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AN enormous business has been done during the past week in copper. The price at which sales were made is low as compared with the ruling rate of the past two years, but to some of the companies it is satisfactory.

THE arrivals of tin in this market for the first six months of this year were but 3265 tons, as compared with 8800 tons for the same period last year. The consumption in this country for the first half of this year is placed at 5050 tons. This leaves stocks in a very favorable position, and already prices are looking better.

THE London market is passing through an experience in mining similar to what this city passed through a year or more ago. A telegram from one of the India mines was so worded as to give a yield of two ounces of gold per ton from nineteen tons crushed. The stock, on this information, advanced to £66 per share. The truth was, that the whole nineteen tons yielded two ounces; and when this was known, the stock declined to £25 per share.

THE statistics of coal production for the first half of this year are very encouraging, showing a production over two and a quarter million tons greater than during the first half of 1880, and at the rate of over 25,000,000 tons per annum. It is quite evident that the production during the last six months will be as great, and, as the demand for fall and winter supplies has set in early, even greater than during the last six months of 1880. If it only proves as great as in 1880, the production for the year will aggregate 25,500,000 tons, not including the consumption at the mines; but from the present outlook, it would be fair to add a million tons for increase to the business of the last half of this year, as compared with the same period of 1880. This would make the enormous and unprecedented aggregate of 28,000,000 tons, including the consumption at the mines. The business for the months that have already passed has been very profitable to the coal-producing companies. For the coming months of the year, higher prices will be received as well as a larger business be done. It is safe to predict

that the annual statements of the companies will be exceedingly satisfactory, and the stockholders will be well satisfied if a condition of affairs only approximating that which prevails at present can be maintained.

HENRY ROSSITER WORTHINGTON.*

(WITH SUPPLEMENT.)

The wide and profound expressions of regret at the sudden decease of Mr. WORTHINGTON, among his professional acquaintances and in the great circle of his friends, was first and largely an expression of personal bereavement. He had earned a high place as an ingenious inventor and a successful engineer, and his work will leave an indelible impress upon professional practice; but the influence and the traditions of him as a man and a friend, will outlive generations of engineers.

The foundation of this mingled esteem and affection was his intense and abiding love of the truth; the foundation was built upon by scientific methods, and the structure was adorned by personal graces and accomplishments. The love of truth, that came to him from a high-minded ancestry, was nurtured by his professional pursuits—for his profession, unlike some other professions (this is their misfortune, not their fault), has one inevitable criterion, and that is, the truth. This sentiment (for it grew in him from a conviction to a sentiment) not only controlled his professional and private conduct, but it stimulated in him an honest skepticism regarding those beliefs in general which have come down to us with no higher authority than that they are an inheritance. He was a willing and valiant assailant of "humbug" in every form; and, nobler than this, he was the patient iconoclast who dispelled the phantoms in the mind of many an inventor, and who saved many a plodding experimenter—not in applied science alone—from impending disaster.

But he was also endowed with a grand humanity which practice perfected. Nor were his friends, so-called, the sole beneficiaries; only a long and intimate fellowship with him has discovered many of his private charities, and the half of them will probably never be known.

These attributes found apt and eloquent expression in his scholarly culture, and brilliancy in his spontaneous and perennial wit. As the patient, but not generally unimpassioned, advocate of a truth, or as the exposé of a fallacy or an imposture, by analysis, by analogy, by ridicule, he had few equals.

And to crown all, was his overflowing good-fellowship—with all his serious thoughts and moods, his love of humor and mirth—of intimate talks with groups of friends, rambling from grave to gay—when all his true and kind, and withal his fantastic inspirations would grow into bloom. It was an education to hear him talk when the subject was large enough to move him.

He had his weaknesses and his trials, and he probably had the faults as well as the virtues which grew out of them. But another eye must discern and another hand may formulate his serious faults, if such he had. He was often severely critical, and his intense pursuit of error sometimes led him into a general onslaught favoring of pessimism. He allowed himself to dispute over details, and the unformable concrete, when all the time he had been formulating the abstract. But he often purposely blunted the edge of his keenest blade—a grotesque overstatement, a ridiculous *non sequitur*, a fantastic similitude—something kindly enough to break the fall of his victim, but wise enough to avert an anticlimax.

The time is not ripe to analyze Mr. WORTHINGTON's contributions to the engineering specialty in which he did not claim, but in which he was assigned, by general consent, the highest place. Mr. WORTHINGTON was undoubtedly the first proposer and constructor of the direct steam-pump. The duplex system in pumping-engines—one engine actuating the steam-valves of the other, causing a pause of the pistons at the end of the stroke, so that the water-valves can seat themselves quietly and preserve a uniform water pressure, thus being a vast improvement on the Cornish engine—is generally admitted to be one of the most ingenious and effective, and certainly one of the most largely applied advances in modern engineering.

Mr. WORTHINGTON was chiefly known as a hydraulic engineer; but apart from this specialty, his experimental and practical contributions to other departments of engineering, such as canal steam navigation, compound engines, instruments of precision, and machine tools, would entitle him to a high position in the profession.

Mr. WORTHINGTON was born December 17th, 1817, and died December 17th, 1880. His ancestors in America were sprung from Sir NICHOLAS WORTHINGTON, of Worthington, England, who died at Naseby for King CHARLES, and they came to America in 1649.

It would be interesting to trace the history of this family, especially of the grand old father, ASA WORTHINGTON. A minute review of the life of HENRY ROSSITER WORTHINGTON, with its multitudinous benefactions of invention, of counsel, of entertainment, would also be pleasing and instructive; but this is not the time nor the place.

His mortal remains lie on the edge of the old rocks which geologists

* Written for the Transactions of the American Society of Mechanical Engineers.

call the primal continent; and every following cycle furnished some stone to lay on his grave. So his immortal remains illustrate every phase of progress, from the Silurian instinct to live, to the last formula of civilization—to let live.

A. L. H.

EDITORIAL CORRESPONDENCE.

DURANGO, COLO., June 23, 1881.

From Gunnison City, down the Gunnison and up the Lake Fork thereof, a rough and dusty, but not very mountainous drive (as such things go out here) of fifty-four miles, we traveled in patient endurance, cooped up in a coach which permitted little view of the country. Indeed, though there are places on the route not devoid of beauty and grandeur, the scenery is eclipsed entirely by the wilder and more precipitous gorges and the higher summits beyond.

Lake City is prettily situated in a mountain basin, at the head of which the two cañons of Cottonwood and Henson Creek unite their streams to form the Lake Fork of the Gunnison. In the Cottonwood Cañon, just below a picturesque lake, and perhaps a mile from town, are the smelting-works of the CROOKS, the largest in the region.

We took our way up Henson Creek, and across the divide to the headwaters of the Animas. It is a wonderfully wild and beautiful cañon, reminding one, though on a smaller scale, now of the American Fork in Utah, now of the Yosemite itself. In some places, vertical walls of granite or of porphyry hem in the stream; and the road either hugs their feet or climbs over their tops. Again the cañon opens, and its more sloping sides, robed with spruce groves, embroidered with innumerable flowers, and laced with thousands of white streamlets from the melting snows at their crests, present a picture of loveliness beyond words. No doubt much of our enthusiasm must be ascribed to our joy in getting out of a cramped and dusty coach into the comfort and freedom of the saddle; much to the spotlessly fair weather and the bracing mountain air; much to the fortunate season, which multiplied cascades and made every ravine musical with silver torrents. But, after making due allowance for all these influences, I must still pronounce Henson Creek one of the most impressive and delightful pieces of mountain scenery that I have found in Colorado.

It is about eighteen miles to the top of the divide—the last mile being a desperate climb, aggravated by the necessity of going out of the trail to avoid snow. Unfortunately, it was afternoon when we essayed the passage; and the surfaces which in the morning would have carried us and our horses safely were now treacherously soft, as several adventurous members of our party found to their cost, when their animals and they floundered and struggled together in the yielding depths. Forgive me, O genial gentleman from very far down East, if I recall that scene in which thou didst figure in the character of the Tenderfoot with his first mule! How the rest of us, having successfully got over or through the big drift near the divide, did hear strange noises in the rear, and turning, beheld thee a-squat in the snow, thy mule half-buried by thy side, lifting its voice to call after its receding companions—and thou, alarmed at the strange portentous cry, didst raise thy voice yet higher, shouting to us to come to the rescue of the beast that was “in pain”! And was there not a wild chase on the mountain after the self-same beast, who, not at all in pain, but in manifest pleasure rather, did cast aside, as it were, first its rider and then its saddle, and prance with innocent delight to see thee go afoot? Alas! that stern professional duty requires us to turn from such inspiring themes, and grind with unwilling hand at the mill of “instructive information”!

All the way up Henson Creek, and down the east fork of the Animas, are silver mines galore. At intervals, one comes upon small smelting-works, few of which appear to have ever run at all. I have seen a good many of the mines, and had accounts of many more. It is not my purpose to give an account of them severally. I could not, upon such hurried opportunity, do justice to those which I have seen, and omission might be injustice to many which I did not visit. A few general remarks, conveying my impressions of the region as a whole, must suffice at present.

The country-rock of the mines is mostly igneous—porphyry, granite, etc. The veins are apparently true and well-defined fissures. The vein-matter is quartz, carrying in bunches pay-streaks and disseminated particles, galena, iron and copper pyrites, gray copper and zinc-blende, with some true silver ores (silver glance, ruby silver, etc.).

They are sometimes rich in silver, but I think that more commonly they carry perhaps 40 or 50 ounces to the ton, principally contained in the base sulphides. This association of minerals is not fortunate for the miners. I fear that the galena will be found too variable and too small in quantity, and the zinc-blende and quartz too abundant to furnish good smelting ore. Large works, buying and mixing ores from many quarters, may, if skillfully managed, be successful; but the miner will find that such works will inevitably charge to his account the refractory nature of his ores. On the other hand, it is to be found that there will always be too much galena in the ores for a successful treatment by

roasting and amalgamation, though some of the mines are said to produce milling ores. That experiment should be tried by some thoroughly skillful metallurgist. Perhaps a furnace like the Stetefeldt and a mill operated like the Ontario could solve the problem. But 50-ounce ore would scarcely leave much profit, after such treatment.

Finally, the concentration of the ores before further treatment will be a doubtful experiment in cases in which they contain true silver minerals. Argentiferous galena, zinc-blende, and pyrites are almost the only silver ores which can be successfully concentrated. Of these, zinc-blende is rarely, and pyrites more rarely, rich in silver. When they are so, it is usual to find true silver ores associated with them; and on these the loss in concentration by the best apparatus and most expert handling will not be less than 30 per cent, and it may amount to 75 or 80.

Such are the metallurgical difficulties of the case. The mining conditions are unfavorable in respect of high altitude, difficult transportation, and in some cases hard mining ground, though many of the veins carry “gouges” which facilitate extraction.

On the other hand, the permanence, great number, bold outcrops, defined walls, easy accessibility by adit-levels, and other favorable features of the mines assure us that the industry will make progress; and the advance of the railroads will ameliorate or remove many of the hinderances which have hitherto attended it. Not only by cheapening supplies, but also by facilitating the shipment of ores to large metallurgical centers, this object will be attained. Large works at Pueblo have received, in spite of the distance and cost, a good deal of San Juan ore; and the works now building at Durango, where good coking coal is said to be abundant, will be a still better gathering-point. Such a rapid development as the carbonate districts this region of sulphuret ores can not expect; but it may expect a longer life and in the end a stable prosperity.

I meant to say something of Durango, soon to be the terminus of the San Juan division of the Rio Grande road; but space and time are wanting. Just now the town (which is destined, I think, to be one of the largest in Colorado) is suffering under a number of drawbacks, first among which is the reign of terror which a few highway robbers have maintained of late in the neighborhood. The leader of the gang and two or three of its members have just been caught. I had the pleasure of traveling night before last on the train which brought them in chains to Alamosa, where it is confidently asserted they will be lynched. Others of the band are still at large. Then the Indian question is still troublesome; and recent collisions have occurred not far from Durango between the whites and the Utes. Finally, the approach of the railroad has a temporarily depressing effect. Merchants dare not buy and can not easily sell goods which are soon to be much cheaper through improved transportation and enlarged competition. Miners wait for the more favorable time to buy supplies or to ship ores. In short, as a citizen of Durango said to me, “Just now we are all waiting, and living meanwhile on each other.”

But this period will pass, and Durango will become and remain the distributing point for a great number of mining districts, and of no small area of agricultural land. An excellent account of the town and its prospects will be found in the *Denver Times* of June 18th. It is from the pen of Mr. J. D. DILLENBACK, a candid and careful correspondent, who manages to reconcile pretty well the duty he owes to truth with the duty laid upon all local newspaper men out here, of “saying a good word for every body,” and so increasing the sale of the paper.

Durango is now forty-eight miles from the end of the track; and this distance will be rapidly shortened. Indeed, the iron horse will neigh in Durango this summer; and already the inhabitants of Silverton, fifty miles farther up the Animas Valley, think they hear it in the distance. To judge from the activity exhibited in grading along the line and in cutting ties, the expectation is well-founded; and before another year, it is likely that Silverton, the prettiest of all these mountain cities, will be the terminus of this division of the railroad.

From the end of the track, one may ride comfortably to Antonito, and thence south to near Santa Fé, or northeast to Pueblo and La Junta, where connection is made via the Atchison, Topeka & Santa Fé for the Southern Pacific. Between Antonito and Pueblo, the road passes along the edge of the gloomy and magnificent Toltec gorge, and over the Veta Pass—both of them “sights to see.”

DIVIDENDS DECLARED BY MINING COMPANIES FOR THE FIRST HALF OF 1881

We have carefully compiled and tabulated, principally from our own columns, the following list of mining companies which have paid dividends to their shareholders during the first six months of the present year. This list, as far as it goes, while quite satisfactory, is necessarily incomplete, as many mines worked as private corporations are giving large returns to their owners, for which there is no public record, and there are probably others which are not here enumerated. Iron mines, coal mines, and many other mines operated and now paying their stockholders and owners handsomely, are absent from our table, yet

sufficient is here presented to form a basis for an interesting comparison, showing the handsome profits now realized from this class of investments. We have appended the latest selling price on the 1st of July, of these stocks where obtainable; and assuming that the current half-year will prove as profitable, we find that such companies are returning to their shareholders an average of about sixteen per cent per annum on the present average selling price of the stocks quoted.

It will be observed that the market value of the stocks whose market value is given aggregates \$56,002,250, while the dividends declared by these companies for the half-year show a total of \$4,475,625. This would give a return to the shareholders, presuming that they had purchased the stocks at the selling prices of July 1st, of nearly eight per cent for the half-year.

The most prominent stock in our list is the Calumet & Hecla, which has returned \$1,000,000 for the half-year. The Richmond Consolidated Company, of Nevada, comes next in the list, having returned \$525,960. The Western or Contention, of Arizona, aggregates \$450,000 for the half-year. This stock is very closely held, and quotations are uncommon. Standard has also paid \$450,000, and Ontario has disbursed \$350,000 for the half-year.

Name of Company.	Location.	Total dividends paid for half-year	No. of shares in company.	Price per share, July 1st.	Total market value of stock July 1st.
Alice.....	Mont.....	\$160,000	400,000	\$7.10	\$2,800,000
Boston & Montana.....	"	80,000	"	"	"
Calumet & Hecla.....	Mich.....	1,000,000	100,000	\$21.00	2,100,000
Catalpa.....	Colo.....	60,000	300,000	2.00	600,000
Cedar Tree.....	Ariz.....	15,000	"	"	"
Central Copper.....	Mich.....	8,000	20,000	31.00	620,000
Consolidated Gold.....	Ga.....	25,000	250,000	7.00	1,750,000
Copper Queen.....	Ariz.....	250,000	200,000	8.00	1,600,000
Deadwood-Terra.....	Dak.....	110,000	200,000	.70	140,000
Dunkin.....	Colo.....	150,000	50,000	31.90	1,550,000
Eureka Con.....	Colo.....	150,000	50,000	"	"
Evening Star.....	Dak.....	125,000	100,000	10.00	1,000,000
Father de Smet.....	Colo.....	50,000	250,000	2.00	500,000
Glass-Pendery.....	Cal.....	45,000	150,000	2.00	300,000
Gold Stripe.....	"	53,125	125,000	5.75	718,750
Green Mountain.....	Colo.....	120,000	300,000	.63	189,000
Hibernia.....	Dak.....	180,000	100,000	20.50	2,050,000
Hornstake.....	Cal.....	121,000	"	"	"
Idaho (Grass Valley).....	Cal.....	33,750	125,000	2.70	338,000
Indian Queen.....	Cal.....	200,000	500,000	2.00	1,000,000
Iron Silver.....	Cal.....	90,000	200,000	7.00	1,400,000
La Plata.....	Nev.....	25,000	100,000	.64	64,000
Navajo.....	Cal.....	60,000	"	"	"
New York Hill.....	Nev.....	175,000	50,000	20.00	1,000,000
Northern Belle.....	Utah.....	350,000	150,000	37.00	5,550,000
Ontario.....	Mich.....	150,000	40,000	32.00	1,280,000
Osceola.....	"	200,000	"	"	"
Quincy.....	Nev.....	525,960	"	"	"
Richmond.....	Cal.....	33,750	150,000	2.25	337,500
Rising Sun.....	Colo.....	50,000	"	"	"
Robert E. Lee.....	"	50,000	200,000	11.00	2,200,000
Robinson.....	"	20,000	100,000	6.33	633,000
St. Joseph Lead.....	Mo.....	150,000	100,000	2.00	2,000,000
Silver King.....	Ariz.....	50,000	200,000	3.00	600,000
Spring Valley.....	Cal.....	450,000	100,000	23.00	2,300,000
Standard.....	Nev.....	120,000	200,000	8.00	1,600,000
Starr-Grove.....	Ariz.....	300,000	500,000	"	"
Tombstone.....	"	450,000	"	"	"
Western (Contention).....	"	"	"	"	"
Total.....		\$6,288,585*			\$56,002,250

Of the above, Arizona mines paid \$940,000; California, \$815,875; Colorado, \$880,000; Dakota, \$595,000; Georgia, \$8000; Michigan, \$1,410,000; Missouri, \$20,000; Montana, \$240,000; Nevada, \$1,029,710; and Utah, \$350,000.

