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ON the 11th inst., Mr. RICHARD P. ROTHWELL returned from Santo Domingo, where he was engaged in examining gold gravel claims and gold quartz veins.

WE have received from the publisher, Mr. A. P. SWINEFORD, the *Annual Review of the Iron Mining Industries of the Upper Peninsula for the Year ending December, 1880*. It is a thick crown octavo pamphlet of 177 pages, and gives a large amount of valuable information on the topics to which it is devoted. The history and statistics of the iron mines occupy 168 pages, the remainder of the pamphlet being given to blast-furnaces and copper mines. A table of contents would have made the topics more accessible, and an index would have been still more acceptable. When will compilers and publishers of books study their own interest and that of their readers in this matter? The price of the work, we learn, from another source, is 75 cents.

THE State Line mines have nearly ruined a great number of the members of the Mining Exchange, who are loaded up with these stocks. The ENGINEERING AND MINING JOURNAL again and again warned the public against this "deal," and pointed out from the first that there was no data which should justify any price yet named—even a small part of the present one—for the several properties of this group. And moreover, if the mines had been good, every one knew the reputation of the manipulators who brought out the companies, and that the public has been victimized in every enterprise they floated here. It would, indeed, appear that "there is a new crop of fools every year," and even the old ones come up again and again more verdant each time, and offer themselves as pigeons ready for a new plucking.

WATER-GAS.

Every intelligent person knows that the manufacture of illuminating-gas from the decomposition of water by passing steam over incandescent carbon, has for some years been an accomplished success in this country, and that as a heating gas it is being introduced in a number of important works in Europe and gives every promise of becoming "the fuel of the future." We look upon the simple practical methods of manufacture which have been introduced in recent years, and at the head of which we place the "STRONG Process," as the foundation for an entire revolution in the use of fuel and in industries dependent for success on cheap and pure fuel of high calorific power. The ENGINEERING AND MINING JOURNAL long ago called the attention of scientists and consumers to the importance of this subject of water-gas, and since then it has been our agreeable duty to record the complete practical success of the water-gas manufacture in many large works. At the present time, about fifty towns and cities in the United States and Canada are using water-gas for illuminating purposes, and in some cases—Baltimore being one—the water-gas has driven the old coal-gas completely out and monopolized the business. Nearly one half the gas used in New York City is now water-gas.

In the face of so many well-known accomplished successes, it is strange to see the old coal-gas ring still continuing its unprincipled opposition to the new system, an opposition in which long-explored errors concerning carbonic oxide gas, and totally unfounded statements concerning the results accomplished by the new water-gas processes, are the most notable features.

We learn from entirely trustworthy sources that, alarmed at the success attending the introduction of the STRONG Water-Gas system in Europe, and still nourishing a grudge against the gentleman through whose intelligence and perseverance the advantages of the LOWE-STRONG systems have become generally recognized, the old gas ring recently sent their agent, the editor of that fossil, the *American Gas-Light Journal*, to Europe, to oppose the adoption of water-gas, which still threatens their old gas interests here. And this gentleman has been making such totally unfounded statements as the following: that "all water-gas experiments in the United States, and especially those connected with the LOWE and the STRONG processes, have proved valueless; in fact, shown the principle to be a humbug;" that "it is not in operation in a number of places in the United States, but that its advocates, having obtained various municipal concessions, have in all cases manufactured and sold ordinary coal-gas," etc.

We can only say that these statements are wholly at variance with the facts, and even the editor of the *Gas-Light Journal*—though that journal is so far behind the times—should have known them to be so.

EDITORIAL CORRESPONDENCE.

PUEBLO, COLO., June 25, 1881.

Nature and man in combination have probably fixed the outlines of the future growth of Colorado, beyond the danger of radical change. The greatness of Denver is established; and the railway systems that radiate from Denver, making so large a region of mountain and plain tributary to her, will maintain and increase that greatness. But it is equally plain that another large city has taken firm root and is growing with vigor and speed. Small but significant indications show that the rivalry of Pueblo is felt by the metropolis. The Pueblo papers try to be very "sassy" about Denver; and the Denver papers reciprocate in tones of suspiciously careless contempt. Meanwhile, the large Pueblo houses cut into the trade of Denver with the southern country; the smelting-works at Pueblo over-bidding the works at Argo, secure ores from Georgetown and Black Hawk, under the noses of their Denver rivals; and the Atchison, Topeka & Santa Fé Railroad stretches, a disagreeable hypothenuse, from Pueblo to Kansas City, ready to carry, in defiance of the other two sides of the triangle (the Rio Grande and the Kansas division of the Union Pacific), the pilgrims and the treasures of the expected Mexican commerce. To all appearance, Pueblo will take a good deal of business that has hitherto centered at Denver. Both will become and remain great and wealthy cities. In the article of manufacturing industries, Pueblo bids fair to take the lead. Perhaps for this reason it may never become as beautiful a city for residence as Denver, though its site can scarcely be deemed inferior in natural advantages.

The Colorado Coal and Iron Company (successor, I believe, to the Colorado Land Improvement Company) is doing for South Pueblo what was done so successfully for the town of Colorado Springs. The company owns, I am told, some 48,000 acres of mesa or high table-land at this place; and a considerable area has been laid off in blocks and avenues, planted with shade-trees, and provided with water distribution from a large reservoir, fed by a ditch from the St. Charles River. Lots are selling and dwellings are rising on every side. The company's iron and steel works, now in process of construction, and employing several hundred men, are bordered by a village of neat cottages, just outside the limits of the space laid out for residences, etc. The works comprise a

present one blast-furnace, 15 x 60 feet, with LÜRMANN front, COWPER stoves, bronze tuyères, I. P. MORRIS blowing-engine—in fact, all the modern improvements; a foundry, machine-shop, etc., all complete, though the furnace is not quite ready to go into blast. The Bessemer converting-house and rolling-mill are in progress; and doubtless next year will see at this place the production of steel rails from Colorado ores. Let us hope that the boom in railroad building will not have died away by that time!

The fuel to be used in these works will be the coke from El Moro (about five miles from Trinidad). Of pure and rich iron ores, it is said that the company will have an abundant supply from mines of its own. I saw lying at the furnace perhaps a thousand tons of rich brown hematite from the Breece mine at Leadville. It is rumored that the Breece people have killed the golden goose by charging too much for their ore, so that both lead-smelters and iron-makers are led to do without it. Be that as it may, I shrewdly suspect that when once this Pueblo blast-furnace and two or three like it, which will be required to feed the Bessemer plant, are fairly agoing, the company will be glad to buy any good iron ore that is offered. It will not be found so very easy to maintain a supply of 1500 or 2000 tons of ore per week from newly-developed mines; and it is yet a question, so far as I know, whether the rich iron ores found in those mountains are deep and permanent deposits, bunches quickly exhausted, or (which amounts to the same thing) products of superficial oxidation, liable to assume in depth less tractable forms. But sooner or later, the supply will be developed; and Pueblo, having the best, cheapest, and nearest fuel, and down-grades from the mining districts for the transportation of ores, is undoubtedly the place where, for all time to come, the metallurgy and the manufacture will thrive.

For similar reasons, the smelting-works of MATHER & GEIST, with their six blast-furnaces and extensive calcining furnaces, are able to compete with almost all others in the State. They buy ores at Leadville, and bring them by rail to Pueblo, while the Leadville smelters have to pay, indeed, no freight on ores, but very heavy freight on coke. As charcoal grows scarcer and dearer, this point will be more keenly felt.

But Pueblo receives also ores from other Colorado districts, and from New Mexico. Whether the new works at Durango (also blest with coking coal—and still closer at hand) will cut off the San Juan supply, remains to be seen. Pueblo will always, I think, be a metallurgical center.

THE MONETARY CONFERENCE AND BI-METALISM.

As was generally expected by those who had carefully followed the discussion in the previous monetary conferences, this third attempt to get for silver recognition as an international legal-tender has proved unsuccessful.

England, which is the most deeply interested of any of the countries in maintaining the current value of silver, has steadily declined to adopt the double standard, though she encourages other countries to do so, and has gone so far as to state her willingness that India, which has always used silver exclusively, shall continue to do so; and Germany also holds aloof from the double standard. At the Conference, which was proposed by the United States and France, the representatives of these countries were the chief speakers; and at its close, the Conference adopted a resolution proposed by them, expressing a desire that negotiations shall be opened between the states which participated in the Conference, and that the Conference be summoned to meet on April 12th, 1882, to settle the details of the Monetary Convention, which it was hoped would be concluded by that time. In proposing this resolution, Mr. EVARTS read the following declaration of the French and American delegates, in the name of their respective governments:

"The depreciation and great fluctuations in the value of silver relatively to gold, which, of late years, have shown themselves, and which continue to exist, have been and are injurious to commerce and general prosperity, and the establishment and maintenance of a fixed relation of value between silver and gold would produce the most important benefit to the commerce of the world. A convention entered into by an important group of states, by which they should agree to open their mints to the free and unlimited coinage of silver and gold at a fixed proportion of weight between the gold and silver contained in the monetary unit of each metal, and with the full legal tender of faculty to the money thus issued, would cause and maintain stability in the relative value of the two metals suitable to the interests and requirements of the commerce of the world. Any ratio now or of late in use by any commercial nation, if adopted by such an important group of states, could be maintained; but the adoption of the ratio of 15½ of silver to 1 of gold, would accomplish the principal object with less disturbance in the monetary systems to be affected by it than any other ratio. Without considering the effect which might be produced toward the desired object by a lesser combination of states, a combination which should include England, France, Germany, and United States, with the concurrence of other states, both in Europe and on the American continent, which this combination would insure, would be adequate to produce and maintain throughout the commercial world the relation between the two metals that such a combination should adopt."

A telegram from Paris to the New York *World* states that the Americans there "are unanimous in thinking that the results of the Conference are highly satisfactory, as the bi-metallic propaganda is everywhere assuming increasing proportions, while mono-metalism makes no con-

verts. That England is uneasy is evidenced by offers not only to meet half way in keeping part of the metallic reserve in silver, but to confine the Indian standard to silver. The Americans claim that the manager of the Bank of England is the latest convert to bi-metalism." On the other hand, a telegram from London to the New York *Tribune* says that "business men here continue to regard the Monetary Conference as of little practical importance, and ridicule the idea that England is likely to make sacrifices in order to benefit American silver kings."

We take the following from the London *Economist* of the 2d inst. respecting the Bank of England and the silver question:

"The Bank of England has, we understand, in reply to a proposal from the Treasury on the subject, stated that, subject to suitable arrangements being made by the governments of France and the United States with respect to the coinage of silver, it is willing to purchase silver for the issue department within the limits permitted by the act of 1844.

"The section of the act defining these limits is as follows:

"Section 3. 'And whereas it is necessary to limit the amount of silver bullion on which it shall be lawful for the Issue Department of the Bank of England to issue Bank of England notes, be it therefore enacted that it shall not be lawful for the Bank of England to retain in the Issue Department of the said Bank at any one time an amount of silver bullion exceeding one fourth part of the gold coin and bullion at each time held by the Bank of England in the Issue Department.'

"We can not doubt that it would give a false impression if it were to be supposed that the Bank of England is now proposing a large operation in silver. The Bank of England is, of course, at liberty to refuse to make any purchases unless the terms and the circumstances appear to justify the operation. The amount to be held may be safely left to its discretion."

We see little chance of any international agreement involving the general use of the double standard; but we ourselves can certainly greatly increase the use of silver coin by withdrawing the notes of less denomination than ten dollars. If the object be to get silver into circulation, that will be found the most efficient means of accomplishing it. The practical difficulties of keeping two metals—one of which must necessarily vary in value—afloat on any ratio of values agreed upon, have not been considered, much less removed. Should a standard ratio be established, it would not wholly prevent fluctuations in the relative market value of the two metals, when silver was worth more than the standard, the silver coins would be melted; and when silver was worth less than the standard, gold would be hoarded or exported, and thus disappear.

It is evident that as a subsidiary coinage when no gold coin of less than five dollars and no paper less than ten dollars is issued, an immense amount of silver coin can be kept in circulation until the public becomes disgusted with the nuisance. The statement so often made by bi-metalists that without the unlimited use of silver there is not now enough money in the world to supply the needs of business, seems to ignore the growing substitution of private paper, notes, checks, bills of exchange, etc., for coin in the mercantile transactions of civilized countries. This increases immensely the efficiency of the coin we have, and by its use the gold we have represents a far greater amount of commercial money, if we may use the term, than did all the gold and silver together only a few years ago.

NEW PUBLICATIONS.

SECOND GEOLOGICAL SURVEY OF PENNSYLVANIA. *Report of Progress. R. The Geology of McKean County, and its Connection with that of Cameron, Elk, and Forest.* By CHARLES A. ASHBURNER. Illustrated by 33 Page Plates and 2 Maps, and accompanied by an Atlas containing 8 Sheets of Maps and Sections. Harrisburg. 1880. 8vo, 371 pages. Three Indexes.

Mr. ASHBURNER is one of the most patient, careful, and accurate of the field-geologists of the Pennsylvania Survey. His work in the Aughwick Valley and East Broad Top district (see Report F, and maps attached) demonstrated this fact, and predisposes us to rest with confidence upon his observations elsewhere. The region described in the present volume is highly important, because it contains the Bradford Oil District, now the most productive in the world. For the examination of such a region, where both topographical altitudes and geological horizons are of great significance to industry as well as science, a basis of instrumental measurements is required. Nobody's eagle eye can survey it at a glance. Professor LESLEY himself, who rode through this county in 1841 on horseback, and both saw a good deal, and failed to see more, of its stratigraphical relations, is emphatic in his declarations that such superficial examinations will not meet the demands of the present time. The great problems which he and his assistants are working out require the most accurate surveys that can be made. It is in such work, and in the careful sifting, reduction, and harmonization of the observations of others, and the preparation of results in graphic form, that Mr. ASHBURNER has distinguished himself.

Appendix A to this report is a pamphlet, published (1881) separately, and containing a sharp letter from Mr. N. F. JONES, attacking some of Mr. ASHBURNER's work, a temperate and forcible reply from Professor LESLEY, rebuking Mr. JONES very properly for the tone of his attack, and a letter from Mr. ASHBURNER, defending and explaining his work. Although one error in the provisional conclusions is frankly admitted, upon evidence adduced by Mr. JONES, the faithfulness and trustworthy character of the survey are well shown by this controversy, the details of which, however, we do not think would interest our readers.

We have already had occasion to notice in other reports of the survey the important matter of the subdivision of the famous old No. XII. of Rogers, otherwise known as the Pottsville Conglomerate, the Seral Conglomerate (ROGERS), and the Millstone Grit (DANA). Now that this formation in its triple or quadruple structure has been traced through the State and into West Virginia, New York, etc., the harmonization of the Eastern and Western Pennsylvania coal-measure sections is made possible. The present volume contributes its quota to this desirable achievement.

Mr. ASHBURNER says that his instructions did not include the special study of the Bradford oil region, which has been reserved for a separate report. But he manages to give a good many facts about it, picked up in the course of his work on the coal-measures and other formations in the county. The Bradford oil-sands are found in the lower strata of the middle number of the Chancery group. They are quite unlike those of Venango County, particularly in their constancy of character, so to speak. In the Bradford District of about 100 square miles, the sand is so regular that, "if wells were drilled at random, the number of dry holes which would be obtained would hardly exceed two in every hundred." The Venango sands are not homogeneous over large continuous areas, and are frequently very heterogeneous in section. They were deposited along shore and in shallow water; the Bradford sand was "possibly deposited in deeper water, by a slower and more constant current," as "in a bay or estuary." The productive Bradford sand is really about 1000 feet below the Oil Creek Third sand, though the operators long stubbornly maintained the attempt to identify the two. The extraordinary productiveness of the district is too well known to require comment. Down to January, 1880, of 6249 wells drilled in it, only 236 were dry holes, or 3.77 per cent. In the Venango sands, one quarter of the holes drilled since 1859 have proved dry.

It is Mr. ASHBURNER'S maps, diagrams, and illustrations that give us most satisfaction. The text of his report contains some irritating blemishes which even a competent proof-reader should have removed. The punctuation is sometimes lawless and sometimes scanty; and slovenly syntax like this occasionally occurs:

"Brick is one of the most common, cheapest, useful, and durable of our building materials. They are made," etc. (p. 87).

"It would be impossible for the most thoroughbred geologist to succeed in a short examination of one locality" (p. viii.).

What Mr. ASHBURNER means to say is, that the most thoroughly educated geologist could not succeed in determining the series of formations in this field by a short examination of one locality.

"The growth and development of Bradford has been the most rapid of any" (p. 283).

"It is hoped that an opportunity will be afforded of making a thorough economical examination of the geology of this important," etc. (p. 81).

Probably economic geology, rather than economical examination, was in Mr. ASHBURNER'S mind—though the examinations of the survey have been necessarily economical in that sense, too!

"The coal beds * * * are not of sufficient thickness, purity, regularity, and area as to prove to be coals which can be profitably mined" (p. 81).

"The amount of petroleum and gas found in any special locality is generally inversely proportioned to each other" (p. 85).

"The color of the coal is a dull, brownish black, and has an irregular fracture" (p. 100).

"The surface of the flags are smoothed. * * * The size of the flags which are quarried are as follows," etc. (p. 121).

We would not seem hypercritical; but really such faults as these are not venial. They are unworthy of such a work as this, which, knocking at the door of Literature, in the name of Science, ought to be dressed, not necessarily in the swallow-tailed coat of elaborate rhetoric, but at least in decent clothing, free from holes and rags. *

ROTATING ROCK-DRILLING MACHINES.

A Letter from Dr. F. M. Stafff, of Switzerland.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: No. 23, Vol. XXXI., of your JOURNAL brings an abstract from Mr. Egid Jarolimek's treatise on rotating rock-drilling machines, in which it is said that I claimed the priority of invention for Mr. Brandt's construction of such a machine. This is an error. I leave to every one what is his, and defend only what is my own. My property with regard to rotating rock-drilling machines is the settlement and the proof of a new principle, which of course is not patentable, but on which live the patented "inventions" of Mr. Brandt and others. The principle in question is, that almost every rock which can be bored by ordinary hand-hammer work might be bored by rotating drills with *steel crowns*, under a *high* and *continuous* pressure. Many trials had been made to introduce in mining work screw-fed rotating drills with steel-heads, and all these trials had proved failures as soon as they had to deal with *hard* rock. In a book on "Gesteinsbohr maschinen," Stockholm, 1869, I have described and analyzed all of these trials which then were known, and I have deduced from them and from indisputable mechanical laws the principle stated above. If you, or Mr. Brandt, or any body else can point out any publication in which it is set up and proved before, I willingly withdraw my claims of priority. The pertinent passages of the book mentioned are drawn together in a notice, published by the *Eisenbahn*, Vol. X., No. 15, 1879, Zurich, Orell Füssli; and I think I have sent you a copy.

