700	Au 80 50	.80	.79	.70	.65	.75	.70	.90	.71	.85	.80	.85	.80
Little Pitts. Co.	200	100	*	.....	1350	Mr 80 50	.....	.....	1.75	.....	1.75	.....	1.65	.....	.....	.....	.....	.....
Martin White, Ne	100	100	875	Je 81 25	90	Jy 79 50	.....	.....	3.00	.....	3.00	.....	.....	.....	.....	.....	3.00	.....
Moose, Co.	200	10	4	.....	550	Mr 78 25	.68	.....	.69	.65	.71	.67	.72	.68	.70	.69	.71	.....
Navajo, Ne.	100	100	200	Au 81 25	25	Mr 81 25	.06	.....	.15	.....	.....	.....	.25	.20	.....	.....	.15	.....
N. Y. & Colo., Col.	50	20	*	.....	25	Jy 79 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N'h'n Belle, Ne.	50	100	.....	.....	2099	De 81 75	10.50	10.00	.....	.....	10.00	.....	10.25	10.00	9.25	.....	9.13	.....
N. Belle Isle, Ne.	100	100	25	Fe 80 15	15	Se 80 15	.....	.....	.....	.....	.....	.....	.....	.....	.25	.....	.....	.....
Ontario, Ut.	150	100	.....	.....	3950	De 81 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ophir, Ne.	100	100	3092	Mr 81 1 00	1603	Ja 81 1 00	6.13	.....	6.25	.....	6.50	.....	6.50	.....	6.75	.....	7.13	.....
Osceola, Mich.	50	25	.....	.....	535	Ap 81 1 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Plumas, Ca.	100	10	*	.....	151	Jy 79 8	.....	.....	.....	.....	.....	.....	.10	.....	.....	.....	.10	.....
Quicks. Pref., Ca.	43	100	.....	.....	398	Au 81 9 25	60.00	.....	60.13	60.00	.....	.....	.....	.....	60.00	.....	.....	.....
" Com., Ca.	57	100	.....	.....	128	Au 81 2 25	13.75	.....	13.50	.....	13.75	.....	.....	.....	14.00	13.75	.....	.....
Quincy, Mich.	40	25	.....	.....	2710	Au 81 3 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rising Sun, Ca.	150	5	*	.....	101	My 81 7½	.....	.....	.80	.....	.75	.72	.....	.....	.....	.....	.78	.....
Robinson C., Co.	200	50	*	.....	575	No 81 50	5.00	4.30	4.55	3.50	3.90	3.00	3.63	2.75	3.80	3.00	4.63	3.63
Robt. E. Lee.	500	500	.....	.....	50	Jy 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Savage, Ne.	112	100	5440	No 81 5	4480	Ju 69 3 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sierra Nev., Ne.	100	100	4750	Oc 81 1 00	102	Ja 71 1 00	10.00	.....	.....	.....	.....	.....	.....	.....	11.25	10 88	.....	.....
Silver King, Ar.	100	100	.....	.....	800	De 81 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silver King, Colo.	500	2	.....	.....	50	Au 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Spr'g Valley, Ca.	200	1	*	.....	50	Ja 81 25	.....	.....	3.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
Standard, Ca.	100	100	50	Jy 78 1 00	3300	De 81 1 50	21⅜	.....	21.00	20.50	21.25	21.00	21.00	20.63	.....	.....	21.00	20.50
Starr-Grove, Ne.	200	10	*	.....	160	Ju 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stormont, Ut.	200	1	*	.....	155	No 81 05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Joseph, Mo.	100	10	*	.....	200	De 81 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tip Top, Ar.	100	100	120	Mr 80	100	No 81 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tombstone, Ar.	500	25	*	.....	1050	De 81 10	.....	.....	.....	.....	.....	.....	4.10	3.85	4.45	.....	.....	.....
Vizina, Ar.	200	25	.....	.....	80	De 81 10	2.55	2.45	2.65	2.50	2.60	2.55	2.60	2.55	2.75	2.65	2.80	2.75
Yel. Jacket, Ne.	120	100	4150	Oc 81 1 00	2184	Au 71 2 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

SALES.—Alice, 4300; Amie, 6950; Bodie Consolidated, 1920; Bulwer, 800; California, 7352; Caribou, 200; Chrysolite, 10,070; Climax, 4400; Consolidated Virginia, 16,150; Crown Point, 100; Dunkin, 200; Eureka, 2430; Excelsior, 100; Father de Smet, 165; Gold Stripe, 200; Grand Prize, 200; Great Eastern, 3300; Green Mountain, 16,850; Hibernia, 13,900; Homestake, 10; Horn Silver, 910; Hukill, 1100; Independence, 300; Iron Silver, 12,300; La Plata, 100; Leadville Consolidated, 7900; Little Chief, 7500; Little Pittsburg, 350; Martin White, 650; Moose, 11,800; Navajo, 1700; Northern Belle, 1435; North Belle Isle, 500; Ophir, 780; Plumas, 150; Quicksilver, pref., 800; common, 800; Rising Sun, 2200; Robinson Consolidated, 358,440; Sierra Nevada, 400, Spring Valley, 100; Standard, 1765; Tombstone, 1900; Virginia, 12,700. Dividend shares sold, 516,277.

The Evening Star Mining Company has declared a dividend (No. 23) of 5 per cent on the capital stock, also dividend No. 24 of the same amount (making a total of 10 per cent), payable December 20th. Transfer-books close on the 17th.

The Father de Smet Consolidated Mining Company has declared a dividend (No. 16) of 25c. per share, payable January 3d, 1882. Transfer-books close on the 22d.

The Homestake Mining Company has declared the regular monthly dividend (No. 40) of 30c. per share—making a total to date of $1,200,000—payable December 24th. Transfer-books close on the 20th.

The Idaho Mining Company has declared its usual monthly dividend (No. 148) of $7.50 per share.

The Iron Silver Mining Company has declared a dividend (No. 5) of 20c. per share, payable December 27th. Transfer books close on the 20th.

The La Plata Mining and Smelting Company has declared a dividend (No. 28) of 7½ cents per share—total amount of dividends to date $430,000—payable January 3d, 1882. Transfer-books close on the 24th.

The Lehigh Valley Railroad Company has declared a quarterly dividend of 1½ per cent.

The Northern Belle Mining Company has discontinued its extra dividend of 25c. per share, and will make its regular dividend 50c. per share.

UNLISTED QUOTATIONS.

Mr. L. V. Deforeest, No. 70 Broadway, under date of December 16th, 3 P.M., reports the current quotations of unlisted stocks as follows:

	Bid.	Off'd.		Bid.	Off'd.
Colum. & Beaver.	....	$0.80	Lowland Chief.	$0.05	....
Globe Copper	....	1.80	Menlo	....	$1.25
Highland Chief.	$1.75	2.25	Satemo	....	1.50
Hite	2.50	....	Madre	2.20	2.40