NEW PUBLICATIONS

SECOND GEOLOGICAL SURVEY OF PENNSYLVANIA. Report of Progress. P. Description of the Coal Flora of the Carboniferous Formation in Pennsylvania and throughout the United States. Vol. I. 1. Cellular Cryptogamous Plants; 2. Vascular Cryptogamous Plants. Vol. II. 1. Lycopodiaceae; 2. Sigillarieae; 3. Gymnosperms. By LEO LESQUEREUX. Harrisburg, 1880. Two volumes, bound and paged as one, 8vo, 757 pages. Full Indexes, and Atlas of Plates.

This is the result of the labor of a life-time. It is thirty-three years since LEO LESQUEREUX, already favorably known for scientific work abroad, came to reside in this country; and among his earliest undertakings here was his engagement on the first geological survey of Pennsylvania, in 1851. His report on the coal plants of the State, published in 1858, described more than a hundred new species. Since that date, the State geological reports of Kentucky, Indiana, Illinois, Arkansas, Mississippi, Alabama, and California, and the reports of national surveys of the territories, have been enriched with his elaborate memoirs on fossil botany, particularly of the Carboniferous and of the Lignitic formations. On these subjects, he has come to be, by common consent, a leading authority. The number of his new species has increased to 350, and the total number described in this report, which summarizes all his knowledge in that department, is more than 600. It will be an invaluable manual for students, field geologists, and mining engineers. The second volume contains some admirable chapters by LESQUEREUX and LESLEY, on the nature of the vegetation of the Carboniferous era, and its agency in the economy of the world; the geographical—misprinted in the Contents geological—and stratigraphical distribution of its plants; the Carboniferous flora of the United States and of Europe; the origin,

* Total dividends, where market value of stocks is given, \$4,475,625.

succession, and modification of the vegetable types, from the base of the coal-measures upwards, etc., etc. There is also a list of the literature of the United States coal flora.

MONTANA MINING NEWS—BUTTE AND ITS MINES, MINE ACCIDENTS, AND PLACER MINING.

Special Correspondence of the Engineering and Mining Journal.

The great topic of conversation this week is the reported sale of the Lexington mine, at Butte, owned by Judge A. J. Davis, to French capitalists, for \$1,000,000 cash, and \$300,000 in shares of the company. This mine has been reported sold so many times, and the statement as often contradicted, that it is a hard matter to get at the facts; but from what I deem excellent authority, I conclude that the mine is sold, and a large forfeit put up. This is one of the great mines of the world, and can not fail, under proper management, to prove remunerative in the highest degree to its owners.

The mines at Butte are all looking and doing well. The Alice of course leads off. This mine, having paid \$160,000 in dividends to date, ranks at the head of the stocked mines of this territory. The recent fall in its stock down to \$7 I can not account for, as the management promise a dividend next month of \$40,000 again. I notice, however, that the latest quotations show an improvement in the price of this stock.

The Moulton is still at work on its large shaft, but has struck no vein as yet. The vein discovered on its mill-site was purely accidental; but of course will enhance the value of the property, should the vein which they are now searching for prove the extension of the Alice, as confidently expected; for in this case their property will have in its boundaries two separate veins, each of great width.

The Anselmo is still putting out some of the richest ore in the camp, many large chunks being literally covered with wire-silver. The ore is of a high grade, and the vein looks well.

The Amy-Silversmith is pushing its development with vigorous intelligence, and the management is to be commended.

Many of the less known mines of this camp are promising well. One gentleman, whose opinion is to be taken as good, told me that, in his estimation, Butte will produce as much bullion as the Comstock ever did, and only a few years will produce result and make his estimate good. He has had long experience not only in Nevada, Colorado, California, and New Mexico, but is thoroughly acquainted with the mines of Austria-Hungary, Roumania, Siberia, and Australia, and is not given to any wild guesses. One thing is certain—Butte abounds in rich and wide leads, and time and development seem only to improve them.

Montana has been quite free from mining accidents attended with fatal results. The frightful one of the Belmont, whereby six men lost their lives, is still fresh in the minds of mine-owners, when anew last week came the news of the death of Judge J. A. Slaven, of Silver Star, a prominent man and old resident of Montana. He was the owner of the Governor Hayes mine. A block of quartz weighing 1000 pounds fell upon him down the shaft, and crushed him beyond recognition. On the same day, in Butte, in the Gray Rock mine, a miner named Mulligan was impaled by a long drill. It fell out of the bucket as it was hoisting, and fell a distance of 225 feet, passing entirely through his body. The man, wild with pain, pulled it out with almost superhuman strength, making a frightful hole where the ragged edge tore its way through. Strange to say, the man is getting better, and may live. It is a marvel of human endurance. These accidents do not seem to teach old miners caution, and the only wonder is, that more are not reported.

The old and rich Legal Tender mine has been bought by parties East, according to latest report, and a large mill and other necessary machinery are to be erected at once. Should this prove true, new vigor will be infused into the management of this old property and the many adjoining ones.

The Barker Mining District, near Benton, is enjoying its periodical "boom." This time it is occasioned by the arrival of a smelter purchased at the East by Colonel Clendennin and others. This will speedily determine the right of the mines of this district to the loud praises sung in their behalf for a year or more past. There are some three hundred localities in this district, and some ore has assayed as high as 600 ounces in silver, with a high percentage of lead.

Messrs. Longmaid & Sherard have bonded the Buster, Katy, and Judith mines for \$40,000. The report here is, that they have bought them at this figure. These mines are in the Cataract District, near the rich Mantel mine. Messrs. Longmaid & Co. bought the Nellie Grant and other mines in Ten Mile District some months ago, and put up \$1000 forfeit, and the owners are patiently waiting for the balance of the purchase. The mine-owners of Montana are getting very shy of "mine-bonders," having been taken in so many times in the past, and the actual cash beats bonds in toto.

Placer mines are doing well, and even some new strikes are making. Near old Pioneer, a rich bar was discovered by Gus Wisner up the mountain side, which in early days was not considered worth working; and in thirty-one days 200 ounces of the finest dust I ever saw were taken out, all of it large and coarse. The old placers of Basin Gulch are doing well, and a large clean-up is promised. The owners have struck a very rich channel.

In Last Chance Gulch, north of this city, Mr. William A. Chessman is bringing up his bell-rock flume to the old deep placers of Taylor, Thompson & Co.'s claims. These grounds comprise some thirteen acres and a half. It was drifted and hydraulicked in 1867-72, and produced \$375,000 in dust. Mr. Chessman is determined to bring his flume to the borders of this property ere the snow flies this fall, and next year I can chronicle the old time output of the famous gulch.

The present abundant supply of water will permit of some places being worked which have not felt the touch of water for years past, and the product of gold from placers this year may exceed that of any year since 1870 or 1871. The U. S. Assay Office is busy almost day and night upon gold bullion received from placer claims and gold mills.

Yogo, about which there was so much excitement last year, has fizzled out, and one more stamped, fruitless in its result, has passed into the history of mining in Montana.

TUBEROSE,

DURANGO—THE NEW SAN JUAN METROPOLIS.

(Concluded from page 4.)

The works of the San Juan Mining and Smelting Company, in Durango, are located below the town, a short distance from the depot, in plain sight of all the business streets, but on the opposite side of the Animas River. They are now well advanced toward completion, and will be finished as early as the first of August, when they will take rank among the largest and best constructed works in the State. The works are built on the bench of a mountain, which rises abruptly to a height of 1140 feet, and is covered with a thick growth of shrubs from two to three feet in height, except where a long sandstone cliff projects near the summit. Below the works, along the stream, there is abundant space to deposit slag. A railroad switch will run to the upper side of the works to deliver ore, and another below to receive bullion. The buildings are of wood, but are supported upon heavy foundations of cut stone, quarried from the mountain within a stone's throw of the works. The ore is delivered from the cars upon a receiving and weighing floor, 36 × 48 feet in size. Next below and beyond this is the sampling-floor, 44 × 72 feet, from which the ore is passed to the roasting-room, 63 × 134 feet in size. The roasting-furnaces are four in number, and of the most approved construction, with a brick smoke-stack 100 feet high above the base. The whole immense room is covered with a truss-roof, having a clear span of 62 feet. The feed-floor for the blast-furnace is 74 × 56 feet in size, and the blast-furnace floor 34 × 56 feet. The engine-house is built of brick, 28 × 44 feet in size, and will contain a 70 horse-power horizontal engine, with two 14-foot tubular boilers. The works are intended for two furnaces, with capacity to treat 100 tons of ore a day, but only one furnace will be put in this season, giving 40 tons capacity. The other can be added on short notice whenever the ore supply is sufficient to make it necessary. A handsome office building, of brick, 32 × 52 feet in size, stands near the smelter. It contains a manager's room, general office, laboratory, scale-room, and assay-room. Mr. J. H. E. Waters is the superintendent in charge of the construction of the works, and the thorough manner in which his duties have been discharged is a matter of general comment. The company has a large supply of ore on the dump at Silverton awaiting the completion of the railroad, although some of it may be freighted down by wagons if rates are low enough to allow a profit. An abundant supply of coal for both roasting and smelting purposes is found in the immediate vicinity of Durango. The coal-fields are second to none in the West. One of the largest veins known occurs three miles from Durango, on the Animas River. The coal has been thoroughly tested for coking purposes, and will furnish coke of most excellent quality. The sandstone used in these works was mostly obtained in making excavations for the foundations. It is of a quality superior to any found near Denver or Pueblo, can be quarried in blocks of any required dimensions and unlimited quantity. It is of a beautiful light gray color. The brick used is of most excellent quality, and is made within half a mile of the works.

The importance of the smelting interest, when once the works are in operation, may be estimated by the fact that the reduction of forty tons of ore a day, assuming an average value of \$40 a ton, will produce \$1600 a day.

The principal lumber business in Durango is transacted by the San Juan Lumber Company and C. M. Williams & Co. The San Juan Lumber Company has a large capital invested, running two large saw-mills and purchasing of others. C. M. Williams & Co., in addition to running a saw-mill on the Florida, have a planing-mill in Durango, carry a large stock of sash and doors, and are doing an extensive business. There are six saw-mills in operation in the vicinity of Durango, and prices rule rather lower than in Denver.

Durango is situated in the Animas Valley, on the east side of the river, here a strong and rapid stream. The site is one of great natural beauty, commanding a view of long stretches of valley, broad terrace-like mesa, cliff-crowned ridges, and, over and beyond all, the white caps of the snowy range. South is the valley, with a ridge on one side and mesa on the other, the ridge to the west rising abruptly over a thousand feet, covered with bright green shrubs, looking at a distance like grass. West, a mesa, a hundred feet high, rising directly from the river, extends back a quarter of a mile to a high, steep ridge or hogback of black shale, bare and furrowed, beyond which a tall shrub and pinon-covered ridge terminates in a precipitous point, like that of Lookout Mountain in Tennessee, overlooking the town and constituting a conspicuous landmark. Its summit is 1800 feet above the Animas River, and its point, a projecting cliff, 300 feet high, is a little over two miles from the town in an air-line. To the north, is a beautiful mesa or park along the Animas, the ridges rising higher and higher on each hand, and closing the vista a short distance beyond Animas City, the right-hand cliffs showing a majestic wall of bright red sandstone, near where the curve of the valley shuts off the view. To the east, a smooth mesa, two or three hundred feet high, rises from the edge of the town site, and overlooking that, to the south and west, is a similar and higher elevation. A more picturesque and attractive site would be hard to find, even in Colorado. The town-site proper includes only about 500 acres, the greater portion of which has already been sold. The town is laid out into blocks 325 feet square, containing each twenty-six lots, 25 × 150 feet in size. The streets are 80 feet and the alleys 25 feet wide. The railroad runs through the western part of town near the river, and between it and the river are seven or eight blocks that are very densely built up with small buildings, stables, shops, corrals, wagon and blacksmith-shops, etc. Here are saloons by the score, a variety theater, and numerous gambling-houses and dance-houses. This section has a considerable sprinkling of honest business, but is in places a little off color. Toward it points the limb of a pine tree, on which a murderer was hung by the vigilantes last spring; and since that event occurred, Durango has been a very quiet town. On the other side of Railroad street, and on First and Second streets to the east, is a class of buildings that would do credit to any new town. Some thirty blocks are pretty closely built over, and a large number of dwellings extend for several blocks on the mesa. The site of the town being a clean, nearly level park, it is hard to realize that so thrifty, neat, and substantial a place has grown up in less than eight months. Many of the business men have

residences that bear no impress of the frontier. Mr. C. M. Williams has built a number of beautiful Gothic cottages for rent that would be considered very neat in Denver. Durango is unusually attractive for a new town, notwithstanding the rough name that has been given it in many early accounts. It is a place which a man might contemplate as a permanent home, and the home of his children after him. The valley northward toward Animas City affords ample room for its future growth, and several additions have already been laid off in that direction. The Animas River bends to the east around the north part of the town, and on its northern bank is a series of large springs, near the top of the bank, 15 or 20 feet above the stream, which afford an abundance of water of remarkable clearness and purity. The town is supplied with water from these springs by means of water-carts. The principal streets are kept sprinkled.

The business men of Durango will compare favorably with those of any town of the same size that I have ever visited. They are nearly all young men, thoroughly versed in frontier business, wide awake, enterprising, possessed of abundant capital and first-class credit, and full of confidence that is born of success. They carry heavy stocks of goods, which have been brought here at enormous expense, by freight-wagons for over 100 miles, and sell many staples at prices hardly above those of Denver and Pueblo. They keep their hand on the pulse of the mountain trade, and, if need be, are ready on a week's notice to put in branch stores at any new mining camp. With their warehouses full of goods at Durango, they can keep pace with the demand in each locality, and forestall all opposition. Denver and Pueblo on the east—450 and 330 miles distant—and Lake City (when the railroad gets there), 85 miles to the north, will be their nearest competing points, and the two first named towns their nearest points of supply. They expect to make Durango the metropolis of a region larger than the State of Massachusetts, and destined at no distant date to support a population greater than that of the whole State of Colorado when it was admitted to the Union.

The Roman Catholics have begun the erection of a building 44 × 100 feet in size for a church and school. The Presbyterians are raising money to build. The Episcopal church already has a chapel erected and maintains regular services. The Methodists, Congregationalists, and Baptists also have societies organized, and the Baptists have a neat church nearly completed, while the Methodists propose to erect a building at an early date.

Another feature very creditable to Durango is the inauguration, several months ago, of an excellent free school, at present held in the Episcopal chapel. Two competent teachers are employed, and the attendance is constantly increasing. The proper steps will soon be taken to secure the erection of a good school building.

The Durango Record, a seven-column daily, with also a large weekly edition, is a paper that any eight months old city might be proud of. It is also noted on account of its editress, Mrs. C. W. Romney, formerly correspondent of several leading newspapers, and now a young widow with abundance of energy, ability, and versatility. She can manage business, write political leaders, climb mountains, explore mines, write a glowing account of a dancing or donation party, and captivate a legion of prospectors. She came here with the Record outfit in the dead of winter, had over a hundred miles of wagon ride through deep snows, one breakdown, necessitating a considerable walk at an altitude close upon 10,000 feet; through it all, the driver avers, she never uttered a complaint, but arrived in good trim, ready to assist in starting a daily newspaper in a tent on ground just cleared from snow. The first number was issued December 29th, 1880, and the daily has enlarged three times since that date, and the weekly once. The Record has a large, well-stocked job office, with steam-presses.

There are two other weeklies, the Democrat, formerly printed at Animas City, and the Herald, just starting. The latter has an excellent new outfit, and is in the hands of George Marsh, an editor and printer of high standing in Wisconsin, where his father has printed a newspaper for over forty years.

In Durango, the best way to gauge the amount of business is to note the number of saddle-horses and burros standing in the streets. In the place of the farm-wagons of Eastern agricultural towns, we have here long trains of heavy freight-wagons, with trails, that is, a second wagon hitched to the hind end of the first, drawn by from four to six horses or mules, or from three to five yoke of oxen. Burros are seen in droves of from two or three to forty or fifty, always with their pack-saddles on. They start out for the mountains with all sorts of loads—bags, bundles, boxes, kegs, machinery, in picturesque variety—and are as indispensable to the prospectors and miners of the San Juan as the camel is to the Arabs of the Sahara. I think I have seen more than a hundred prospectors here in one day, loading their burros for the different mountain camps. This mountain trade is so different from the trade of Eastern towns that it requires time and observation for one to realize its magnitude. By another test, considered infallible in mining camps, the prosperity of Durango is proved. Gambling is said to be a profitable industry here, and I am credibly informed that from \$1000 to \$2000 and upward are handled every night at the gaming-tables of two establishments. How many gambling-houses there are, I know not, but their name is legion.

In mentioning the agricultural country tributary to Durango, I omitted two important sections. One of these is known as the Farmington District, beginning about twenty-five miles south of Durango, on the Animas River, and extending south some forty miles on the Animas and an equal distance on the San Juan below their junction. There are several hundred families in this district, and immense herds of sheep and cattle. Many thousand acres can be easily irrigated, and the soil is wonderfully fertile, producing in profusion all the products of Missouri and Southern Illinois that have made the St. Louis market so noted. The Big Bend of the Dolores, some fifty miles west of Durango, where the recent Indian troubles occurred, is also a promising agricultural and stock region.

It is believed by the best engineers who have visited the Animas Valley that it affords some of the finest varieties of granite to be found in America, and in solid ledges that will afford blocks of any desired size. There are also several varieties of sandstone of different colors, and of excellent quality for building purposes.

I have previously spoken of advantages other than those of trade which Durango will derive from the mountain towns. I refer to the fact that Silverton, Rico, and all the noted mining camps in their vicinity are

situated at an altitude of over 9000 feet, and are hence undesirable places for winter residence. There seems no doubt that Durango will occupy the same relation to those camps that Denver does to a large portion of the eastern slope, furnishing a home for hundreds who will bring their families and establish their residence here, while drawing their income from the mines, and spending a part of their own time among them. In all these mountain camps, the snows are deep and troublesome, coming early in the fall and lasting late into the spring. Snow-slides sometimes utterly blockade the roads for days or even weeks at a time, and even the railroad can not be relied upon to furnish constant communication to points where it extends. But railroad trains will run with almost no intermission or delay from Durango to Denver, making Durango the center for both business and news.