The leading idea is a surprisingly simple one. The edge of a hammer-

blown hand-drill must transfer a power of 637 kilograms per centimeter of breadth for cutting a hole in rock of average hardness and solidity (1040 kilograms in the hardest, 247 kilograms in the softest rocks). The old screw-fed, steel-headed rotating drills were not able to transfer that pressure; and besides, some of them were arranged in such an ingenious manner that the chisel slid on the rock, as soon as the resistance grew so high that turning became impossible under given pressure. Then the chisel was ground away on the unbored rock.

If steel chisels can transfer, without instantaneous destruction, 1040 kilograms of power, communicated by blows, they will do the same if the power be communicated by continuous pressure; and if 1040 kilograms are sufficient to chip out a hole in very hard rock, they will remain sufficient, whether the chipping be done by repeated blows or by continuous pressure (on a chisel of suitable shape). It can be enough with these indications, which are worked out in the book mentioned.

I have not much occupied myself with constructive details for the realization of my idea. But I have pointed out, almost as a *conditio sine qua non*, that the continuous high pressure on the drill should be *hydraulic pressure*, as soon as one has to deal with hard rocks. As to the rotation of the drill, I have designated the fast-going water-column machine which Messrs. Roche, Tolay and Perret used for rotating a (grinding) diamond drill, as being suitable also for steel drills, chipping under high hydraulic pressure. Nevertheless, it seemed to me best to recommend for first trials *rotation by hand*, dispensing with complicated and expensive mechanisms; and to this day I am of opinion that, for ordinary cheap mining work, water-pressure, hand-rotated, steel-headed rock-drills of simplest construction would prove a success. Yours truly,

F. M. STAFFF.

AIROLO, SWITZERLAND, June 20, 1881.

KENTUCKY'S MINERAL RESOURCES.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: At present, there is unusual activity in many parts of this State in the direction of the development of our vast mineral resources. Several new railroads are in process of construction, and many more talked of very positively. The surface of the State in its greater extent is not favorable to railroad construction. It is a high plateau, sloping from the southeast to the northwest, cut in various ways by the erosive action of water. The geological record may be read all the way from Lower Silurian to Quaternary. There are two distinct coal-fields in the State—the eastern and the western. The combined areas of these fields, from surveys already made, exhibit a field of more than 13,000 square miles. A detailed survey would doubtless increase these figures. In the western coal-field, whose area is over 4000 square miles, there are at least a dozen workable beds of coal. The lower coals have connected with them beds of carbonate of iron and limonite ores. The western coal-field has an area of from ten to twelve thousand square miles, containing, besides vast deposits of bituminous coal, large areas of cannel coal of great purity and richness. The writer is using this latter coal to-day in his cooking-range. The completion of the Big Sandy Railroad in a few weeks will open up vast stores of this excellent fuel. The iron ores, in easy distance from good coals in this field, are too numerous to mention. Within four miles of this little town, is one of the largest ore-beds in the world. The site is ornamented by the ruins of an old slate furnace which was put in blast in 1791, and continued to produce iron for thirty years. Some historic interest attaches to these old ruins from the fact that here the cannon-balls were made which "Old Hickory" used so effectively on the "blasted Britishers" at New Orleans. The whole is what is known locally as the Preston ore-banks, from the name of the present owners, but is to be identified with the Clinton ores, now so extensively known. Exposures, workings, and one shaft have shown a thickness of bed in this "ore-bank" from *twelve to twenty-three feet*.

The advantage of our coal and iron beds over many others lies in the fact that most of them are above drainage. There are over four thousand miles of water-ways in Kentucky. Our elevation above sea-level is an average of 1000 feet. It varies from 3500 feet on the southeast to 650 feet on the Ohio River near the mouth of the Big Sandy, to only 300 feet on our extreme southwest point, the only locality which the yellow fever ever struck in our State.

The iron ores of the western part of the State are well known. I can speak of the Hillman mines only from personal inspection. The ore is noted for making boiler iron. The ores of Clear Creek, in this county, some eight miles south of the Preston ore-banks, are noted for making a high grade of metal, known as car-wheel iron in this section. Clear Creek furnace is now in blast, and is giving very satisfactory results.

Our State geologist visited the Preston ore-banks not long since in company with a "Boston man." Result not definitely known; but it is understood that, if a test to be made of 200 tons of ore should prove satisfactory, the Boston man, or those whom he represents, will buy. Our geologist, Mr. John R. Procter, is unwearied in his efforts to call attention to the mineral resources of this State, and deserves a better State support than an *economical* Legislature seems willing to give. Great things, however, are hoped for from our next Assembly, notwithstanding that the United States Senator question will absorb much of its time.

In another letter, I may mention "some silver mines," the petroleum interests, and our forest-tree resources. H. TURNER,

OWINGSVILLE, BATH COUNTY, KY.

The Nashville, Chattanooga & St. Louis will build an extension to Sparta, opening up the White County coal-fields.

A NEW TELEPHONE COMPANY.—ALBANY, July 13.—The People's Telephone and Telegraph Company filed their papers to-day. The capital stock is to be \$1,000,000, with power to increase to \$10,000,000. The wires are to run in all the cities and villages of the United States.

LABOR TROUBLES ADJUSTED.—LA SALLE, ILL., July 12.—The coal miners of La Salle, Peru, and Oglesby, who have done no work since the 1st inst., have completed arrangements with the owners of the mines by which they are to receive 75, 80, and 90 cents per ton for mining during a period of twelve months.

MAINE MINING NEWS.

Special Correspondence of the Engineering and Mining Journal.

Some weeks ago, I made a very brief visit to the Katahdin Iron-Works, in Piscataquis County. The works were slightly damaged by fire a few days before I was there, and the furnace was blown out. It had been running for nine months, and would have been blown out in a few days if the fire had not occurred. The ore is taken from what is known as Ore Mountain, perhaps half or three quarters of a mile from the works. It is roasted in a circular kiln with a central draught. The fuel used for smelting is charcoal, and the works consume some 15,000 or 20,000 cords of wood a year. The average production, when running, is about 100 tons of car-wheel iron per week. Some 80 horses are used in hauling iron to the railroad at Milo, about twenty miles. A new road is to be built from Milo to the works this season, to be known as the Bangor & Katahdin Iron-Works Railroad. I hope to see the furnace in operation in a month or two, and will then write a full description.

In our own district, every thing looks well. The reverberatories at the Douglass are running steadily, and working well. Owing to a short supply of coke, the cupolas have had a short rest; but as two cargoes of coke have now arrived, they will soon start up. A new furnace has been built for treating the matte before taking it to the reverberatories.

The Blue Hill smelters are nearly ready to run. The mine is producing its usual amount of good ore, and the pump and engine running well.

The new shaft at the Stewart is making good progress.

The Twin Lead is driving its south cross-cut.

The Granger has burnt a heap of ore for shipment to the smelting-works at East Boston. Every thing about the mine looks well. DIRIGO.

BLUE HILL, ME., July 9.

THE COPPER DISTRICT OF LAKE SUPERIOR.

From Mr. Swineford's Annual Review of the Iron Mining and other Industries of the Upper Peninsula for the year ending December, 1880, we take the following:

The copper district of Lake Superior embraces the counties of Houghton, Keweenaw, Ontonagon, and Isle Royale. The following table shows a list of the mines wrought in 1880, together with the product (refined copper) of each, and the aggregate average value:

Name of Mine.	Tons.	Pounds.	Name of Mine.	Tons.	Pounds.
*Adventure.....	1	951	*Minnesota.....	16	33
†Allouez.....	659	471	‡Minong.....	13	1,407
‡Atlantic.....	1,170	1,195	*Nonesuch.....	37	1,584
*Aztec.....	2	1,757	†Northwestern.....	2	616
‡Calumet & Hecla.....	15,837	1,239	*Ogima.....	2	1,885
‡Central.....	1,013	78	‡Osceola.....	1,691	1,537
*Chif.....	39	962	‡Pewabic.....	485	509
†Concord.....	5	464	‡Phenix.....	218	10
†Copper Falls.....	3	645	‡Quincy.....	1,848	263
*Delaware.....	116	1,814	*Ridge.....	111	1,353
*Evergreen Bluff.....	5	651	†Shelden & Columbian.....	23	931
*Flint Steel.....	14	80	†St. Clair.....	6	1,195
†Franklin.....	1,168	468	Sundry mines and tribu-		
†Grand Portage.....	38	1,860	ters.....	3	166
†Hancock.....	1	1,032			
†Huron.....	35	285	Total.....	24,869	367
†Isle Royale.....	38	1,469	Value.....		\$9,947,673
*Mass.....	258	1,159			

* Ontonagon Co. † Keweenaw Co. ‡ Houghton Co. § Isle Royale.

The following table shows the product (refined copper) of the Lake Superior copper mines for each year since 1854, together with the average value:

Year.	Tons.	Pounds.	Value.
1854 and previous.....	6,992	1,727	\$3,146,400
1855.....	2,904	1,834	1,586,160
1856.....	4,108	1,392	2,218,320
1857.....	4,765	830	2,382,500
1858.....	4,579	1,816	2,129,235
1859.....	4,463	1,905	2,239,591
1860.....	6,034	375	2,654,960
1861.....	7,519	837	3,487,995
1862.....	6,793	328	3,634,255
1863.....	6,492	1,344	4,415,600
1864.....	6,245	1,965	5,870,300
1865.....	7,179	583	5,635,515
1866.....	6,875	63	4,629,375
1867.....	8,763	1,607	4,442,841
1868.....	10,467	124	4,940,424
1869.....	13,312	1,300	6,230,016
1870.....	12,311	849	5,096,752
1871.....	12,873	349	5,728,485
1872.....	12,276	1,523	7,979,400
1873.....	15,045	1,505	8,728,100
1874.....	17,166	1,389	8,000,356
1875.....	18,019	1,497	8,180,628
1876.....	19,135	997	7,998,430
1877.....	19,513	671	7,327,888
1878.....	20,845	1,266	6,920,540
1879.....	21,425	1,529	7,327,350
1880.....	24,869	367	9,947,673
Total.....	301,053	1,662	\$142,616,137

The last two tables have been compiled from figures kindly furnished by Mr. Wright, Commissioner of Mineral Statistics. The Calumet & Hecla came into existence as a producing mine in 1867, since which time she has paid to shareholders dividends amounting to \$19,350,000, though retaining a surplus of several millions in her treasury. At the same time, a vast amount of money has been expended in permanent improvements, stamp-mills, machinery, etc., the total earnings of the mine in a period of fifteen years being approximated at not far from sixty millions of dollars. All this has been accomplished on an original assessment of only \$100,000. No other mine of any kind, of which the writer has any knowledge, has ever returned such large *pro rata* dividends to its shareholders. The celebrated Consolidated Virginia has paid dividends to the amount of a little less than \$80 per share on a capital stock of \$54,000,000; the Calumet & Hecla has paid \$193.50 per share on a capital stock of \$2,500,000—the par value of the Consolidated Virginia shares being \$100, and of the C. & H. \$25. We have no data at hand from which to compile a table showing the excess of dividends over assessments; but in 1875 it amounted to very nearly \$20,000,000, including in the comparison the assessments called on the shares of non-dividend paying mines, and it is

fair to assume that the gain has since kept pace with the increase in the product of refined copper. Altogether, the copper mining industry of the upper peninsula is in a most flourishing condition, as might readily be inferred from the statement of gross earnings in 1880.

IRON ORE IN THE U. S.—VALUE OF THE IRON ORE OF LAKE SUPERIOR

The general impression with the public has been that the supply of ores for the manufacture of iron was abundant in every part of the United States, at least where iron-works were originally erected and the business of iron-making has been most extensively carried on. But the enormous growth of this interest, and the enlargement of old works, as well as the erection of new ones of great capacity, have already induced a general effort to find new and more important deposits of ores. The public are familiar with the recent importation of Spanish and African manganese ores, which began nearly ten years ago, and has been directed chiefly to supplying the want of manganese materials for the Bessemer converters. In 1876, the fiscal year, 20,000 tons of this manganese ore were imported; in 1877, 65,000 tons; in 1878, 25,000 tons; and in 1879, 142,000 tons. During the same period, the ordinary Canadian ores imported at the lake ports to the extent of 30,000 to 40,000 tons yearly for several years, fell off to 10,000 tons.

During the year 1879 and a part of 1880, a vigorous effort was made to utilize the abundant iron ores of Eastern Virginia, especially near Lynchburg; but as it was directed principally to the establishment of new works, it was not in any great degree successful. The ores of the eastern slope of the Alleghanians, or rather those east of the Blue Ridge, are very persistent in containing injurious proportions of sulphur and phosphorus, and, while they could be worked to advantage in combination with purer ores, they afford an insufficient stock for new works, where other ores can not readily be brought for mixture in reduction. Farther westward in Virginia, however, there are better ores, and the quantities are practically inexhaustible. To obtain access to these by railroad from Pittsburg is now the occasion of great interest and almost of excitement in that city, many manufacturers believing it to be a necessity to the maintenance of the necessary supply of ores for that locality. The proposition is to build a road southward from Pittsburg, connecting through West Virginia with the valley of the James River, entering it from the west, and opening up a vast new region, abounding in superior ores, and in timber, coal, and every description of valuable produce. Mr. Joseph D. Weeks, who made a careful examination of the entire valley of the James River, and a full report upon and analysis of its ores, urged strenuously the building of this proposed road, which, in a distance of 300 miles, would develop an enormous supply of iron ore.

The alternative at Pittsburg is to draw on the Lake Superior ores—ores of the finest quality, but always high in price. The quantity of ore mined at Lake Superior increases rapidly; but it is drawn upon now by many other demands—by Chicago very largely, and by new works erected in Upper Michigan. Cleveland absorbs a very large quantity, and other points on the way to Pittsburg, so that the works at Pittsburg not owning mines in that region are often compelled to pay \$6 or \$7 per ton for Lake Superior ores at Cleveland, where they are landed from the lakes. The Lake Superior region has doubled its product of iron ore within five years, with little change in the make of pig-iron; but the statistics at hand do not show what share of this ore-product has been diverted to the new works in Illinois and elsewhere west of Pittsburg.

Product and shipment outward of iron ore from the Superior region:

Year.	Ore, tons.	Pig-iron, tons.
1876.....	977,543	61,911
1877.....	960,982	29,685
1878.....	1,123,093	17,404
1879.....	1,414,182	39,583
1880.....	1,975,602	48,502
Total for five years.....	6,452,092	197,085

But the production of pig-iron increased from 1,868,961 tons in 1876 to 4,295,414 tons in 1880, and of Bessemer steel from 525,996 in 1876 to 1,203,179 tons in 1880; both thus being doubled in five years. Evidently the growth of Western works is to absorb the increased supply of Lake Superior ores; the five States nearest to these ores, Ohio, Illinois, Indiana, Michigan, and Wisconsin, produced in 1880 1,088,529 tons of pig-iron, consuming, probably, two and one half times this tonnage of ores.

In the Southwest, Missouri and Arkansas, there are immense natural deposits of excellent iron ore, but they are too remote to become available for Eastern works. Only about 300,000 tons of ore appear to have been mined there in the last year, making in Missouri 105,555 tons of pig-iron. A small amount only was brought east of the Mississippi River to the iron-works of Illinois and Ohio. It would appear practicable to mine the ores of the exposed knobs in Missouri much more largely, and to ship them by water on the Missouri and Ohio rivers to Pittsburg at very moderate rates; but it does not appear that they are much sought for, or much spoken of, in the present very earnest discussion of the subject going on at Pittsburg.

At the East, attention is again directed to Canada for the supply of the greater works of Eastern Pennsylvania, at Bethlehem, and also for the Cambria Company. Extensive arrangements are reported to have been made recently for the Bethlehem and Cambria works, to obtain supplies of magnetic and hematite ores from Madoc, in Canada, the Dufferin and Nelson mines. The cost of mining is not great, and transportation is convenient through the New York and Pennsylvania canals. A small quantity has for many years been brought from the vicinity of the St. Lawrence River in Canada for mixture with Pennsylvania ores, and delivered here at very moderate prices. It is still remarkable that the Spanish and Algerian ores are almost the cheapest that are brought to the Delaware from any source, as freights and original cost prices have been for three years past.

With a prospect that the growth of the iron industry will add fifty per cent to the present within the next five years, raising the total 6,000,000 tons at least—the gain from 1876, with its 2,093,236 tons, to 1880, with 4,295,414 tons, being more than 100 per cent—the supply of acceptable ores is evidently a serious question, especially with Pennsylvania. It especially justifies the solicitude felt at Pittsburg, and the efforts there made to open up the great stores of Virginia and the South. —Bradstreet's.

THE ELEPHANT STAMP.

This stamp, which has been quite largely introduced in England and the British colonies, possesses some points of interest to our miners. The following are the claims made for this pulverizer by the manufacturers, the Sandycroft Foundry Works Company (Limited), 6 Queen street place, London, E.C. :

"The great novelty of this machine is in the insertion of a semi-circular spring between the driving-shaft and the lever with head, which strikes the blow on the die. Acting as a cushion, this spring takes up almost the whole of the wear and tear of the machine, which, from the violence of the blows, would otherwise be considerable. These machines are compact and portable, and can be rapidly taken down, removed, and re-erected. They are eminently adapted for countries where transport is a difficulty, as the heaviest piece does not exceed 6 cwt. ; and in cases of emergency, they can be made with no piece exceeding 350 lbs. in weight; and the foundations are extremely simple and inexpensive.

"In proportion to the work they will do, much less power is required to drive them than any other stamp, and there is a corresponding saving in the consumption of fuel.

"Unlike stamps of the steam hammer and pneumatic types, the elephant stamp has neither cylinder, valve, piston, guide, or bushings; such fruitful sources of trouble, hindrance, and expense being entirely dispensed with.

"There is no waste of power due to the conversion of power into heat, as is the case where a cushion of air is used to produce an elastic blow.

"The blow struck is the most elastic that it is possible to produce, which is of great importance in stamping some classes of gold quartz, the slining of the stuff being reduced to a minimum.

"By altering the speed, the weight of the blow can be varied at will, from a light blow to that of the heaviest stamp, to suit different degrees of hardness of the stuff operated on.

"A great saving is effected in freight and land carriage, the weight of the machine being about 2 1/4 tons, and also in preparing foundations and buildings, in comparison with other stamps.

"Great saving in first cost, and ultimate repairs of the driving power compared with other stamps.

"The following comparative statement may be of interest to some; but it must be borne in mind that these figures can not be taken to be correct for all cases, as some of them depend on data, which differ in almost every district :

COMPARATIVE STATEMENT OF THE COST OF ORDINARY GRAVITATION STAMPS AND ELEPHANT STAMPS, CAPABLE OF STAMPING 120 TONS OF HARD GOLD QUARTZ PER DAY OF 24 HOURS, FINE ENOUGH TO PASS WET THROUGH SCREENS CONTAINING 900 HOLES PER SQUARE INCH.