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

NAME OF COMPANY	CLOSING QUOTATIONS. Dec. 9.	Dec. 10.	Dec. 12.	Dec. 13.	Dec. 14.	Opening. Dec. 15.	Opening. Dec. 16.
Alpha	2½	2¾	2½	2⅝	2⅝	3	....
Alta	4	3⅞	4	3⅞	3⅞	4	....
Bechtel	....	....	3-16	3-16	3-16	....	....
Belcher	1¾	1¾	1¾	1¾	1¾	1⅞	....
Best & Bel.	8	8⅛	8	8⅛	8⅛	8⅞	....
Bodie	2¾	2⅝	3½	3	3	3	....
Bullion	1¼	1⅛	1⅛	1⅛	1½	1¼	....
Bulwer	2½	2⅝	....	....	2⅝	....	....
California	7-16	13-32	7-16	7-16	7-16	½	....
Challar	1¼	1½	1⅜	1⅜	1⅜	1⅜	....
Con. Va	1½	1½	1½	1½	1½	1⅝	....
Crown P'int	1⅛	1⅛	1⅛	1⅛	1	1⅛	....
Eureka Con	12¾	11½	....	11	12¼	13¾	....
Exchequer	1	1	1	15-16	15-16	1	....
Goodshaw	....	....	....	....	....	....	....
Gould &Cur	5⅛	5¼	5⅛	5⅜	5⅝	5⅜	....
Grand Prize	....	....	5-32	3-32	1-16	....	....
Hale & Nor.	2¼	2¼	2⅜	2¼	2¼	2⅛	....
Manhattan	....	....	....	....	....	2	....
Mar. White	2¾	....	3	3¼	....	3⅛	....
Mexican	10	10⅝	10¼	10⅝	11	11½	....
Mono	13-16	¾	29-32	27-32	....	11-16	....
Mt. Diablo	6	....	6	6⅛	....	....	....
North. Belle	10⅛	10⅜	9⅞	10⅜	10	9⅛	....
Noonday	5-16	5-16	11-32	....	....	5-16	....
Ophir	6⅛	6¼	6⅜	6⅜	6¾	7⅛	....
Oro	5-32	3-16	3-16	5-32	5-32	5-32	....
Overman	1⅝	1⅝	1⅝	1⅝	1⅝	1¾	....
Potosi	1⅛	1¼	1¼	1¼	1⅝	1¾	....
Savage	2¾	2¾	2⅞	2⅞	2⅞	3	....
Scorpion	1⅛	1¼	....	1¼	1¼	....	....
Sierra Nev.	10⅛	10⅝	10¾	10¾	11¼	11⅝	....
Silver King	19¾	20	20	....	....	19⅞	....
So. Bodie	....	....	....	....	....	....	....
So. Bulwer	....	....	....	....	....	....	....
Tioga	....	....	....	....	....	....	....
Tip Top	5	....	5	....	....	....	....
Tuscarora	....	....	....	....	....	....	....
Union Con.	14¼	15¼	14⅞	15⅜	16⅞	17⅜	....
Wales Con	....	....	....	....	....	9-16	....
Yel. Jacket	3⅝	3⅝	3⅝	3½	3⅝	4¾	....
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....

REVIEW OF THE SAN FRANCISCO MARKET.

A slight improvement is noted in some of the north end stocks, notably in Union Consolidated, which advanced yesterday to $18.25, but closed at $17⅞, an advance of $4 per share for the week. In sympathy with this, a little better feeling is manifested throughout the list. It is said that the north drift from the Mexican Union joint winze is showing unexpectedly well. Cross-cutting south from the drift connecting the United Consolidated shaft and the Union-Sierra joint winze will soon begin. It is said that the diamond drill tapped water at the bottom of the Savage incline yesterday. The water is drained rapidly.

NON-DIVIDEND PAYING MINES.