The medicinal springs near Durango merit special notice. Nine miles up the Animas Valley are Trimble's Springs, the waters of which are as hot as those of Pagosa. Bath-houses have been erected, and the curative properties of the water have been found remarkable.

Beyond these, fifteen miles from Durango, are the Pinkerton Springs, recently leased by Johannes Lienau, of Durango, and Dr. Hermann. Most of these springs, there being a large number of them, are thermal, having a temperature of about 85 degrees. The waters of some of them can hardly be distinguished from the German seltzer water, and the constituents are supposed to be the same. This water will be bottled and sold as the "American Seltzer." Baths have been erected by Judge Pinkerton; but the present proprietors will enlarge them, and build suitable boarding-houses.

A fine water-color painting of Durango, recently executed for General Palmer, by Mr. Emil Fischer, of Dresden, has been photographed, and copies are for sale by Mr. H. Orthmann, of Durango. J. D. D.

THE NEXT FINANCIAL CRISIS.

The *Banker's Magazine* for July says that the question has of late been often asked whether the present speculative era is not likely to end in a financial crisis, and whether the anticipated crash is so probable as to justify sound business men in recognizing it as one of the elements of their calculations for the near future. Several reasons are offered for the theory that a panic is approaching. First, it is nearly eight years since the panic of 1873, and economic science has laid down the axiom that once in eight or ten years a panic supervenes to agitate the financial world. But panics, like comets, are somewhat erratic; and predictions as to the event of either often fail. It has been well said that a panic which is predicted seldom comes, and if guarded against, it is never seen. Secondly, the prophets of evil point to the inflation of prices and the active speculation which is so conspicuous at the Stock Exchange and elsewhere. But they may be reminded that the same process is going on in other countries as well as ours, and it remains to be seen how substantial and solid are the foundations and the superstructure of that vast fabric of wealth which modern civilization is erecting around us on this continent. The laws by which the wealth of modern nations grows and multiplies itself are but imperfectly understood. Who shall tell us to what an extent our skill, machinery, capital, and productive power are able to vitalize the latent wealth stored up in our rich country, so as to make it impart a new value to our railroads, telegraphs, and labor-saving machinery, which is estimated as possessing a wealth-creative energy equal to that of one thousand millions of men? Whether this estimate is correct or not, we do not profess to know. We would simply suggest that, with a rapidity and force never known before, this country is growing in all the elements of public riches and private wealth, and that we ought not to be surprised if a part of the capital represented by these augmenting values is being embodied and represented in those railroad and corporate securities, whose recent improvement in value and rise in price has provoked so much criticism and alarm. Far be it from us to say that there is no danger in the financial situation. There must be much potential danger. A swift express train can not be driven at the rate of sixty miles an hour without more danger than is incident to the less ambitious movements of an old stage-coach. But it is obviously absurd to predict disaster for the modern train of cars merely because it moves rapidly. The question is, whether the conditions of safety are present, and with what skill and effect they are made available.

This brings us to the practical solution of the question before us, or at least points out in what direction we are to seek it. If the United States is growing more rapidly in wealth than any other nation in modern times, and if, as a necessary consequence, the quotations for our government securities, railroad shares, or corporate bonds and stocks have received an impulse upward which has seldom been paralleled, who shall affirm that we are on the verge of disaster till he knows whether our financial system is moving in its new orbit with safety, and whether we are making available to it all the conditions of safety which are adequate to the exigencies of the times? Every banker and capitalist knows that one of the best safeguards against panic is to sustain the credit and the price of our securities by their wide diffusion, their distribution among a multitude of purchasers, living, if possible, in various countries, or remote from each other. Mr. Hudson, the railroad king, as he was called in England some years ago, was one of the first of the financial magnates of this century who contrived to recognize and apply this great principle to railroad building and general finance. His experience was made available by Louis Napoleon, who was a needy but ambitious adventurer in London, when Hudson started the new era of popular railroad investments nearly forty years ago. The great French loans of 1852 astonished, by their success among the numerous frugal small investors of France, all the financial princes who ruled the European money markets, not one of whom would lend a sou on such security as the new empire and its chief had to offer them. This powerful principle of wide distribution has only of late begun to be applied to American securities. It is well known that, in London, American government and other bonds and shares are becoming popular, and that in all the chief bourses of continental Europe they are gradually winning confidence and attracting large amounts of capital. If this new movement is checked so that European capital refuses to flow into our securities, it might produce a panic, or at least work mischief. Hence it is the part of wisdom for us to consider by what methods we may avoid

injury to our credit in Europe, and may foster and stimulate the desire of foreign capitalists to invest their money here. What other expedients are proper to enable us to ward off the approach of any financial crisis, such as has been predicted in the early future, we may consider hereafter. Enough has been said to show that the expansion of prices and the rapid movement of our financial system, along the new path opened up by the scientific discoveries and mechanical improvements of the age in which we live, need not, of necessity, lead to the certain panic and immediate disaster apprehended by many persons; but that our progress may be so regulated as to be safe and prosperous. Doubtless we shall have panics in the future as in the past; but with the new experience and power with which modern finance is armed, its operations may be so wisely directed as to make the prevention of panics more feasible now than ever before.

Mr. Horace White discusses the same question in an editorial in the *New York Evening Post*. Mr. White admits that the values on the stock exchange have had a remarkable rise, and that some persons are speculating imprudently, but thinks that there is no near prospect of a repetition of the commercial crisis of 1873. A distinction, he says, must be made between a stock panic and a commercial crisis. A large number of persons may be ruined at a horse-race, if they have staked their money on the wrong animal, while the neighboring cheese-factory may not perceive any financial stringency whatever. A Black Friday is not a trade revolution. Stock gambling may proceed to an enormous extent without involving the commercial community—the factories, furnaces, farms, shipping, or even the railroads—in disaster. Those who have foolishly risked more than they can afford to lose in this sort of adventure will be impoverished, but the general prosperity of the country may go on unchecked. Overloading of debt and an unwarranted advance in the prices of commodities and real property are the evidences of a dangerous condition of trade. Such a condition is not to be inferred from transactions on the stock exchange, but ascertained from the records of banks and mercantile agencies, and from comparative tables of prices current. He does not believe that the extension of credit in trade circles has reached alarming proportions; he doubts whether it has yet gone beyond the limits of safety as regards the amount loaned and the time the loans have to run. General prices have not fully recovered from the downfall which succeeded the panic of 1873, although they are manifestly rising. The best evidence of the rise is the facility with which striking operatives secure an advance of wages. And it may be added that advancing wages imply and necessitate higher prices of commodities. This upward movement and the large transactions in stocks do not necessarily imply the nearness of another break-down in general business. They may signify the revival and growth of a gambling spirit, which will eventually penetrate into the channels of legitimate trade and produce as great inflation in the prices of commodities, houses, and lands as in railroad stocks and bonds, and as great recklessness of running in debt for them, but that time is not yet. The stock market may yield and in fact does yield a hecatomb of victims every year without producing more than a ripple in the current of general trade. Speculation in stocks is an indication of returning confidence after a period of commercial distress and stagnation. Confidence in the value of stocks begets confidence in the value of other things. Its law of evolution is confidence, over-confidence, recklessness, panic, and crash. We are now well on in the stage of confidence, but as regards general trade have hardly passed beyond it.

THE MONETARY CONFERENCE.

At Saturday's sitting (July 2d), it was resolved to call upon M. Dumas, French delegate, and Mr. Thurman, American delegate, to speak, and afterward hear the views of the English representative. Mr. Thurman spoke in favor of bi-metalism. The *Economist* confirms the announcement that the Bank of England has, in reply to a proposal from the Treasury, stated that, subject to suitable arrangements being made by the governments of France and America in respect to the coinage of silver, it is willing to purchase silver for its issue department within the limits permitted by the act of 1844. The act provides that the silver must not exceed a quarter of the amount of gold coin and bullion to the issue department. The *Economist* points out that the operation which the bank proposes is not a large one, and it will be at liberty to refuse to make any purchases unless the terms appear to justify them. The *Times*, in its financial article, says the opinion that the Bank of England has virtually agreed to purchase and hold a certain amount of silver in lieu of gold against its note circulation, on condition that the United States and France and the other countries of the Latin Convention agree to maintain a free mintage of silver at a ratio of 15½ to 1 of gold, still continues to affect seriously the price of silver and rupee paper. The belief is that, with such an engagement on the part of the Bank of England, the United States and France and other countries will form a bi-metallic union, that silver will be rehabilitated at least for a time, and that money will consequently continue abundant and cheap, the gold which is to be exchanged for silver increasing the money offering in the short loan market. We shall probably know shortly, as the result of the Monetary Conference, whether any thing is to come of such engagement on the part of the Bank of England, but we regret that a pledge has been virtually given. Probably no great harm will ensue, but the tendency of the act will be to encourage the delusions of the promoters of cheap money. England will also be accused henceforth of having encouraged bi-metalism, and the charge will not be unfounded. If it is not yet too late, we hope the government will give such instructions to its delegates at the Conference as will make its position quite clear. England has cut a very sorry figure, indeed, at the Conference, and something should be done to recover its lost economic reputation.

The *Times* of July 6th says that there has been great disappointment among the bi-metalists in London at the unwillingness of the American delegates to the International Monetary Conference, at the last moment, to engage that their government will open its mints for the free coinage of silver in the ratio of 15½ to 1 of gold. It is understood that United States Minister Lowell has been most explicit on this point in his com-

munications to the British Foreign Office; and it was under that impression that the Treasury wrote to the Bank of England and that the bank gave the reply they have done. But the reluctance of the American delegates at the last moment is, of course, accountable. Their government should look well to what it is doing, and second thoughts are always likely enough to change so grave a decision as an equal agreement to become bi-metallic would have been. The Paris *Fourse* says: "British speculators raised the price of silver on the strength of the Bank of England's proposition; but the members of the Monetary Conference are unanimous in rejecting the proposal. It must be bi-metalism or nothing. In competent circles the Conference is considered a failure for the time being." At the sitting of the Monetary Conference in Paris to-day (6th), the Italian delegate explained the conditions upon which Italy would enter the proposed union, namely, the coining of silver to a restricted amount. Mr. Fremantle, British delegate, semi-officially stated that the Bank of England would willingly increase its reserve silver if a union formed without the concurrence of England accepted the unlimited coining of silver. The Conference adjourned until the 8th inst.

LONDON, July 7.—The *Times* in its financial article says: "It is reported that the variation from the proposal to coin silver freely, originally made by the United States, to the effect that they would coin freely up to the limit of their own annual production as they are now practically permitted to do by the Bland silver bill, has been looked on with more favor by France and the other countries of the Latin Convention than previously, and that on this understanding, as regards the American coupled with the undertakings by Germany, India, and the Bank of England, France and the other countries of the Latin Convention, and probably Holland, will undertake to be bi-metallic.

"Such a proposal by the United States is, we believe, before the Conference, or rather before the chief powers interested who are negotiating directly behind the Conference. The present suspense is becoming most injurious to the exchange business with the East."

At the Monetary Conference in Paris yesterday, an Italian delegate said that Italy was willing to enter into a league with the Latin Union and the United States for a limited coining of silver for five years, on condition that Germany suspends the sales of silver for that period, substituting silver for small gold coins and small notes and making silver an unlimited legal tender at the ratio of 15½ to 1 of gold, and on condition that England makes silver a legal tender to a higher amount, the minimum quota of the mintage of each state to be proportionate to her population, with the option of exceeding that minimum on certain conditions. A Dutch delegate, construing the offer of England to maintain a free mintage of silver in India as an admission that even a partial bi-metallic league could make the price of silver steady, strongly appealed to England not to incur the responsibility of a perilous failure by holding aloof from the league, and exhorted her to crown her advocacy of free-trade by perfecting the instruments of exchange. At the close of the sitting, the President of the Conference suggested that the date for the final sitting be fixed.

COPPER—ARIZONA'S PLACE AMONG THE PRODUCING REGIONS.

A correspondent of the *San Francisco Bulletin*, writing recently from Tucson, says:

The copper interests of the territory are attracting great attention at present, and good copper mines and prospects are eagerly sought after by our resident capitalists, as well as by strangers in our gates. The famous Copper Queen mine, of Bisbee, the representative copper mine of the territory, which bears the same relation to copper mines that the Contention mine of Tombstone bears to the silver mines, has paid its fortunate owners, Messrs. W. H. Martin & Co., of San Francisco, the well-known sea-wall contractors, the handsome dividend of \$100,000 per month for the past four months. A recent careful examination of the mine, made by John R. James, of Tucson, a recognized authority on copper, shows that \$1,925,000 are in sight, estimating copper at 19 cents per pound. The original cost of this mine was \$30,000. A furnace was erected at a cost of \$11,000, making the total cost of mine and plant fall inside of \$50,000. The success of the Copper Queen has stimulated the development of copper properties in other sections of the territory, and scarcely a day passes without reports of new strikes and big finds of this most valuable metal. The latest transfer of copper properties was made recently to Mr. Christopher and other California capitalists, by O. A. Hyatt and others, of the Apache, Midas, and St. Nicholas mines, lying on the easterly slope of the Santa Catalina Mountains, and situated about 55 miles from Tucson. The mines have an elevation of about 7500 feet, and the vein lies between limestone and porphyry, the limestone being the overlying formation. The ores are found in the shape of carbonates and sulphurets, the carbonates predominating. The average assays show 30 per cent in copper and \$20 in silver per ton. On the Apache location, a cross-cut has now penetrated the vein for fifteen feet in ore of the above description, and the hanging-wall of the vein has not yet been encountered. The ledge has been uncovered on the surface for 60 feet and has been traced the whole length of the claim, 1500 feet. Some specimens of copper ore taken from the cut assay as high as 70 per cent. The Midas and St. Nicholas claims are extensions of the Apache, and show the same characteristics. Charcoal is abundant, and can be furnished for 15 cents per bushel. Water rights have been secured, and the cost of smelting should not exceed \$10 per ton. As 30 per cent copper ore is worth about \$60 per ton, there is a large margin of profit in smelting the ores on the ground. Yellow pine abounds, and this variety of timber makes the best charcoal known to the smelter. The climate is good all the year round. A good road can be constructed from the railroad track to the mines at an expense not to exceed \$3000. The ores are free smelting, and there seems to be no reason why the success of Bisbee should not be repeated at an early day in the Santa Catalinas.

There seems to be a disposition in some quarters to discourage copper mining in Arizona, and mysterious hints are thrown out and circulated here in Tucson by certain Boston gentlemen to the effect that the Calumet & Hecla mine, of the Lake Superior region, can produce enough

copper to supply the demand in the United States. Of course, it is perfectly natural that said company should desire to retain the vast monopoly it has enjoyed for years, and which has enabled it to pay \$18,000,000 in dividends; but the claim of its friends and stockholders that it can supply the American market is preposterous and without foundation. The consumption of copper in the United States amounts to about 25,000 tons per annum, and the consumption is increasing, owing to the new and various uses to which the metal is applied. The Calumet & Hecla produces about 600 tons a month, not one third of the actual demand. Besides its ores, it averages only three per cent in copper, and has to pass through the process of crushing, concentrating, and smelting before ready for market. In our Arizona mines, where carbonates abound, the rudest kind of furnace is sufficient to work the ores and to convert them into marketable copper. With the construction of the Guaymas Railroad, our producers will be able to ship from Guaymas direct to foreign ports, and will compete successfully with Chili in supplying the English demand, which amounts to about 40,000 tons per annum. The future of the Arizona copper mines is bright and full of promise, and now that avenues of transportation are open by which products can reach tide-water, we ought to be able to undersell every other copper country.

IRON ORE SHIPMENTS FROM THE UPPER PENINSULA OF MICHIGAN.

The *Marquette Mining Journal* of July 2d gives the following statement of lake shipments of iron ore for the season of 1881, up to and including June 29th, 1881:

ESCANABA—MARQUETTE DISTRICT.		MARQUETTE—MARQUETTE DISTRICT.	
Angeline.....	3,520	Rolling Mill.....	485
Barnum.....	8,689	Milwaukee.....	11,246
Bessemer.....	1,260	Pendill.....	498
Boston.....	279	Cleveland.....	22,947
Cambria.....	3,219	Lake Superior.....	20,775
Cheshire.....	1,252	Lowthian.....	6,470
Chicago.....	1,271	Winthrop.....	1,483
Cleveland.....	2,860	Humboldt.....	5,217
Cleveland Hematite.....	2,851	Republic.....	52,017
Goodrich.....	2,080	Columbia.....	525
W. Jackson.....	11,499	Keystone.....	2,435
Jackson.....	6,108	Champion.....	29,286
Jackson, South.....	7,584	Boston.....	4,310
McComber.....	6,929	Sterling.....	1,624
Michigamme.....	4,800	Total.....	159,118
Mitchell.....	6,261	L'ANSE.	
National.....	11,174	Taylor.....	1,815
New York.....	5,494	Michigamme.....	10,140
Palmer.....	1,185	Republic.....	598
Rolling Mill.....	378	Total.....	12,553
Republic.....	8,330	PIG-IRON.	
Saginaw.....	10,698	Carp River Iron Co.'s furnaces... ..	619
Salisbury.....	7,457	Pioneer Furnace.....	457
Section 12.....	26,914	Total pig-iron.....	1,076
Superior.....	1,728	QUARTZ.	
Superior, hematite.....	2,174	Carp River Iron Company.....	1,996
Wheat.....	3,058	Ore to local points.....	10,090
Winthrop.....	400	Total ore, pig-iron, and quartz... ..	185,433
Sterling.....	388		
Champion.....	1,567		
Forest City.....			
Total.....	178,045		
MENOMINEE DISTRICT.			
Chapin.....	39,578		
Commonwealth.....	18,413		
Curry.....	5,715		
Cyclops.....	5,605		
Florence.....	14,131		
Keel Ridge.....	5,302		
Ludington.....	732		
Norway.....	37,112		
Perkins.....	15,012		
Quinnesec.....	15,886		

The following table exhibits, in gross tons, the total lake shipments of iron ore the present season, up to and including June 29th, together with the amount shipped during the corresponding period last year:

Where from.	1880.	1881.
Escanaba.....	357,242	377,430
Marquette.....	194,651	159,118
L'Anse.....	12,476	12,553
Total.....	564,369	549,101

A falling off of 15,268 gross tons.