Tons.	80 heads Gravitation Stamps.	10 Batteries (20 heads) Elephant Stamps.
	£ s. d.	£ s. d.
Cost, delivered on rails at the Sandycroft Works.....	4,000 0 0	2,500 0 0
Freight to and carriage in India Gravitation..... 160	1,140 0 0	.....
Elephant..... 26	.....	185 5 0
Approximate cost of cutting ground and building foundations.....	500 0 0	200 0 0
Approximate cost of erecting.....	350 0 0	70 0 0
Time occupied—4 months for Gravitation Stamps.	.....	.....
20 days for Elephant Stamps.	.....	.....
Approximate cost of building houses, platforms for ore, etc.....	1,200 0 0	500 0 0
80 heads gravitation stamps, requiring 90 nominal horse-power @ 1/4d. per hour per H.P.....	1,350 0 0	.....
10 Batteries of Elephant Stamps, requiring 50 nominal horse-power @ 1/4d. per hour per H.P.....	.....	750 0 0

"The mortar box is made with 3 screens, one in front and one at each end; and the grate area is 350 square inches.

"The speed of the crank-shaft should be about 200 revolutions per minute, giving 400 blows in the same time. Height of blow, 10 inches.

"As a guide it may be stated that this machine, when properly erected, and with a sufficient supply of water (3 to 10 gallons per minute), will stamp from 12 to 15 tons of hard and refractory gold quartz per 24 hours, and of soft quartz a proportionately larger quantity sufficiently fine to pass through a sieve or screen containing 900 holes to the square inch.

"About 5 H.P. is required to drive each battery (2 heads) of Elephant Stamps.

"Price, £250 on rails at Sandycroft, near Chester; £5 extra if packed and delivered f. o. b. in London or Liverpool."

We have given the above figures, taken from the manufacturers' circulars, as being of interest both to our manufacturers and miners. They

are, of course, circular prices, and no doubt can be shaded. Our manufacturers can see from these figures what their chances are for competing with English shops for foreign orders.

The Elephant stamp of a slightly different pattern has been tried on the Pacific Coast, but the results were not altogether satisfactory. The English manufacturers claim to have overcome the difficulties.

PRODUCTION OF COAL IN GREAT BRITAIN IN 1880.

Colliery owners in all parts of the kingdom, as well as the general public, says *Ryland's*, can not fail to be astonished on knowing that the

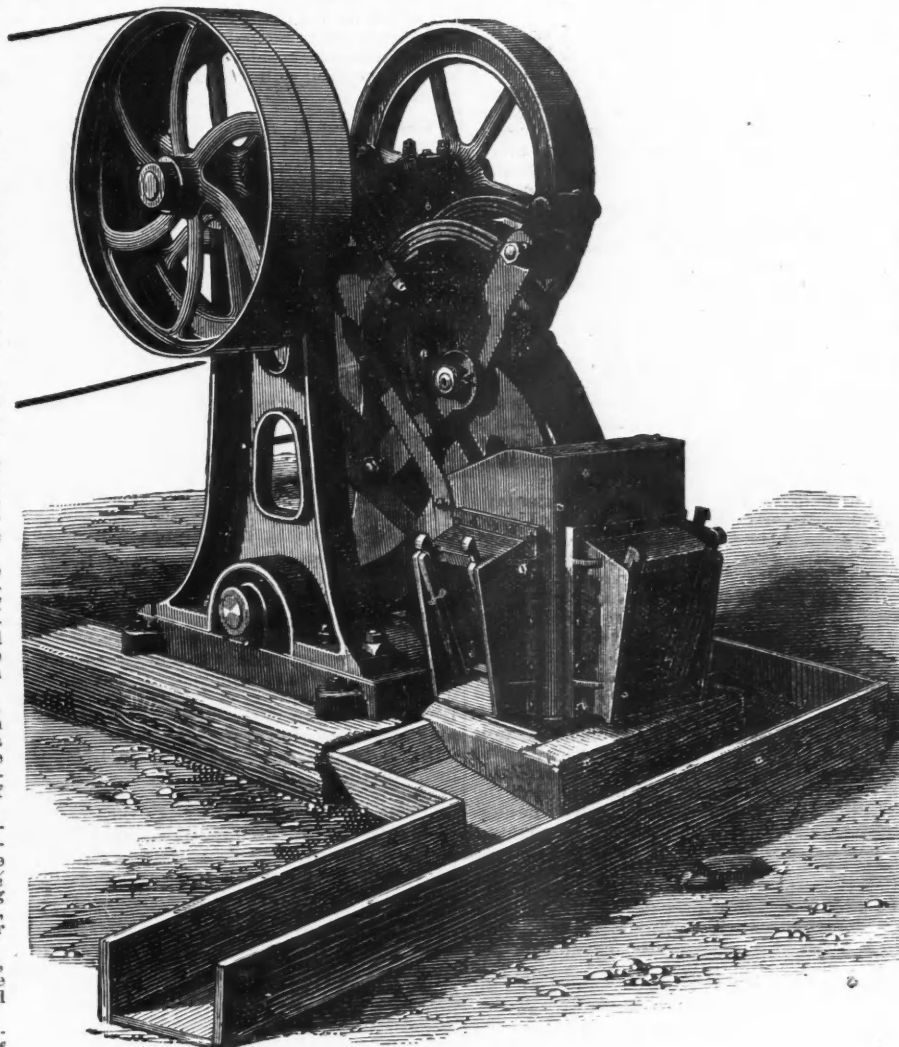
production of coal in 1880 shows an excess of nearly 14,000,000 tons, as compared with 1879. The drain thus made upon our reservoirs of fuel was far beyond any thing which had been anticipated by those who have taken the most pessimistic views as to the duration of our coal-fields, as well as the report of the Royal Commission of 1871. In the report it was stated that in the United Kingdom there was a total quantity of one hundred and thirty-nine thousand million tons of coal available at a depth of 4000 feet, which, at the rate of 110,000,000 tons as raised in 1870, would be sufficient to last for 1260 years. The most sanguine of the experts who gave evidence before the Royal commission, estimated the annual increase at not more than three million tons; but none of them ever dreamt that it was possible for the increase in any one year to be close upon fourteen million tons, or that, in the course of twenty-one years, the excess would be at such a rate as in that time to double the production. The last year, however, has clearly showed that every improvement for the economizing of labor has resulted in increasing the consumption of coal, which being the source of power, and required for the extension of every great industry, the absorption of it must keep pace with the progress of population and the development of manufacturing and other industrial pur-

poses. The singular matter, however, in connection with the excessive production is, that prices of coal were exceptionally low, so that the usual axiom as to the law of supply and demand did not apply; for hundreds of mine-owners made no profit whatever, while colliers' wages were lower than they had been for some years previously. It was suggested that any increase in the production of coal last year should be attributed to the large quantity of iron and steel that was made. But no connection whatever exists between the two, for the economizing of fuel for smelting purposes has been of a marked character. Last year, we are told by Mr. Smith, the manager of the Barrow Works, the quantity of coal consumed in the manufacture of iron was not more than what it was in 1869, although 2 1/4 million tons more pig was made in the former period. Not so long since, a ton of iron rails required an expenditure of at least five tons of coal, but now steel rails are made at a cost of 55 cwt. of coal. As the iron and steel trades should not lead to the vast increase in the consumption of coal in 1880, the only inference that can be drawn is, that the demand for fuel for manufacturing purposes was more than usually large, and may in all probability be in some measure due to the low price of fuel. Then the consumption of the town populations, which gradually and constantly expands. As to the increase itself, it may be said that it was by no means general, as will be seen from the following table :

	Tons 1879.	Tons 1880.
Northumberland, North Durham, etc.....	13,167,369	15,606,849
South Durham and Westmoreland.....	17,148,670	20,904,730
Lancashire and Ireland, etc.....	20,906,424	21,683,311
Yorkshire, etc.....	16,248,156	17,468,536
Derbyshire, Notts, etc.....	14,032,242	14,500,995
North Stafford, Cheshire, etc.....	5,562,645	5,680,800
South Stafford, Worcester, etc.....	9,329,197	9,690,000
Monmouth, Somerset, etc.....	7,439,627	7,835,482
South Wales.....	12,412,136	15,283,829
Scotland.....	17,469,927	18,347,686

Total..... 133,730,393 147,089,208

Of the increase, it will be seen that the colliers in the North of Eng-



THE ELEPHANT STAMP.

land are credited with no less than 6,285,530 tons, or nearly one half, so that at the rate of production in 1880 the coal-fields in the North of England would be exhausted in about 200 years. The largest coal-field in England is that known as the Midland, which includes the West Riding of Yorkshire, Derbyshire, and Notts; and it will be seen that the extra drain on the stores of fuel in those counties during the last year was scarcely up to the ordinary annual average. But it may be seen that during the last ten years the greatest and steadiest progress has been made in the Midland field, having been far less spasmodic than the North of England, which last year shows to such advantage in production.

THE MONETARY CONFERENCE.

By French Atlantic cable dispatch to the N. Y. *Herald*, dated Paris, July 9th, we learn that, before the adjournment of the International Monetary Conference, a strong desire for a suspension of the sittings had been manifested by a number of the delegates from the invited powers, and the proposition carrying it into effect received the unanimous concurrence of the Conference, with an unimportant reservation by Sweden. With this solitary exception, the sentiment of all the delegates, monometalists and bi-metalists, as formulated in the resolution of adjournment, was, that a recess until next spring might be productive of important results; that a final dispersal of the Conference at this time would be impolitic; that there were reasons to hope for an ultimate understanding; and that the time had arrived for governmental action and diplomatic negotiations. It was generally admitted that grave monetary evils exist, that some remedy is urgently needed, and that some of the labors of the Conference, such as its ascertainment of the views of states and its collection of materials, have been of the utmost importance. It is considered that the willingness expressed by the Bank of England to hold one fifth of its metallic reserve in silver, provided the other nations open their mints to the free coinage of that metal, is a tacit admission that a great bimetallic union would restore silver to its former place and value as international money, and the reasons stated in the resolution of adjournment have a high and very important significance. The Conference is regarded here as having attained as great a measure of success as its best friends could have hoped for at present.

The Paris correspondent of the London *Times* says: "At yesterday's sitting at the Monetary Conference, Mr. Evarts, delegate from the United States, read the following declaration of the French and American delegates, in the name of their respective governments: 'The depreciation and great fluctuations in the value of silver relatively to gold, which of late years have shown themselves and which continue to exist, have been and are injurious to commerce and general prosperity, and the establishment and maintenance of a fixed relation of value between silver and gold would produce the most important benefit to the commerce of the world. A convention entered into by an important group of states, by which they should agree to open their mints to the free and unlimited coinage of silver and gold at a fixed proportion of weight between the gold and silver contained in the monetary unit of each metal and with the full legal tender faculty to the money thus issued, would cause and maintain stability in the relative value of the two metals suitable to the interests and requirements of the commerce of the world. Any ratio now or of late in use by any commercial nation, if adopted by such an important group of states, could be maintained; but the adoption of the ratio of 15% of silver to 1 of gold would accomplish the principal object with less disturbance in the monetary systems to be affected by it than any other ratio. Without considering the effect which might be produced toward the desired object by a lesser combination of states, a combination which should include England, France, Germany, and the United States, with the concurrence of other states, both in Europe and on the American continent, which this combination would insure, would be adequate to produce and maintain throughout the commercial world the relation between the two metals that such a combination should adopt.'

CHICAGO COAL RECEIPTS AND SHIPMENTS—MAY 1 TO JULY 1, 1881.

Receipts by rail of anthracite coal from May 1st to July 1st, 1881.....	Tons. 38,802
Corresponding period, 1880.....	23,957
Increase, 1881.....	14,845
Receipts by rail of bituminous coal from May 1st to July 1st, 1881.....	364,323
Corresponding period, 1880.....	227,571
Increase, 1881.....	136,752
Receipts by lake of anthracite coal from May 1st to July 1st, 1881.....	144,735
Corresponding period, 1880.....	121,831
Increase, 1881.....	22,904
Receipts by lake of bituminous coal from May 1st to July 1st, 1881.....	74,791
Corresponding period, 1880.....	70,906
Increase, 1881.....	3,885
Total receipts of all kinds of coal, including coke, from May 1st to July 1st, 1881.....	622,651
Corresponding period, 1880.....	444,265
Increase, 1881.....	178,386
Total shipments of coal by lake and rail from May 1st to July 1st, 1881.....	70,781
Corresponding period, 1880.....	65,112
Increase, 1881.....	5,669

The receipts of coke are included in the receipts of bituminous coal.
NOTE.—40,456 tons of anthracite (water shipment) were received in April, 1880; none in April, 1881. The total lake receipts of anthracite this year, up to July 1st, fall short 17,552 tons of those of the same period of last year.

RECEIPTS BY MONTHS.—May, 201,338 tons bituminous; 67,247 tons anthracite. June, 237,776 tons bituminous; 116,290 tons anthracite.

SHIPMENTS BY MONTHS.—May, 28,949 tons. June, 41,832 tons.

H. PRATT, Secretary Chicago Coal Exchange.

PROGRESS IN SCIENCE AND THE ARTS.

The Geographical Society of the Pacific.—This society has been formed at San Francisco, to encourage geographical discovery and exploration on the Pacific coast.

Protective Coating to Steel.—At the meeting of the Physical Society, alluded to in another paragraph in this department, it was the general opinion of all the speakers that the color of the surface of tempered steel depends on the temperature, and is due to the film or skin of oxide; the blue film signifying a higher temperature than the yellow, as well as a thicker coating; and Professor Hughes has demonstrated that the electric resistance increases with the temperature. Professor Guthrie furnished a novel illustration of metallic skins by the exhibition of a steel chain to which he had given a beautiful bluish-black protective coating by simply dipping it in melted nitrate of potash or common niter. The process was discovered accidentally, and as the bloom improves the appearance of the metal, it will probably be applied to utensils of iron and fancy articles.

Coal in South Africa.—The *Port Elizabeth Telegraph*, Cape of Good Hope, says that Mr. North, C.E., who has for some time been engaged in exploring the coal measures of South Africa, is now in Port Elizabeth en route to England. He has lately thoroughly inspected all the best known and most promising coal mines of Natal, and carefully tested the coal on the Natal railroads. Though not equal to the article imported from England, he finds it well suited for railroad purposes, and much superior to Indian coal, which he had an opportunity of using for comparison. He says, as the result of his observations, that 13½ cwt. of good English coal will do the same amount of work as 17 cwt. of Natal coal; but, estimating the cost of English coal at Durban at £3 per ton, and the cost of Natal coal at the mines at 12s. 6d. per ton, a very great saving will be effected by using the latter. The principal mines are at Dundee, Newcastle, and Sunday River. A capital mine could be opened within fifteen miles of Ladysmith, and, when the railroad has been extended to that point, he would advise using Natal coal at the inland terminus and imported coal at the seaport terminus. Mr. North describes the Natal coal as superior to any he has seen at the Stormberg, but believes that the Indwe coal will, in the course of time, be largely used for railroad and other purposes. His report on the whole is highly encouraging; and when he returns to England, he will lay the results of his observations before the crown agents, through whom the inspection was authorized.

The Canal System between the Great Lakes and the Atlantic.—From the Straits of Belle Isle to the head of Lake Superior is 2384 miles. On this route are 70½ miles of canal with 550 feet of lockage. This is exclusive of about 80 miles of dredging in the river between Montreal and Quebec. The scheme is to make a ship-channel 25 feet deep up to Montreal. About 6,250,000 cubic yards have been dredged since 1874, out of 8,000,000 to be removed. It is expected that the 25-foot channel will be completed next year. The locks of the canals from Montreal to Lake Erie are to carry 14 feet of water on the sills, and to be 270 feet long by 45 feet wide in the chambers. The Welland Canal will be opened with 12 feet in July. It is hardly likely that, even when the enlargement of the St. Lawrence canals is completed, lake propellers will load at Chicago and discharge at Montreal, and it is far less likely that vessels will ever load on the lakes and go directly to sea. It will not be found economical to use lake and ocean-going steamers in the rocks and rapids of the upper St. Lawrence. Grain will be transhipped at the foot of Lake Ontario, and again at Montreal, as it is now when arriving in the small vessels that pass through the present canal. In view of this, new barge lines and elevators are projected. It will be seen, says the *Railroad Gazette*, our authority for these facts, that for a certain portion of the crop of the Northwest, the question whether it is to be exported from New York or from Montreal will be one of relative economy in handling at the points of transhipment, and while we must admire the energy and foresight of the engineers and merchants of Montreal, we need not worry about the supremacy of New York.

A special dispatch to the *New York World*, dated St. Catherine's, Ont., July 18th, says that the experiment of applying a turbine-wheel for the purpose of opening the valves on the new lock-gates of the Welland Canal has been tried and found abortive. If no contrivance can be devised for the utilization of the valves, the canal can not be opened this year.

The Hardening of Steel.—An interesting communication on this subject was recently made to the Physical Society by Prof. Chandler Roberts, of the Royal School of Mines, and is reported in *London Engineering* of June 24th. The principal result reached by Professor Roberts, though of a negative kind, is valuable as narrowing the question at issue. The history of our knowledge of the carburization of iron was traced from the work of Clonet, at the end of the last century, to that of Margueritte in 1856. Margueritte showed that, although the conversion of iron into steel could be effected by contact with carbon, even in the diamond form, it is nevertheless true that carbonic oxide plays a considerable part in the process. Singular point was given to this conclusion by Graham's paper on the "Occlusion of Gases," read in 1867, which showed that carbonic oxide is able to penetrate to the center of a mass of iron. The temperature at which this gas is introduced is a comparatively low one, while a high temperature is necessary to enable the metal to appropriate the carbon in order to become steel. A committee of the Institution of Mechanical Engineers recently raised the question whether the hardening and tempering of iron and steel might not be produced by the expulsion of occluded gases during the heating process, and their subsequent expulsion by the sudden cooling and contraction. Professor Roberts heated rods and spiral wires of steel *in vacuo*, by means of the electric current, and suddenly quenched them in cold mercury, thus demonstrating that steel will harden when there are no gases to absorb. He robbed the metal of its occluded gases by means of an air-pump in connection with the vacuum-chamber. The parts quenched in the mercury were found to be glass-hard, while those not reaching the cold fluid were quite soft. As there were no gases present, the conclusion was, that gases play no part in the hardening and tempering process. Professor Roberts said that as early as 1781 Bergman clearly stated that fixed air (carbonic acid) could give up its carbon to iron, and that Réaumur, in 1722, employed the Tor-

ricellian vacuum in experiments on the tempering of steel, the metal being placed red-hot in a highly rarefied atmosphere, thereby anticipating the methods of to-day by more than a hundred and fifty years. In the discussion following the reading of the paper, Professor Hughes, who has made numerous experiments, ascribed the temper of the steel to the chemical union of the iron with the carbon. At low temperatures, this union takes place only in a slight degree; hence in soft steel, the carbon keeps aloof from the iron; but as the temperature is raised, the combination is furthered, until, in the case of gray or glass-hard steel, we have really a kind of diamond alloyed with iron. Sudden cooling is necessary to fix the combination; for in slow cooling the carbon separates out again from the iron. Mr. Stroh's observation confirms this theory: when an electric spark passes between two iron contact-pieces and fuses them, the fused part becomes diamond-hard, and will scratch a file. Mr. T. W. Hogg's researches lead to a similar conclusion, namely, the temper of steel is due to the presence of an unstable compound of iron and carbon. *Engineering* suggests chemical analysis, in order to see whether the proportion of carbon taken up by the metal increased with the temperature, or if any change took place in the refractive index of the steel.