NAME AND LOCATION OF COMPANY.		NUMBER OF SHARES.	Par.	ASSESSMENTS. Total levied to date.	Date and amount of last.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE. Dec. 10. H.	L.	Dec. 12. H.	L.	Dec. 13. H.	L.	Dec. 14. H.	L.	Dec. 15. H.	L.	Dec. 16. H.	L.
Albion, s. L.	Nev.	150,000	100	335	Nov. 81 30	..	....	....	....	....	....	....	....	....	....	....	....
Allouez	Mich	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Alta	Nev.	100,800	100	1,533,600	Sept. 81 50	..	....	....	....	....	....	....	....	....	....	....	....
Alta-Montana, G.	Mon.	500,000	10	*	....	..	....	....	....	....	....	....	....	....	....	....	....
Am. Flag, s	Colo	125,000	10	*	....	..	....	....	....	....	....	....	....	....	....	....	....
Bald Mountain, G.	Colo	1,000,000	10	*	....	..	....	....	....	....	....	....	....	....	....	....	....
Barcelona, G	Nev	200,000	25	*	....	..	29c	27c	28c	25c	28c	24c	27c	20c	28c	25c	27c	20c
Battle Creek	Dak.	200,000	25	*	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Bear Creek	Colo	300,000	1	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Bechtel Con., G	Cal.	100,000	100	162,750	Dec. 81 15	..	....	....	....	20c	....	20c	....	20c	....	....	....
Best & B'lcher, G. s	Nev.	100,800	100	1,043,390	Jly. 81 50	8.00	....	8.13	....	....	....	8.50	8.38	8.38	....	8.88	....
Big Pittsburg, s. L	Colo	200,000	100	*	....	..	....	55c	....	....	....	70c	....	....	....	58c	....
Black Jack, G	Cal.	100,000	2½	....	....	..	....	....	....	....	....	....	....	....	....	....	....
Bonanza Chief	Mon	1,000,000	1	*	....	..	....	....	....	....	....	....	....	....	....	....	....
Bondholder	Colo	200,000	2½	....	....	..	....	....	....	....	....	....	....	....	....	....	....
Boston Con., G	Cal.	100,000	10	50,000	Sept. 81 20	..	68c	59c	66c	61c	64c	60c	62c	57c	65c	59c	61c	59c
Boulder Con., s	Colo	200,000	10	....	....	..	....	....	....	....	....	....	4c	....	....	....	....	....
Bradshaw, s	Ariz	225,000	10	....	....	..	75c	73c	....	....	....	....	76c	70c	70c	69c	70c	68c
Buckeye	Colo	100,000	5	*	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Bull-Domingo, s L	Colo	200,000	50	*	....	..	45c	....	45c	....	....	....	....	....	....	....	....	....
Bullion, G. s	Nev.	100,000	100	3,562,000	Sept. 81 $1	..	....	....	....	....	....	....	....	....	....	....	....	....
Bye and Bye	Ariz	100,000	10	*	....	..	....	....	8c	7c	....	....	....	....	....	....	....	....
Calaveras, G	Cal.	500,000	1	*	....	..	8c	....	8c	....	....	....	....	....	8c	7c	....	....
C'lav'r's W.&M.Co	Cal.	....	....	....	....	..	....	....	40c	....	35c	....	35c	53c	34c	....	....	....
Cal., B. H., G	Dak.	100,000	100	400,000	Mar. 81 25	..	....	....	....	....	....	....	....	....	....	....	....	....
Carbonate Hill, s L	Colo	40,000	10	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Catskill, s	Nev.	300,000	5	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Central Ariz'na, s	Ariz	100,000	100	....	....	..	1.60	1.55	1.55	....	....	....	1.65	1.50	2.00	1.55	2.25	1.90
Chapparal	Cal.	....	....	....	....	..	29c	24c	19c	14c	....	....	15c	9c	....	....	....	....
Cherokee, G	Cal.	150,000	10	....	....	..	....	....	75c	....	77c	....	65c	60c	70c	60c	70c	67c
Cheyenne Con., G	Dak.	300,000	1	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Clarence	Can.	....	....	....	....	..	....	....	....	....	....	....	....	....	1.40	1.00	....	....
Colorado Cent'l, s	Colo	300,000	10	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Col'mb'a Con., G. s	Nev.	100,000	50	....	....	..	....	....	....	....	....	....	8c	....	....	....	....	....
Cons. Imp'r'l, G. s	Nev.	500,000	100	1,375,000	Aug. 81 10	..	9c	....	11c	9c	....	....	....	....	10c	....	12c	....
Con. Pacific, G	Cal.	60,000	100	114,000	Jly 81 40	..	....	....	....	....	....	....	....	....	....	....	....	....
Con. Pay Rock, s	Colo	250,000	1	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Crescent, s L	Colo	300,000	10	*	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Crowell, G	N. C.	50,000	1	....	....	..	10c	9c	10c	9c	8c	....	4c	....	....	....	9c	7c
Dahlonega, G	Ga.	250,000	1	*	....	..	....	....	....	....	4c	....	....	....	....	....	....	....
Dardanelles, G	Cal.	100,000	10	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Dunderberg, s	Colo	150,000	10	*	....	..	....	....	....	....	70c	....	....	....	....	....	....	....
Durango, G	Dak.	500,000	1	*	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Empire, s	Ut'h	100,000	100	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Enterprise	Colo	....	....	....	....	..	63c	61c	63c	61c	61c	60c	61c	....	....	....	....	....
Exchequer	Nev.	100,000	100	630,000	Sept. 81 25	..	....	....	....	....	....	....	....	....	....	....	....	....
Globe Copper	Ariz.	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Gwynn Dale Con. G	Cal.	100,000	100	75,000	Jan. 81 25	..	....	....	....	....	....	....	....	....	....	....	....	....
Gold Placer, G	Colo	200,000	25	*	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Goodshaw, G	Cal.	100,000	100	145,000	Feb. 81 15	..	....	....	40c	....	45c	....	....	....	....	....	....	....
Granville, G	N. C.	800,000	1	*	....	..	2c	....	....	....	4c	....	3c	....	....	....	....	....
Harshaw, s	Ariz	100,000	100	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Head Center, s	Ariz	100,000	100	55,000	May 81 30	..	....	....	....	....	....	....	....	....	....	....	....	....
Hortense, s	Colo	200,000	10	....	....	..	15c	....	18c	....	....	....	18c	....	....	....	18c	....
Index	Cal.	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Julia, G s	Nev.	110,000	100	....	Sept. 81	..	....	....	....	....	....	....	....	....	....	....	....	....
Kossuth, G s	Nev.	108,000	100	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Lacrosse, G	Colo	100,000	10	*	....	..	....	....	....	....	....	....	24c	23c	....	....	22c	....
Legal Tender, s L	Colo	200,000	5	....	....	..	2.15	2.05	....	....	....	....	2.25	....	....	....	....	....
Leviathan, s	Nev	100,000	100	350,000	Mar. 81 25	..	30c	....	30c	....	....	....	31c	....	....	....	32c	30c
Lucerne, s	Colo	500,000	10	*	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Malachite	Nev.	200,000	5	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Mariposa Pref., G	Cal.	50,000	100	1,425,000	Dec. 80	..	....	....	....	....	....	....	....	....	....	....	....	....
" Com., G	Cal.	100,000	100	1,425,000	Dec. 80	..	3.50	3.25	....	....	....	....	....	....	3.00	....	....	....
May Belle, G	Cal.	100,000	100	106,000	Sept. 81 30	..	....	....	....	....	....	....	....	5c	....	....	....	....
Mayflower, s	Cal.	100,000	100	*	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Mexican, G. s	Nev	100,800	100	1,600,800	Sept. 81 $1	..	10.00	....	10.63	....	10.25	....	11.00	10.50	11.00	....	11.50	....
Michoacan Synd.	Mex.	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Mineral Creek, s.	Ariz	200,000	10	*	....	..	8c	7c	8c	7c	8c	7c	8c	7c	7c	6c	7c	6c
Miner Boy, G S L	Colo	500,000	10	*	....	..	10c	6c	12c	8c	11c	10c	12c	9c	11c	9c	10c	9c
Miller	Nev.	200,000	25	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Mono, G	Cal.	50,000	100	375,000	Aug. 81 50	..	....	....	....	....	....	....	....	....	....	....	....	....
Moose Silver, s	Colo	300,000	10	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Nevada Syndi	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
North Standard, G	Cal.	100,000	100	....	....	..	2c	1c	2c	....	....	....	....	....	....	....	....	....
North State	N. C.	400,000	25	....	....	..	28c	25c	27c	25c	26c	24c	25c	22c	26c	23c	27c	24c
N. Horn-Silv'r, s L	Utah	400,000	10	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Noonday	Cal.	60,000	100	....	Jne 81 50	..	....	....	....	....	....	....	....	....	....	....	....	....
Old Dominion, C	Ariz	200,000	10	*	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Oriental	Nev.	200,000	25	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Ori'nt'l & Miller, s	Nev.	400,000	25	....	....	..	39c	38c	39c	35c	37c	35c	37c	33c	40c	35c	43c	40c
Overman, G s	Nev.	115,200	100	3,460,700	July 81 50	..	....	....	....	....	....	....	....	....	....	....	....	....
Rappahannock, G	Va..	250,000	1	*	....	..	....	....	....	....	....	....	16c	....	....	....	15c	....
Red Elephant, s.	Colo	500,000	10	*	....	..	....	....	....	....	....	....	....	....	....	....	....	....
San Pedro, G s L	N. M	400,000	25	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Silver Cliff, s	Colo	200,000	50	*	....	..	2.90	2.63	2.90	2.35	2.50	2.25	2.55	2.30	2.70	2.50	2.65	2.55
Silver Islet	Can.	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Silver Nugget, s	Ariz	200,000	10	*	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Silv'r N, n'w stk, s	Ariz	250,000	10	....	....	..	12c	....	13c	12c	13c	11c	12c	9c	10c	9c	12c	11c
Sonora Con	Mex.	....	....	....	....	..	....	....	....	....	....	....	95c	90c	95c	....	90c	....
South Side, G	Cal.	100,000	100	85,000	Nov. 81 25	..	....	....	....	....	....	....	....	....	....	....	....	....
South Bulwer, G	Cal.	100,000	100	195,000	May 81 25	..	....	....	....	....	....	....	....	....	....	....	....	....
South Hite	Cal.	100,000	5	....	....	..	10c	....	....	25c	....	30c	25c	27c	26c	20c	....	....
South Pacific	Cal.	....	1	....	....	..	3.60	3.50	3.80	3.40	3.70	3.50	3.70	2.90	3.80	3.45	3.80	3.70
State Line No. 1, s	Nev.	200,000	25	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
" No. 2, s	Nev.	200,000	25	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
" No. 3, s	Nev.	200,000	25	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
" No. 4, s	Nev.	200,000	25	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
" Nos. 1 & 4, s	Nev.	....	....	....	....	..	33c	31c	31c	29c	30c	29c	29c	26c	30c	28c	33c	31c
" Nos. 2 & 3, s	Nev.	....	....	....	....	..	1.75	1.50	1.60	1.50	1.65	1.50	1.60	1.50	1.75	1.55	1.75	1.65
Sutro Tunnel	Nev.	2,000,000	10	*	....	..	1.25	1.10	1.15	....	1.20	1.13	1.13	1.10	2.15	1.15	1.20	1.15
Tabor Mine Co	Colo	250,000	20	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Taylor Plumas	....	....	....	....	....	..	13c	....	19c	13c	14c	....	15c	13c	....	....	14c	13c
Tioga	Cal.	100,000	100	260,000	Aug. 81 20	..	....	....	....	....	....	....	....	....	5c	....	....	....
Tuscarora, s	Nev.	100,000	100	95,000	Apr. 81 15	..	....	....	....	....	....	....	....	....	....	....	....	....
Unadilla, s	Colo	500,000	1	*	....	..	11c	10c	11c	....	11c	10c	12c	10c	12c	....	13c	12c
Union Cons, G. s	Nev.	100,000	100	1,160,000	Jly 81 $1	..	14.25	14.00	15.00	....	14.50	....	....	....	17.50	16 50	....	....
Utah	Nev.	20,000	100	1,190,000	Aug. 81 2	..	....	....	....	....	....	....	....	....	....	....	....	....
Vandewater, s	Nev.	200,000	10	*	....	..	33c	32c	32c	31c	34c	31c	36c	33c	38c	35c	45c	42c
Washington, s	Ariz.	200,000	5	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Willshire, G	Cal.	50,000	1	*	....	..	....	....	....	....	....	....	....	....	....	....	....	....