The following is a statement of shipments made from the Menominee Mining Company's mines by lake, from opening of navigation to Wednesday, June 29th, inclusive:

Name of mine.	Gross tons.
Chapin.....	39,578
Cyclops.....	5,605
Florence.....	14,131
Norway.....	37,112
Quinnesec.....	15,886
Vulcan.....	29,565
Total.....	141,877

An increase of nearly 19,000 tons over a corresponding period last year.

The Cleveland still leads the van with lake shipments of 55,591 gross tons; the Republic follows with 52,993; and the Lake Superior with 49,887 gross tons.

The Champion is coming to the front in the way of shipments, having already forwarded by lake nearly 30,000 tons, without making any perceptible inroad upon her winter stock-pile. Her lake shipments for a corresponding period last year footed up a little over 26,000 tons—a very fair increase, considering the late opening of navigation and dearth of vessels the present season.

There were shipped from the three ports of Escanaba, Marquette, and L'Anse, during the week ending June 29th, just 99,973 gross tons of iron ore, notwithstanding there was a dearth of vessels at Marquette. It will be observed that notwithstanding the late opening of navigation the shipments are only 15,000 tons less than for a corresponding period last year—a falling off which will be completely overcome in another week.

THE COAL TRADE IN FRANCE FROM 1850 TO 1880.

The *Colliery Guardian* translates the following article from *La Houille*:

If there is one all-important consideration which, with all that we have often had occasion to urge, demonstrates the necessity for the formation of new economical ways of transport, that is to say, of canals, and notably of the Grand Canal du Nord, it is the continued and, so to speak, systematic development of the production of coal in France for the last thirty years. "France," as M. Veuillemin says in a small brochure which he has just published, "will always be partially dependent upon other countries for her coal supplies, although she possesses, notably in the basins of the Nord, the Gard, and the Saône-et-Loire, very considerable mineral wealth. But their topographical situation, distance from the sea, the long distances to be traversed, and the want of cheap means of transport, place them under disadvantageous conditions for reaching the number of centers of consumption where foreign coal arrives much more easily. To create ways of communication, and particularly canals, by which the expenses of transport would be reduced to a minimum, is the only efficacious method for rendering the country less dependent upon supplies from abroad."

We said, in commencing, that the production of coal in France during the last thirty years had followed a continuous development; this development has been most striking in the basins of the Nord and the Pas-de-Calais, as will be seen by the following figures: In 1850, France produced 4,433,567 tons, of which 1,000,677 tons were from the Nord and the Pas-de-Calais; in 1860, the total production amounted to 4,309,623 tons, of which these two basins furnished 2,185,182 tons; in 1870, the total production amounted to 13,330,308 tons, and the Nord and the Pas-de-Calais furnished 4,312,720 tons; in 1879, the various French basins produced 17,110,979 tons, the region of the Nord having supplied 7,449,086 tons; finally, in 1880, the augmentation was still further accentuated, the Nord and the Pas-de-Calais figuring for 8,493,904 tons in the total production of France, which reached 19,412,112 tons. Therefore from 1850 to 1880 the general output increased by about 337 per cent; the increase for the basins of the Nord was about 744 per cent, and for the other basins together about 218 per cent; the Nord alone realized an increase equal to that of all the other basins.

We know further that the consumption of coal in France has always surpassed and still surpasses home production; we may also see during the years under consideration this consumption attained the following figures:

Years.	Tons.
1850	7,225,267
1860	14,270,252
1870	19,109,958
1879	24,866,517
1880	28,047,126

In thirty years, the augmentation has therefore been about 288 per cent; from 1850 to 1860, the annual progression was about 9.7 per cent; it was about 3.3 per cent from 1860 to 1870; and from 1870 to 1880, it was about 4.6 per cent, or for the entire period, an annual increase of 9.6 per cent. During the year 1880, the increase over the year 1879 attained the considerable proportion of 12.8 per cent, or 3,180,609 tons. This enormous development, much superior to that of the preceding years, was due to the activity of the metallurgical industry in 1880. There were produced 332,816 tons of pigs, 95,237 tons of wrought-iron, and 51,361 tons of steel more than in 1879. This industry alone, therefore, took 850,000 tons of the augmentation of the total consumption, or more than one fourth.

If now we calculate the difference existing between the respective figures we have given above for home consumption and production, we are able to form tables of the quantities of coal imported into France from other countries. These quantities of fuel (coal and coke) were as follows:

Years.	Tons.
1850	2,701,700
1860	5,960,630
1870	5,779,650
1879	7,755,538
1880	8,635,014

The following table shows the details of imports of coal and coke from the respective countries for the last two years:

	1879.	1880.
	Tons.	Tons.
England	2,919,728	3,291,155
Belgium	3,942,444	4,157,010
Germany	798,906	982,332
Other countries	1,813	2,397
Coke	760,537	944,465
Total	8,423,428	9,377,359
Deducting exportations	667,890	742,345
Remainder	7,755,538	8,635,014

If we take as a whole these figures, given by the total of the imports during the thirty years under consideration, we see that the increase has been about 209 per cent. For England, thanks to the advantages of transport by sea, the augmentation reached 446 per cent; for Germany, in spite of the loss of Alsace and Lorraine, it was about 253 per cent; for Belgium, finally, the proportion did not exceed 113 per cent, owing to the great development of the collieries of the Nord. The proportion of foreign coal entering into the consumption of France was about 33.6 per cent in 1850, 41.7 per cent in 1860, 30.2 per cent in 1870, 31.1 per cent in 1879, and 30.7 per cent in 1880.

To sum up, and taking as bases all the preceding figures, we can admit for each of the years posterior to 1880 an augmentation of 800,000 tons in the consumption of coal, which would thus reach the total of 32,000,000 tons in 1885, 36,000,000 tons in 1890, and 44,000,000 tons in 1900. According to the same figures, the home production would be for each of these three years 22,500,000 tons, 25,000,000 tons, and 31,000,000 tons respectively. The surplus, say successively 9,500,000 tons (of the value of 170,000,000 fr.), 11,000,000 tons (of the value of 200,000,000 fr.), and 13,000,000 tons (of the value of 230,000,000 fr.), would have to be furnished by other countries.

The French coal basins are rich enough and sufficiently well worked not only to furnish the production which we have just indicated but even to prevent the increase of foreign importations, which cost us 150,

000,000 fr. last year; but for that it is necessary (and we finish as we began) that the dispersion of the output of our collieries should be facilitated by the creation of new economical ways of transport. They would render incontestably greater services than the innumerable small lines of railroad which the state constructs in every corner of the country, and which, for many of them at least, we are compelled to ask the utility without receiving any satisfactory reply.

PETROLEUM STATISTICS.

COMPARATIVE SYNOPSIS OF REPORTS FOR APRIL AND MAY, 1881.

42 GALLONS = 1 BARREL.	1881.			
	April. 30 days.	May. 31 days.	Increase in May.	Decrease in May.
Production for the month..... bbls	2,205,780	2,393,293	187,513	.....
Daily average..... "	73,526	77,203	3,677	.....
Stock at the wells..... "	1,604,987	1,468,887		135,100
Iron tank stock..... "	21,358,184	22,321,141	96,957	.....
Total stock..... "	22,963,171	23,793,028	829,857	.....
Number of producing wells.....	15,769	16,150	381	.....
" " drilling wells.....	446	470	24	.....
" " " completed.....	316	406	90	.....
" " dry holes.....	12	7		5
Aggregate daily production of new wells..... bbls	6,911	8,425	1,514	.....
Average daily production of new wells..... bbls	218-10	2094		12-10
Number of rigs building.....	443	450	7	.....
Total shipments out of the region, bbls	1,348,398	1,563,436	215,038	.....

—Stowell's Petroleum Reporter, June 21.

PETROLEUM—THE SITUATION AND OUTLOOK.

In examining the statistics which we present in this issue, and comparing them with those of the preceding month, it will be found that the opinion which we expressed of the outlook in our last issue is fully confirmed by the present figures of production in stock, shipment, and market values.

Notwithstanding that we have somewhat increased our shipments from the region during the month, we have added to our stock in the region over three quarters of a million of barrels.

The daily average runs of all the pipe lines has been 85,196 barrels; while the daily average shipments from all the pipe lines has been 50,433 barrels; and although by the large runs, we have slightly decreased stocks at the wells, in wooded and iron tanks, yet, taking all the figures together, our daily production for the month has exceeded our daily shipments from the lines by 26,770 barrels.

There has been a good deal of talk of a near approach of diminishing production. All hope founded on such talk is beginning to look rather delusive. Notwithstanding the obvious excess of supply over demand, which has prevailed for more than two years, the best figures attainable show that the daily production in the month of June has increased 3677 barrels over the daily production of the preceding month.

The developments in the Wellsville region have, during the month, been rather unimportant. Several of the ventures have come in, and are reported "very small producers," or "dry." The differing gravity of the oil leads many to infer a small and unproductive field. Quite a number of wells, however, are drilling at locations which are regarded as significant test-points. Some of these will probably not be completed before July. With reference to the future fertility of this field, therefore, little or nothing can be premised at present.

A number of large companies and firms operating in the richer portions of the Bradford field have formally agreed not to drill for the remainder of the year. If this agreement is faithfully adhered to by all concerned, it will probably have some effect toward decreasing the production of the Bradford field somewhat. Many agreements of a similar kind have been made at different times in the past; but there is, we believe, no single instance in which such agreements have been carried out to the end. Meanwhile, in spite of over-production and stagnant market, the statistics of "drilling wells," "wells completed," and "rigs up," show great activity throughout all the region.

With an average daily production of 77,203 barrels, which seems to be on the increase rather than on the decline, and with a surplus stock of over twenty-three millions of barrels, it would be altogether unreasonable to hope for an active, advancing market for crude, unless such activity comes through artificial speculation. That it is not likely to come from this cause, is pretty evident, inasmuch as the speculators seem fully to appreciate existing conditions, and to have withdrawn almost entirely from the field.

Among all the gloomy surroundings, there is but one hope for better prices, and that hope is based upon the fact that the stocks in Europe are considerably lower than they were this time last year, and that the demand for export oil, in the coming four or five months, will, consequently be quite large. We may thus be relieved of our burden temporarily, by getting better prices for a short time; but so far as permanent relief is concerned, it looks very much as if our only way to healthy conditions at the producing end of the line, lies through the self-created bankruptcy of the energetic producer.—Stowell's Petroleum Reporter, June 21.

THE ATCHISON, TOPEKA & SANTA FÉ RAILROAD.—This company has recently ordered 105 new locomotives, 50 passenger cars, and 15 Pullman sleepers. Two extra daily trains are required to accommodate the increased passenger traffic to Colorado, Arizona, and California.

THE DENVER & RIO GRANDE RAILROAD EXTENSION.—A dispatch from Denver, July 6th, says that the Denver & Rio Grande Railroad Company has contracted for the grading of its short line from a point on its main line seventeen miles south of Denver to the South Fork of the Platte River on a water grade, and for the extension from Denver to Fairplay and the valleys of the Arkansas River. A large force is now engaged on the work, which is to be pushed vigorously.

A COMMUNICATION FROM MESSRS. CLARK & BOTHWELL, CONCERNING THEIR MINING PROPERTIES.

OFFICE OF CLARK & BOTHWELL,
No. 2 NASSAU, CORNER WALL STREET,
NEW YORK, June 20, 1881.

During the past eight months, we have organized the following-named companies: Starr-Grove Company, Satemo Gold Quartz Company, Eagle Silver Mining Company, San Bruno Copper Company.

These corporations all own properties of great value, located in temperate regions, with ample supplies of water, timber, and fuel, and for the most part easily accessible. In every case the mines had demonstrated their merit in the hands of private owners, and at the time of purchase showed sufficient resources to invite operations on a larger scale than had been previously attempted. Although the companies are new, this group of mines represents years of intelligent labor, and many thousands of dollars of invested capital. None of them came into our hands as cheap properties, but as mines having a record and a high acknowledged valuation, based upon statistics of former production and surveyed development at the time of purchase. The stocks have sold as sound investment securities. In each case, the stock has been sold at a moderate advance upon the original cost of the property, and the largest advances in prices have occurred after the securities have passed from our hands.

We still remain the largest individual owners of each and of all these stocks, our own personal holding being generally about one fifth of the entire capital stock. The present market value of these stocks is much greater than the highest prices realized by us when selling; but we are offering none for sale, and intend to maintain our present holdings as permanent investments.

President W. S. Clark has visited all of these mines, excepting the San Bruno, and some of them a number of times. He is the chief executive officer of each company, and affairs at the mines are conducted under his direct supervision. He and his immediate associates in the management have the largest interest in the practical and legitimate success of the enterprises, and all possible efforts are now being made to render that success large and enduring.

We have now in operation one mill with four stamps, one with ten stamps, two with fifteen stamps, and one with forty stamps, so that within about one hundred days this group of mines will have an unsurpassed equipment and be prepared for a long and prosperous career.

The Starr-Grove and the Eagle mines are located at Lewis, Nev. The operation of these mines under the present management has transformed this almost unknown camp into one of the most remunerative bullion-producing districts in the State. The Battle Mountain & Lewis Railroad, organized and constructed under our auspices, is now open for business, and connects the mines by rail with the cheapest sources of supplies. The new 40-stamp mill for the use of the Starr-Grove mine is well under way, and will be completed early in August.

In the Lewis camp alone, the expenditure during the next three months for improvements on the properties controlled by Clark & Bothwell will amount to more than \$250,000. With these improvements completed, this will be one of the best-equipped mining camps in the country. The operations of the Starr-Grove Company have stimulated great activity in adjacent claims, and the work that has been done only goes to confirm our first reports of the strength and rich-

ness of the famous silver ledges of this district. The two fifteen-stamp mills now running on the Starr-Grove ore will be employed continuously during the summer. Meanwhile, it is the purpose of the management to sink a new shaft several hundred feet deeper than the present deepest workings, and it is believed that in a few months this development-work will have more than doubled the resources in the mine and placed it unquestioned among the great and enduring mines in the country.

In the Eagle Company's mines, a large force of men is now employed night and day in pushing development. A tunnel recently started, 750 feet below the croppings on the Chloride mine, has just entered the main ledge, which carries a fine body of high-grade ore. It is believed that two months' work will connect this tunnel with the discovery tunnel, which is 350 feet above it on the mountain slope, and develop immense resources in this mine, which is already in a condition to maintain a large daily output.

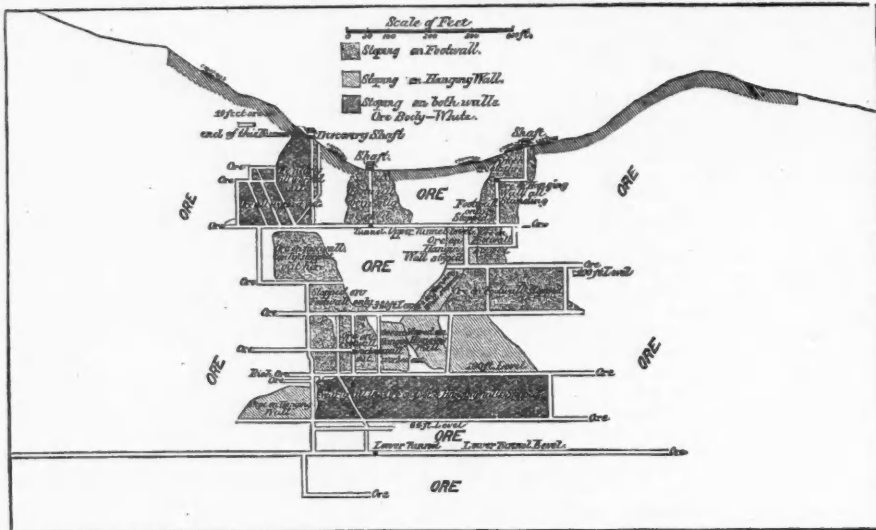
The Hite mine, in Mariposa County, California, is acknowledged to be one of the richest as well as one of the greatest gold properties in the world. Since the present management took possession, many important additions and improvements have been made, and the mine will now be worked more economically and on a much larger scale than ever before. The ore resources in this mine are immense, and the new level which has just been opened up a hundred feet below the old workings shows that the wonderful ore-chimney, which has already yielded \$3,000,000, continues toward the base of the mountain with uninterrupted strength and quality. The forty-stamp mill belonging to the company is now running night and day, and work has already begun on a new mill of equal capacity, which will be completed about the latter part of October.

It is confidently expected that within a few months all the above companies will have accumulated a liberal reserve fund, and be in condition to pay regular dividends for a long period. It is proposed to issue at an early day, for the information of stockholders, full descriptions with maps of the several properties owned and operated by us.

The gold mines of Nova Scotia have a wonderful record for richness. The Satemo is one of the best selected mining properties in the province, and is now yielding bullion regularly. A new ten-stamp mill, with capacity for twenty stamps, will be completed within sixty days. Meanwhile development-work is in progress, and it is believed that early in the fall the Satemo will take its place among the regular dividend-paying mines.