The Electric Exhibition.—The New York *Herald* has a dispatch, dated London, July 11th, which says that some of the French papers having announced that, owing to the unusual quantity of exhibits, the opening of the Exhibition of Electricity at the Palais de l'Industrie would be postponed, M. Berger, the Commissaire-Général, to-day authorizes the statement that it will certainly be opened on August 1st, as before appointed. The following arrangement of the rooms will be made: The exhibition will be open day and night, floods of light being thrown out by all kinds of French and foreign electric lamps until eleven P.M. The motive power will be supplied by powerful steam-engines placed in the south gallery. The western end of the palace is allotted to the French, and the eastern end to the foreign exhibitors. The French section will be lighted by a special system; the foreign one by the English, American, Belgian, and any other foreign systems, many of which have not yet been tried in France. Every room on the first story will be lighted by a special system of lamps or burners, thereby affording an excellent occasion for comparing the advantages and deficits of each system of electric lighting apparatus. Every exhibitor will be at liberty to arrange his apparatus in the most advantageous manner. There will be several models of powerful burners for street lighting and of moderate-sized lamps for domestic use; and it will therefore be very easy to compare the steadiness, homogeneity of the light, and practical value of each system. A monumental staircase placed in the middle of the hall will lead to the first story, under which will be restaurants, buffets, etc. Opposite to it will be the pavilion of the Ministry of Posts and Telegraphs, then the pavilion of the city of Paris, which will contain the models of all electric clocks, alarm-bells, etc., used by the Parisian municipality. In the center of the palace will be erected a first-class light-house, the apparatus of which will be lit by electric light. Room No. 1 will be lit by the Soleil lamps, and contain paintings and objects of art. Room No. 2 will be devoted to the applications of electric light to stage scenery, a stage being erected therein where the Werdermann system will be used. Room A, at the landing of the monumental staircase, will be transformed into a *salon* for the President of the Republic; it will be lit by Regnier lamps. Rooms Nos. 3 and 4 will be arranged as an apartment, with bed-rooms, drawing-room, dining-room, billiard-room, library, hall, kitchen, etc., and be lit by Jamin and Werdermann lamps. This apartment will contain all known applications of electricity to domestic use, from the safe, protected by electric bells, to electric pianos and electric marking-boards for billiards. Rooms Nos. 5 and 6 will contain the especially scientific portions of the exhibition. Room B will be lit by the Jablochkoff system. Farther on, Rooms 7 and 8 will not fail to afford great attraction. They will be transformed into six small boudoirs, well isolated from outside noise by special partitions, and visitors will there listen to the pieces of the Comédie Française and Opéra placed in telephonic communication with the Palais de l'Industrie. A series of telephones will enable several persons to listen at the same time to the music of the Opéra or to Molière's verses. Two boudoirs will serve for the Comédie Française and four for the Opéra. This extraordinary exhibition is organized by the Société Générale des Téléphones in the name of M. Ader, the inventor of the apparatus now in use, and of M. Bréguet, its constructor. Room 9 will be devoted to electrotherapy. Room 10, lit by MM. Sautter, Lemonnier & Co., will contain fire-alarms, level-indicators, etc. Room 11 will be devoted to photography; M. Liebert will there photograph visitors by electric light. Room 12 will be especially assigned to the Gramme electric machine, etc. The instruments of precision, coils, and galvanometers will be arranged in Room 13, lit by Siemens. Rooms 14, 15, and 16 will contain every instrument connected with electric telegraphy. Room G, in the middle of the palace, will contain the exhibition of the Société Générale des Téléphones, and be lit by Héran Maxim lamps and by Jasper de Liège, Anatole Gérard and Thomasi burners. The different models of electric batteries will occupy Room 17. A retrospective exhibition will be organized in Room 18. The Collège de France will send Ampère's table and the Conservatoire des Arts et Métiers the ancient machine constructed by Armstrong. Clocks and watches will occupy Room 20, lit by Gibbs's system. A reading-room and bibliographic exhibition will occupy Rooms 19 and 21, lit by the Lontin and Daft systems. Lectures will be delivered in Room D, lit by MM. Swan and Brush; and finally, Rooms 23 and 24 will contain Mr. Edison's inventions. The southern gallery of the first story will contain a small electric railroad similar to the model proposed to replace the postal pneumatic tubes now in use. From place to place, telephone boxes will enable subscribers to the Telephonic Company to communicate with every part of Paris. A Siemens railroad will be constructed from the Palace de la Concorde to the east gate of the palace, affording an appropriate mode of conveyance to enter this wonderful electrical domain, which will remain open from the 1st of August to the end of November.

THE HUDSON RIVER TUNNEL—A NEW ENGINEER—PROGRESS OF THE WORK.—The Hudson River Tunnel has been placed under the charge of General William Sooy Smith, an engineer favorably known throughout the West. Under his management, the old tunnel has been strengthened.

The new work is now progressing at the rate of about five feet a day. The length of the tunnel from shore to shore will be 5400 feet. The approaches will add about as much more to the length. The work now extends about 300 feet under the river from the Jersey shore. A heading from the New York side is now starting. The present arch is 30 feet below the bed of the river, which is formed of a fine silt and is very easily worked under compressed air. A double system of air-locks has been introduced, which will give additional safety and allow more rapid progress of the work. With the precautions now taken, it is believed the tunnel can be carried on without accident. The Tunnel Company expects to have it completed in about three years.

PETROLEUM EXPORTS.—The following table (Washington, May 13th) shows the exports of petroleum during the month of May, 1881, as compared with the corresponding period of the previous year, and during the eleven months ended the same:

Customs Districts.	Gallons.	Amount.
Boston.....	738,757	\$85,583
New York.....	29,171,359	2,857,389
Philadelphia.....	4,478,042	367,724
Baltimore.....	307,348	27,922
San Francisco.....	45,963	9,913
All other districts.....	74,015	12,624
Total for May, 1881.....	34,815,484	\$3,361,155
Total for May, 1880.....	15,637,190	1,384,815
Total for eleven months ended May, 1881.....	332,801,580	\$34,762,328
Total for eleven months ended May, 1880.....	395,236,420	33,992,812

LEASE OF A RAILROAD.—NEWTON, N. J., July 12.—The most important event in the history of Sussex County since the building of the Sussex Railroad is the leasing of that road by the Delaware, Lackawanna & Western Railroad Company, which has just taken place. Hitherto, the Sussex Railroad Company has operated the road from Waterloo to McAfee as a distinct line, and the iron-ore traffic has necessarily been its chief source of revenue. By the consolidation, important changes in the passenger accommodations will be made, shortening the time and increasing the facilities to and from New York. It is confidently expected that these improvements will direct increased attention to Sussex County as a summer resort. Already boarders are coming from New York, Brooklyn, Newark, and Philadelphia in fair numbers, but it is predicted that they will be only as a vanguard to the hosts whom the superior facilities of the Delaware, Lackawanna & Western Company will invite to take up their summer residence in this beautiful and healthful region, abounding in fine, green farms; dense, silent chestnut and oak woods; pretty streams and lakes; hard roads and high hills, from which the scenery is indescribably lovely and grand for many miles around.

GENERAL MINING NEWS.

ARIZONA.

We quote from our latest Arizona exchanges as follows:

COPPER QUEEN.—The work at the mines is steadily progressing. The third level is opening up finely. On the second level, they have drifted two hundred and eighty feet east and west, and have run cross-cuts from seventy to one hundred feet, showing all ore. The company is now thoroughly reconstructing its works.

CABABI DISTRICT.

DOMINION, OPHIR, AND THIRD TERM.—These mines are situated 65 miles from Tucson, in what is known as the Papago country. A combination shaft has been put down on the Dominion and Ophir mines, which has reached a depth of 100 feet. At the bottom of the shaft, the vein is said to be 9 feet wide, between well-defined walls. Night and day shifts are running. The shaft on the Third Term is now down 100 feet. The bottom shows a four-foot vein. Water has been encountered in considerable quantity; a double windlass is used and the water kept down. It is the intention of the company to sink not less than 200 feet on its claims before taking steps to put in machinery.

METERS DISTRICT.

From a letter to the *Citizen* we condense the following:

On the western slope of the Esperanza Mountain, the Montezuma Mill and Mining Company has two mines, the Montezuma and McClellan. The company commenced developing about a month ago, and now has a shaft down in the Montezuma 45 feet, and on the McClellan 48 feet; in connection with the mines the company owns one of the best and most valuable sites in the district. The Napoleon is the south extension of the McClellan, has a shaft 15 feet deep, showing high-grade ore. The Papago mine has a shaft 20 feet deep; assays show 40 per cent copper. The Prospector, at eight feet deep, shows a vein, it is said, seven feet wide, carrying copper, gold, and silver. The Gunsight mine has been idle for six months. The Mineral Bed is now idle, waiting for hoisting-works to arrive. It is expected that the different companies interested in the district will commence active operations and erect reduction-works shortly.

COLORADO.

CUSTER COUNTY.

BULL-DOMINGO.—According to the *Silver Cliff Gazette* of the 8th, the superintendent of this mine reports that the cross-cut at the 350-foot level of this mine advanced 102 feet from shaft, and that satisfactory progress has been made in the incline at the same level.

GILPIN COUNTY.

EDGAR.—This mine, situated on Quartz Hill, has recently come into the possession of the Edgar Gold and Silver Mining Company, of this city. The claim is 150 by 1500 feet, and is thus far developed only by a tunnel in 40 feet and a shaft sunk to a depth of about 30 feet. The mine has produced a good ore in paying quantities, and it is believed that the expenditure of a small amount of capital to erect a shaft-house, further develop the mine, etc., will show satisfactory results.

LAKE COUNTY.

AMIE.—The pump on the No. 2 shaft was started July 5th, and at latest account was working well. As soon as the shaft is entirely clear of water, sinking will be resumed. In addition to sinking this shaft, the upper levels of the mine are worked, and some iron ore running low in silver is extracted.

BIG PITTSBURG.—The Leadville papers report that this mine will shortly be in a condition to ship ore. Considerable time has elapsed since the last ore shipment, and the McCormick shaft, through which the greater part of the ore was raised, has been shut down owing to an injunction, granted at the suit of the

Dolphin. Since the closing of this shaft, work has been pushed in the Lent shaft, in which good ore has been struck at a depth of 200 feet.

BREECE.—This mine is producing iron ore largely and shipping about 40 tons per day. The prosecution of work in the mine has opened up large bodies of fine iron, and there appears to be no limit to the large and valuable deposit.

CATALPA.—This mine is keeping up its shipments and is reported as in fine condition. The *Leadville Herald* says that there are extensive new development-drifts running, and the mine is looking finely, much better, in fact, than it was a month ago, when last visited. To the northeast, where the bulk of the company's property extends, a level is running—a contract for 60 feet on which was closed yesterday. Along the line of the Evening Star mine, in the direction of this drift, a fine ore-body is disclosed in the Star workings, and it is proposed to continue this drift to the line, and then make cross-cuts both to the east and west. Through this portion of the mine, great results may be confidently expected, and as yet no exploration has been made or ore broken. For the past month, the bulk of the ore produced has come from the working extending to the west from the west or discovery shaft. From the main shaft, there is also a level extending north to connect with a winze from the north workings. This level has also cut a fine ore-body and has a large face of ore in the end.

CHRYSOLITE.—This mine is looking unusually well, and has some large bodies of ore exposed. The mining reporter of the *Democrat* on the 5th spent about five hours in the underground workings of the Chrysolite mine. The developments disclose a large number of fine ore-faces, showing that during the time hoisting through the Roberts shaft was suspended the miners below were busy at work prosecuting exploration-work, and that they met with abundant success. The developments, aside from opening up additional large resources of rich ore, are especially gratifying, owing to the fact that they are located to the extreme north and west of all former ore-bodies, and open great possibilities for the future. The largest of these ore-bodies is situated just east of Carboniferous No. 5 shaft, on the upper level. A drift has been run on the ore-body fifty feet north and fifty feet west, proving up its continuity, and disclosing an average thickness of three feet of fine sand carbonates and galena. The most important development made, however, is 375 feet west of the Roberts shaft, and a short distance south of Chrysolite No. 5 shaft. A body of ore has been opened at this point ranging from one to five feet in thickness and opened for nearly a hundred feet square by drifts on three sides. The mineral is all high grade, being mostly sand carbonates, with a slight sprinkling of hard carbonates and galena. This body of ore is located under the low flat between the office and Roberts shaft-house, and its extent to the northwest, the apparent course of the mineral trend, has not yet been ascertained. Another promising body of ore has been developed near Carboniferous No. 3 shaft, and within a few feet of the Little Chief line, averaging about 30 inches in thickness. The above ore-bodies are the principal ones, although there are scores of lesser ones, and streaks and packets of fine mineral, many of which when followed up may open into good large bodies of ores. Several new strikes were reported on the street, one of them said to consist of a streak of almost pure horn-silver. When questioned in regard to the report, Manager Rolker had very little to say, stating that he preferred to make sure of a discovery before he gave it publicity. The Chrysolite is now shipping about 50 tons of ore per day, and, judging from the appearance of recent developments, the mine will be able to continue these shipments for a long time to come.

CLIMAX.—A new shaft has been started on this mine, near the east line, where it joins the Little Diamond. A few lesses are at work in the north end of the mine in workings from the north shaft. They are taking out between \$2000 and \$4000 per month, one fourth of which the company receives.

DENVER CITY.—The new plant at the discovery-shaft of this mine is nearly completed, and the mine will shortly be able to resume work.

GLASS-PENDERY.—The *Democrat* of the 10th reports that, in driving the east incline from the Pendery shaft, a three-foot body of rich ore was encountered seventy-five feet from the shaft, which is richer than any thing heretofore found in Carbonate Hill.

LEADVILLE CONSOLIDATED.—The mines of this company are sending out about 12 tons per day. The *Herald* says: There are three inclines on the properties, all of which are worked. The north or main incline is in 600 feet, and has passed through into Little Giant ground. This is extending, and several levels from it are worked. The south incline, also starting on the territory of the Carbonate, is down 240 feet, and is also extending. The combination incline is down 235 feet. This is on the line between the Shamrock and Carbonate. All three levels are worked by the one engine, it having three drums and cables.

MORNING STAR.—This mine is now shipping over 75 tons of ore per day. Three shafts are worked.

SILVER CORD.—The *Herald* says: At the mine all is busy activity. The average shipments are 60 tons a day, and the ore is increasing greatly in grade. The ore-body in the middle incline is now immense. An actual measurement shows it to be twenty-four and a half feet in thickness, and cross-cuts started each way upon it show no diminution in its extent. In the south or No. 3 incline, also, another strike was made. There are large deposits of ore already developed in this incline, but a new fine body of sand carbonates has been struck, from four to five feet in thickness.

ST. JOSEPH & SILVER CLIFF MINING COMPANY.—The mines owned by this company, the Gem and Silver Prize, are situated about twelve miles north of Silver Cliff, Tremont County. One of our correspondents, recently writing from there, says of the Gem mine, that it is particularly noticeable for the high percentage of nickel and cobalt, combined with native silver, contained in the ores. Many beautiful specimens of ore have already been taken from the discovery-shaft, which has attained a depth of about 45 feet; the vein at this point is three feet in width. This ore at this point is described as consisting of feldspar and silica, containing black and green oxides of nickel, sulphide of nickel, with metallic luster, cobalt glance, gray arseniate of cobalt, and roseo-cobalt (cobalt bloom), with gray copper and brittle sulphuret of silver. Two tons of ore shipped to the Argo Reduction-Works, Denver, show assays averaging 29 7/8 per cent nickel and 11 1/4 per cent cobalt, not including assays of other metals. Six tons of second-class ore shipped to Dora Concentrating Works were found to contain too much mineral to be concentrated complete, worth over \$200 per ton.

DAKOTA.

Considerable attention is paid in this territory to the mining of mica. The *Deadwood Pioneer* says that at La Barre's mica mine, two miles from side of Custer, there are fifteen men employed, mining and cutting the mica into marketable shape. The Cleveland Stove Company, of Cleveland, O., has contracted for a large supply from this mine. The article is far superior to that of the Carolinas, both in extent and quality. It is taken out in blocks and trimmed by the cutting-machines, three of which are in constant use. The sheets vary in size from 4 x 8 to 8 x 10.

IDAHO.

YANKEE FORK.—The *Yankee Fork Herald* reports as follows, regarding the property of this company: Last Sunday, we paid a visit to the placer claims of the company, on the Salmon, where we found the giant at work tearing down the large bed of gravel. The waters of the Yankee Fork afford an abundant supply for hydraulic works on the most extensive scale, there being 10,000 inches available for the purpose. There are about 1000 acres of ground on the high gravel bars between the mouth of the Yankee Fork and Thompson's Creek, 12 miles below, which is owned by the company. The average depth of the gravel is about 60 feet, which prospects from the bed-rock to the surface. It is unusually free from cement or clay, and the average yield is 25 cents per cubic yard, which is high for hydraulic ground. The dump on the Salmon River is

convenient and ample for all purposes, as has already been demonstrated at the bar, where the company has commenced operations. The little giant now in operation is moving and washing 2000 cubic yards of gravel per day of 24 hours at a total cost of \$30, or 1 1/2 cents per cubic yard. Two and a half miles below the present workings, the company owns a very large and fine bar, known commonly as Marshall Crawford's Bar.

MONTANA.

Our Montana exchanges have the following:
ACQUISITION.—Good progress is made in sinking the shaft, which is now down over 125 feet, and is in rock that is comparatively soft.

ALICE.—There are no new developments to note in the upper levels of this mine. The winze from the 500 to the 700-foot level has been sunk, making good ventilation for the lowest level of the mine, which will be of great advantage when the work of sinking the main shaft to a greater depth is again resumed. The sinking of the shaft deeper will be commenced at no distant day.

LEXINGTON.—The main shaft has reached a depth of 170 feet. Work at the old incline shaft, which produces the ore that keeps the Davis ten-stamp mill running, proceeds with the same regularity that it has for several months past. Nothing but free-milling ore is taken from the Lexington at present.

MAGNA CHARTA.—The station at the 300-foot level in the main shaft is finished. A cross-cut has been started for the vein, and the work of cutting has been let under contract. The new boiler-house is about completed. In excavating for the building for the pulverizer, a large vein of quartz was struck.

MOULTON.—At the 200-foot level, a nine-foot vein has been opened. The cross-cut at the 300-foot level, in 125 feet, tapped the vein and penetrated it about 15 inches. The ore looks well, but no assay has yet been made.

NEVADA.

THE COLUMBUS DISTRICT.