SALES.—Allouez, 200; Alpha, 10; Alta Montana, 2091; Barcelona, 41,900; Bechtel Consolidated, 800; Best & Belcher, 615; Big Pittsburg, 700; Boston Consolidated, 32,350; Boulder Consolidated, 100; Bradshaw, 8500; Bull-Domingo, 2100; Bye and Bye, 17; Calaveras, 5700; Calaveras W. & M. Co, 1200; Central Arizona, 10,500; Chapparal, 8700; Cherokee, 5400; Clarence, 1000; Consolidated Imperial, 4100; Crowell, 16,100; Dahlonega, 3000; Dunderberg, 275; Enterprise, 5900; Goodshaw, 300; Granville, 800; Hortense, 1600; Lacrosse, 600; Legal Tender, 1200 Leviathan, 1200; Mariposa, Common, 400; May Belle, 200; Mexican, 895; Mineral Creek, 19,500; Miner Boy, 215,875; North Standard, 1700; North State, 14,900; Oriental & Miller, 21,700; Rappahannock, 900; Silver Cliff, 11,400; Silver Nugget (new), 32,500; Sonora Consolidated, 2600; South Hite, 34,950; South Pacific, 15,050; State Line Nos. 1 and 4, 11,200; Nos. 2 and 3, 118,915; Sutro Tunnel, 8700; Taylor Plumas, 10,200; Tioga, 100; Unadilla, 26,600; Union Consolidated, 1202; Vandewater, 18,500. Non-dividend shares sold, 690,978. Total shares sold at all the Exchanges, 1,207,255.

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, Dec. 15.

The market for copper stocks, although dull, has an upward tendency, which, with the firmness in ingot copper, gives good reason for believing in a bull market in this class of securities during the coming year. As usual at this season, there is rather a disposition to realize profits, to close up accounts, but good buyers are in the field who see in the future a chance for a rise, and are willing to take the chances. Calumet & Hecla has ruled dull, and on small sales declined from $239@$237. Quincy advanced from $48@$49¼, and was in good demand in the early part of the week, and very firm; to-day it was lower, and sold at $48, which was bid for it, and none offered at less than $49. Atlantic in good demand, at $16⅛@$16¼. Franklin advanced from $13¾@$14¾, but declined to $14; to-day it was in demand at $14¼ bid and $14½ asked. We hear rumors of a dividend in this stock early in the new year. Pewabic advanced from $15¼@$16¼, declined to $16, and closed $16@$16¼; Osceola, very firm, at $32½@$33. Phœnix advanced from $2¼@$2¾, closing $2½. We understand the latest reports from this mine are very favorable. Central sold at $29, and is considered one of the cheapest mines on the list. The stock is not often to be had in this market. Allouez advanced from $3⅝@$3¾, but closed at $3⅝.

The market for silver stocks has been extremely dull, although prices are fairly steady. We quote Bonanza Development at $5@$5¼. Sullivan at $3¼@$3¾. Harshaw at $3¼@$3, San Pedro at $1⅛@$1¼. Silver Islet declined from $25@$21, touching the latter price to-day.

COAL STOCKS.

NAME OF COMPANY.	Capital Stock.	SHARES. No.	SHARES. Par Val.	Last Dividend. Mo.	Y.	R't.	Rate per Ann.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted so much per share. Dec. 10. H.	Dec. 10. L.	Dec. 12. H.	Dec. 12. L.	Dec. 13. H.	Dec. 13. L.	Dec. 14. H.	Dec. 14. L.	Dec. 15. H.	Dec. 15. L.	Dec. 16. H.	Dec. 16. L.	Sales from Dec. 10th to Dec. 16th inclusive.
	$		$			Per c'nt														
Am. Coal Co.	1,500,000	60,000	25	.....	..	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cameron C'l.	2,500,000	50,000	50	.....	..	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Col. C. & I.	10,000,000	100,000	10	.....	..	....	....	49½	.....	.....	.....	36	35	49½	.....	49	48½	48¼	47¾	600
Ches. & O. RR	15,000,000	150,000	100	.....	..	....	....	.....	.....	27⅜	.....	27½	.....	27½	.....	27½	.....	.....	.....	1,600
Consol. Coal.	10,250,000	102,500	100	Jan.	77	2½	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40⅜	40	1,000
Cumb. C. & I.	500,000	5,000	100	.....	..	....	....	39	38	.....	.....	40	.....	.....	.....	39	.....	.....	.....	730
Del. & H. C.	20,000,000	200,000	100	Sept	81	1½	6	+	108¾	108¾	108	108¾	.....	.....	.....	107⅛	.....	108¼	107¼	1,622
D., L. & W. RR	26,000,000	524,000	50	Sept	81	1¾	7	‡	127⅜	128⅛	127⅝	128	127⅜	127⅞	127¼	127¾	127⅜	128⅛	127⅛	57,075
Lehigh C. & N	10,448,550	208,971	50	Nov.	81	3	....	5½	44⅜	.....	44⅞	.....	44⅜	.....	44½	.....	44½	.....	.....	2,860
Leh. V'y R. R	27,042,900	540,858	50	Oct.	81	....	....	6	62¾	62½	62¾	.....	62½	.....	62¼	62	62	.....	.....	2,448
Mary'd Coal	4,400,000	44,000	100	.....	76	1½	1½	21½	.....	.....	21⅜	.....	.....	.....	.....	.....	.....	21½	21⅜	1,100
Montauk C'l.	2,500,000	25,000	100	.....	..	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morris & Es'x	15,000,000	300 000	50	July	81	....	....	7	.....	134	.....	.....	.....	123⅜	123¾	123	.....	.....	.....	1,400
New Cen. C'l	5,000,000	50,000	100	Apr	80	2	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
N. J. C. RR.	20,000,000	206,000	100	Oct.	76	2¼	2⅛	65⅜	95⅛	95⅞	95¼	95⅛	95⅛	95⅛	95⅛	95¼	95⅛	95¼	95¼	11,700
Penn. Coal.	5,000,000	100,000	50	May	79	3	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. R. R.	68,870,200	1,337,404	50	Nov.	81	4	....	63¾	63⅜	63⅜	63¼	63⅛	63⅜	63⅛	63	63⅜	63	.....	.....	28,904
Ph. & R. RR*.	34,278,150	685,563	50	.....	76	2½	10	68¾	68	69½	68	69½	68⅞	69¼	68½	68¾	68¼	69⅝	68⅜	65,731
Spring Mt.C'l	1,500,000	30,000	50	Dec.	81	3½	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* 108¼. ‡ 128. Total Sales..... 176,870.

*Of the sales of this stock, 29,926 shares were in Philadelphia and 35,805 in New York.

PHILADELPHIA MINING STOCKS.