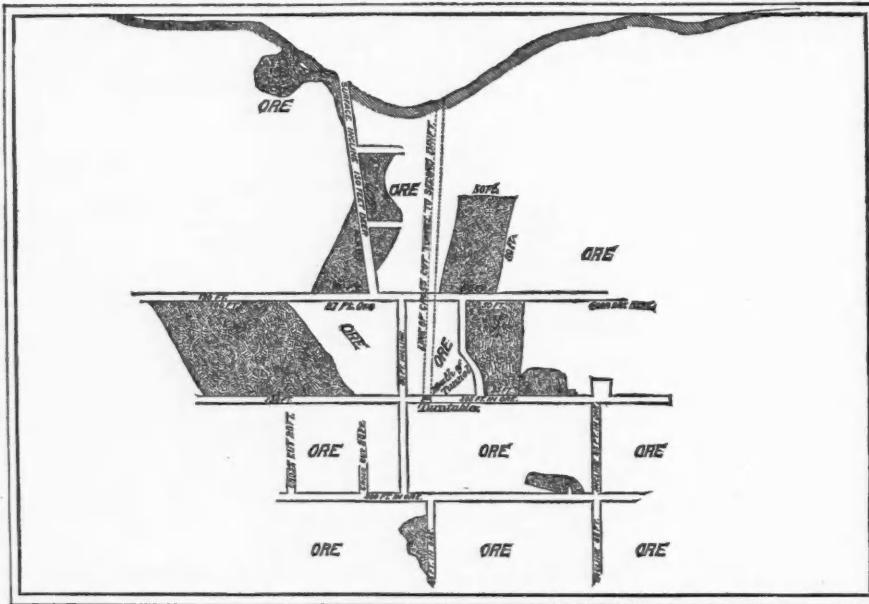
Work was resumed on the Stormont mine about the first of last month, and for several weeks the entire force has been engaged in driving a new level, 170 feet below the old Buckeye level, for the purpose of stoping down and extracting all the ore through the Savage shaft. It was considered wise to push this work before starting the mill, although there is a fine body of rich ore now accessible. The superintendent has now been instructed to start the mill, and regular bullion shipments will soon be resumed. The expenses under the present management have been greatly reduced, and assuming the bullion production for the coming year equal to that of the last year, it is safe to say that the dividend capacity will be greatly increased.

Respectfully, CLARK & BOTHWELL.



HITE GOLD QUARTZ MINE, MARIPOSA COUNTY, CALIFORNIA.

Longitudinal Section.



THE STARR-GROVE MINE, LEWIS, LANDER COUNTY, NEVADA.

ASCENSION OF THE UNCOMPAGRE PEAK.—A special dispatch to the New York Evening Telegram, dated Denver, Colo., July 7th, says that an excursion party ascended Uncompahgre Peak, near Salt Lake City, 14,580 feet above the level of the sea, and one of the highest peaks in the United States, yesterday.

THE ONEIDA SALT-WORKS, IDAHO.

We are indebted to the courtesy of Mr. F. KNOWLAND, General Agent, 287 Broadway, New York, for a copy of the *New West Illustrated*, Omaha, Neb., Mr. ROBERT E. STRAHORN, editor and publisher. The number before us, for April, 1881, is a large, eight-page sheet, copiously illustrated, mainly devoted to Idaho and its mining industries. We take the following paper on the Oneida Salt-Works from its columns:

Among the most important developments in the vast regions now being opened up by the Utah & Northern Railroad are those at the Salt Springs, on what is known as the Old Lander Emigrant Road, leading from South Pass to Oregon, and about 85 miles east of Eagle Rock, Idaho. The road named passes directly along the flat below the spring, where, before being concentrated in pipes, the water had spread out, and, evaporating in the sun, formed large masses of salt crystals, which attracted the attention of passers-by, and led to the discovery of the spring flowing from the hillside above. It is as clear and sparkling as the purest spring water, and would never be suspected of containing mineral. The valley in which it is situated is known now as Salt Spring Valley, and is about ten miles long, by an average of one mile wide; through it flows a rapid stream filled with mountain trout. The salt springs were first taken up by B. F. White, Esq. (the present owner), and partner, in June, 1866, and works since have been in constant operation, every year witnessing an increase in the demand, until almost the entire stream flowing from the spring has been utilized. The salt is made by boiling the water in large galvanized-iron pans, into which it is led by wooden pipes leading directly from the spring, thus insuring perfect cleanliness, and a uniformly white, clean, and beautiful product. The water is kept constantly running into the boilers, and is kept at boiling heat all the time. The salt is shoveled out once in every thirty minutes, and, after draining twenty-five hours, is thence thrown into the drying-house, there to remain until sacked and prepared for shipping. The most scrupulous cleanliness is observed in every operation; and when the immense banks of salt lie piled up in the drying-house, they resemble huge snow-banks more than any thing one could imagine. It takes from two to four months for salt made in this manner to dry and ripen, and for this reason it becomes necessary to keep on hand a large supply, so that at any time a thousand tons of the purest and whitest salt in the world may be seen here in these far West Oneida Salt-Works.

Following is an analysis of the Oneida salt, made by Dr. Piggot, the well-known analytical chemist of Baltimore. It shows a higher percentage of pure salt than the celebrated Onondaga brand, manufactured at Syracuse, N. Y.; while neither Liverpool, Turk's Island, nor Saginaw salt approaches it in purity, or is as white, clear, or soluble in liquids:

Chloride of sodium.....	97.79
Sulph. soda.....	1.54
Chloride of calcium.....	.67
Sulph. magnesia.....	Trace.
Total.....	100.00

In 1866, only 15,000 pounds of salt were here manufactured; but the demand in Idaho, Utah, and Montana has so steadily increased that the product has since averaged about 600,000 pounds per annum, and run up to 1,500,000 pounds in 1880, much of this last year's production having been consumed in Montana smelting-works. It is sacked in 5, 10, 25, 50, and 100-pound bags, and is laid down at points 200 miles distant, by wagon transportation, at from three to four cents per pound.

The country surrounding the springs is covered with a thick carpeting of rich and nutritious grasses, sufficient to pasture a nation of cattle. Salt River Valley, only a few miles from the works, is fifty miles long by an average of five miles wide. Residents claim that it is the best watered valley in Idaho, and that it would alone support a population of 50,000 souls if settled up and properly cultivated.

THE BANK EXCHANGES.

The following are the exchanges effected at the various clearing-houses throughout the country, as obtained by the *Public*, for the month of June, 1881, as compared with the corresponding month last year:

	1881.	1880.	Per cent.
New York.....	\$4,216,150,321	\$2,934,226,593	Inc.. 43.7
Boston.....	398,204,483	232,398,585	Inc.. 71.4
Philadelphia.....	265,219,456	183,046,151	Inc.. 44.5
Chicago.....	192,579,182	138,301,379	Inc.. 39.2
Cincinnati.....	79,360,400	54,413,600	Inc.. 45.9
St. Louis.....	68,804,815	57,420,724	Inc.. 19.8
Baltimore.....	62,600,856	51,233,439	Inc.. 21.2
San Francisco.....	54,636,929	38,063,229	Inc.. 43.6
Pittsburg.....	33,853,549	22,893,098	Inc.. 47.9
Louisville.....	33,277,919	24,632,446	Inc.. 35.1
New Orleans.....	31,785,530	26,578,102	Inc.. 19.0
Milwaukee.....	31,420,667	26,930,639	Inc.. 18.8
Providence.....	17,208,600	16,933,600	Inc.. 1.6
Kansas City.....	9,603,000	7,713,600	Inc.. 24.5
Cleveland.....	8,129,217	6,427,712	Inc.. 26.5
Indianapolis.....	8,078,168	6,429,558	Inc.. 25.7
Hartford.....	7,847,895	6,163,068	Inc.. 27.3
New Haven.....	4,854,878	3,982,000	Inc.. 22.0
Columbus.....	3,982,930	3,690,960	Inc.. 8.0
Worcester.....	3,363,535	2,598,747	Inc.. 30.7
Springfield.....	3,116,572	2,592,881	Inc.. 20.2
Lowell.....	1,991,402	1,412,421	Inc.. 41.1
Syracuse.....	1,653,842	1,306,591	Inc.. 26.7
Total.....	\$5,537,756,147	\$3,849,990,561	Inc.. 43.8
Outside New York.....	1,321,605,826	915,763,968	Inc.. 44.3

The *Public* makes the following comments:

"Business has just closed its largest year, its largest half-year, its largest quarter, outside of New York its largest month, and at Boston and some other cities, its largest week. The payments through Clearing-House at New York were not as large in June as in May. Nor was this wholly because of the diminished activity in speculation last month, but the exchanges, exclusive of those rising from such speculation, were larger last month than ever before, excepting in May, and were larger for the quarter, the half-year, and the last twelve months, than for any

* For the five and twenty-six weeks ending July 23, 1881.

like period preceding. At the twenty-two clearing-houses outside of New York, the exchanges were larger in June than ever before in any month, and in the last quarter, half-year, and year, were larger than in any previous corresponding period in the history of the country."

PROGRESS IN SCIENCE AND THE ARTS.

Shipment of Railroad Iron by the Mississippi River.—The shipment of 8000 tons of railroad iron from Wales to Des Moines, Ia., by way of New Orleans and the Mississippi River to St. Louis, is a notable event, says the *Railway Age*, especially if it be true, as stated, that it is delivered at Des Moines at \$6 a ton less than the cost would have been by way of New York and thence by rail. Whether there would have been any saving over the canal and lake route from New York is a question. As long as steamers carrying grain to Europe from the barges at New Orleans can secure return cargoes of railroad iron, they can afford to make low rates; but the demand for railroad iron in such large quantities can not be depended upon permanently, and the question then will be whether New Orleans can hold out sufficient inducements as a place of import to make it profitable for the steamers.

Gold Mining in Australia.—The statistics furnished in the report of Mr. Hayter, Statist to the Government of Victoria, continue to exhibit a most remarkable decline. The quantity raised in all these colonies since deposits of that metal were first discovered in 1851 is estimated at 69,000,000 ounces, valued at \$1,355,000,000. By far the largest proportion has come from Victoria, where the gold-fields in 1879 produced only 758,947 ounces, which is less than half the average annual yield of the same colony during 1870-79.

This Little Earth.—A writer in *Belgravia* kindly furnishes us with a few hints—a sort of rude measuring-rod that may be of use when our sense of our planetary importance becomes oppressive. It is only, he says, when we regard our globe as a member of the planetary system, and that system in turn as a unit among systems, that we feel how infinitesimal are its concerns and how relatively insignificant it is. We may, for practical purposes, treat the orbit of Neptune as the circumference of our planetary system, and state the diameter of it therefore as about 5,486,000,000 miles. But if we could suppose all this vast plane converted into a solid disk, instead of being, as now, for the most part empty space, and if to it were then given, by some means or other, a slightly luminous surface, it would appear to an observer upon the very nearest fixed star no more portentous than a new shilling glittering in the sunshine would appear to an observer at a distance somewhat over a hundred yards. In other words, it would want fairly good eyes to observe it at all. We may safely say, then, that the annual thermal loss of our own little sphere, though sufficient to melt 777 cubic miles of ice, would, even though multiplied by centuries of centuries, no more affect the temperature of space than the striking of a match would avail to moderate the climate of Siberia.

The "Box of Electricity."—The following letter from Professor Tyn-dall appeared in the *London Times* of June 17th. The letter has a special interest, apart from the clear description of a "secondary battery," because it gives the honor of the discovery to its rightful owner, and removes the perplexity occasioned by the use of the term "storage of electricity" and "box of electricity."

"SIR: Would you permit me to say a word or two on a subject of great public interest and of considerable public perplexity—I refer to the so-called 'storage of electricity'? The usual condition for the production of a voltaic current is known to be the immersion of two different metals in a liquid called an electrolyte. When two pieces of metal thus immersed are connected with a galvanometer, the existence of a current is declared by the deflection of the needle of that instrument. Substituting for the two metals two clean plates of platinum and connecting them with the galvanometer, the needle remains unmoved. The platinum plates being homogeneous, there is no reason why a current should start from one of them through the electrolyte rather than from the other. If such currents started, they would be equal and opposite, and would, therefore, neutralize each other. In other words, with the two homogeneous plates of platinum we have no current.

"But let the wires connected with these platinum plates be detached from the galvanometer and joined, even for a moment, to a voltaic battery, the current which passes will destroy the homogeneity of the plates. If the electrolyte, for example, be acidulated water, that liquid will be decomposed, a film of hydrogen covering one plate of the platinum, and a film of oxygen covering the other. These two films play the part of two different metals in the ordinary voltaic battery; and if the plates of platinum thus coated be connected with the galvanometer, the current produced will be strong enough to dash the needle violently aside.

"The experiment may be varied in fifty or five hundred ways, and when, instead of the films of gas, solid layers are deposited electrolytically on one or the other of the homogeneous plates, the duration of the current is prolonged. Several cells thus rendered active, through the agency of an extraneous current, constitute what is known as a 'secondary battery.'

"The discoverer of this battery was a man who, without pecuniary reward, or even the hope of such reward, almost sacrificed his senses to the investigation which resulted in the discovery. The name of this man was Ritter, a native of the small German village of Liegnitz. He died, as Dove remarks, exhausted by restless labor, poverty, and disorderly living. I think his name and services ought not to be ignored at the present time.

"Other men labored and we have entered into their labors. Employing homogeneous plates of lead and rendering them non-homogeneous—converting them, in fact, virtually into different plates—by the action of an extraneous current, M. Planté greatly intensified the effects obtained by Ritter. M. Faure has followed and improved upon M. Planté. Covering the plates of lead with minium, with the aid of the currents now obtainable at a small expense, he has, it appears, produced a secondary battery of great power and of considerable promise from a practical point of view.

"But I think scientific men have a right to demur to the phraseology in which M. Faure's extension of the discovery of Ritter has been intro-

duced. It has been severely criticised in the *Revue Scientifique*. Numbers of people in this country have been thrown into perplexity by the first letter on this subject published in the *Times*. With regard, for example, to the 'box of electricity,' if such language be tolerated, we may call a common packing-case containing a voltaic battery a box of electricity; but I am not sure that science will profit by a terminology which bewilders the public mind. Your obedient servant, JOHN TYNDALL."

The French and English journals are discussing the subject very fully. Among the points handled is the comparative amount of energy in the Planté battery and in that of the Faure, the ratio between the two being, according to M. Frank Géraldy, in the *Journal Universel d'Electricité*, 1 to 1.30, "so that the two apparatus are not very far different from each other in storing power." The one experiment quoted by Sir William Thomson, namely, the surgical operation performed by Prof. George Buchanan, is deprived of its novelty by the statement that "for ten years at least, the Planté battery has been used in performing analogous work; and it is chiefly in view of this special application that M. Trouvé and other constructors in Paris make and sell these apparatus; their use, indeed, has resulted in the invention of a whole series of thermo-cauterics, polyscopes, etc., made for working with the battery. Its application to the Achard electric and other brakes may also be mentioned. All this proves that the Planté battery can be manufactured for many industrial purposes, and that the Faure battery possesses, in the absence of the preparing process preliminary to charging, the one advantage which is a great but not an all-important one. Sir William Thomson does not, however, permit his enthusiasm to run away with him. He does not indorse the wild proposals of carting power and light from house to house; but putting this proposition on one side, he indicates the true future rôle of the Faure battery, that of acting as a regulator in a system of distribution by conductors." The article of M. Géraldy may be seen almost *in extenso* in London *Engineering* for June 24th; and the same journal, on another page, has a short paper on the Faure battery, in connection with English patents, which closes with this statement: "We understand that M. Planté has organized a factory for the manufacture of his secondary batteries, which have the advantage of being chargeable by a dynamo-electric machine, whereas Faure's can only be charged by a voltaic battery. It was for this reason that Planté abandoned the use of red lead, subsequently taken up by Faure. Planté's battery has been stated to accumulate only one fortieth of Faure's; but the Count du Moncel estimates that, weight for weight, the electric capacity of the Faure battery is only 20 per cent greater than that of the Planté."

As to the value of the invention, Professor Osborne Reynolds, of Owens College, Manchester, thinks 1,000,000 foot-pounds a small matter, as much "energy" being found in a foot of coal. Professor Ayrton wants to know how that energy is to be extracted, and it is said that he, in conjunction with Mr. Perry, is making attempts to get it, of course at a low temperature.

Heating Effects Due to Compression.—On two former occasions we have taken notice, says London *Engineering* of the results of certain investigations instituted by Prof. P. G. Tait, of the University of Edinburgh, in regard to the thermometers used in the Challenger expedition, and the alleged effects of compression upon them when immersed to great depths in the sea. Still pursuing the line of inquiry suggested by the experiments made with these thermometers, the learned professor has since made a further series of experiments on the heating effects of compression of a number of liquids and semi-solid liquids, the results of which he laid before the Royal Society of Edinburgh on the evening of Monday, the 16th ultimo. He mentioned that he had employed a ton pressure upon each of a number of different substances, and had noticed in each case the rise of temperature due to the compression exerted. Marine glue gave a rise of temperature to the extent of 0.9° Fahr.; raw potato, 0.7°; pith, 0.37°; cork, 1.3°; a piece of bar soap, about 1.20°; a piece of licorice and a piece of cheese, about $\frac{3}{4}$ °; a piece of raw flesh behaved very much like the potato; india-rubber and solid paraffine rose in temperature about $1\frac{1}{2}$ °; lithographers' ink and shoemakers' and beeswax, about 1.4°; lard, about 2°. After mentioning these details, Professor Tait said it was remarkable that potato and raw flesh, with so large a percentage composition of water, had a large comparative amount of independent heat produced, while pith gave no perceptible difference of effect over what would have been produced by water alone. Cork has this peculiarity, namely, that when the pressure was removed the fall of heat was only 0.9° Fahr., as against 1.3° of a rise on the application of the same amount of pressure. That seemed to agree, he said, with what was already known of cork, namely, that on the removal of the pressure it did not spring back to its original form. In these respects, india-rubber was opposed to cork, which had this further peculiarity, that, on continued experiment, the amount of heat produced by the pressure gradually fell till it was the same as the amount of cooling which resulted on the relaxation of the pressure. About shoemakers' wax there was the peculiarity that it took a very long time before the heating effect was fully produced. Its chemical composition, also, was of course different from that of beeswax, which yet had precisely the same amount of heat produced. In concluding his interesting communication, Professor Tait intimated that further research would be necessary before they could get definite facts showing the exact heating effects of compression, which, he added, would form the subject of a future communication.

MICA IN MONTANA.—The Benton (Mont.) *Record* says that a mine of mica, four feet thick and remarkably clean and fine in quality, has been lately discovered at the Barker. It promises to widen with development.

ELECTRIC RAILROADS IN GERMAN COAL MINES.—LONDON, July 7.—The German coal mines have commenced conveying coal to the pit's mouth by electric railroads.