NORTHERN BELLE.—The *True Fissure* of the 2d says: The shaft-levels are looking and yielding about the same as a week since, the only important change being on the intermediate, between the first and second levels, which, in running a cross-cut at a distance of 70 feet from starting-point, opened out some good ore that looks promising, the development being in new ground. The eleventh and twelfth levels are looking well and turning out considerable ore. The levels above the adit show well throughout, the fifth especially holding its own remarkably. The stopes on the ninth level present a fine appearance and are producing a good grade of ore. The total production of the mine averages 87 tons daily.

THE COMSTOCK LODGE.

The *Gold Hill News* of the 6th inst. says: There is nothing new at the north end to report. The Sierra Nevada cross-cuts have undergone no change. The work in the Mexican, Union Consolidated, and Bonanza mines has been kept up as usual. At the Ophir, the pump has been repaired, and was put in operation last evening. The Combination hydraulic pump was put to work again yesterday. It is in readiness for work if necessary, but it does not give entire satisfaction as yet, and will not be run steadily, unless compelled to do so by the breaking of either their other pumps, or an accident happening to the pumps of the Hale & Norcross, until a new set of air-chambers and valves shall be received. The Bullion is finishing up its surface work rapidly. The Yellow Jacket will run a diamond drill east from the 2800 level as soon as repairs can be made to the drill. Work is prosecuted on the 2800 and 3000 levels. Imperial is working her lower levels, and Belcher and Crown Point continue to make their usual shipments of ore. The Alta, Forman, and Gould & Curry and Best & Belcher shafts are making good progress in sinking.

EUREKA DISTRICT.

EUREKA CONSOLIDATED.—The *Ruby Hill Mining News* of the 4th says: The new shaft is down 875 feet, and is encountering but little water. The shaft has attained a depth of 30 feet below the 1200 drift from the old shaft, and all water seeping through the ground and met with in the bottom of the shaft is easily pumped up and allowed to flow through the 1200 drift to the old workings, and from thence it is hoisted to the surface. An average of 15 feet per week is made in the sinking of this large shaft.

UTAH.

We condense the following from our latest Utah exchanges:
LADY OF THE LAKE.—The new two-compartment shaft has attained a depth of 100 feet. Carpenters are kept busily at work framing sets, etc., and the work of sinking goes steadily on.

NORTH HORN-SILVER.—There are three tunnels and a shaft operated along the line of the property. The deep tunnel will, when the summit of the mountain is reached, be underground fully 800 feet. The tunnel over this, it is said, is penetrating a vein of copper silver ore, 20 feet thick; it is in about 25 feet. The working force has been increased to nearly double.

LEXINGTON DISTRICT.—Recent reports state that some work has lately been done which showed good results and satisfactory developments. The district contains free milling ore, and the facilities for working the same are said to be very good.

PROPOSALS AND SALES.

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

Dredging Shrewsbury River, N. J.; W. Michler, Lieut.-Col. of Engineers, Room 31, Army Building, cor. Hudson and Greene streets, New York City	July 19, 1881.
Dredging in Salem River, N. J., and in the North Branch of the Susquehanna River, between Wilkesbarre and Monoclonock Island; J. W. Macomb, Col. of Engineers, U. S. A., 1125 Girard street, Philadelphia, Pa.	" 20, "
Laying about 3700 feet of 12-inch Iron Water Main, crossing Grand River at Fulton street; Grand Rapids Water-Works, Grand Rapids, Mich.	" 23, "
Construction of Water-Works (to have a capacity of from 500,000 to 600,000 Gallons per day), or for supplying the Machinery and Materials required in connection therewith; Thomas Coles, Chairman of Water-works Committee, Parkdale, Ont.	" 25, "
Furnishing and Delivering at League Island Navy-Yard Three Hundred Tons of Anthracite Coal, broken, and Forty Tons Egg, best quality; John S. Cunningham, Pay Director U. S. Navy, 425 Chestnut street, Philadelphia, Pa.	" 25, "
Construction of an Iron Bridge Superstructure across East Sandy Creek, at what is known as Slab Furnace; Commissioners of Venango County, Franklin, Pa.	" 26, "
Improvement of Delaware River at Cherry Island Flats; J. W. Macomb, Col. of Engineers, U. S. A., 1125 Girard street, Philadelphia, Pa.	" 28, "
Dredging Norfolk Harbor and its Approaches; Currituck Sound and Coan-jock Bay, N. C., and Pagan Creek, Va.; James Mercur, Capt. of Engineers, 50 Main street, Norfolk, Va.	" 29, "
Blasting and Removing Solid Rock and Boulders from the Columbia River, adjacent to and below the Site of the Locks at the Cascade. The amount available for this work is \$50,000 or more. Contractors are requested to visit the site for the purpose of examining the charts, which locate the obstructions, and of determining for themselves the character of the work required. Specifications and blank forms may be obtained on application to G. L. Gillespie, Major of Engineers, Brevet Lieut.-Col. U. S. A., U. S. Engineer's Office, Portland, Oregon	Aug. 6, "

DIVIDEND-PAYING MINES.

Table with columns: NAME AND LOCATION OF COMPANY, Feet on Vein, Capital Stock, SHARES (No., Par Val), ASSESSMENTS (Total levied to date, Date and amount per share of last), DIVIDENDS (Total paid to date, Last Dividend), HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE (July 9-15), and SALES.

g, Gold. s, Silver. l, Lead. c, Copper. * Non-assessable. † The Deadwood mine paid in dividends, previous to the consolidation, \$275,000 and the Golden Terra paid \$75,000. Total shares of Dividend Paying stocks sold during the week, 250,490.

FINANCIAL.

Gold and Silver Stocks.

New York, Friday Evening, July 15.

The week under review has proved a harvest for the California manipulators and the New York mining speculators who have combined with them; but for the public, generally, it has been one of disaster. The bulk of the business in both Boards has been in the "State Lines" and kindred mines, which have been manipulated by the California element, absorbing almost one third of the whole business of the two Boards. The total reported transactions for the week have been 878,475 shares, of which 627,985 shares were in stocks of the non-dividend mines and 250,490 shares comprising the transactions in the dividend-paying mines. These facts are of themselves significant, and are evidences of the large artificial business done in mining shares upon this market. Oriental & Miller, for example, a stock which to our knowledge has not a particle of intrinsic merit, records transactions of 72,550 shares, at prices ranging from \$1.10@87c. per share. This would give a market value of some \$400,000 for these mines. The State Lines Nos. 1 and 4 and Nos. 2 and 3 record transactions of some 92,000 shares each, or a total of 184,000 shares. These stocks have largely declined, and close to-day at nearly the lowest prices of the week. Central Arizona has been a feature in manipulation on the New York Stock Exchange, showing transactions of some 60,000 shares, no doubt almost wholly due to this, as the stock has declined up to the close of to-day to \$3.50 per share as against \$6 a week ago. Many rumors have been given out during the week with reference to this property. One is, that a rich strike has been made in the mine; another, that a dividend would be paid; all of which were undoubtedly published to influence prices. California

has absorbed considerable of the business, principally on the old Board, the sales aggregating over 10,000 shares. The price to-day, however, shows a decline from the better prices of the week. Consolidated Virginia has changed hands to the extent of nearly 30,000 shares, closing to-day at \$2.15@2.05, which is an advance on previous quotations. Hibernia records sales of some 80,000 shares and closes to-day at 57c. Little Chief has shown considerable activity at very steady prices. Chrysolite has been quite steady during the week, and the extreme prices of to-day, namely, \$5.75@5.13, represent the extreme prices of the week, some 5000 shares changing hands. The transactions and prices of all the mining stocks dealt in at both Boards and on the Stock Exchange are very fully and accurately reported in the tables published elsewhere, and a careful study of these will well repay all who may be interested in the same.

UNLISTED QUOTATIONS.

Mr. L. V. Deforest, No. 70 Broadway, under date of July 15th, 3 P.M., reports the current quotations of unlisted stocks as follows:

Table with columns: Bid, Offer'd, Bid, Offer'd. Lists various stocks like Barcelona, Bald Mountain, Bradshaw, Breece, etc.

DIVIDENDS.

In the table published in our issue of the 9th inst.,

under the title of "Dividends declared by Mining Companies for the First Half of 1881," the amount declared for this period by the Catalpa Mining Company should read \$120,000 instead of \$60,000, making the second dividend which this company paid for the half-year. With this exception, we believe our table is correct.

At the meeting of the Board of Trustees of the Copper Queen Mining Company, held this day, the second monthly dividend of \$25,000 was declared payable August 1st, 1881. The resignation of Mr. John Ballard, of San Francisco, one of the trustees of the company, was accepted, and the vacancy filled by the election of Alonzo Follet, Esq., of No. 9 Wall street, New York City.

The Homestake Mining Company has declared its thirty-fifth dividend, amounting to \$30,000, payable on the 25th inst. With this dividend this company will have returned to its stockholders \$1,050,000.

The Deadwood-Terra Mining Company has declared a dividend of twenty cents per share from the June earnings, equal to a total of \$40,000.

The Tip Top Silver Mining Company, which has recently opened a transfer-office at No. 18 Wall street, has declared dividend No. 1 of twenty cents per share, payable on the 25th inst. It is stated that this company will carry a surplus of \$130,000 after the disbursement of this dividend.

The Northern Belle Mining Company comes forward with its regular dividend of fifty cents per share, and an extra one of twenty-five cents per share, the same as last month.

The Boston & Montana Mining Company has declared a monthly dividend of ten cents per share, amounting to \$20,000, equal to one per cent on its capital stock, payable on the 15th inst. This makes the fifth dividend declared by this company.

The Green Mountain Mining Company has declared

tees of this company, on the 12th inst., the secretary reported as follows:

It gives me great pleasure to inform you that the Consolidated Pay Rock Mining Company has just won a very important law-suit, as it sustains its claim to an increase of the width of the Zouave from fifty feet in width to 150. This adds a large and very valuable territory to the original purchase, greatly increases the value of the property, facilitates the workings of the mine, and will undoubtedly enable us to materially increase the product at an early day.

Copper Queen.—The superintendent, under date of July 4th, writes:

The work during June on second and third levels of mine aggregated 285 feet of drifts and 22 feet of winze, and has placed in sight many thousand tons of good ore, in addition to what was in sight at commencement of June. The third level is opening up far better than we expected, both in quantity and quality of ore. We have commenced sinking a shaft to connect with the west drift on second level, and expect to make connection at 85 feet in depth, and will strike the drift at about 120 feet from its beginning. Shall put up a whim at new shaft, and will be able to hoist 30 to 40 tons per day, if we wish to use such quantities from lower levels. Furnace running nicely, having turned out 181 tons copper bullion during June. Will start the second furnace as soon as possible.

Green Mountain.—The superintendent reports the repairs to the Hayden mill are completed; the stamps are doing better work, and the mill is decidedly improved. Cross-drifts have been run on the vein from the shaft above the Blake tunnel, midway up, showing the ledge full and strong; this opens a large body of ore for easy working. No. 5 adit tunnel is going ahead through milling ore. Mills are in good shape and running well.

Indian Queen.—A committee appointed from the directors of this company to visit the company's properties in Nevada have made their report to the stockholders under date of Boston, June 18th, from which we make the following extracts:

We found the mill in perfect working order, running day and night, and doing good work, although too small to reduce all the ore which the mine was producing; the mine constantly showing good ore in good quantities; recent developments exposing, as have past developments, a good vein, though variable in thickness. Finding that the ore at the "dumps," and the steady production of ore from the mine were largely in excess of the capacity of the mill, and being duly authorized so to do, your committee contracted, at an expense of \$10,000, for four additional stamps to the mill. The stamps will be in working order by the 1st of September next, when, with but little additional expense, double the amount of ore will be reduced per month, which the mine will easily supply. After that, largely increased dividends may confidently be expected. We found the mill and mine managed by the superintendent in a careful, intelligent, and honest manner, and on the best of business principles.

Robinson Consolidated.—It is officially reported that a new level was started on the 13th inst., in the mine, 100 feet below the present workings, which are now 600 feet below the surface. The superintendent estimates that the new level will open up over 6000 tons of ore.

Little Rapid.—At the annual meeting of this company, held on the 12th inst., the following trustees were elected to serve for the ensuing year:

John C. Barnes, 111 and 113 William street, New York City; Gen. Herbert B. Titus, of Washington, D. C., and New York City, Counselor at Law; Col. Richard H. Spencer, of New York City, Counselor at Law; Benjamin Homans, of New York City, Editor of the Banker's Magazine; Horace L. Duncanson, of Dakota, President of L. R. Hydraulic Mining Company, Resident Agent in Dakota; George H. Burgess, of E. R. Durkee & Co., New York; James W. Pratt, of Pratt Printing House, New York; David W. Fairchild, of 58 Fulton street, New York; David Harvie, of 44 Broad street, New York.

A letter from the secretary of this company, dated Deadwood, July 9th, says:

Results eleven pannings near boiler sent by mail average sixteen cents.

REVIEW OF THE SAN FRANCISCO MARKET.

The San Francisco share market has been pretty steady during the week under review, with prices fairly maintained up to the close, yesterday. Union Consolidated, Best & Belcher, and Chollar open to-day at the best prices of the week, the former showing an advance of \$1 per share, as compared with the price prevailing a week ago. Best & Belcher and Hale & Norcross have each levied assessments of 50 cents per share, and Consolidated Pacific wants 40 cents per share from such stockholders as are unfortunate enough to have purchased at former figures. What this money will be used for is hard to determine, if our memory serves us right as to the almost utter worthlessness of the mine. Yellow Jacket is fairly steady. It is said that this company has started a drift east from the 3000 level, expecting, it is said, to cut the ledge recently discovered by the Suro Tunnel. The Tunnel Company, however, it is thought, will claim the ledge as an original discoverer. Late average assay of the ore is \$30.

A dispatch from the superintendent of the Tunnel

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

Table with columns: NAME OF COMPANY, CLOSING QUOTATIONS (July 8, 9, 11, 12, 13, 14), and Opening July 15. Lists various mining companies and their stock prices.

Company states that the south branch has struck a solid ore-body fifteen feet thick near the Yellow Jacket ground, which is supposed to be a stringer, from the great ore-body lying exposed in that mine. The value of the ore is not yet given, but the probability is that it will be found to be of the same character as that in the main body, which is too poor to work. The assays from this new find, telegraphic advices state, run all the way from \$1.13 to \$157.95 to the ton. It is apparent that these results are too irregular to form any basis for correct judgment. The ledge, it is said, runs north and south.

A dispatch, dated San Francisco, July 8th, notes the failure of Gen. J. W. Gashwiler, a very prominent operator and speculator in mining stocks. His liabilities are said to amount to \$520,000, and his assets consist of \$213,000 in personal property and some real estate, the value of which is not stated. The principal creditors are: Thomas Bell, \$200,000; the Bank of California, \$60,000; L. F. Gashwiler, \$28,000; Hanna M. Gashwiler, \$84,000; Horace Hill, \$47,000; Alphas Bell, \$22,000; George T. Coulter, of New York, \$16,500; William A. Farrer and J. L. Moody, \$14,000; J. D. Carr and H. L. Leale, \$13,000; and the city and county of San Francisco (judgment), \$10,000. He attributes his failure to the fall in the price of stocks and real estate, and the failure of some of his debtors.

The San Francisco Chronicle gives a list of twenty-nine Comstock mines, not one of which has paid a dividend in the past six months, and, excepting five, assessments were levied. These stocks were speculated in considerably, but not with much success. About \$2,311,000 new money has been paid in by the stockholders, who have not received a dollar in return, yet it is probable they will put in a great deal more, with the hope of being reimbursed at some future time.

The Bulletin of July 7th has the following: The cash balances for July 1st of various mining companies were as annexed:

Table listing mining companies and their cash balances as of July 1st, including Alta, Albion, Argenta, Benton, Black Hawk, Bulwer Co., Bodie, Crown Point, Challenge, Chollar, Con. Imperial, Exchequer, Grand Prize, Hale & Norcross, and a Total of \$726,207.

The above is only a partial list, embracing 27 mines. On June 1st, 36 mines reported \$974,800, and on May

1st 35 mines reported \$895,000. The balance of the Western mine would alone increase the total for July 1st to over \$800,000. There are several other mines that have not been heard from. The indebtedness on July 1st of various mines was as follows:

Table showing indebtedness for various mines: Alpha (\$17,239), Best & Belcher (\$5,694), Bullion (\$149,163), Belle Isle (\$10,568), Betty O'Neal (\$16,711), California (\$108,042), Con. Virginia (\$57,804), Equator (\$7,574), Gould & Curry (\$8,250), Metallic (\$8,691), Mexican (\$31,850), Utah (\$6,960), Union Con. (\$40,000), Wedge Con. (\$520), Total (\$367,166).

On the 1st June, 19 mines reported an indebtedness of \$327,400, and on the 1st May 11 mines reported \$201,000. An assessment of \$162,000 has been levied to pay the debts of the California mine.

Philadelphia.

PHILADELPHIA MINING STOCK EXCHANGE.

Table with columns: NAME OF COMPANY, Opening July 7, Highest during the week, Lowest during the week, Closing July 13, Total shares sold. Lists various mining companies and their stock prices.

The consolidation of the Philadelphia and Annex mining exchanges, has, at last, reached final consideration; the Philadelphia Mining Exchange adopting the agreement by a vote of 81 to 9; and the Philadelphia Stock Exchange approving it on Tuesday by a vote of 80 to 19. The governing committees will now have in consideration the day when the proposed consolidation will take place, which, no doubt, will be at an early date.

A thorough reorganization has taken place in the old Lincoln Mining Company of this city. The company owns some valuable mineral properties in Clear Creek County, Colorado, and under the new management, progressive operations have been determined upon. The new company will be named the Albro.

The Hidden Treasure, one of the Arizona & New Mexico's Prospecting and Developing Company's ventures will shortly be listed on the New York Mining Exchange. Favorable reports have been received as to the intrinsic value of this company's possessions.

The Livingstone is another Philadelphia venture, of which good accounts are reported. It is to be shortly listed on the Exchange.

The Record is a Boulder County (Colorado) corporation, of which a great deal may be expected, judging from the character of the gentlemen interested. The organization will be effected this week, when developments will be prosecuted until definite results are obtained.

In spite of the oppressive weather, the market is fairly active, with steady prices. The disposition on the part of shareholders is to await better prices, and hence the supply of certificates not being in excess of the demand keeps the market steady and firm.

The Willis Creek Mining Company, whose property is in Buckingham County, Virginia, is in receipt of very encouraging reports from its engineer, Mr. Hector Thomas, who is pushing the work of erection of the required machinery and putting the shafts in order. The ores from this mine are free-milling, and promise a large yield. This company was organized under the auspices of the American Developing and

COAL STOCKS.

Table with columns: NAME OF COMPANY, Capital Stock, No. of Shares, Par Val., Last Dividend, Rate per Ann., and Quotations of New York stocks (July 9-15) based on Philadelphia prices.

* Of the sales of this stock, 13,968 shares were sold at the Philadelphia Stock Exchange, and 1700 shares at the New York Stock Exchange. † 110%, ‡ 123%, § 127%, ¶ 100%. Total Sales..... 188,162.