	Dec. 8. H.	Dec. 8. L.	Dec. 9. H.	Dec. 9. L.	Dec. 10. H.	Dec. 10. L.	Dec. 12. H.	Dec. 12. L.	Dec. 13. H.	Dec. 13. L.	Dec. 14. H.	Dec. 14. L.	Sales.
Algonquin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Alonzo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Am. Con	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Argent	.42½	.40	.40	.37½	.40	.37½	.....	.....	.37½	.....	.40	.35	9,200
Atlanta	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Aztec	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Battle Mt	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.03	.....	1,000
B. Sulphuret	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Buena	.22	.20	.21	.19	.21	.19	.....	.....	.19	.17	.18	.17	62,700
Bunker Hill	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cincinnati	.....	.....	.35	.32½	.....	.....	.....	.....	.....	.....	.....	.....	1,100
Compromise	.....	.....	.09	.....	.11	.10	.....	.....	.11	.....	.....	.....	1,900
Con. Virginia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crown	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dauntless	.06	.....	.06	.05	.06	.....	.....	.....	.....	.....	.....	.....	5,100
Del Monte	.....	.....	.05	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
Den. City Con	.85	.....	.90	.85	.....	.....	.....	.....	.87½	.85	.85	.80	8,100
Eureka Con	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fairview Con	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flora Morrison	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Girard	1.85	1.82½	*	.....	.....	.....	.....	.....	1.75	1.67½	1.70	1.62½	4,100
Golconda	.....	.....	.....	.....	.....	.....	.....	.....	.03	.....	.....	.....	1,000
Golden Age Group	.06	.....	.05	.04	.....	.....	.....	.....	.....	.....	.....	.....	10,100
Gov. Group	.50	.45	.42½	.....	.42½	.....	.....	.....	.40	.....	.40	.....	8,000
Grand Trunk	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grand Union	.....	.....	.07	.06	.07	.....	.....	.....	.06	.....	.....	.....	7,200
Gun. Imp. Co	1.77½	1.72½	1.72½	1.70	1.75	1.72½	.....	.....	1.90	1.85	1.90	1.87½	8,750
Hancock	.02	.....	.02	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,000
Hibernia Con	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Homestake	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iowa Gulch	.....	.....	.30	.....	.30	.....	.....	.....	.30	.27½	.31	.25	8,300
King Bullion	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Little Diamond	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Little Maud	.18	.16	.....	.....	.....	.....	.....	.....	.....	.....	.16	.14	5,200
Long & Derry	.07	.....	.07	.....	.06	.....	.....	.....	.06	.....	.06	.....	14,500
McCullough	.....	.....	.15	.....	.....	.....	.....	.....	.....	.....	.....	.....	400
Monitor	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montana	.25	.20	.....	.....	.21	.....	.....	.....	.21	.....	.19	.18	1,730
Mt. Lincoln	.06	.....	.06	.....	.07	.06	.....	.....	.07	.....	.07	.06	16,800
Mt. Sheridan	.12	.10	.11	.....	.....	.....	.....	.....	.11	.....	.11	.....	9,600
National	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Orion	1.37½	.82½	.85	.....	1.25	.82½	.....	.....	.82½	.....	.75	.....	4,200
Palmetto Ex.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pembina	.57½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
Penn Breck	.18	.....	.19	.18	.18	.17	.....	.....	.17	.16	.16	.....	4,800
Permanent	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pizarro	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pizarro Exten	.06	.05	.06	.05	.....	.....	.....	.....	.05	.....	.....	.....	37,800
Rara Avis	1.40	1.37½	1.40	.....	1.37½	.....	.....	.....	1.42½	1.40	.....	.....	1,400
Rara Avis Ex	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rico Pioneer	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Pedro	.04	.03	.04	.....	.....	.....	.....	.....	.....	.....	.04	.....	6,400
Silver Cord	1.05	1.00	1.05	.....	.....	.....	.....	.....	1.05	.....	.....	.....	2,400
Silver Plume	.....	.....	.05	.....	.....	.....	.....	.....	.05	.....	.....	.....	2,500
Silver Rock	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sovereign	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Standard	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sultana	.....	.....	.02	.....	.....	.....	.....	.....	.02	.....	.....	.....	2,300
Sutro Tunnel	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tombstone	5.00	4.30	4.45	.....	4.40	.....	.....	.....	4.30	4.10	4.47½	4.35	5,984
Victor	.....	.....	.....	.....	.06	.04	.....	.....	.06	.04	.05	.....	36,100
Western Ontario	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Western Union	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

At the Boston Mining and Stock Exchange, the week has been marked by extremely dullness, rising, in part, from the temporary suspension from the list of Milton and Deer Isle—stocks which have of late been largely dealt in. The latter was replaced on the 13th, and has been quite active since at a decline from 40@23c. Empire has been reorganized, and virtually assessed 20c. per share, and there has been an active demand for the stock at 28@32c. With $40,000 in the treasury with which to open the mine, it is not impossible that another boom in the stock will occur. Other stocks dealt in require no special comment.

3 P. M.—The market this afternoon, without any special feature, closed quite firm, and with a good inquiry for the best coppers. Copper Falls sold at $4; Huron at $4; Franklin, $14 bid; Pewabic, $16 bid; Quincy, $48@$48¾; Phœnix, $2⅝@$2¾; Calumet & Hecla, $238 bid; Douglass, $1⅝ bid; Osceola, $32½@$33; Atlantic, $16@$16⅛; National, $3@$3¼; Ridge, $4@$4¾.

Coal Stocks.

NEW YORK, Friday Evening, Dec. 16.

The past week has seen an unusually dull market for this class of stocks, the combined transactions in this market and in Philadelphia aggregating only 176,870 shares. Prices have been uniformly steady until to-day, when they close considerably weaker. There have been sales of 57,075 shares of Delaware, Lackawanna & Western at $128⅜@$127⅛, 1622 shares of Delaware & Hudson Canal at $108¼@$107¼, 11,700 shares of New Jersey Central at $95⅞@$93¼, and 35,805 shares of Reading at $68@$69½.

Maryland Coal has sold at $21½@$21⅜, Consolidation at $40½@$40, Cumberland at $38@$40, Cameron at $35@$36, and Colorado at $49½@$47¾.

The *Graphic* says:

Mr. Gowen was here yesterday, and he still claims that Mr. Vanderbilt and himself will control the election. It is understood to be Mr. Vanderbilt's plan to extend the road to Harrisburg and Pittsburg through Southern Pennsylvania, and form a connection with the Corning, N. Y., road at Williamsport, Pa. This would give Mr. Vanderbilt a direct line from Buffalo to Philadelphia over his own roads, as well as a Western outlet for coal over his entire system. The gross earnings of the Reading road for this year are estimated at $33,800,000, and the net at $10,300,000, which will pay all interest and expenses, and leave 7 per cent on the stock.

Gas Stocks.

The following list of companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 17 Wall street, New York. Quotations are based on the equivalent of $100.

COMPANIES IN NEW YORK AND VICINITY.	Capital Stock.	Par.	DIVIDENDS. Rate per ann.	DIVIDENDS. Am. of last.	Date of last.	QUOTATI'NS Bid.	QUOTATI'NS As'd.
	$		P. ct.				
Mutual, N. Y.	5,000,000	$100	6	1½	Oct. '81	82½	85
" Bonds	900,000	1,000	6	3½	Aug. '81	104	105
N. York "	4,000,000	.....	8	4	Nov., '81	106	107¼
Metrop. "	2,500,000	100	10	7½	Aug., '81	154	159
" Bonds	700,000	.....	3	.....	.....	105	109
Harlem "	1,850,000	50	.....	3	Feb., '78	93	95
Manhat. "	4,000,000	50	.....	5	Dec., '81	215*	220
Brooklyn, Bkln.	2,000,000	50	.....	5	Nov., '81	124	126
Nassau	1,000,000	25	.....	3	Sept., '81	71	75
" Certfs.	700,000	1,000	7	3½	Nov., '81	98	101
People's	1,000,000	10	.....	3½	Jan., '76	35	40
" 1st m. Bonds	400,000	.....	7	3½	Nov., '81	104	107
Bonds	100,000	.....	6	3	July, '81	93	96
Metrop. "	1,000,000	100	5	2½	July '81	70	75
W'msb'g "	1,000,000	50	....	1¼	Oct., '81	69	72
" Bonds	1,000,000	1,000	6	3	Oct., '81	101	104
Citizens'	1,200,000	20	.....	.....	.....	61	62½
" Bonds	315,000	1,000	.....	3½	Oct., '81	105	110
J. C., N. J.	750,000	20	.....	7½	July, '81	160	170
Municipal, N. Y.	2,000,000	100	.....	5	Oct., '81	187	190
" Bonds	750,000	100	7	3½	Nov., '81	105	110
Fult'n M'nicipal	1,500,000	100	.....	.....	.....	65	70

* Ex dividend.

BULLION MARKET.

NEW YORK, Friday Evening, Dec. 16.

The London market has been affected by the President's message and report of the Secretary of the Treasury in reference to the suspension of coinage of the silver dollar, and is reported dull at the lower figures of our table annexed.

DATE.	London Pence.	N. Y. Cents.	DATE.	London Pence.	N. Y. Cents.
Dec. 10	51 15-16	112⅝	Dec. 14	51¾	112¼
Dec. 12	"	112½	Dec. 15	51¾‡	112
Dec. 13	51⅞†	112½	Dec. 16	51¾	112⅛

* 51⅞@52 †Weak. ‡ Dull.

Bullion Receipts at New York.—The bullion received from the mines at the various offices in this city during the week ended December 16th, as compiled from various sources, amounted to $452,742.52, as against $329,305.27 reported for the previous week. The receipts from Janu-1st to date are $16,374,391.96.

Exports of Gold and Silver from New York.