MOLLY MAGUIREISM.—A special dispatch to the New York *Evening Telegram*, dated McConnellsville, Pa., July 7th, says: The late outcropping of Molly Maguireism in Westmoreland, Fayette, and Allegheny

counties has caused an undefined feeling of apprehension and insecurity to prevail in those coal region communities, where there is no regularly organized constabulary to protect the law-abiding and honest citizen from the threatened lawless, and perhaps sanguinary, incursions of the mysterious strangers now haunting the mountain coal country. The terrible outrages at Scottsdale, Dunbar, and other points, where a riotous element has been operating for some time past, have been followed by others, and the alarm and excitement has become so great that the authorities have determined to checkmate the illicit schemes of the lawless brotherhood that appears to have organized for a criminal and bloody campaign. Several mine superintendents have fallen by the assassin's bullet, and others have been notified by "coffin notices," that they have been marked as victims. The wholesale delivery of the Westmoreland County jail, at Greengburg, is also attributed to the Molly Maguires, a number of the members of the organization having been locked up in the prison for complicity in miners' riots during the strike that has prevailed in Westmoreland County for several weeks. All these culprits escaped. Among them are some of the most desperate Mollies living in this section of the bituminous coal districts. The authorities have combined with the coal and coke companies, and correspondence has been opened with the Pinkerton Detective Agency. It is proposed to employ detectives and apprehend the prominent spirits that have inaugurated the disorders.

THE UNION PACIFIC AND THE DENVER & RIO GRANDE RAILROAD WAR.—The Chicago *Times* states that late advices from Denver show that there is open war between these corporations. From the accounts in the local papers—all of which are thoroughly partisan for one side or the other—some information is gleaned relative to the causes of the trouble. It is stated that the Rio Grande has determined to parallel every line of track the Union Pacific owns in Colorado, and to dispute its claim to the business of any and all points in the State. This statement is made by the *Tribune*, which is understood to be the "organ" of the Denver & Rio Grande Company. It is claimed that the tripartite agreement made in March, 1880, between the Union Pacific, Atchison, Topeka & Santa Fé, and Denver & Rio Grande pledged the three companies to certain stipulations for the purpose of adjusting controversies in relation to the construction of railroads in Colorado and New Mexico. The Atchison, Topeka & Santa Fé agreed not to construct or promote the construction of any railroad west of the line of the Denver & Rio Grande Railroad. The Denver & Rio Grande agreed not to construct any railroad east of its north and south line. The Union Pacific agreed that it would not directly or indirectly construct or promote the construction of any parallel or competing line of railroad from any part of its line or lines to any point in Colorado south of the latitude of Denver on the line of the Kansas Pacific. The Denver & South Park Railroad, built by Governor Evans, was, at the time the agreement was ratified, under independent ownership, and was not included in the memoranda. Of course, the projected extensions of this road were not affected by the agreement. Since that agreement was entered into, the Union Pacific has purchased the Denver & South Park road. The Union Pacific claims the right to push the extensions of the Denver & South Park in all directions. The Denver & Rio Grande claims that, when the Union Pacific purchased the Denver & South Park, and made it a part of its system, the privileges of independent extension granted the latter road were surrendered under the agreement. The Denver & Rio Grande says the Denver & South Park must be restrained by the stipulations of the agreements, or the alternative of a free fight will be accepted. The war took definite shape in the joint occupation, last week, of a located route between Como and Breckenridge. The Denver & Rio Grande force proved too numerous for the Union Pacific graders, and the latter were forced to retire. Now, the Denver & Rio Grande Company has begun the construction of a line through Platte Cañon, parallel to the Denver & South Park, by which it hopes to whipsaw the Union Pacific on Leadville business. It also threatens to construct a competing line to Georgetown, Central, and Cheyenne. It even threatens a coalition with the Denver, Utah & Pacific, which is pushing into the Union Pacific territory.

THE CHANNEL TUNNEL.

A full report of the latest results obtained in boring the tunnel under the English Channel is contained in the London *Times* of June 17th. Some of the particulars appeared in a cable dispatch in the *Evening Post* of the same date. The *Times* says:

"The adjourned extraordinary general meeting of the Southeastern Railroad Company, convened for yesterday, in the board room of the company, at the London Bridge station, to consider the Oxted and Groombridge Railroad bill, was further adjourned to the 7th proximo, Sir E. W. Watkin, M.P., the chairman, who presided, stating that the directors did not consider it expedient to confirm the bill as it had left the House of Commons. He should like to take the opportunity to say a few words on the interesting question of the Channel tunnel. The shareholders had permitted them to embark on some experiments, with the view to see whether the making of the tunnel in a reasonable space of time was feasible and practicable. The whole question divided itself in two parts—first, whether they could pass under the Channel through a stratum which was impervious to water; and secondly, whether by the aid of machinery they could shorten very considerably the probable time of construction.

"They had sunk two shafts—one at the Abbot's Cliff tunnel, and the other on this side of the Shakespeare Cliff tunnel. From the first shaft they had driven a gallery of eight or nine hundred yards, of a diameter of seven feet, which had all been excavated by machinery. The machinery was not perfect, but last week they excavated sixty-seven yards of lineal distance in the extension of that gallery. If that were the maximum rate of speed, it meant about two miles of progress in a year, and as they were working from both ends, and as it was only twenty miles, practically speaking, it meant five years to complete a gallery seven feet in diameter as an experiment, under the whole width of the Channel. With regard to the second shaft, at the Shakespeare Cliff, they had sunk that down to a depth of one hundred and fifty-five feet. They had also bored from the bottom of that shaft to a farther depth of one hundred

and six feet. They had gone right through the old gray chalk, and right into the gait clay, and he was happy to say that they had found no trace whatever of water, though nearer the surface, as they always expected, they had found a small quantity of water.

"They had, therefore, he thought, solved the great questions of the speed at which they could go, and of the impermeability of the strata to leakages of water. On the other side of the Channel, the French had sunk two very important shafts, and they had found exactly the same result as on this side. With regard to the machinery, they were on the eve of concluding a second arrangement with Captain English, Colonel Beaumont, and Mr. Pigou, the inventors and proprietors of the machine, under which they would pay them merely for the use of it, and carry on the experiments to a considerably further extent. The understanding arrived at between himself and M. Raoul Duval, the very able mining engineer and member of the French Channel Tunnel Committee, was, that they should on both sides of the Channel drive through a heading of a farther length of one mile each. When those two miles were finished—and they certainly ought to be finished within six months—one tenth of the question would have been dealt with. If successful, he should, he thought, propose a further treaty with the French gentlemen, under which each party would do the remaining nine miles on each side of the Channel. They would then meet in the middle of the Channel; and if that were done successfully, the whole question was settled. Till the matter was 'proved,' neither the French nor British investor would be asked to embark any capital in such a great venture. The Southeastern shareholders had taken all the risk, having authorized an expenditure altogether of £20,000."

GENERAL MINING NEWS.

ARIZONA.

We quote from our latest Arizona exchanges as follows:

TOMBSTONE DISTRICT.

EMPIRE.—No new developments. The various portions of the mine look as well as heretofore. The first lot of 100 tons of ore has been shipped to the Boston mill for reduction.

GRAND CENTRAL MILL.—The Tombstone *Epitaph* says: The mill is the largest in this part of the territory, and probably combines more of the latest improvements than any on the San Pedro River. There are 30 stamps, 16 pans, 8 settlers, and one agitator through which passes all pulp that comes from the batteries, it first having run through the pans and then the settlers. The stamps crush 3 tons each in 24 hours, making 90 tons per day. The ore is delivered upon a platform on the top of the mess, and goes thence down through trap-doors over heavy iron screens into the self-feeders, and thence under the stamps and out again in pulp into the settling-tanks, from whence it is taken for amalgamation. From the lower floor, where the amalgam comes out for straining and retorting, to the platform where the ore is delivered, is 70 feet. It will be seen by this that gravity handles the ore from the time the wagons deposit it until the tailings are left to settle in the great reservoirs below the mill. The mill is driven by an engine of 140 horsepower, fed with steam generated in four large boilers. There are three retorts and two melting-furnaces. The quicksilver and amalgam is all handled automatically by pipes and pumps until it goes into the strainers, and the amalgam from thence into the retorts, when the quicksilver is pumped back to the pan-floor to be used over. The water supply is taken from the San Pedro, and is brought in a ditch that empties into a large well and is pumped by steam-pumps up to the battery-floor, 60 feet perpendicular, into a tank holding 20,000 gallons or more.

SULPHURET.—Drifting continues on the ore-body, which is steadily improving. It is stated that the mine has been segregated, the north half having been sold. The company is called North Sulphuret. The company will proceed to develop it at an early day.

TOMBSTONE MILL AND MINING CO.—It is stated that during the past week in driving forward a drift from shaft No. 6 to the main hoisting-works, a new vein has been struck which varies from 2½ to 5 feet; the ore is said to be high grade and free milling. The engine of the Gird mill was set running last week, and is used in connection with the water-power in propelling the 15 stamps and other appliances for reducing the ore. A new 500-ton ore-house is in process of erection, a little northeast from the main hoisting-works, to receive the ore raised from that part of the mine.

TONTON BASIN DISTRICT.

Latest reports from this section are very encouraging. All the mines that are worked are looking better as development progresses. There is soon to be a mill erected on the Excursion mine.

CALIFORNIA.

AMADOR COUNTY.

There is comparatively little work doing on the mines in this county. The Volcano Gold Gravel Mining Company keeps a few hands employed in shoveling gravel into sluice-boxes and running a small head of water. It is thought that the yield from this process will be fully as satisfactory as the first clean-up with a full stream of water. We learn from the *Ledger* that the property of the Amador Gravel Mining Company which has been tied up by attachment suits for two months past, in the interest of the employés and other creditors, has been released, and mining operations are to be resumed at an early date.

THE BODIE DISTRICT.

Regarding the mines of this district, the *Free Press* of the 28th ult. says: During the past week, Bechtel has employed all of the 40 stamps of the Noonday mill, and it will continue to use them for an indefinite period. In the mean time, the work of exploration will be continued in the Noondays underground as heretofore, the stopping force only being taken off. The new sinking column for the Red Cloud pump left San Francisco last Thursday, and will be on the ground by Thursday or Friday of this week. In the mean time, the shaft will be cleared of water, and the work of putting in the new columns at once commenced upon their arrival, and we hope in our next weekly review to note the fact that sinking has been resumed in the great south-end shaft. This will indeed be gratifying news, as it will make a new level in the group of mines about the Red Cloud, including the Concordia, Oro, May Belle, and the Noondays, and by draining the ground will enable the latter to run a new level, which it is purposed to do, from their present working-shaft. It has been settled that the Bodie Tunnel people are to have a new mill, and grading will be commenced during this week. The Lent shaft is timbered to a depth of 635 feet. The west cross-cut from the Standard shaft is reported in favorable formation in the Bulwer. Addenda reports good ore, as does also Oro.

BECHTEL CONSOLIDATED.—The superintendent's letter of the 22d ult. says: The stope on the 200-foot level of the old shaft is looking very well, which is also equally true of the west vein on the 400-foot level of the old shaft. This vein is from three to five feet wide. The north drift on this level, the west vein, shows a fine vein of good ore. The stope on the 310-foot level of the new shaft is looking well and the ore is of good grade. There is no trouble in keeping the mill

fully supplied with ore with hoisting only on the day shift. The ore is milling well and worked to 91 per cent.

BODIE CONSOLIDATED.—The superintendent reports for week ending June 25th: There were 136,125 tons of ore hoisted, of which 31,625 tons were from the stopes above the 432-foot level, 2,75 tons from the second incline level, 33 tons from the fifth level, and 68,75 tons from the sixth level. The amount hauled to the mill was 119,33 tons. The mill crushed 126,483 tons of ore, yielding \$7586.16 (bar No. 277). The average of the pulp-assays for the week was \$54.14 per ton, and of tailings \$10.01 per ton. The excess of yield over net pulp-assay is made up by the gold from the battery sands. At the 206 level, the east cross-cut has been driven 12 feet, or a total distance of 19 feet. Several small seams of quartz have been cut therein. The south drift No. 2, second incline level, is now 24 feet in length, a gain of 10 feet since last report. The drift is in good ore. The present length of north drift No. 2, fifth level, is 112 feet, an advance of 7 feet during the week, through very hard rock. There is no essential change in the ore therein, which continues excellent in quality. The most northerly stope above this drift is in ore very rich both in gold and silver. At the sixth level, north drift No. 3 has been driven 10 feet, making the present length 54 feet. The vein in this drift also carries ore of fine quality. All of the stopes are yielding well.

BULWER CONSOLIDATED.—The west cross-cut from the 1000-foot level of the Standard new shaft still continues in good formation. The uprise on the Standard ledge has reached a height of 136 feet; progress for the week, 13 feet. The ledge at this point is 2½ feet wide.

TOGA.—From the superintendent's letter for the week ending June 25th: Since the report of the 18th instant, 22 feet have been added to the length of the cross-cut, 982-foot level. The ground passed through is a mixture of quartz, clay, and porphyry, assaying \$14 per ton, chiefly silver. The north lateral drift, same level, has been advanced 14 feet. In this drift we have passed through a break in the vein and have come into regular formation again. The vein at this point is four feet wide, somewhat mixed with porphyry, but of fine character. The west cross-cut from north lateral drift was advanced three feet, with no change to note. The flow of water has perceptibly diminished during the week.

MARIPOSA COUNTY.

Since the purchase of the well-known Hite mine by Messrs. Clark & Bothwell, of New York, the mines in the vicinity of Hite's Cove are attracting considerable attention. About \$20,000 will be expended on improvements on the Hite property, including an additional 40-stamp mill. The Carmen mine, near Hite's Cove, has been bonded to a practical miner, who has succeeded in bringing capital to bear, which has been directed toward further development. The character of the rock is about the same as that of the Hite mine, carrying free gold and sulphurets.

COLORADO.

CLEAR CREEK COUNTY.

COLORADO DIAMOND TUNNEL.—This company has increased the working force, for the purpose of completing the tunnel to the Corry City lode as soon as possible. It is also its intention to extend developments on Nos. 5, 6, and 8 lodes, to open other ore-bodies, and increase the output of its lodes.

FREELAND.—The Georgetown *Miner* says that the output of the Freeland last month was 600 tons of ore. About 70 men were employed in and about the mine, though but 48 are working upon ore. The superintendent is straightening and enlarging the chute from the mouth of the Platt level to the Freeland level for a working-shaft, which will be pushed below the Freeland level into unexplored ground as fast as possible, with three shifts of men. As the quantity and quality of the ore in this, the lowest level, has surpassed that in the upper workings, it is confidently expected that this system of development will put the mine in shape to greatly exceed its present productiveness. The ore will be raised to a chute above the Freeland level, where it will be filled into cars and trammed directly to the mill, as at present, while the rock will be raised to the surface, where ample room for dumping is secured.

NYANZA.—From the Georgetown *Courier* we learn that a strike of ore that assays all the way from 295 to 1002 ounces per ton, was made last week in the Nyanza lode, on Democrat Mountain, owned by the Nyanza Mining Company, a corporation organized under the laws of Colorado, but owned to a large extent in New York. The lode is worked through the Providence tunnel, which intersects it at a point 733 feet from the mouth of the tunnel. From the point of intersection, a level has been driven west 140 feet on a vein of galena ore that is continuous in both the top and bottom of the level, and will average in thickness from 3 to 4 inches of solid smelting ore of an average value of 112 ounces of silver per ton and 43 per cent lead. Recently the ore-vein changed to a bluish mineral carrying "black sulphurets" of the value above noted, and the breast of the level now being under the apex of the hill, and as the ore has shown a regular improvement in quality as the level has been driven west, there is every reason for believing that it has now entered into good paying ground. The ore-vein in the breast is now from 3½ to 4 inches thick of solid smelting ore, and there is also a 7-inch vein of nice-looking quartz impregnated with ore.

PELICAN-DIVES.—At the present time, there are about 60 men employed on this mine, 40 of whom are lessees and the balance contractors. The mine is reported as looking finely throughout. The *Miner* says: There is but little actual stopping; progressing in the mine. New ground is opening westward, as before stated, and the two main levels driven ahead to the end of the ground, a distance of about 1000 feet, will open a vast extent of territory—as Sherman Mountain pitches very steeply at this point. The shaft, which is down 75 feet below the level of the Diamond tunnel and about 715 feet from the surface, is pushed under contract, the bottom of the shaft showing several feet of mineralized quartz, which it is expected will lead to a profitable and permanent vein of ore.

LAKE COUNTY.

The Leadville mines are sending out the usual amount of ore, and no very important developments are reported. The report of the product of the smelters for the first half of 1881, which we publish in another column, though not quite up to that of last year, presents a very favorable showing, when it is taken into account that nearly every smelter in the camp has been shut down at some time to add to its capacity, or make improvements in machinery. At the present time, the prospects look bright for an increased product for the remainder of the year, the mines are producing steadily and the smelters were never in better condition to handle and treat the ore. Our Leadville exchanges report the starting up of a number of properties that have long been idle, many of them on account of water in the shafts and lower levels.

Amie continues shipping iron ore; an occasional pocket of carbonates is encountered in the mine, but never amounts to much. Chrysolite has resumed ore-shipments, and sends from 50 to 60 tons to the Cummings & Finn smelter daily. The hoisting of ore through the Roberts shaft was to be begun on the 1st inst. In regard to the fire, Mr. Kolker is reported in the *Democrat* to state that he would immediately place an engine and blower at the Chrysolite No. 2 shaft. The wooden bulkhead at the foot of this shaft would then be taken out, and a fire-proof barrier erected just west of Chrysolite No. 3 shaft, which is located on the northwest skirts of the burnt district. The Little Pittsburg will, in the mean time, erect bulkheads in the New Discovery mine, as near the line of the Chrysolite as practical. When this has been accomplished, the blower will be removed to the Roberts shaft, and a current of air forced along the most eastern drift connecting the Chrysolite and Carboniferous workings. The bulkhead will then be removed, and efforts made to penetrate the stopes and drifts, and quench the fire with water, working westward gradually until the whole district has been gone.

over. Chrysolite No. 3 shaft, which is located at the opposite side from where the attack is to begin, will be utilized as an upcast. It is confidently expected that these plans will prove successful in extinguishing the fire, and that it will soon be a thing of the past. Little is doing on the Dunkin. The main shaft is shut, and only a few men are at work in the mine. The *Chronicle*, speaking of the cave in the north workings, says: Mining men are surprised, to say the least, at the cave in the Dunkin. It certainly reveals a curious system of working. It is a miracle that a dozen men were not killed on the spot. The cave proves very serious, indeed, and it is fortunate that no loss of life occurred. It is hardly possible to ascertain exactly how far the cave extends. The stope of which the roof gave way was about 160 by 80 feet, and the whole of this will probably fall in, if it has not already done so. The manager states that the cave will not injure the prospects of the company, as the ore which was taken out from the stope was only worth about one dollar a ton. No ore has yet been shipped from the rich body struck in the Glass-Pendery. The mine continues, however, sending out about 25 to 30 tons per day. A few men are employed on the Highland Chief in driving prospecting-work. The Little Chief mine is looking well and shipping about 15 tons per diem. The Robert E. Lee is shipping upward of 65 tons per day. One car-load of the machinery for the new plant is already under way from Chicago, and the entire order is to be filled and shipped within forty days from June 24th. The La Plata mines are shipping about 35 tons per day. Hoisting works have been put up on the Gneison shaft, and an incline extends from this 127 feet south.