Mining Investment Co., which has an efficient board of engineers who examine and report on all properties before they are offered to the public, the object being to establish a reputation for the mines it recommends.

Coal Stocks.

The past has been an extremely dull week for this class of stocks. The transactions have been light and prices irregular, with a declining tendency.

The stocks of the bituminous coal companies have been comparatively quiet. New Central has had sales of 300 shares at \$27 1/2 @ \$28; Maryland, 800 shares at \$27 @ \$26 1/2 @ \$27 1/2.

Copper and Silver Stocks.

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

BOSTON, July 14.

The market for copper stocks the past week has been extremely dull and featureless. There seems to be no disposition to operate in them, and only a few sales are made from day to day as the necessities of holders oblige them to part with their stock.

Blue Hill is more inquired for at 3 3/4, sales and bid. Brunswick Antimony sold at \$15 early in the week.

Copper Falls sold at \$6 1/4; 50 shares only. Franklin opened at \$12, declined to \$11, which was bid for it at the close.

Pewabic opened at \$13, but declined to \$12 1/4. Quincy declined to \$36 on sales of 20 shares only.

Douglas, which is a Maine mine, is the only copper stock showing an advance. Sales last week at \$2, now \$2 3/4, which is bid for large blocks of the stock with but little offering.

Blue Hill is more inquired for at 3 3/4, sales and bid. Brunswick Antimony sold at \$15 early in the week.

In silver stocks, Bonanza has been fairly active and steady at 55 1/2 @ \$6, closing 55 1/2.

Catalpa and Crescent both steady at 1 1/4 @ \$1 1/2 and \$1 @ \$1 1/4 respectively.

Silver Islet declined from \$43 @ \$42; sales of about 500 shares.

San Pedro opened at \$4 1/4, declined to \$3 1/4, but again advanced, and closed at \$4.

Harshaw declined from \$9 @ \$7 1/4, but was firmer to-day at \$7 1/4.

Duncan Silver declined from 1 1/4 @ 87 1/2 c.; later sales at \$1.

Sullivan steady at \$3 1/4 @ \$3 3/4.

At the Boston Mining Exchange, Empire continues to be the leading stock; sales for the week aggregate over 80,000 shares at range from \$5 @ \$35, closing to-day at \$41 @ \$42.

Milton also continues active under vigorous manipulation of the "bull clique," who continue to bid "for any part of

the capital stocks," and take all they can get on buyer's 60 days option at 15 @ 20c. over regular rates; sales of about 80,000 shares from \$1.45 @ \$1.61 regular, and \$1.55 @ \$1.75, buyer 30 or 60 days.

Massachusetts & New Mexico has been quite prominent this week, with sales at 60 @ 65c.; later a little lower, at 60 @ 61c.

Mendocino firm at \$5 regular and \$5.25 buyer 30. Copperopolis continues to gain in favor, and shows an advance from \$1.85 @ \$1.90 @ \$1.91.

Dunkin continues to droop, with sales at \$60 @ \$58. Pine Tree Silver Mining Company has again been brought into the active list, starting at \$2 1/2 and advancing to \$3.30, with a good buying demand.

3 P.M.—The market this afternoon dull for the coppers, but the specialties of the silver mines continue active. One operator sold 10,000 shares of Milton at \$1.75 buyer 30, and the same price was bid for 5000 shares more, without bringing out the stock. The rest of the list steady and without material change.

Boston.

The following is a synopsis of the transactions in mining stocks at the Boston Stock Exchange, and at the Boston Mining Stock Exchange, for the week ending July 13th.

Table with columns: NAME OF COMPANY, Opening July 7, Highest during the week, Lowest during the week, Closing July 13, Total shares sold.

c. Copper. s. Silver.

Gas Stocks.

These stocks remain firm and in good demand. Dividends have been declared as follows: Mutual, 1 1/2 per cent; Brooklyn Metropolitan, 2 1/2 per cent; Citizens, 3 1/2 per cent; and N. Y. Municipal, 5 per cent.

The by-law authorizing the Ottawa (Ontario) Gas Company to introduce the electric light into the city has been passed by the civic authorities. The city corporation has also a scheme it is about to promulgate for lighting the city with the electric light.

New England Gas Companies' Dividends.—The Worcester (Mass.) Gas-Light Company has declared a dividend of 4 per cent, the Brookline (Mass.) Gas-Light Company one of 3 per cent, and the Lynn (Mass.) Gas-Light Company one of 2 1/2 per cent.

BULLION MARKET.

NEW YORK, Friday Evening, July 15.

The market since our last writing has continued, abroad and here, dull, and rather stagnant at the quotations given. It may be considered somewhat steadier to-day than at the beginning of the week, but without special feature.

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

Table with columns: DATE, London Pence, N. Y. Cents, DATE, London Pence, N. Y. Cents.

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 shipments of silver bullion are valued at \$1.9 per ounce, Troy; gold at the standard \$20.67 per ounce, Troy. The actual value of the silver in the following table is therefore subject to a discount, depending on the market price of silver. 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 to about 13 1/2 per cent to arrive at actual value.

Table with columns: MINES, States, For the week, Month of July, Year from 1st, 1881.

C. Copper. G. Gold. S. Silver. L. Lead. * Official. † Net.

ARIZONA.

Copper Queen.—This mine shipped 137,850 pounds of bullion from San Francisco July 2d.

Tombstone.—It is stated that the total output of this district for the quarter ending June 30th was \$1,441,359.

CALIFORNIA.

San Francisco Copper Co.—The Nevada City Transcript says of these works, which are located at Spenceville, that they are running to their full capacity. An average of 90 tons of ore per day is extracted, but as the reducing facilities are limited, the product of copper for last month was only 32 tons, worth about \$250 a ton.

COLORADO.

Considerable interest is manifested in the new gold mine

ing district around Holy Cross Mountain, some distance northwest of Leadville. J. W. Baily, of the Silver Cliff and Rico mines, is erecting a stamp-mill there. The ore is said to be free milling.

Etna.—It is said that this mine is producing about fifteen tons per day, averaging sixty ounces to the ton.

Argentine.—Recent reports from these mines state that the ore yields an average of eighty-five ounces of silver to the ton, and carries about 45 per cent lead. The mines are yielding from twenty-five to thirty tons per day.

Big Pittsburg.—It is stated that the shipments from this mine have thus far, this year, realized about \$60,000.

Catalpa.—The June ore shipments from this mine have amounted to 442 tons, of which 150 tons were sampled and settled for by the smelters at an average of 62½ ounces silver and 35 per cent lead per ton.

Chrysolite.—For the week ending July 12th, 338 tons of ore have been shipped; it is estimated that the output for this month will be 1300 tons.

Iron Silver.—The superintendent reports that during the month of June 5405 tons of ore were delivered at the mill, \$95,105 was received, and 1808 tons remain unsettled for.

Little Ellen.—Large quantities of ore are shipped from this mine. It is supposed that when the concentrator is running the mine will produce from 75 to 100 tons of ore per day.

Morning Star.—Seventy-five tons of ore are now shipped per day.

Rosita.—The Sierra Journal states the weekly output of the mines about Rosita: Bassick, 490; Invincible, 10; Game Ridge Consolidated, 30; Bryant, 4; Twenty-six, 5; Silver Coin, 3; Hard Cash, 4; Brittle Silver, 4; Tennessee, 3; Del Norte, 6; California, 9.

White Quail Smelter.—After a three weeks' run, this smelter produced fifteen tons of bullion. The smelter has an abundance of ore on hand, and is receiving large quantities from Elk Mountain, and has contracted for a considerable amount from Jack and other sections.

DAKOTA.

Father de Smet.—The superintendent reports that, for the week ending July 1st, 2520 tons of ore were extracted and milled.

IDAHO.

The Challis Messenger of June 23d says that the new smelting works at Clayton, near Kinnikinic Creek, are running uninterrupted. These works are owned principally by Omaha capitalists, who are said to have had large experience in smelting in Colorado.

Wood River Bullion.—The Times of June 25th says: Judge Savage to-day called, exhibiting the first bar of bullion run on Wood River. Falk & Co.'s smelter started up to-day, and run out six bars before Mr. Savage could get the first one cool enough for a traveling companion. The bar weighs 105 pounds; assays 240 ounces silver and 60 per cent lead. We believe it was run from the Star mine ore, but failed to inquire. The furnace is running away ahead of all expectations, doing excellent work.

MICHIGAN.

Lake Superior Copper Mines.—For the month of June these mines have produced as follows:

Tons.	Huron.	Tons.
Allouez..... 92	Huron..... 15	
Calumet & Hecla..... 1,696	Pewabic..... 76	
Franklin..... 134	Quincy..... 161	
Hancock..... 38		

MONTANA.

Montana Copper Company.—The Butte Miner of July 2d says that this company has shipped 1300 tons of matte of ore during the last six weeks.

NEVADA.

Comstock Mines.—The following reports are published for the week ending July 5th:

Tons of ore extracted.	Assaying.
Belcher..... 280	\$14
California..... 51	.....
Crown Point..... 250	.....
Sierra Nevada..... 365	21

Mount Potosi.—The secretary writes us that the company has temporarily ceased having its ore reduced.

Starr-Grove.—This company has two 15-stamp mills running day and night on ore from its mine; about 30 tons of ore are sent to the mills daily.

UTAH.

Highland Chief.—It is stated that this company's forty-stamp mill will be under cover in a few days. When finished, it will have a capacity of 50 tons of ore daily.

Salt Lake City.—For the week ending July 7th, the shipments aggregated \$130,717.90.

Stormont.—The superintendent reports that the mill has been started and the shipments of bullion resumed.

MISCELLANEOUS.

Bullion Receipts from the Mines to New York.—The bullion received from the mines at the various offices in this city during the week ending with yesterday, as compiled from various sources, amounts to \$452,102.99, as against \$277,823.61, reported in our last.

During the week ending July 9th, there were 244,499 standard silver dollars distributed. During the same period in 1880 there were 136,496 circulated.

WASHINGTON, July 11.—Director of the Mint Burchard left the city to-day to be absent about two months. He will visit San Francisco and the territories for the purpose of collecting statistics of the product of gold and silver.

Exports of Gold and Silver from New York.

Week ending July 9th.....	\$196,000
Corresponding week last year.....	148,000
Since January 1st.....	6,200,388
Corresponding period last year.....	4,850,762

The Demand for Silver.—WASHINGTON, July 13.—Treasurer Gillfillan says that the demand for silver dollars is greater than it was last year at this time, while there seems to be a demand for every bit of the paper money in the country. For some time, the regulation has been in force through which the government pays the cost of transportation for mutilated currency sent in for redemption, still the Treasurer says it has made no difference in the amount received. This is attributed to the fact that the banks do not have the bills to send, but that it is all in circulation practically.

San Francisco Treasure Receipts.—The Bulletin of July 6th publishes the following comparative statement of the

treasure receipts in San Francisco for the half-year, through Wells, Fargo & Co.

	First quarter.	Second quarter.	Totals Half-year.
Doré silver.....	\$3,462,500	\$3,763,800	\$7,166,300
Gold bullion.....	1,701,900	2,517,700	4,219,600
Coin.....	3,671,800	4,482,400	8,154,200
Totals.....	\$8,836,200	\$10,763,900	\$19,540,100
In 1880.....	9,275,500	9,945,000	19,220,500
In 1879.....	13,519,200	14,117,200	27,636,400
In 1878.....	20,418,500	16,972,300	37,390,700

The receipts for the first half of 1878 were the largest on record for any corresponding period. It is some satisfaction to know that the total for the past six months is slightly in excess of the same time last year, when the descriptions were as follows: Doré silver, \$7,762,400; gold bullion, \$3,285,100; coin, \$8,173,000.

Our Gold, Silver, Coin, and Bullion Exports and Imports.—The following is an official comparative statement of the bullion imports and exports of the United States for the month ended May 31st, 1881, and for the eleven and twelve months ended the same, compared with like data for the corresponding periods of the year immediately preceding. (Corrected to June 24th, 1881.)

	1881.	For the eleven months ended May 31.	For the twelve months end'd May 31.
Exports:			
Domestic, gold.....	\$44,950	\$1,221,925	\$1,393,802
silver.....	1,397,408	11,183,939	11,591,246
Foreign, gold.....	569,548	729,659	1,186,053
silver.....	382,020	4,289,629	4,595,956
Total.....	2,393,926	17,422,152	18,677,147
Imports:			
gold.....	1,315,777	99,708,104	100,356,376
silver.....	560,641	9,904,850	10,689,433
Total.....	1,876,418	109,612,954	111,045,809
Excess of exports over imports.....			
May.....	517,508		
Excess of imports over exports.....			
May.....		92,190,802	92,368,662
1880.			
Exports:			
Domestic, gold.....	59,013	1,693,072	3,118,399
silver.....	788,092	7,165,547	8,279,709
Foreign, gold.....	47,484	1,404,392	1,430,325
silver.....	811,032	5,624,713	6,108,429
Total.....	1,705,531	15,887,924	18,926,862
Imports:			
gold.....	123,580	80,110,124	80,253,462
silver.....	998,657	11,491,331	12,924,642
Total.....	1,122,237	91,601,455	93,178,104
Excess of exports over imports.....			
May.....	583,294		
Excess of imports over exports.....			
May.....		75,713,531	74,251,242

Coinage at the Philadelphia Mint for the Fiscal Year.—PHILADELPHIA, June 30.—The official report of the coinage executed at the United States Mint, in this city, for the fiscal year ending to-day, shows a total production of 54,786,411 pieces, valued at \$59,340,350. The figures are as follows:

GOLD.		
Denomination.	Number of pieces.	Value.
Double-eagles.....	2,276	\$45,520
Eagles.....	2,684,176	26,841,780
Half-eagles.....	4,580,976	22,904,880
Three dollars.....	1,596	4,998
Quarter-eagles.....	3,656	9,140
Dollars.....	3,276	3,276
Total gold.....	7,275,926	\$49,809,274
SILVER.		
Dollars.....	9,113,955	\$9,113,955
Half-dollars.....	9,355	4,667
Quarter-dollars.....	3,688	1,844
Dimes.....	36,955	3,695
Total silver.....	9,174,820	\$9,125,966
MINOR COINAGE.		
Five cents.....	3,555	177
Three cents.....	1,080,555	32,416
Cents.....	37,251,555	372,515
Total minor coinage.....	38,335,665	\$405,109

Business at the New York Assay Office during June was very light, total deposits being only \$1,061,592.46, of which \$755,373.95 was gold and \$306,218.51 silver.

METALS.

NEW YORK, Friday Evening, July 15.

Copper.—The position of copper at the present time is such that the producers and consumers find it for their interest to act together for the purpose of maintaining prices. The Lake Superior mining companies have large accumulations of stock on hand, and the output is steadily on the increase. Important developments are making in copper mines in Arizona and other portions of the West; so that if copper was left to its natural condition, without the fostering care of the government, very much lower prices would rule. But lower prices for ingot copper would necessitate lower prices for the manufactured article. This would unsettle values and disturb the harmonious combinations and associations which have been so long established to fix prices at remunerative rates for their various productions. So long as the mining companies can be protected by prohibitory duties, and

the manufacturers can depend on the government for like protection, they are very likely to work together, and very wisely to conclude that it is better for their interests to secure all the business of this country at large profits than to run the risk of a larger business in an open market, with uncertainties as to the final result. The sales made to the manufacturers, and referred to in our issue of last week, are reported to be fully 20,000 pounds for delivery throughout the balance of the year. The market is steady at 16½¢ for Lake and 16¼¢ for Baltimore, with a tendency to lower figures.

There is at present no prospect of any legitimate demand for export. Chili continues to furnish large quantities. The Cape of Good Hope and Newfoundland are sending forward large quantities, and the Precipitates from the Rio Tinto and Tharsus mines in Spain, are steadily augmenting stocks in Europe, with very insignificant demands for the manufactured article for India and China.

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

FRANCE.			
	June 1 to 30.	Imports.	Deliveries.
	Tons.	Tons.	Tons.
Fine foreign, chiefly Australian.....	916	453	London.
Chili } Bars and Ingots.....	1,649	1,889	Liverpool
} In Ores and Regulus.....	106	76	& Swansea.
Precipitate and Sundries.....	1,804	1,628	
Totals, England.....	4,475	4,406	
Fine foreign, chiefly American.....	825	708	France.
Chili Bars, Ingots and Barilla.....	1,483	1,428	
	6,783	6,182	
Stocks.			
	June 30.	May 31.	
	Tons.	Tons.	
Fine foreign, chiefly American.....	9,292	8,820	London.
Chili } Bars and Ingots.....	29,080	29,320	Liverpool
} In Ores and Regulus.....	1,395	1,365	& Swansea.
Precipitate and Sundries.....	2,121	1,945	
Totals, England.....	41,888	41,459	
Fine foreign, chiefly American.....	982	865	France.
Chili Bars, Ingots, and Barilla.....	4,518	4,463	
	47,388	46,787	
Chili, chartered } Mail and Tele- and afloat. } gram.....	10,222	11,683	
Australian char- } Mail and tered and afloat. } Telegram.....	1,800	1,862	
	59,410	60,332	
Jan. 1 to June 30.			
	1881.	1880.	1879.
	Tons.	Tons.	Tons.
Imports } Chili.....	17,337	24,629	25,155
} Other foreign.....	18,250	18,993	21,870
	35,587	43,622	47,025
Deliveries } Chili.....	21,323	23,396	21,937
} Other foreign.....	14,868	15,761	21,678
	36,191	39,157	43,615

STOCKS.					
1880-81.	England.	France.	Total England and France.	Afloat.	Total England, France, and Chili, afloat.
May 31.....	40,806	4,756	45,562	19,063	64,625
June 30.....	43,086	5,174	48,260	15,050	63,310
July 31.....	41,907	5,239	47,146	17,274	64,420
August 31.....	41,264	4,660	45,924	16,681	62,605
September 30.....	42,595	5,631	48,226	12,062	60,288
October 31.....	40,965	6,518	47,423	14,421	61,844
November 30.....	42,125	6,295	48,420	13,345	61,765
December 31.....	41,530	6,432	47,962	12,216	60,208
January 31.....	39,297	6,241	45,538	15,080	60,618
February 28.....	42,297	5,946	48,243	13,794	62,037
March 31.....	42,630	3,720	46,350	11,970	58,320
April 30.....	43,313	4,394	47,707	13,886	61,593
May 31.....	41,549	5,328	46,787	13,545	60,332

TOTALS PER MONTH.

1880-81.	Imports.	Deliver's.	Chili g. o. ba.	Wallaroo Cake.
May 31.....	4,101	4,533	256½	272
June 30.....	10,816	8,118	59½	72
July 31.....	4,515	5,629	61½	73
August 31.....	4,474	5,096	61½	73
September 30.....	9,138	6,836	60½	72
October 31.....	4,737	5,540	61	72
November 30.....	7,488	6,491	61½	72
December 31.....	5,390	5,818	61½	72
January 31.....	3,398	5,852	62	72
February 28.....	7,402	6,697	61½	72
March 31.....	5,042	6,935	61½	71
April 30.....	5,701	4,344	59	70
May 31.....	7,261	8,181	59	70

Our London advices include July 1st, from which we take the following:

June 27th. The market is quite in a lifeless state. Values are nominally lower. No transactions reported in Chili Bars.