Week ending December 10th	$153,560
Corresponding week last year	213,000
Since January 1st	10,574,847
Corresponding period last year	7,961,367

Foreign Bank Statement.—The weekly statement of the Bank of England shows a gain of £7800 bullion; the proportion of its reserve to its liabilities was raised from 39 9-16 to 39⅞ per cent, against 45½ per cent at the same date last year. The weekly statement of the Bank of France shows a gain of 1,350,000 francs gold and a loss of 470,000 francs silver.

During the week ended December 10th, 395,487 standard silver dollars were put in circulation, against 485,496 for the corresponding week of last year.

METALS.

NEW YORK, Friday Evening, Dec. 16.

The favorable condition of the metal markets continues, and is becoming more pronounced from week to week. The conviction seems to be gaining ground that the coming year will be one of much activity, and will be a prosperous one for producers.

Copper.—There are rumors that from five to six millions of pounds of copper were purchased by large manufacturers. Little is known of the price, and it appears that the terms are in some cases not definitely settled upon, the deliveries to extend over the next two months. Lake Copper is now firmly held at 20c., and offers of 19¾@19⅞c. have not resulted in any sales. There appears to be little in stock here or at Western points, and overland shipments have already begun at this early period during the season. In England, an increased consumptive demand and curtailed supplies, notably from Chili, are strengthening the position. We learn by cable that it closes at £70 5s. for spot, and £71 10s. for future for Chili Bars.

From London we have the following advices by mail:

Nov. 28th. A good trade was done both Saturday and to-day, and Chili Bars now stand at the same level as they did on this day last week. Good ordinary brands have sold up to £67 cash, £67¾ three months prompt; and at these figures buyers rather predominate. Favorite marks found takers from £66¾@£67¼ cash and short prompt, best brands

BULLION PRODUCTION FOR 1881.

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

The shipments of silver bullion are valued at $1.29·29 per ounce, Troy: gold at the standard $20.67 per ounce, Troy. The actual value of the silver in the following table s therefore subject to a discount, depending on the market price of silver. If the price of silver be counted at $1.12 per ounce, which has for some months been about its average value, the following figures, where they relate to silver bullion, should be diminished by about 13½ per cent to arrive at actual value

MINES.	States.	For the week.	Month of December.	Year from Jan. 1st, 1881.
*Alice, G. S.	Mont.	.....	.....	$856,741
Barbee & Walker, S.	Utah.	$4,358	$4,358	191,690
*Belle Isle, G. S.	Nev.	5,100	5,100	17,160
*†Big Pittsburg, S.	Colo.	.....	.....	57,949
*Black Bear, G.	Cal.	.....	.....	84,976
Bodie, G.	"	5,370	11,370	339,877
*Caledonia, G.	.....	.....	.....	101,974
California, G. S.	Nev.	.....	.....	118,694
Caribou, S.	Colo.	.....	.....	121,991
*Castle Dome	Ariz.	.....	.....	197,259
*Christy, S.	Utah.	.....	.....	284,559
*†Chrysolite, S.	Colo.	.....	.....	849,255
Concordia, G.	Cal.	.....	.....	2,234
Connor, S.	Utah.	4,620	4,620	113,343
*Contention, G. S.	Ariz.	.....	.....	1,300,282
Con. Virginia, G. S.	Nev.	.....	.....	148,960
Crismon-Mammoth, G.	Utah.	2,000	2,000	62,454
*Custer, G. S.	Idaho.	.....	.....	722,889
*Deadwood-Terra, S.	Dak.	.....	.....	697,913
*Derbec, Blue Grav., G	Cal.	.....	.....	109,267
*Eureka Con., G. S. L.	Nev.	.....	.....	1,393,618
Exchange Silver	"	.....	.....	44,400
Fresno Enterprise, G.	Cal.	.....	.....	9,600
*Grand Central	Ariz.	.....	.....	728,990
*Grand Prize, S.	Nev.	.....	.....	51,658
Hale & Norcross, G. S.	"	.....	.....	33,090
*Harshaw, S.	Ariz.	.....	.....	402,649
*Head Center	"	.....	.....	176,521
*Homestake, G.	Dak.	.....	.....	1,074,035
Horn-Silver, S. L.	Utah.	112,500	112,500	1,708,019
Idaho, G.	Cal.	.....	.....	546,100
*Independence, S.	Nev.	.....	11,500	34,600
*Indian Queen, S.	"	.....	.....	162,410
Iron Silver	Colo.	.....	.....	327,600
*Jocuistita, S.	Mex.	.....	.....	‡465,211
*†Little Chief, S. L.	Colo.	.....	.....	169,645
*Mack Morris	Ariz.	.....	.....	246,753
*Modoc	Cal.	.....	.....	34,704
Morning Star	Colo.	.....	.....	15,200
*Mount Potosi, G. S.	Nev.	.....	.....	74,319
*Navajo	"	.....	.....	128,124
New York & Arizona.	Ariz.	.....	.....	2,755
Noonday, G.	Cal.	8,250	8,250	223,090
Northern Belle, S.	Nev.	16,840	36,340	1,155,746
*Oneida, G.	Cal.	.....	.....	46,045
*Ontario, S.	Utah.	.....	.....	‡2,030,650
*Ophir, G. S.	Nev.	21,630	21,630	43,800
Pascoe, S.	Utah.	2,250	2,250	32,200
Rebellion	"	.....	.....	10,512
Richmond, S. L.	Nev.	.....	.....	672,135
Robinson Con., S.	Colo.	.....	.....	129,000
*Sierra Nevada, G. S.	Nev.	.....	.....	179,001
*Silver Bow, G. S.	Mont.	.....	.....	469,281
Silver Cliff	Colo.	.....	.....	26,925
Silver King, S.	Ariz.	.....	26,000	567,683
Sonora Con. M. & M. Co	"	.....	.....	3,000
Standard, G.	Cal.	.....	42,800	1,894,635
*Star, G.	Nev.	.....	.....	233,755
Stormont, S.	Utah.	6,685	6,685	244,196
*Sullivan, S. L.	Maine.	.....	.....	5,340
Syndicate, G.	Cal.	.....	.....	84,587
Tintic M. and M. Co.	Utah.	.....	.....	108,071
*Tip Top, S.	Ariz.	.....	.....	255,029
*Tombstone, G. S.	"	.....	.....	‡1,436,219
*Union Con., G. S.	Nev.	.....	.....	43,100
Vandewater	"	.....	.....	1,700
*Vizina, S.	Ariz.	.....	.....	445,426
Total amount of shipments to date				$24,489,904

*Official. †Net. G. Gold. S. Silver. L. Lead. ‡Assay value.

fetching £67½@£68 cash, the market closing with a firm appearance.

Nov. 29th. Chili charters came to hand this morning, comprising 2450 tons of bars and ingots; 150 tons pure in furnace material for England; 300 tons bars for France.

	Tons, 1881.	Tons, 1880.	Tons, 1879.	Tons, 1878.
Charters—Jan. 1st to Nov. 30th.	34,534	37,600	48.104	43,999
November only	3,600	2,853	3,128	4,029

Price of bars at Valparaiso on 25th inst. was nominally $18.80, which, with steamer freight 60s., exchange 34¾s., is equal to £66⅝ Liverpool, without commission to merchants on either side. The above announcement has had but little effect on values, except that sellers of forward deliveries were easier to deal with, and accepted offers on somewhat lower terms than they would listen to yesterday. A good quantity of g. o. bs. changed hands at £66¾@£67, the former price being net; metal with three months prompt found takers to a fair extent at £67⅝ up to £67¾, and the minimum figure in this case also was ree of brokerage.

Nov. 30th. The market for Chili Bars has been strong to-day, with a good business done at rather better prices. G. o. bs. were sold from £66¾@£67 cash, £67@£67½ sundry extended prompts, £67½@£67¾ three months, and the quantity of metal on sale at the close of second 'Change was rather limited, even at the higher rates.

Dec. 1st. The demand for Chili Bars continues strong, and we note a further improvement in values, while even at the advanced rate sellers are not very plentiful. A good trade was done to-day in cash g. o. bs. up to £67⅝ usual terms, and three months' prompts found takers up to £68¾; there remained buyers over at the close at those figures, with a few parcels offering at 2s. 6d. per ton less, but net money only.