SAN JUAN COUNTY.

BEAR CREEK.—The *Ouray Times* of the 25th ult. says: This company is working night and day shifts on its mines on Bear Creek, and is rapidly increasing the piles of very high-grade ore on its dumps. The principal work is being done on the Ida Douglas, and the ore taken out runs about three hundred ounces in silver. The company, will, during the summer, take out a large amount of ore, which will be treated at the reduction-works here or in this immediate vicinity. The mines being about three and a half miles from Ouray, the expense of transporting the ore will be very trifling. The *Solid Muldoon* of June 24th says that the Bear Creek Mining Company is working the Ida Douglas on Bear Creek, with night and day shifts, and taking out ore some of which assays as high as \$300 in silver. It proposes working its mines to the fullest capacity, with a view of having the output treated by the smelters at this point. Interest in Bear Creek is on the increase, and it deserves more attention.

BONDHOLDER.—The *Ouray Times* reports that recently the tunnel on the Garfield (property of the Bondholder Mining Company) has come into a large body of ore. The ore-body is now nearly if not quite two thirds across the breast of the tunnel, and is continually increasing in width. The ore is very rich in gold. Some nice pieces of quartz containing wire gold have recently been taken out. It is worked with night and day shifts, and the company is fast accumulating a large ore-pile.

MONTANA.

Our Montana exchanges have the following:
ALGONQUIN.—One of the new engines for the hoisting-works is in operation, and the remaining one will be in a few days. The supply of ore from the mines continues.

ALICE.—The east and west drifts of the 600-foot level are being vigorously extended, and are contributing a full proportion of ore to the stamps of the mills. On the 700-foot level, the west drift shows some large bodies of quartz, which are stoped in considerable quantities. On the upper levels, explorations are pushed with vigor. The *Intermountain* says that some of the ore extracted is sufficiently free to put through the pans without roasting.

MAGNA CHARTA.—The main shaft has reached a depth of 300 feet. Work has been commenced at this depth to cut out the station; and when that is finished, the sinking of the shaft will be resumed. The stopes at the 200-foot level are looking well and yielding good-grade ore. From the 100-foot level, free-milling ore is extracted daily. The excavation for the building for the Howland pulverizer is nearly completed.

MOULTON.—The main shaft has attained a depth of 404 feet. Station-cutting at the 400-foot level has commenced, which will cause a suspension of the sinking of the main shaft for perhaps one week. The cross-cut to the south at the 300-foot level is driven in 106 feet, with indications in the face of striking ledge-matter. At the 200-foot level, the cross-cut has tapped the vein and run across it. The width of the Moulton vein at this depth is said to be nine feet. The ore is good grade, the assays being highly satisfactory. At the 300-foot level, it is expected the ledge will be struck inside of two weeks. The air-compressors to drive the Ingersoll drills have been started up. Work on the new mill progresses favorably.

VALDMIR.—This mine situated east of the Magna Charta, and owned by the Alice Company, is opening in fine shape. A vein of free-milling ore has been opened, and as far as developed looks very promising.

NEVADA.

THE COMSTOCK LODE.

The *Gold Hill News* takes rather a gloomy view of the outlook for the north-end mines. It says that great expectations were aroused by the return of Mackey and Fair to the lode, and the prices of these stocks were doubled and trebled. No ore has been shown, Mackey announces his return to Paris, Fair is in San Francisco, and, taken altogether, the outlook for the mining interests is not so bright as one month ago.

At the middle and south end mines, work is progressing very satisfactorily. The Bullion continues its preparations for the resumption of prospecting. Yellow Jacket is in a fair condition for work. Belcher and Crown Point continue to extract ore, and it will not be long before Kentuck is likewise engaged. The Alta and Forman shafts are driven steadily downward, and for the south end there is no ground for complaint of want of management in the mines. The hydraulic pump at the Combination shaft was started working this morning.

CALIFORNIA.—The joint Ophir winze from the 2500 level has been sunk and timbered 14 feet the past week. A station is cutting out for a winze joint with Consolidated Virginia on the same level. Extracting some ore from the north drift on the 2000 level.

CONSOLIDATED VIRGINIA.—A drift east joint with Best & Belcher has been started on the 2300 level, and is in about 65 feet. The work of excavating for a station joint with California on the 2500 level makes good progress. A south drift and a southeast drill-hole are running on the 2500 level.

MEXICAN.—The winze from the 2500 level joint with Union Consolidated was sunk and timbered 10 feet, and the winze joint with Ophir, from the same level, 11 feet the past week. At the 2800 station of the latter winze, a tank-station is cutting out. A main north lateral drift has been started from the 2700 level, and is now in 74 feet; a drill-hole east on the same level was run 135 feet since last report.

SIERRA NEVADA.—On the 2500 level, the winze joint with Union Consolidated was sunk and timbered 12 feet since last report through material of the same formation as heretofore reported. Each of the cross-cuts is reported as making good progress and no material change in the appearance of its formation. The ore extracted from the 2400 level the past week amounted to 320 tons, and assayed \$22 to the ton.

YELLOW JACKET.—The track on the 2800 level has been laid and all repairs made. Preparations are making to place an engine on this level, to sink a winze to the 3000 level. The winze will be started 350 feet north of the shaft,

and while it is intended for an air connection, it will prove interesting as passing through virgin ground.

COLUMBUS DISTRICT.

MOUNT DIABLO.—We are indebted to the *True Fissure* for the following report of the operations of this company for the week ending June 25th: The west drift on the third level has advanced 10 feet during the week, and shows bunches of low-grade ore in the face. The north cross-cut from the bottom of the winze, from the third level, shows no change. The stope above the winze has from three to four feet of good ore. The north cross-cut looks more promising. The stopes on the second level are looking well. On the first level, the stope looks about the same as a week since, and has a very fine body of free ore in sight. Bullion amounting to \$6595.33 was shipped on the 16th inst., and on the 21st \$7623.42.

NORTH CAROLINA.

A special dispatch of July 5th to the *World* from Charlotte, N. C., says: The King's Mountain gold mine, one of the oldest in North Carolina, was sold on Saturday under a trust deed, and was bought by George Bull, of Philadelphia, for \$101,000.

UTAH.

We condense the following from our latest Utah exchanges:
HAWKEYE.—The shaft has attained a depth of 290 feet. Sinking still continues, but it goes on rather slowly on account of the water, which is running in very fast, giving the pumps all they can do. When 300 feet is reached, a new station will be cut, and the new pump will be put in, which will get away with the water as fast it can come.

HORN-SILVER.—The fourth station has been finished and a cross cut started toward the vein, which is already in a considerable distance. Sinking the working-shaft continues, and a drift is running south on the third level.

LADY OF THE LAKE.—The new shaft is pushed down with vigor, the present rate being about 4 feet a day. The work thus far has been done with a windlass, but a whim is to be put in shortly, which will greatly facilitate sinking, and about 5 feet a day will be made under the new arrangement. The shaft, which is a two-compartment, 4 1/2 feet in the clear, is now down over 70 feet. The company intends sinking it to a depth of 800 feet, and it will probably be completed in December.

STORMONT.—The mines of this company are worked with a commendable energy. The Buckeye is showing some decided improvements in the new workings, and it is probable the mill will start up by the first of July. The principal output is raised through the Savage shaft, which proves a source of very great advantage.

VIRGINIA.

RAPPAHANNOCK.—The Rappahannock Mining Company is making good progress in sinking its new shaft, which has reached a depth of 40 feet, and is fully timbered to that point. They have struck some fine ore in going down, which will be tested in a few days.

UNITED STATES MINE.—We learn from the *American Exchange* that the United States mine, situated on the same vein as the Rappahannock, being a continuation of the same, has lately been purchased by a party of New York gentlemen. The developments, already made, by shafts and tunnels, are of the most promising nature. A lot of 487 pounds, taken at random from three different openings, has been tested by the Harris process, and the amount thus obtained was \$4.72, or at the rate of about \$20 to the ton of 2000 pounds.

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:

Construction of the Iron Superstructure of a Railroad Bridge over the Savannah River on the Charleston & Savannah Railroad; also Completing the Foundation of the same Bridge. For further information, apply at the office of the Company at Charleston, S. C.: C. S. Gadsden, Supt. Laying the Conduits and Building the Manholes for the National Underground Electric Company, in the City of Philadelphia; John Wood, Jr., Secretary, 235 Dock street, Philadelphia, Pa.	July 11, 1881.
Construction of a River Wall, near Fairmount; Russel Thayer, Superintendent, Fairmount Park, Belmont, Pa.	" 12, "
Construction of a System of Gravity Water-Works; the Works consist of about 12 miles of Pipe, a Distribution Reservoir of 80,000,000 gallons capacity, and two Conduit Lines of Vitrified Pipe, one of about two miles and one of one half mile—15 and 16-inch pipe; Water Commissioners, Water-Works, Amsterdam, N. Y.	" 13, "
Dredging the Channel on the south side of Pier No. 2, Wallabout Basin; Department of City Works, Municipal Department Building, Brooklyn, N. Y.	" 13, "
Delivering on Board the Cars at the Rock Island Arsenal, Ill., before January 1st, 1882, 15, 12, 9, 7, and 4 in. Wrought-Iron Beams and other Shapes of Wrought-Iron; D. W. Flagler, Major of Ordnance Commanding, Rock Island Arsenal, Ill.	" 13, "
Dredging in the North Branch of the Susquehanna River, between Wilkes-Barre and Monocock Island; J. N. Macomb, Col. of Engineers, U. S. A., U. S. Engineer's Office, 1125 Girard street, Philadelphia, Pa.	" 15, "
Dredging Shrewsbury River, N. J.; W. Michler, Lieut.-Col. of Engineers, Room 31, Army Building, cor. Hudson and Greene streets, New York City.	" 19, "
Dredging in Salem River, N. J., and in the North Branch of the Susquehanna River, between Wilkes-Barre and Monocock Island; J. W. Macomb, Col. of Engineers, U. S. A., 1125 Girard street, Philadelphia, Pa.	" 20, "
Dredging Norfolk Harbor and its Approaches; Carrutuck Sound and Coan-jock Bay, N. C., and Pagan Creek, Va.; James Mercur, Capt. of Engineers, 50 Main street, Norfolk, Va.	" 9, "
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, "

ASSAY DEPARTMENT OF THE ENGINEERING AND MINING JOURNAL.

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

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

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

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

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

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

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	Feet on Vein.	Capital Stock.	SHARES.		ASSESSMENTS.		DIVIDENDS.		HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE.												SALES.			
			No.	Par Val.	Total levied to date.	Date and amount per share of last.	Total paid to date.	Last Dividend.	July 2.		July 4.		July 5.		July 6.		July 7.		July 8.					
									H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.				
Allice, s. c.	3,000	10,000,000	400,000	25				100,000	June 1881	10													100	
American Cons.																								
Amie Con. s. l.		5,000,000	500,000	10				305,000	May 1880	10				.43	.40	.42	.40	.39						10,150
Argenta, s.	1,500	10,000,000	100,000	100	130,000	Mar. 1881	20	40,000	Feb. 1880	20														
Barbee & Walker, s.		1,000,000	100,000	10				60,000	Nov. 1880	10														
Bassick, g. s.		10,000,000	100,000	100				25,000	Feb. 1880	25														
Belle Isle, s.	1,500	10,000,000	100,000	100	45,000	June 1881	75	300,000	Dec. 1879	25														
Bicher, g. s.	1,040	10,000,000	104,000	100	2,328,200	Apr. 1881	75	15,397,200	Apr. 1876	75														
Bodie Cons. g.		10,000,000	100,000	100	75,000	May 1879	1 00	1,200,000	Mar. 1880	25				7.00	6.88									415
Breece		5,000,000	200,000	25				2,000	Feb. 1880	01														2,500
California, g. s.	600	5,000,000	500,000	100				31,320,000	Dec. 1879	50				1.00	.98	1.15	.96	1.06	.80					9,160
Calumet & Hecla, c.		2,500,000	100,000	25				10,850,000	Apr. 1879	5 00														
Caribou Cons. s.	1,400	1,000,000	100,000	10				50,000	Mar. 1880	10														
Catalpa, s. l.		3,000,000	300,000	10				150,000	May 1881	20														100
Chrysolite, s. l.		10,000,000	200,000	50				1,100,000	Apr. 1880	50				6.00		5.93	5.25	5.75	5.38					1,700
Climax, s. l.		2,000,000	200,000	10				150,000	Aug. 1880	30														1,000
Cons. Virginia, g. s.	710	54,000,000	540,000	100	411,200	June 1878	3 00	42,330,300	Apr. 1880	50				2.60	2.50	2.65	2.45	2.35	2.20	2.15	1.85			24,640
Copper Knob, c.		1,000,000	1,000,000	1				15,000	Nov. 1880	02				.11	.09	.13	.10	.12	.10	.12	.10			114,100
Copper Queen		2,500,000	250,000	10				25,000	July 1881	10														100
Crown Point, g. s.	600	10,000,000	100,000	100	2,573,370	Mar. 1881	0 50	11,588,000	Jan. 1875	2 00														100
Deadwood Terra g.		5,000,000	200,000	25				340,000	June 1881	20														28
Dunkin, s. l.		5,000,000	200,000	25				200,212	June 1881	7 1/2				.75	.70	.70	.70	.70						3,000
Eureka Cons. g. s. l.		5,000,000	50,000	100	100,000	May 1876	1 00	4,630,000	June 1881	50				30.00		30.00								230
Excelsior W'r & M. Co.	525 acres	10,000,000	100,000	100	100,000	June 1881	1 00	150,000	Sept. 1880	25				1.25		1.13								870
Evening Star, s. l.		500,000	50,000	10				30,000	June 1881	10														
Father de Smet, g.		10,000,000	100,000	100				300,000	July 1881	10														
Findley, g.		200,000	200,000	1				8,000	May 1879	1c				.28										100
Freeland, s.		5,000,000	200,000	25				50,000	May 1880	25														
Glass Pendery, s. l.		5,000,000	250,000	20				50,000	May 1881	10				2.15		2.15		2.15	2.10	2.15	2.10			2,300
Gold Stripe, g.		1,500,000	150,000	10				80,000	July 1881	15				2.50		2.50								2,200
Gold & Curry, g. s.		10,000,000	100,000	100	3,290,000	Feb. 1881	50	3,088,000	July 1881	10 00														
Grand Prize, s.	1,500	10,000,000	100,000	100	290,000	May 1881	25	450,000	Sept. 1880	20 25														900
Great Eastern, g.	1,200	300,000	300,000	1				16,000	July 1880	01														6,500
Green Mountain, g.	4,350	1,250,000	125,000	10				163,625	June 1881	7 1/2				.37	.26	.28	.26	.27	.26					800
Hale & Norcross, g. s.	400	11,200,000	112,000	100	3,642,000	May 1881	50	1,598,000	Apr. 1871	6 00				.67	.61	.62	.58	.60	.57	.60				118,400
Hibernia, s. l.		5,000,000	300,000	25				1,020,000	June 1881	30				19 1/2										100
Homestake, g.		10,000,000	100,000	100	200,000	Apr. 1878	1 00	200,000	June 1881	30														450
Horn-Silver, s. l.		10,000,000	400,000	25				200,000	Jan. 1880	25				15.75		15.50	15.25							2,800
Hukill, g. s.	3,288	1,000,000	200,000	5				210,000	Dec. 1878	10				.85	.88	.85	.78	.75	.73					600
Independence, s.	1,500	10,000,000	100,000	100	185,000	Apr. 1881	5 20	225,000	Sept. 1879	25				.20										2,800
Indian Queen, s.		250,000	100,000	2				200,000	July 1881	16														600
Iron Silver, s. l.		10,000,000	500,000	20				2,000,000	May 1881	20				2.00	1.85	1.95	1.90	2.00	1.95	2.00	1.85			8,900
La Plata, s. l.		2,000,000	200,000	10				340,000	July 1881	7 1/2														
Leadville Cons. s. l.		4,000,000	400,000	10				150,000	Jan. 1880	15				1.35	1.30	1.30	1.25	1.35	1.30	1.35				5,100
Leads, s.	3,000	6,000,000	60,000	100				76,000	Oct. 1878	15				1.35		1.35	1.30	1.25						1,100
Little Chief, s. l.		10,000,000	200,000	50				1,350,000	Mar. 1880	50				2.85										300
Little Pittsburg, s. l.	30 acres	20,000,000	200,000	100				80,000	July 1879	25														
Martin White, s.	22,900	10,000,000	100,000	100	80,000	Mar. 1881	25	650,000	Mar. 1878	25														700
Moose, s.	39,000	2,000,000	200,000	10				25,000	Mar. 1881	25														2,550
Navajo, s.	500	10,000,000	100,000	100	175,000	Dec. 1880	0 20	25,000	July 1881	25				.90		.60	.58	.60	.56					
N. Y. & Colorado, g.		1,000,000	50,000	20				23,000	July 1879	08														
Northern Belle, s.	1,600	5,000,000	50,000	100				1,575,000	June 1881	75														
North Belle Isle, s.	1,500	10,000,000	100,000	100	25,000	Feb. 1880	15	15,000	Sept. 1880	15				.30										300
Ontario, s.	3,000	10,000,000	150,000	100				3,475,000	June 1881	60														20
Opbir, g. s.	975	10,000,000	100,000	100	3,092,000	Mar. 1881	1 00	1,095,200	Jan. 1880	1 00														
Plumas, g.		1,000,000	100,000	10				151,000	July 1879	10														
Rising Sun, s.		750,000	150,000	5				101,250	May 1881	7 1/2														700
Robinson Cons. s. l.		10,000,000	200,000	50				225,000	June 1881	25				10.50	10.13									1,100
Savage		12,000,000	112,000	100				100,000	Jan. 1871	1 00														
Sierra Nevada, g. s.		10,000,000	100,000	100	4,580,000	Apr. 1881	1 00	650,000	Jan. 1881	1 00				10.75										

SAN FRANCISCO, July 7.—A dispatch from Tuscarora, Nev., says: The Navajo hoisting-works were burned on Tuesday. The loss is \$15,000. The fire caught from a spark which ignited some sage-brush dust on top of the boiler. The company has already begun rebuilding.