June 28th. Chili Bars are dull, the close of the half-year, the making up of stocks, and expectation of the charter telegram, all combining to prevent any purchases, beyond the supply of pressing require-

ments. Small sales of Chili Bars at £58½@£58¼ cash.

June 29th. Copper is a shade steadier. Fifty tons Chili Bars sold on first Change at £58 spot cash. No further parcels were to be obtained at that figure, and holders asked £58½, full ordinary terms, not appearing ready to book any large quantity, even at the higher price.

June 30th. Chili Charters are advised as 1800 tons, all Bars, of which 1350 tons for England, 450 tons for order here or continent.

	Tons.			
Charters.	1881.	1880.	1879.	1878.
Jan. 1st to June 30th.....	17,920	23,881	26,004	22,368
June only.....	3,300	3,682	5,238	3,916

Price of Bars at Valparaiso is given as \$19.50, exchange 29¼, which, with steam freight at 60s., is equal to £58½ Liverpool, without any commission to merchants either side.

The market for Bars is stronger, a moderate business being reported at £58½ for g. o. b. cash, with further takers at that figure, and full commission sellers at said price, less a small brokerage only. Spanish Precipitates now play such an important part, that we have included the figures thereof in our statistical table; and also the sundry foreign ores, etc., which pass through Liverpool and Swansea. We have also added the approximate quantities of Australian afloat for this country, thus making a great alteration in sundry totals as compared with previous issues.

July 1st. Chili bars are a trifle firmer, and we note sales of g. o. b. at £58½, favorite marks at £58¾ cash; with further takers at same price. Holders are asking 50c. per ton more.

Australian steady. Wallaroo is held for quite nominal rates, but Burra can be had at £65. English, quiet but firm; Tough Cake, £63@£64½; Best Selected Ingot, £65@£66; Indian Sheets, £71@£72; Yellow Metal Sheets, 6@6½c. per lb.

Ores of 20 per cent and upward, 11s. 6d.@11s. 9d. Regulus and Precipitates, 11s. 9d.@12s. 1½d.

Tin.—There is only a small business doing, but the market is steady. Straits and Australian, 20½@20¾c.; Billiton, 21c.; and L. & F., 20¼@21c.

Our English advices include July 1st, from which we take the following:

June 27th. Since Friday last, we have had a fall of about 1s. per cwt. On 25th inst. a small trade was done at 91½s. two months, 90½s. sharp cash, but this morning we opened with sellers at 90¼s., which figure was ultimately accepted for parcels with 4 and 6 weeks prompt. Business then took place at 90½s. three months, 89½s. cash; and in the afternoon 90s. was accepted for the former, 89½s. for the latter. The transactions altogether for the two days amounted to about 250 tons.

June 28th. Sales about 300 tons. Opened at 89½s. cash, 89¾s. three months; closed at 88¾s. cash, 89s. forward.

June 29th. Sales about 200 tons at 88s. cash, 89s. one month, with an inclination to sell.

June 30th. London imports are given as about 825 tons, against deliveries 1050 tons; the Dutch deliveries are put at 750 tons. Prices were fairly steady to-day. About 200 tons changed hands at 89¼s. down to 88¾s. cash, 90½@90¾s. one month, 90s. three months, closing sellers at 89s. fourteen days.

July 1st. A moderate trade has been done to-day at 89@89½s. fourteen days, 88¾@89½s. sharp cash, 89s. delivery all the year in sellers' option; and 90s. for three months fixed, the market closing with sellers for cash at 89½s., buyers of moderate quantities at 89¼s.

Shipments of Australian and Straits to Europe for the past month were together about 1300 tons, which, with the Billiton sale of 840 tons, makes a total supply of about 2140 tons against a consumption of 1855 tons.

Tin Plates.—Are quite strong and stocks light on spot, very little being done. The market is void of any animation. Prices remain unchanged from our last quotations. We quote per box, as follows: Charcoal tins, Melyn grade, ¼ cross, \$6@6½; Allaway grade, \$5½. Charcoal Roofing, Dean grade, \$5½ for 14 x 20, and \$11½ for 20 x 28; Allaway grade, \$5½@5¾ for 14 x 20, and \$10½@10¾ for 20 x 28. Coke Roofing, B. V. grade, \$5 for 14 x 20, and \$10 for 20 x 28. Coke tins, B. V. grade, IC, \$5@5.10.

Messrs. Robert Crooks & Co., of Liverpool, under date of June 30th, say of tin and terne plates: A good

business has been done in B. V. grade Coke Tin, and most of the cheap parcels for prompt and July shipment are cleared. This has had a moral effect on other sorts, and though we have not yet to alter quotations, holders are decidedly firmer, and the tendency is rather to higher figures.

Lead.—There has been a fair business done in this metal during the week, and the price is firm for good brands at 4¼c.

From the St. Louis & San Francisco Railroad Company we have received advices of the receipt at St. Louis of 265 tons of lead for the nine days ending June 30th, 1881.

The receipts of lead at St. Louis by the St. Louis & San Francisco Railroad for the week ending July 7th were 166 tons.

Spelter and Zinc.—The former is quoted at 4½@5c., and the latter at 7c., with a fair business.

Antimony.—Hallett's is quoted at 14c. and Cookson's at 14¼@14½c.

Quicksilver.—Quotations are unchanged at San Francisco, being 37¼@38c.

The San Francisco Commercial Herald of July 7th says:

Business is rather sluggish during the passing holiday season and the excitement of the shooting of President Garfield. Spot stocks are light. The nominal price 37¼c. Sales of 500 flasks for China at 37¼c. There is a slight advance to be noted in the London market—now £07s. 6d. At this date there is not a flask in stock, and the receivers have all agreed to advance the price to 38c. The British steamer Neaples sails for Hong Kong on Friday, and will carry 800 flasks. The steamer Gaelic carries 500 flasks, valued at \$14,350, shipped by Degener & Co., and 100 do., valued at \$3500, shipped by Wing Tie Jan & Co., for Hong Kong.

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

To Victoria, per Dakota, hence June 30th:	Flasks.	Value.
BuBois & King.....	1	\$25
To Mazatlan per J. B Ford, hence July 2d:		
Thomas Bell & Co.....	500	15,000
I. Gutte.....	500	14,535
To Sydney, per Australia, hence 2d inst.:		
Thomas Bell & Co.....	250	7,268
To Mazatlan, per Newbern, hence 6th inst.:		
Thannhauser & Co.....	60	1,725
To Guaymas, per same:		
I. Gutte.....	100	2,869
Totals.....	1,411	\$41,422
Previously since Jan. 1st, 1881.....	20,387	588,467
Totals.....	21,798	\$629,889
Totals same period 1880.....	21,310	645,813

Increase in 1881..... 488
Receipts since July 1st, 1881, 749 flasks.
Overland shipments from Jan. 1st to July 1st, 1881, 3354 flasks.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, July 15.

American Pig.—There is not much to observe with reference to the market for this article. Prices are a little firmer at the following quotations: No. 1 Foundry, \$24@25, and No. 2 "X," \$22. Bessemer Pig is quoted at \$24½.

Scotch Pig.—The demand continues light, and transactions are limited. Coltness is quoted at \$23@24; Gartsherrie, \$23; Summerlee, \$23½; and Eglington, \$20.

Messrs. John E. Swan & Brothers, of Glasgow, under date of July 1st, report 120 furnaces in blast, as against 116 at the same time last year. The quantity of iron in Connal & Co.'s stores was 567,155 tons, an increase of 1929 tons for the week. The shipments show a decrease since Christmas of 108,565 tons, as compared with the shipments to the same date in 1880.

The imports of Middlesbrough pig-iron for the same period show an increase of 35,593 tons. The following were the quotations of the leading brands of No. 1 pig-iron: Gartsherrie, 54s. 6d.; Coltness, 56s.; Langloan, 55s. 6d.; Summerlee, 54s.; Carnbroe, 52s.; Glengarnock, 52s.; Eglington, 47s. 6d. Middlesbrough pig-iron was quoted as follows, f. o. b.: No. 1 Foundry, 41s. 3d.; No. 2, 39s. 3d.; No. 3, 37s. 3d.; No. 4, 36s. 9d.; No. 4 Forge, 36s. 3d.

Messrs. J. Berger Spence & Co., of Manchester, England, under date of July 2d, say: The pig-iron markets have during the week had very little to exercise them. Business has been far from brisk, and it would appear that, as the week has grown old, inquiry has slackened. In the presence of the enormous production, the continuously increasing stocks, and the comparative quietness in legitimate demand, this is not surprising, particularly when it is so difficult to determine from whence an impetus to the trade may be reasonably expected. At Middlesbrough, on Tuesday, only a limited business was done at last week's rate for No. 3. Buyers were rather cautious in their

purchases, having a presentiment that the steadiness in prices might break down. Sales were made at 36s. 9d., some small ones at 37s.; but the former is now merely nominal, and nervous holders are prejudicing the market. Makers, however, are tolerably consistent in their firmness, and express their determination to hold aloof for the present, except their terms are agreed to. Glasgow Warrants have developed some tendency toward weakness, and each day has witnessed a slight concession to buyers. As we write, they are quoted at 46s. 9d., against 47s. 2d., last week's price. Hematite has been in extended request, but the offers proposed were in too many cases not sufficiently high to promote business.

Rails.—T rails are held at \$26½, D. Hs. at \$25. Iron rails are quoted, according to delivery, at \$47@50. We are reported a sale of 7000 tons of steel rails at \$61 ex store.

Wrought Scrap.—We quote at \$26.50@28.50, from yard, for prime selected.

PHILADELPHIA, Thursday, July 14.

The determined effort of foreign holders of pig-iron to effect sales in this market has exercised some depressing influence, but the determination of American makers to meet all figures will arrest any decline. This week's sales show a reviving demand, but prices, except for certain grades of iron which are scarce, have not improved. Sellers will not press sales below \$24 for good Foundry, and \$30.50@31 for Gray Forge. A few lots sold above these figures. The tone of the market has improved, but it is not strong enough to affect prices. Large offers of British iron are on the market, and some sales will be made, but prices are too nearly equalized to allow much foreign iron to get in. Bessemer is an exception. Prices have advanced \$1.50 per ton within three weeks, and sales are made at a little under \$24.

Bar iron is active at 2'35@2'40c., and orders are accumulating. Nails are dull at 2'90c., but an active fall trade is expected to open August 1st. Sheet iron, both light and heavy, is in active request, and three months' work is piled up. Bridge iron is active, and several large contracts are under way in Pennsylvania mills. The inquiries point to an increased activity and firmer prices.

There is a dropping off in the placing of rail orders, but much mileage yet remains unprovided for, which leads manufacturers to look for a revival of winter orders. Quotations, \$55@60; iron, \$46@50. Light sections are in fair demand. Old rails are firmer at \$26.

The San Francisco Commercial Herald says:

The market for pig-iron is sluggish, so also of tin plate. Stocks large. As before stated in this paper, we are now producing pig-iron of such superior quality at the Clipper Gap mines, and also at Irondale, W. T., and in Oregon at the Oswego mine, that we shall soon, if not already, become entirely independent of all supplies of pig-iron from abroad. Even now prices have dropped down materially. It is said that Clipper Gap iron can be laid down here at \$20 per ton. Sydney pig-iron may be quoted at 21@21¼c. The City of Panama carried en route to New York via Isthmus 2016 pigs of lead.

We publish the following letters from our regular correspondents:

Buffalo. July 9.

[Specially reported by PALEN & BURNS.] Market still remains quiet, about the same as when last we wrote. There is plenty of iron to be had at low prices, but buyers do not seem to be ready yet to purchase largely.

Cincinnati. July 13.

[Specially reported by JACOB TRABER & Co.] There has been only very little done in pig-iron during the past week, and quotations remain the same, namely:

Four mos.	
No. 1 Hanging Rock Charcoal Pig-Iron.....	\$27.00@27.50
No. 2 " " " ".....	26.00@26.50
No. 1 Tennessee " ".....	26.00@26.50
No. 2 " " " ".....	25.00@25.50
No. 1 Hanging Rock Coke ".....	23.00@24.00
No. 2 " " " ".....	22.00@22.50
No. 1 Jackson Co. Stone Coal ".....	20.00@23.00
H. R. C. B. Car-Wheels, all Nos.....	40.00@41.00
Southern C. B. Car-Wheels, all Nos.....	36.00@38.00
Virginia " " " ".....	39.00@40.00

Louisville. July 12.

[Specially reported by GEORGE H. HULL & Co.] A little more activity has characterized the market since our last, and some round lots for consumption have been sold, though not at an advance in prices. Furnaces are blowing out in different localities, either for repairs, or on account of strikes among operatives.

St. Louis. July 9.

[Specially reported by HOFFER, PLUMB & Co.] There is nothing new in the condition of this market. Transactions generally continue to be confined to small sales for immediate consumption. Offerings of low-grade coke irons are free and low in price; but strong high-class

irons being in so much lighter supply, maintain themselves easily. For cash we quote:

HOT BLAST CHARCOAL.	
Missouri.....	\$26.00@27.00
Southern.....	25.00@26.00
Hanging Rock.....	28.00@29.00
COKE AND COAL.	
Missouri.....	\$26.00@27.00
Southern.....	23.00@24.00
Ohio.....	23.50@24.50
MILL IRONS.	
Cold short.....	\$21.00@22.00
Red short.....	24.00@25.00
CAR-WHEEL AND MALLEABLE IRONS.	
Missouri.....	\$28.00@30.00
Southern.....	35.00@38.00
Ohio.....	31.00@42.00

Richmond, July 11.

[Specially reported by ASA SNYDER.]

The strength of the past week continues. Good brands of pig-iron continue scarce, and are firm.

Scotch Pig-Iron.....	\$23.00@26.00
Anthracite Pig-Iron No. 1.....	22.00@25.00
No. 2.....	20.00@23.00
No. 3.....	19.00@22.00
Virginia Coke Pig-Iron No. 1.....	22.50@23.50
No. 2.....	21.50@22.50
No. 3.....	20.50@21.50
Va. Charcoal C. B. Wheel Iron.....	34.00@36.00
Old Rails.....	25.00@26.00
Wrought Scrap No. 1.....	22.00@24.00
Cast Machinery Scrap.....	19.00@20.00
Richmond Refined Bar Iron.....	2.50@
Horseshoes (Tredegar).....	4.00@
Mule-shoes.....	5.00@

Freight to New York, by rail, \$1.75 per 2240 lbs.

FREIGHTS.

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to July 15th, 1881.

PORTS.	From Philadelphia.		From Elizabethport, Port Johnston, South Amboy, Hoboken, and Weehawken.
	From Baltimore.	From Philadelphia.	
Alexandria.....			
Annapolis.....			
Albany.....			
Baltimore.....			
Bangor.....			1.25
Bath, Me.....	1.70	1.60	1.25
Beverly.....	1.60@1.50	1.70	1.25
Boston, Mass.....	1.60@1.50	1.70	1.25
Bristol.....			.60
Bridgeport, Conn.....	1.45@1.50		
Brooklyn.....			
Cambridge, Mass.....			
Cambridgeport.....			1.25
Charleston.....			1.15
Charlestown.....			
Chelsea.....			
City Point.....			
Com. Ft., Mass.....			
E. Boston.....			1.25
East Cambridge.....			
E. Greenwich, R. I.....			
Fall River.....		1.50	.80
Galveston.....			
Georgetown, D. C.....			
Gloucester.....			
Hartford.....			
Hackensack.....			1.00
Hudson.....			
Lynn.....			
Marblehead.....			
Medford.....			
Milville.....			
Milton.....			
Newark, N. J.....		1.35	
New Bedford.....	1.35@1.40	1.50	.85
Newburyport.....		1.80	1.35
New Haven.....			.60
New London.....		1.45@1.50	.75
Newbern.....			.75
Newport.....			.80
New York.....		1.40	
Norfolk, Va.....			
Norwich.....			
Norwalk, Conn.....			.60
Pawtucket.....			
Philadelphia.....			
Portland.....		1.60	
Portsmouth, N. H.....		1.80	1.10
Providence.....		1.50	1.30
Quincy Point.....		1.40	.80
Richmond, Va.....	.90		1.30
Rockland.....			
Rockport.....			
Roxbury.....			
Saco.....			
Sag Harbor.....			
Salem, Mass.....		1.77%	
Saugus.....			1.15
Savannah.....			
Somerset.....			.80
Staten Island.....			
Trenton.....			
Troy.....			
Wareham.....			
Washington.....	.90		
Weymouth.....			
Williamsbz, N. Y.....			
Wilmington, Del.....			
Wilmington, N. C.....			

* And discharging. † And discharging and towing. ‡ 3c. per bridge extra. § Alongside. ¶ And towing up and down. † And towing. ** Below bridge.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, July 15.

Anthracite.

The week under review has developed no special feature. A good trade has been done at satisfactory prices. The choicer coals are well sold up, and no anxiety is shown on the part of the sellers to particularly urge sales further than for July delivery, in the anticipation that the 1st of August will find the trade in a condition to warrant an advance on the domestic sizes at least. We have all along maintained that this would be the probable course of the trade, and have urged dealers and consumers not to hold off in the hope of cheaper coal. The public have been slow to recognize the new order of things. They have been slow to learn, and not without cause; but over-caution is only less an error than over-confidence. The war for tonnage, when money had to be raised at any cost, has passed—let us hope for all time. The companies are all on a sound basis, making money, and can afford to, and will, regulate the supply and demand. We must say that the concert of action on the part of the management of the trade, often under most exasperating circumstances, has been most commendable, and the fruit of their conservatism is now within their grasp. We must not, however, ignore the fact that there are still some troublesome factors in the case, which should not be overlooked. Any attempt at advancing the larger sizes would undoubtedly throw much of the manufactured trade into the hands of the soft-coal men. Any unreasonable advance in the domestic sizes would act as a check upon retail orders, and make the curtailment of shipments necessary for another month more at all events. Such winters as the last, when transportation was seriously impeded, do not, as a rule, come in succession, and the public knows that, with an ordinary open winter, coal can be moved as expeditiously and sold as cheaply as in summer, and would gamble on the result—buying their coal only as they actually needed it. This we have from many good and reliable sources. A good movement of coal coastwise may be expected in August, as freights will probably soon advance, and the present rates will be availed of. Thus, while every thing points to a good, active trade, at fair prices, we still counsel moderation with the managers—spare the goose—and the year's work will undoubtedly show a highly satisfactory tonnage at remunerative prices.

The production of anthracite coal last week was 353,397 tons, as compared with 655,969 tons the previous week, and 392,360 tons for the corresponding week of 1880. The total production from January 1st to July 9th was 12,932,194 tons, as against 10,713,876 tons for the like period of last year, showing an increase this year of 2,218,318 tons.