Tin.—During the week, the sales and re-sales foot up to over 800 tons, at prices ranging from 24@24½c. for spot and ex arrival vessels, from 24¼@24⅝c. for all December delivery in store, and from 24⅜@24¾c. for all January delivery, and 25c. at the last moment for the same. The market is strong at the close, owing to high quotations from abroad. From Singapore, $34.50, and from Penang $34.10 is cabled, which is equal to 25¼@25⅝c., delivered here. No tin was shipped to the United States from Singapore during the first two weeks of December, while 550 tons were dispatched to London. From London, the latest cable advices are £109 for spot and £110@£110 5s. for future delivery.

We have the following mail advices from London:

Nov. 28th. Has been rather quiet since we last wrote, and there is no alteration to note in current values, which stand at 105@105¼s. cash, 106@106⅛s. three months, with a moderate trade done each day at about those rates.

Nov. 29th. Deliveries of Banca and Billiton for November were 643 tons. The London market has been very quiet to-day, with a few small sales of foreign at 105@105¼s. cash, 106@106⅛s. three months.

Nov. 30th. The Banca sale of 23,300 slabs went off at an average of 64fl., about equal to 107s. Holland. London imports of foreign for November were 1213 tons; deliveries, 1530 tons. Stock in warehouse here is reduced to 5520 tons. Australian and Straits shipments not yet known. Not much activity was shown to-day, and we heard only of moderate sales at 105⅝s. sharp, 105¼@105⅝s. ordinary cash, 106¼@106½s. three months.

Dec. 1st. Is still inactive, and quotations are without change. A small business took place at 105@105⅛s. sharp, 105¼@105½s. usual 14 days, with a few transactions in three months prompt at 106@106½s.

Tin Plates.—Tin plates are very strong, B. V. Cokes having risen to $5.75, while Charcoal Tins and Ternes too have risen, the former being $6.37½@$6.62½, while the latter command $5.62½@$5.87½ per box.

Lead.—The scarcity of spot lead has been taken advantage of by holders to ask and obtain for small lots fancy prices, there having been sales during the week at 5·25@5·35c. for common lead, while Western refined lead is offering at 5½@5·20c. It is true that the supply is not large; but on the other hand, the demand is not more than ordinary, and the present condition of the common lead market here can not be looked upon as any thing else but a passing local feature. Refined is quoted at 5·12@5·20c., there having been sales of lots at 5·15c. for January delivery. We may note that freights from St. Louis have been advanced to 22·5c. per hundred pounds.

Spelter and Zinc.—The scarcity still continues, and prices for Western and Silesian range between 5·75@6c. Sheet-Zinc is worth 8¼@8½c.

Antimony.—The consumptive demand continues, and rates are held at 14¼@14½c. for Cookson's, and 13c. for American.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Dec. 16.

For the season, an exceptional activity is manifest in the iron trade, and a healthy tone prevails.

American Pig.—American pig-iron continues to be very firm, and though there are numerous inquiries, comparatively little business is actually done, because producers do not seem inclined to name prices for the coming year. The market is firm at the following quotations: Foundry No. 1 X, $26@$26.50; Foundry No. 2 X, $24; and Gray Forge, $23.

Scotch Pig.—During the week, there have been sales aggregating about 1000 tons at the quotations given below. All the arrivals go into consumption. Coltness, which is scarce, is quoted at $26.50@$27; Eglinton, $23@$24; Summerlee, $26@$26.50; and Glengarnock, $24@$24.50.

Rails.—The market for domestic steel rails is great, and for immediate delivery $60@$61 is asked, while for future delivery supplies might be obtained for $58. In iron rails, there is some demand for 56-pound section. Prices average from $47½@$48.

Old Rails.—There is very little business, but the market is firm, with an upward tendency. Between 2000 and 3000 tons of D. Hs. were sold at $31.25. We quote at the close Ts., $29; D.Hs., $31.25@$31.50.

Scrap.—During the week, from 500 to 600 tons of scrap ex ship were sold at prices varying from $30@$31.

Philadelphia. Dec. 16.

The iron market is quieter without being weaker. Many inquiries for future requirements and few sales are the features this week. The approach of the holidays is felt, but the views of sellers are remarkably firm. Fine grades of pig are very scarce. One hundred tons brought $27 to-day, and at a sale of 300 tons yesterday ordinary Lehigh Foundry $26.50 was realized. Some little iron went at $25.50 for foundry use. Founders need to buy constantly, because so many have been running all through the fall on scarcely any stocks. No. 2 is held at $23.50, and sells at $23. Gray Forge is inquired after more than any for winter delivery. So far this week, $21 at furnace has been the ruling price, though two or three lots went a little under, while the fine grades are quoted at $22, but none selling. The market for pig is steady, and if sellers were disposed to concede a little business would be active. Bessemer is up again, and is held at $27 here, with bids at $26. Brokers have large orders in hand for negotiation. Foreign, English, and Scotch are scarce. Charcoal Blooms are firm at $72; Anthracite, $62. Muck Bars are quoted $45@$45.50, but purchases have been made at $44.50. Orders for Bar Iron are hard to place even this week, when market reports describe the market as quiet. Manufacturers are quite ready to place an order, and promise best possible delivery and name price at date of delivery. Very little business will be taken otherwise. Mills could run well on to the 1st of March without fresh business, and hence their cautious policy. To name prices and decline orders is to inflate values and encourage imports. This danger will be guarded against. Prices are stiff; 2·7c. is quoted, but few orders would be booked at it, as 2·8c. is expected. Skelp sells at 3@3¾c.; nails, $3.30. Inquiries go to Western Pennsylvania, and some limited shipments are made from that quarter by way of showing teeth. Structural shapes are quiet. The Southern railroad builders are taking figures here for spring work. Quotations are unchanged. Plate and Tank are steady, and plenty of January business is in sight. Sheet-iron is scarce, and orders are coming in regardless of the dull season. Wrought pipe orders are two months ahead. Quotations 55 off and on tubes 37½. Steel rails are quoted at $60 for summer, and $62 early delivery. Sales of 12,000 tons, of which 7000 were English narrow-gauge rails, at $66.50. Iron are weaker. One lot of 5000 is offered at $47.75. Old rails are lower, and offers are made of large lots. They are quoted at $29@$31; Choice Heavy Scrap, $34; Medium, $31@$32, active and strong.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Dec. 16.

Anthracite.

The cooler weather which has set in has raised the expectations of both dealers and operators, and with a continuance would rapidly bring forward a demand for domestic sizes. In the movement and mining of coal there has been nothing to attract especial attention.

The production of anthracite coal last week was 615,708 tons, as compared with 654,376 tons the previous week, and 463,101 the corresponding week of 1880. The total production from January 1st to

December 10th was 26,695,916 tons, as against 22,388,866 tons for the like period of last year, showing an increase this year of 4,307,050 tons.

Bituminous.

The activity in the bituminous coals still holds out. In some localities, the scarcity of cars so much complained of is growing less troublesome. The inability of production to cope with the demand outside of contracts made is holding the high prices still, so that taking all the points into consideration there does not appear to be any chance of an early reduction in the price.

STATISTICS OF COAL PRODUCTION.

Comparative statement of the production of anthracite coal for the week ended Dec. 10th, and years from January 1st:

TONS OF 2240 LBS.	1881. Week.	1881. Year.	1880. Week.	1880. Year.
Wyoming Region.				
D. & H. Canal Co..	75,159	3,422,461	74,055	2,909,326
D. L. & W. RR. Co.	92,826	4,073,479	83,538	3,367,681
Penn. Coal Co.....	29,909	1,349,474	21,942	1,076,236
L. V. RR. Co.....	20,324	1,106,831	21,040	1,001,955
P. & N. Y. RR. Co..	2,975	99,562	924	38,066
C. RR. of N. J.....	51,811	2,169,966	39,174	1,635,363
Penna. Canal Co...	2,933	457,260	.....	457,629
	275,937	12,679,033	240,673	10,486,256
Lehigh Region.				
L. V. RR. Co.....	106,524	4,303,945	76,505	3,289,639
C. RR. of N. J.....	82,122	2,084,912	35,608	1,976,685
S. H. & W. B. RR..	.....	10,926	.....	9,515
	188,646	6,399,783	112,113	5,275,839
Schuylkill Region.				
P. & R. RR. Co.....	149,801	6,628,139	99,571	5,728,826
Shamokin & Lykens Val....	*	927,260	9,107	851,609
	149,801	7,555,399	108,678	6,580,435
Sullivan Region.				
SL Line&Sul.RR.Co.	1,324	61,701	1,637	46,336
Total	615,708	26,695,916	463,101	22,388,866
Increase.....	152,607	4,307,050	.....	.....
Decrease	.....	.....	.....	.....

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.

* This report was not received this week.

Total same time in 1876.....17,494,278 tons.
" " " 1877.....19,296,441 "
" " " 1878.....16,486,088 "
" " " 1879.....25,023,416 "

Belvidere-Delaware Railroad Report for the week ending Dec. 10th:

	Week.	Year. 1881.	Year. 1880.
Coal for shipment at Coal Port (Trenton)	2,411	81,167	55,610
Coal for shipment at South Amboy	19,925	627,859	476,230
Coal for distribution.....	16,497	686,696	478,531
Coal for company's use	2,440	107,981	100,663

The decrease in shipments of Cumberland Coal, over the Cumberland Branch and Cumberland & Pennsylvania railroads, amounts to 105,760 tons, as compared with the corresponding period in 1880.

The shipments of Cumberland Coal, over the George's Creek & Cumberland RR., by the Maryland and the American Coal companies, for the week ended Dec. 10th, amounted to 6404 tons, making a total of 197,119 tons since the beginning of transportation.

The Production of Bituminous Coal for the week ended Dec. 10th was as follows:

Tons of 2000 lbs., unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2240 lbs.....	59,261	2,100,505
Barclay Region, Pa.		
Barclay RR., tons of 2240 lbs	8,135	393,887
Broad Top Region, Pa.		
Huntingdon & Broad Top RR.	3,185	195,534
East Broad Top.....	2,015	80,161
Clearfield Region, Pa.		
Snow Shoe.....	3,160	115,804
Tyrone and Clearfield.....	46,455	5,256,390
Alleghany Region, Pa.		
Pennsylvania RR..	8,481	274,044
Pittsburg Region Pa.		
West Penn RR.....	7,630	275,193
Southwest Penn. RR..	912	27,246
Penn & Westmoreland gas-coal, Pa. RR.....	25,222	914,141
Pennsylvania RR..	15,722	649,048

The Transportation of Coke over the Pennsylvania Railroad for the week ending Dec. 10th, and year from Jan. 1st:

Tons of 2000 lbs.	Week.	Year.
Penn. RR. (Alleghany Region).....	2,293	93,176
West Penn. RR.....	3,195	116,940
Southwest Penn. RR	36,668	1,328,401
Penn. & Westmoreland Region, Pa. RR	5,500	190,401
Pittsburg, Penn. RR	10,339	519,903
Show Shoe (Clearfield Region).....	387	12,161
Total	58,382	2,260,982

THE ROBINSON CONSOLIDATED MINING COMPANY, No. 18 Wall Street, New York, Nov. 1, 1881.

DIVIDEND NO. 8.

The Board of Trustees have this day declared the regular DIVIDEND of FIFTY THOUSAND DOLLARS, also an EXTRA DIVIDEND (No. 3) of FIFTY THOUSAND DOLLARS, making one hundred thousand dollars, payable on and after November 15th, 1881, at the office of the company.

The transfer-books will close at 3 o'clock P.M. of the 5th, and remain closed until 10 o'clock A.M. of the 16th inst. JAMES K. SELLECK, Secretary.

DIVIDENDS.

DIVIDEND NO. 28.

OFFICE OF THE LA PLATA MINING AND Smelting Company, of Leadville, Colo., 58 Broadway, Rooms 12 and 13,

NEW YORK, Dec. 15, 1881.

DIVIDEND NO. 28.

The Board of Trustees have this day declared a dividend of SEVEN AND ONE HALF CENTS per share (par value $10) on the capital stock, payable on TUESDAY, January 3d, 1881, at the office of the company. Transfer-books will close on Saturday, December 24th, and reopen Wednesday, January 4th, 1882.

Statement of the financial condition of the company:

Working capital...	$100,000.00
Nov. 1, 1881—Balance surplus account	63,240.98
Dec. 1, 1881—Net earnings for month of Nov.	16,263.00
	$179,503.98
Dividend of 7½ cents per share, 200,000 shares.	15,000.00
Balance Dec. 1, 1881.....	$164,503.98

D. OLYPHANT TALBOT, Ass't.-Secretary.

OFFICE OF COPPER QUEEN MINING COMPANY, 34 AND 36 THOMAS ST., NEW YORK, Dec. 15, 1881.

THE Board of Directors of this company have this day declared a monthly dividend (No. 7) of TWENTY-FIVE THOUSAND DOLLARS; also an extra dividend of TWENTY-FIVE THOUSAND DOLLARS, payable to stockholders of record on and after January 3d, 1882.

Transfer-books close December 29th, and reopen January 5th. L. ZECKENDORF, Sec. and Treas.

A. A. HAYES, Jr., President.

OFFICE OF THE HOMESTAKE MINING COMPANY, 18 Wall Street,

NEW YORK, Dec. 13, 1881.

DIVIDEND NO. 40.

The regular monthly dividend of THIRTY CENTS per share has been declared for November, payable at the office of the Transfer-Agents, Wells, Fargo & Co., 65 Broadway, on the 24th inst. Transfer-books close on the 20th inst. H. B. PARSONS, Assistant Secretary.

SAN FRANCISCO, Dec. 14, 1881.

THE FATHER DE SMET CONSOLIDATED GOLD MINING COMPANY has declared DIVIDEND NO. 16,

of 25 cents per share, payable at the office of LAIDLAW & CO., No. 14 Wall Street, January 3d, 1882.

Transfer-books will close December 22d.

H. DEAS, Secretary.

OFFICE OF THE STORMONT SILVER MINING COMPANY, No 2 Nassau Street,

NEW YORK, Oct. 19, 1881.

DIVIDEND NO. 5.

The Board of Trustees have this day declared a monthly dividend of FIVE CENTS per share, payable on the first day of November, at this office.

The transfer-books will close on the 26th inst., and reopen November 2d. WILLIAM S. CLARK, President.

JOHN R. BOTHWELL, Secretary.

OFFICE OF THE GREEN MOUNTAIN GOLD MINING COMPANY, of California, No. 18 Wall Street, New York, October 13th, 1881.

DIVIDEND NO. 28.

The Trustees have this day declared a dividend of SEVEN AND ONE-HALF CENTS per share on the capital stock of this company for the month of September (being the 28th consecutive monthly dividend; and making a total to date of $203,000), payable on the 26th inst.

Transfer-books close on the 19th, and reopen on the 28th of September. J. JAY PARDEE, Secretary.

NEW YORK, Nov. 2, 1881.

THE STANDARD CONSOLIDATED MINING COMPANY to-day declared its regular monthly dividend of

SEVENTY-FIVE CENTS PER SHARE,

payable Nov. 12th, 1881, at the Farmers' Loan and Trust Co., 26 Exchange Place, New York.

Transfer-books close Nov. 5th, and open on 14th inst.

M. R. COOK, Vice-President.

OFFICE COPPER QUEEN MINING COMPANY, 34 Thomas Street,

NEW YORK, October 15, 1881.

The Board of Directors of this company have this day declared a monthly dividend (No. 5) of TWENTY-FIVE THOUSAND DOLLARS, payable to stockholders on and after November 1st, 1881.

Transfer-books close October 29th, and reopen November 3d. A. A. HAYES, JR., President.

L. ZECKENDORF, Secretary and Treasurer.