Our special correspondent, under date of Chicago, July 12th, says:

This month finds all shippers with as many orders in hand (obtained at cut rates during last month) as they can deliver before August 1st. As a consequence, there is more earnest desire on all sides to obtain the present circular on new orders. The only item of importance is the awarding of the contract for the yearly supply of 11,000 tons anthracite, broken, for consumption at the water-works, to Cross Creek Lehigh coal.

Bituminous.

There is little change in the condition of the trade in this coal. The shipments over the George's Creek & Cumberland Railroad, by the American and Maryland coal companies last week, amounted to 5537 tons as compared with 4597 tons for the previous week. The product of the Clearfield region is well maintained. The shipments from this region for the first half of 1881 were about 500,000 tons in excess of those for the corresponding period last year.

The San Francisco Commercial Herald says:

The market for foreign rules dull and inactive. Bymbo Steam has vainly been offered at \$5.75, and prices for all descriptions are unprecedentedly low, either to arrive or for shipment. Several cargoes recently at hand, unsold on rule, have been parted with on the spot at heavy loss to importers. The last reported sale of Australian was made at \$6.25, while a cargo of Scotch Splint sold at \$6.50 and one of West Hartley at \$6.75 per long ton. And strange as it may appear from the foregoing, the combination of dealers keeps up trade prices to \$7.69, making the price to consumers \$11.50 for Wellington, Carbon Hill, etc. Inferior coast coals sell for less. Imports during the week include the following: Br. ship British Commerce, from Newcastle, England, 1665 tons; Madeira, from Leigh, 1100 tons Scotch; North Star, from Tacoma, W. T., 605 tons Carbon Hill; Havenswood, from Newcastle, N. S. W., 1330 tons; Alaska, 2000 tons Seattle; Aureola, 1250 tons same; Clemerre, from Newport, Wales, 1936 tons; J. B. Bell, 1180 tons Seattle; Germania, 1590 tons same; Lizzie Williams, 1300 tons same. The cargo of Scotch per Neretus is reported sold at \$6.75. The Templar brings 1575 tons Seattle.

STATISTICS OF COAL PRODUCTION.

Comparative statement of the production of anthracite coal for the week ending July 9th, and years from January 1st:

Tons of 2240 lbs.	1881.		1880.	
	Week.	Year.	Week.	Year.
<i>Wyoming Region.</i>				
D. & H. Canal Co.	37,025	1,688,323	45,516	1,484,305
D. L. & W. RR. Co.	60,735	2,021,112	53,427	1,675,856
Penn. Coal Co.	21,577	607,460	20,848	490,763
L. V. RR. Co.	7,178	550,008	31,502	507,702
P. & N. Y. RR. Co.	1,711	41,160	801	15,123
C. RR. of N. J.	35,054	1,142,718	21,831	739,981
Penna. Canal Co.	5,580	170,304	10,423	166,278
	168,860	6,221,085	184,348	5,079,708
<i>Lehigh Region.</i>				
L. V. RR. Co.	57,880	2,099,710	62,546	1,527,955
C. RR. of N. J.	39,671	982,076	32,619	966,336
S. H. & W. B. RR.	446	2,783		6,331
	97,997	3,084,569	95,165	2,500,622
<i>Schuylkill Region.</i>				
P. & E. RR. Co.	80,219	3,134,976	99,468	2,758,301
Shamokin & Lykens Val.	* 6,042	460,266	12,660	354,107
	86,261	3,595,244	112,128	3,112,408
<i>Sullivan Region.</i>				
St. Line & Sul. RR. Co.	279	31,296	719	21,138
Total	353,397	12,932,194	392,360	10,713,876
Increase.....		2,218,318		
Decrease.....		38,963		

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Total same time in 1876.....	7,593,927 tons.
" " " " 1877.....	10,372,032 "
" " " " 1878.....	7,519,905 "
" " " " 1879.....	12,562,206 "

* This report is not full.

The Production of Bituminous Coal for the week ending July 9th was as follows:

Tons of 2000 lbs., unless otherwise designated.	Week.	
	Tons.	Year.
<i>Cumberland Region, Md.</i>		
Tons of 2240 lbs.	38,643	989,399
<i>Barclay Region, Pa.</i>		
Barclay RR., tons of 2240 lbs.	5,839	219,502
<i>Broad Top Region, Pa.</i>		
Huntingdon & Broad Top RR.	867	107,392
<i>Clearfield Region, Pa.</i>		
Snow Shoe.....	2,208	50,551
Tyrone and Clearfield.....	44,840	1,216,851
<i>Alleghany Region, Pa.</i>		
Pennsylvania RR.....	3,852	141,740
<i>Pittsburg Region, Pa.</i>		
West Penn RR.....	2,395	161,680
Southwest Penn. RR.....	305	15,526
Penn & Westmoreland gas-coal, Pa. RR.....	12,101	437,636
Pennsylvania RR.....	7,431	312,883

The decrease in shipments of Cumberland Coal over the Cumberland Branch and Cumberland & Pennsylvania railroads amounts to 117,180 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 ending July 9th amounted to 5537 tons, making a total of 28,848 tons since the beginning of transportation.

The Production of Coke for the week ending July 9th, and year from Jan. 1st:

Tons of 2000 lbs.	Week.	
	Year.	Year.
Penn. RR. (Alleghany Region).....	1,541	52,071
West Penn. RR.....	1,963	61,272
Southwest Penn. RR.....	22,094	728,711
Penn. & Westmoreland Region, Pa. RR.....	2,830	89,248
Pittsburg, Penn. RR.....	6,992	322,398
Snow Shoe (Clearfield Region).....	245	4,431
Total	35,635	1,268,101

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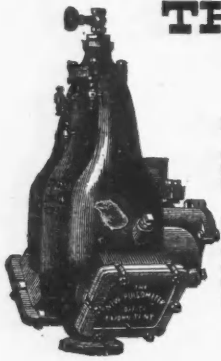
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OFFICE OF COPPER QUEEN MINING COMPANY, 34 and 36 Thomas Street.

New York, July 15, 1881. The Board of Directors of this company have this day declared a monthly dividend (No. 2) of Twenty-five Thousand Dollars, being 10 cents on each share of the capital stock of the company, payable on and after August 1st, 1881, to stockholders of record, at the office of the company. Transfer-books close July 28th, and reopen August 3d. A. A. HAYES, Jr., President. L. ZECKENDORF, Secretary and Treasurer.



THE NEW PULSOMETER. CHEAP, ECONOMICAL, EFFICIENT.

OFFICE OF JOSEPH FIRMINICH, Steam Syrup Refinery, 1 to 25 Mortimer Street, and 386 to 412 Jefferson Street, BUFFALO, N. Y., May 16, 1881.
PULSOMETER STEAM PUMP Co.: Yours of 14th received and noted. The No. 4 New Pulsometer (ball valves) is used for elevating thick solution of meal and water. The suction is six feet vertical, and it forces it through fifty feet of pipe at an elevation of thirty feet. It seems to work very satisfactorily so far. We shall want more of them in our works. Yours truly,
J. FIRMINICH.

PULSOMETER STEAM PUMP Co.: GREENPORT, L. I., N. Y., May 6, 1881.
In regard to the No. 3 New Pulsometer we purchased of you, we have to say that it gives us complete satisfaction, far beyond our expectations. It is used for pumping water into tanks for supplying steamboats. It stands 90 feet from well, raising the water 9 feet vertical and forcing it up 15 feet. We can cheerfully recommend it to any one in want of a pump for supplying water. Yours, etc.,
H. FORDHAM & SON.

PULSOMETER STEAM PUMP CO.,
83 JOHN STREET, NEW YORK.
BRANCH OFFICES: Chicago, 193 Lake Street, H. F. CASWELL.
Boston, 73 Kilby Street, S. B. EVERETT.

MAPS.

ARIZONA AND NEW MEXICO.—This Map shows all the Township Surveys, Private Land Claims, Post-Offices, and Settlements. It also exhibits the Explorations of other Government and Private Expeditions, including the facts developed by the Surveys for the Routes of Projected Railroads, etc. 1881. Scale, one inch to thirty-three miles. Colored, 24x17 inches. Pocket form, \$1.

COLORADO.—Topographical and Township Map of the State. Compiled from U. S. Government Surveys and other authentic sources, by Louis Nell, Civil Engineer. By means of symbols, the following mass of facts is graphically shown: Railroads in operation; Railroads chartered or in progress; Wagon-roads; Wagon-roads proposed; Trails; Drainage dry during the greater part of the season; County-seats; Post-offices (July 1st, 1880); Villages; Townships subdivided; Townships surveyed in outlines; Contour-lines, with vertical intervals of 1000 feet; Altitudes in feet above sea-level, by barometer observations, and by spirit-levels; Private grants; Military reservations; Indian reservations ceded to the U. S. Government; Arable and, with irrigation. Scale, 1 inch: 10.5 miles. Size, 31 x 40 inches. Pocket form. \$1.50, on thick paper, varnished, on rollers, \$1.75.

COLORADO.—Topographical and Township Map of Part of the State, exhibiting the San Juan, Gunnison, and California Mining Regions. By Louis Nell. Substantially same as above. Post-offices, March 1st, 1880. Scale, 1 inch: 9 miles, 1-570,240. Plain sheets for wall, 90 cents.

COLORADO.—Thayer's New Map of the State. Compiled from Official Surveys and Explorations. 1880. Scale, 14 inches to one mile. 25 x 32 inches. Pocket form, 75.

SAN JUAN MINING DISTRICT (COLO.).—Kibbe's Map of the San Juan Mining District locates towns, camps, post-offices, reduction-works, mining districts, etc. It gives the new local names of towns, mountains, and gulches in all the mining camps, including Durango, Rico, and the new county of Dolores, the new railroad and railroad towns, and the proposed railroads, stage routes, wagon-roads, and trails; the elevation of mountains and towns above sea-level. It is colored by counties, 25x27 inches, linen paper, folded in cloth cover for pocket form, or printed on heavy paper for office use. Also, a complete GEOLOGICAL MAP of the same size. Either map, \$1.50.

SAN JUAN MINING REGION (COLO.).—Stockder's Map of San Juan Mining Region, compiled from U. S. Surveys and other Authentic Sources. 1881. Shows county boundaries, district boundaries, wagon-roads, trails over mountain passes from river basin to river basin, continental divide, timber-line (11,000 to 11,500 feet above sea-level), etc. Scale, 1 inch to the mile, or 1=63360. 28x38 inches. Pocket form, stiff paper cover, \$1.50; or as a wall-map, \$1.50.

LEADVILLE MINES.—Thayer's Map of the Leadville Mines. Compiled from the United States Surveys and County Records. 1880. Scale, 800 feet to one inch. 27 x 18 inches. Pocket form, \$1; mounted on muslin, with rollers, \$2.

MAP OF MINING CLAIMS ADJOINING LEADVILLE, California, Mining District, Lake County, Colo. By Edward Rolland. 1879. Mounted on muslin, \$2.50. In cloth-bound covers, \$2.

MEXICO.—Map of Mexico. Showing Railroads, Broad Gauge and Narrow-Gauge, Constructed; and Railroads, Broad-Gauge and Narrow-Gauge, Proposed. This very large and finely-engraved Map, constructed originally by the government for official purposes, contains all the information obtainable by it, and shows minutely the towns and villages of the entire country. Scale: 26.6 Mexican Leagues to the degree, and 69.16 English Miles to the degree; also, Kilometrical Scale. 1881. Size, 53x41 inches. Printed in colors. Pocket form, \$5.

MINING MAP OF UTAH.—Showing the location of the Mining Districts, over an extent of territory 150 miles from North to South. Compiled from U. S. Government Surveys and other authentic sources. Scale, one inch to four miles. Colored. 1879. Pocket form. \$1.50.

NEW SECTIONAL AND MINERAL MAP OF UTAH.—Pocket form. Compiled from the latest U. S. Government surveys and other authentic sources, exhibiting the Sections, Fractional Sections, Counties, Cities, Towns, Settlements, MINING DISTRICTS, Railroads, and other internal improvements. Scale, one inch to eight miles. Colored, 1878. \$3.50.

POCKET MINING ATLAS OF THE MINES OF THE UNITED STATES.—Showing the Mines of NEVADA: the Comstock Lode, the Eureka, Treasure Hill, and Tuscarora Districts; CALIFORNIA, including Map of the Bodie District; COLORADO, including the Leadville, Silver Cliff, San Juan, Caribou, and Central City Districts; DAKOTA, including Map of Deadwood; MONTANA, IDAHO, UTAH, ARIZONA, NEW MEXICO, LAKE SUPERIOR REGION, the SOUTHERN STATES. Printed in colors, and bound in flexible leather covers. Price, \$1.

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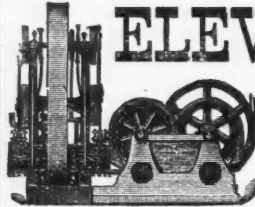
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SPECIAL NOTICES.

THE TRUSTEES OF THE EDGAR GOLD
AND SILVER MINING COMPANY, of Colorado,

offer a limited amount of the development stock at FIFTY CENTS per share, for the purpose of resuming work at once in the mine.

Subscriptions can be made and prospectuses obtained at the office of the company, 115 Broadway.

Per order Board of Trustees. A. F. HILL, Secretary.

C. G. ROGERS, President.

A PARTY FROM NEW YORK, NOW VISITING Arizona, who has had large experience in Mines and Mining, both in the United States and South America, will attend to any business and visit and report on mines and mining operations, wherever required in that Territory, or in New Mexico, for the next sixty days. Refers, by permission, for particulars, to
JOHN P. ADAMS, Esq., Counselor at Law,
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Brooklyn.

CIVIL, MECHANICAL, AND MINING ENGINEERING at the Rensselaer Polytechnic Institute, Troy, N. Y.—The oldest engineering school in America. Next term begins September 15th. The Register for 1880-81 contains a list of the graduates for the past 54 years, with their positions; also, course of study, requirements, expenses, etc. Address
DAVID M. GREENE, Director.

W. H. ADAMS,

Chemist and Metallurgist,

is at present engaged in Mexico. Parties contemplating opening up mining properties or erection of metallurgical works in that country can secure the services of competent men, with knowledge of the language, etc., by addressing him, Central Mines, Villa de Musquiz, Coahuila, Mexico, via Eagle Pass, Texas.

WANTED \$10,000.—FOR AN IMPORTANT interest in a valuable mining claim in a popular district and adjoining very valuable mines. Money to be applied to developing mine. A rare "hard pan" opportunity. Address A. B. X., care of ENGINEERING AND MINING JOURNAL.

DIVIDENDS.

New York, July 9, 1881,
No. 18 Wall Street.

THE TIP TOP SILVER MINING COMPANY has declared dividend No. 1 of TWENTY CENTS per share, payable on the 25th inst., at the office of the Transfer-Agents, THE FARMERS' LOAN AND TRUST COMPANY.

Transfer-books close on the 20th inst.

F. W. HOLMES, Assistant Secretary.

DIVIDENDS.

ROBINSON CONSOLIDATED MINING CO. DIVIDEND NO. 4.

New York, July 2, 1881.
The Board of Directors have this day declared a monthly dividend of Fifty Thousand Dollars, payable on and after July 15th, at the office of the company, 18 Wall Street. The transfer-books will be closed from 3 o'clock P.M. of the 9th until 10 o'clock A.M. of the 16th inst.

FINANCIAL STATEMENT FOR JUNE, 1881.*
Surplus on hand as per last statement (May, 1881).....\$35,950.54
Received from sales of ore and bullion during month of June.... 74,630.53
Bullion at Newark Smelting and Refining Works, and in transit thereto, estimated..... 45,000.00
Cash and bullion at mines as per report of Thomas Ewing, Manager, 50,000.00
Received from sale of bullion in excess of estimated amount at and in transit to Newark Smelting and Refining Works, as per May statement..... 4,998.16 \$210,599.23
Deduct bullion on hand, as per May statement.....\$55,000.00
Disbursements for month of June.. 29,639.73
Deduct dividend for July 15th..... 50,000.00 134,639.73
Surplus on hand July 1st.....\$75,959.50
JAS. K. SELLECK, Secretary.

INDIAN QUEEN MINING AND MILLING

COMPANY.—The regular monthly dividend, No. 14, from the net earnings of the mine for June, of two and a half per cent on the par value of the stock, will be paid July 19th, 1881, at the office of the company, No. 7 Exchange Place, Boston.

Transfer-books will close the 15th instant, and reopen on the 20th instant. MICAH DYER, JR., Treasurer.
C. C. LANE, Secretary.

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

DIVIDEND NO. 25.

The Board of Trustees have this day declared a dividend of SEVEN AND A HALF CENTS per share for the month of June, on the capital stock of this company, payable on the 25th inst.

Transfer-books close on the 18th, and reopen on the 27th of July. J. JAY PARDEE, Secretary.

OFFICE OF THE HOMESTAKE MINING COMPANY, 18 Wall Street, New York, July 12th, 1881.

DIVIDEND NO. 35.

The regular monthly dividend of NINETY CENTS per share has been declared for June, payable at the office of the Transfer-Agents, Wells, Fargo & Co., 65 Broadway, on the 25th inst.

Transfer-books close on the 20th inst.
H. B. PARSONS, Assistant Secretary.

OFFICE OF THE DEADWOOD-TERRA MINING COMPANY, 18 Wall Street, New York, July 9th, 1881.

DIVIDEND NO. 8.

A dividend of FORTY THOUSAND DOLLARS, being TWENTY CENTS per share, has been declared for June, payable at the office of the Transfer-Agents, Wells, Fargo & Co., 65 Broadway, on the 20th inst.

Transfer-books close on the 15th inst.
H. B. PARSONS, Secretary.

OFFICE OF COPPER QUEEN MINING COMPANY.

Nos. 34 and 36 THOMAS STREET, NEW YORK, June 11, 1881.
The Board of Directors of this Company have this day declared a monthly dividend of twenty-five thousand dollars, being ten cents on each share of the capital stock of the Company, payable on and after July 1, 1881, to stockholders of record, at the office of the Company. Transfer-books close June 28th and reopen July 2d.
L. ZECKENDORF, Secretary and Treasurer.
A. A. HAYE, JR., President.

OFFICE OF THE STARR-GROVE SILVER MINING COMPANY, No. 2 Nassau st., cor. Wall st. New York, June 15, 1881.

DIVIDEND NO. 8.

The Board of Trustees has this day declared the regular monthly dividend of ten cents a share, being one per cent on the capital stock of the company, payable on the 30th inst., at this office.

The transfer-books will be closed from the 21st to the 30th inclusive. W. M. S. CLARK, President.
JOHN R. BOTHWELL, Secretary.

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

SEVENTY-FIVE CENTS PER SHARE,

payable July 12th, 1881, at the Farmers' Loan and Trust Co., 26 Exchange Place, New York.
Transfer-books close July 5th, and open on 13th inst.
M. E. COOK, Vice President.