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

NAME OF COMPANY	CLOSING QUOTATIONS.						Op'n ing. July 8.
	July 2.	July 4.	July 5.	July 6.	July 7.	July 8.	
Alpha.....	3			3	3		
Alta.....	4 1/4			4 1/4	4		
Beechell.....	1 3/4			2	1 3/4		
Belcher.....	3 1/4			3 1/4	2 3/4		
Belvidere.....							
Best & Bel.....	1 1/2			1 1/2	9 1/2		
Bodie.....	7			7	7		
Bullion.....	1 1/4			1 1/4	1		
Bulwer.....							
California.....	1			15-16	3 1/2		
Chollar.....	2 1/4			2 1/4	2 1/4		
Con. Va.....	2 1/4			2 1/4	1 1/2		
Crown Pitt.....	2 1/4			2 1/4	2 1/4		
Eureka Con.....	31			31	1		
Exchequer.....				1 1/2	1		
Goodshaw.....							
Gould & Cur.....	5 1/2			5	4 1/2		
Grand Prize.....	1 1/2			13-32	3 1/4		
Hale & Nor.....	3 1/2			3 1/2	3 1/4		
Manhattan.....	1 1/2			2 1/4			
Mar. White.....							
Mexican.....	9 1/2			8 1/2	7 1/2		
Mono.....	3			3 1/4	3 1/4		
Mt. Diablo.....				8 1/2	8 1/2		
Navajo.....	21-32			19-32			
North Belle.....	20			18 1/2			
Nooday.....	1			27-32	3 1/4		
Ophir.....	6 1/4			5 1/4	5 1/2		
Oro.....	15-16			1 1/2	11-16		
Overman.....	1 1/2			1 1/2	1 1/2		
Potosi.....	3 1/2			3 1/2	2 1/2		
Savage.....	3 1/2			2 1/2	2 1/2		
Scorpion.....	1 1/4			1 1/4	1 1/2		
Sierra Nev.....	10 1/2			10 1/4	9 1/2		
Silver King.....	21 1/2			22	22		
So. Bodie.....				3-32			
So. Bulwer.....							
Tioga.....							
Tip Top.....	3 1/4			4	4		
Tuscarora.....							
Union Com.....	11			10 1/4	9 1/2		
Wales Con.....	1 1/2			1 1/2	1 1/2		
Vel Jacket.....	5			5 1/4	4 1/2		

Philadelphia.

PHILADELPHIA MINING STOCK EXCHANGE.

The adjournment of the boards from last Friday until yesterday leaves little to say for the present week's business, with the exception that the market was steady, and resisted all efforts toward lower figures. Argent is especially strong. The company has three shifts at work on the Vining property, and good results are anticipated. Rara Avis is still firm at \$1.60. Governor's Group at \$1. The news of the Long & Derry strike had a contra-effect from the usual course, the stock depreciating, and finding few purchasers. Whether the public have lost confidence in the management, or whether the fall may be attributed to one of those freaks that occasionally spend their force in an eccentric manner, is difficult of solution. The weather for the past two days has been exceedingly warm, and leaves its effect in a limited amount of sales.

NAME OF COMPANY.	Opening June 30.	Highest during the week.	Lowest during the week.	Closing July 6.	Total shares sold.
Argent.....	.37	.38	.35	.35	6,200
Buena.....	.24	.25	.23	.23	9,000
Cincinnati.....	.55	.61	.55	.58	6,300
Compromise.....	.25	.25	.20	.20	6,000
Danless.....	.07	.09	.06	.06	10,600
Denver City Con.....	1.25	1.25		1.25	1,700
Fairview Con.....	.05	.05	.04	.05	28,000
Flora Morrison.....	5.10	5.10		5.10	200
Girard.....	2.10	2.10		2.10	1,300
Governor Group.....	1.05	1.05		1.05	500
Grand Union.....	.07	.08	.07	.08	800
G'n's'n Imp't Co.....	.80	.83	.80	.80	2,300
Hancock.....	.51	.51		.51	500
Hiberaia Con.....	.65	.65		.65	100
Homestake.....	.03	.06	.03	.03	22,000
Iowa Gulch.....	.44	.48	.43	.43	42,400
Little Maud.....	.08	.08	.07	.08	3,000
Long & Derry.....	.07	.09	.07	.07	17,700
Miner Boy.....	.75	.75		.75	500
Monitor.....	.50	.50		.50	500
Mt. Lincoln.....	.12	.15	.11	.14	34,800
Mt. Sheridan.....	.04	.04		.04	1,060
National.....	.04	.06	.03	.06	12,000
Orion.....	1.00	1.05	1.00	1.05	1,200
Penn Breck.....	.10	.10	.09	.09	10,300
Pizarro.....	.07	.07	.06	.06	2,200
Pizarro Extens.....	.05	.05		.05	100
Rara Avis.....	1.30	1.80	1.30	1.80	1,600
Red Deer Con.....	.75	.88	.75	.88	1,000
San Pedro Con.....	.59	.67	.57	.67	8,800
Silver Cord.....	1.00	1.00		1.00	100
Tombstone.....	5.25	5.50	5.25	5.50	1,200
Victor.....	.04	.08	.04	.07	57,300

COAL STOCKS.

Quotations of New York stocks are based on the equivalent of \$100. Philadelphia prices are quoted so much per share.

NAME OF COMPANY.	Capital Stock.	SHARES.		Last Dividend.	Rate per Ann.	July 2.												Sales from June 10th to June 16th inclusive.	
		No.	Per Val.			H.		L.		H.		L.		H.		L.			
						Mo.	Yo.	R't.	Per 'nt	H.	L.	H.	L.	H.	L.	H.	L.		
Am. Coal Co.	1,500,000	60,000	25																
Cameron R.R.	2,500,000	50,000	10																300
Col. C. & L.	10,000,000	100,000	10																6,748
Ches. & C. R.R.	15,000,000	150,000	100																2,255
Consol. Coal.	10,250,000	102,500	100	Jan. 77	2 1/2														100
Cumb. C. & I.	500,000	5,000	100																
Del. & H. C.	20,000,000	200,000	100	Mar. 81	1 1/2														
D. & C. W.	28,000,000	280,000	50	Mar. 81	1 1/2														92,700
Elk Lick C Co.	10,000,000	100,000	100																
Lehigh C. & N.	10,448,550	208,971	50	Sept. 76	1 1/2														11,003
Lech. V. Y. R. R.	27,042,900	540,858	50																4,068
Maryd Coal	4,400,000	44,000	100	Jan. 78	1 1/2														
Montauk C1	2,500,000	25,000	100																
Morris & Es'z	15,000,000	300,000	50																1,315
New Cen. C1	5,000,000	50,000	100	Dec. 80	2														100
N. J. C. R.R.	20,000,000	200,000	100	Apr. 78	2 1/2														54,219
Penn. Coal.	5,000,000	50,000	50	Oct. 79	3														
Penn. R. R.	68,873,200	1,377,404	50	May 81	4														40,177
Ph. & R. R.R.	34,278,150	685,563	50	Jan. 76	2 1/2														34,751
Spring Mt. C1	1,500,000	30,000	50																200

*Of the sales of this stock, 25,251 shares were sold at the Philadelphia Stock Exchange, and 9500 shares at the New York Stock Exchange.
Total Sales..... 25,641.

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 6th.

NAME OF COMPANY.	Opening June 30.	Highest during the week.	Lowest during the week.	Closing July 6.	Total shares sold.
B'n'za D'v'l'mt	5 1/4	5 1/2	5 11-16	5 1/4	1,785
Cal. & Hecla, c.	220	230	220	228	140
Catalpa.....	1 15-16	1 15-16	1 1/2	1 15-16	2,275
Col. Dis. Tunnel	3.80	3.80	1.75	3.80	200
Copperopolis.....	1.76	2.00	1.75	1.86	10,300
Crecent.....	1 13-16	1 1/4	1 1/2	1 1/2	2,950
Douglas.....	2.00	2.00		2.00	125
Duncan, s.....	1 15-16	1 15-16		1 15-16	100
Dunkin.....	.55	.90	.55	.78	11,700
Empire.....	.66	.85	.53	.58	85,650
Franklin, c.....	10 1/4	11	10 1/4	11	170
Gold Stripe.....	2.75	2.75		2.75	300
Gran'er.....	.48	.48	.45	.48	500
Huron.....	3 1/4	3 1/4		3 1/4	100
Kokomo.....	.50	.52	.49	.52	1,300
Mass. & N. Mex.	.49	.80	.49	.67	38,750
Mendocino.....	4.87 1/2	5.00	4.87 1/2	5.00	1,600
Milton.....	1.17	1.90	1.17	1.60	62,550
Pewabic, c.....	10 1/4	11 1/2	10 1/4	11 1/2	410
Pine Tree.....	2.00	2.00	1.60	1.60	1,100
Ridge, c.....	3.00	3.00		3.00	50
Rose Silver.....	.51	.51		.51	200
San Pedro.....	3 1/4	4.00	3 1/4	3 1/4	1,575
Silver Islet, s.....	45.00	45		45	102
Simpson Gold.....	.08	.12	.07	.08	41,000
Sullivan.....	3 1/4	3 15-16	3 1/4	3 15-16	900
Sul'v'n & Wa'k'g	3.75	3.75		3.75	100
Sycamore.....	1.37 1/2	1.50	1.37 1/2	1.40	1,500
Tremont Silver.....	1.00	1.04	1.00	1.00	875
Twin Lead.....	.93	.95	.90	.92	2,600
War Eagle.....	1.00	1.00		1.00	250
Young Hecla.....	.40	.40		.40	400

c. Copper. s. Silver.

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 7.

The scare in copper stocks reported last week, especially in Calumet & Hecla, has subsided, and we have to note this week a decided change for the better. Although the market is dull still, there is a better feeling and more inquiry for the good stocks, which has advanced prices, and gives token of better times ahead. Calumet has ruled steady and strong at \$225@232 1/2, the latter price being bid for it at to-day's Board. Those who were led to believe the unfounded rumors in regard to the mine and sold out are now anxious to get their stock back, even at the higher figures.

Copper Falls advanced from \$5@5 1/2, with no stock offering under \$7. This stock is cheap at \$7, as there are but 20,000 shares, while nearly all of the lake mines now have 40,000 and some 80,000 shares.

Franklin advanced from \$11@11 1/2, and closed to-day at \$11 1/2 bid, \$12 1/2 asked.

Pewabic, which sold down to \$10 last week, advanced to \$12 1/2@13 1/2, buyer 60.

Quincy was in good demand, with no stock offered at panic prices, sales yesterday for the first time since June 20th opening at \$36, and rapidly advancing to \$37 1/2, closing \$37.

Only one sale of Osceola reported at \$32.

The balance of the list was dull, with but few sales of Allouez at \$2@2 1/2, Douglas at \$2, and Ridge at \$3.

The silver stocks at the regular Board have generally ruled dull and inactive. Bonanza steady at \$5 1/2@5 3/4; Catalpa, \$1 1/4@1 1/2; Crescent, \$1 1/2@1 1/2; Harshaw dull at \$8; Silver Islet advanced to \$45, but subsequently declined to \$43 1/2; San Pedro, \$3 1/2@3 1/4; Duncan Silver, \$1 15-16@1 1/2; Sullivan, \$3 1/2@3 1/4.

At the Boston Mining Exchange, business continues active, with wide fluctuations in the leading specialties, Empire, Milton, Dunkin, and Massachusetts & New Mexico have been largely dealt in. The sales of Empire aggregate nearly 100,000 shares, opening at 80c., followed by an advance to 85c., since which it has steadily declined to 52c., the lowest price being touched to-day. We look for another rally the coming week.

Milton advanced from \$1.53@1.70 regular, and \$1.85,

buyer 60; the market, however, was not sustained at that point, and dropped to \$1.45 to-day.

Dunkin advanced to 80c., but declined to 70c. Copperopolis also continues to advance, and sold at \$1.87 to-day; one of the finest stocks on the list.

Massachusetts & New Mexico, which has been very quiet for the last month, suddenly became active, and, on large buying orders, advanced rapidly from \$0@72c. regular, and 80c. buyer 60. The stock was a little off to-day, in sympathy with the rest of the market, and closed dull at 60@62c.

Mendocino firm at \$4.87 1/2@5, buyer 15. Simpson Gold declined to 7c.

3 P. M.—At the afternoon Boards, there was a slightly better tone to the coppers, but the silver stocks were generally a shade lower.

Coal Stocks.

New York, Friday Evening, July 8.

In common with the rest of the stock market, these stocks on Saturday last fell off rapidly, on account of the news from Washington; and although there has been a partial recovery, the market does not possess that strength which was beginning to be felt a week ago. The sales aggregate 256,441 shares, as against 210,740 shares for the previous week.

The largest business has been done in Delaware, Lackawanna & Western, the sales of which amount to 92,700 shares at \$121 1/2@124 1/2. Delaware & Hudson Canal records sales of 6748 shares at \$108@110 1/2. Of New Jersey Central, 54,219 shares have changed hands at \$98 1/2@101 1/2. Reading has had a business in this market of only 9500 shares at \$56 1/2@59 1/2.

There is but little doing in the shares of the bituminous coal companies. Maryland has had sales at \$22@30, New Central at \$29 1/2@29 3/4, Consolidation at \$40, and Spring Mountain at \$45.

BULLION MARKET.

New York, Friday Evening, July 8.

Owing to some demand for silver in London the latter part of last week, and to a belief that the Bank of England would so far promote the bi-metallic project as to buy and hold a very considerable amount of silver in her reserve, the price was rapidly advanced to 52 1/2@d. @52 1/2@d.; but owing to the demand above alluded to being supplied, and to the difficulty of meeting the pledge required by the English government, as a condition precedent to her proposed aid, the market has receded rapidly the present week, and may be regarded as nominal at figures given in our annexed table for the day, with tendency probably downward.

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

DATE.	London Pence.	N. Y. Cents.	DATE.	London Pence.	N. Y. Cents.
July 2.....	52 1/4	113 1/4	July 6.....	51 1/2	112 1/2
July 4.....	Holiday	Holiday	July 7.....	51 3/4	112 3/4
July 5.....	52 1/4	113	July 8.....	51 1/2	111 3/4

bullion, should be diminished to about 13 1/4 per cent to arrive at actual value.

MINES.	States.	For the week.	Month of June.	Year from Jan. 1st, 1881.
*Alice, g. s.	Mont.		\$50,672	\$510,008
Barbee & Walker, s.	Utah			81,155
*Belle Isle, g. s.	Nev.			12,060
*Big Pittsburg, s.	Colo.			57,949
Bodie, g.	Cal.		26,700	187,028
Bos. & Colo. S. Wks.	Cal.			665,000
*California, g. s.	Nev.			107,164
Caribou, s.	Colo.	7,000	15,000	86,238
Christy, s.	Utah	3,711	25,400	206,236
*Chrysolite, s.	Colo.			304,418
Concordia, g.	Cal.			2,234
Connor, s.	Utah			46,575
*Contention, s.	Ariz.		56,695	714,097
Con. Virginia, g. s.	Nev.			146,560
*Copper Queen Co.	Ariz.			349,000
Crismon-Mammoth, g.	Idaho		8,951	35,541
*Custer, g. s.	Idaho			330,312
*Deadwood-Terra, g.	Dak.			340,372
*Derbec, Blue Grav., g.	Cal.			53,022
*Eureka Con., g. s. L.	Nev.			710,891
Exchange Silver.	Cal.			44,400
Fresno Enterprise, g.	Cal.			9,600
*Frisco M. and S. Co.	Utah	5,000	56,036	235,159
Germani Smelt. Wks.	Ariz.	8,465	46,850	170,649
Grand Central Mill.	Ariz.			290,854
*Grand Prize, s.	Nev.			51,658
Hale & Norcross, g. s.	Ariz.			33,099
Hanshaw, s.	Ariz.			267,836
*Head Center.	Utah		13,171	80,231
*Homestake, g.	Dak.			468,030
Horn-Silver, s. L.	Utah	15,000	115,500	405,868
Idaho, g.	Cal.			157,000
*Independence, s.	Nev.			17,108
*Indian Queen, s.	Cal.	4,195	8,555	87,968
Iron Silver.	Colo.			264,331
Jocuista, s.	Mex.			156,888
*Little Chief, s. L.	Colo.			131,602
Mack Morris.	Ariz.	10,280	10,509	112,020
Mingo Smelt. Wks.	Utah			4,554
*Modoc.	Cal.			34,704
Morgan Smelt'g Wks.	Utah			24,179
Morning Star.	Nev.			15,200
Mount Fotosi.	Colo.			59,830
*Navajo.	Cal.		14,723	128,124
Noonday, g.	Cal.			31,660
Northern Belle, s.	Nev.			94,920
*Oneida, g.	Cal.			6,083
*Ontario, s.	Utah	39,571	212,572	1,173,479
*Ophir, g. s.	Nev.			5,170
Pascoe, s.	Utah	2,995	6,145	21,315
Rebellion.	Nev.			10,512
Richmond, s. L.	Nev.		24,622	626,955
Robinson Con., s.	Colo.			197,000
*Sierra Nevada, g. s.	Nev.			170,001
Silver Bow.	Mont.			71,942
Silver Cliff.	Colo.		7,600	22,775
Silver King, s.	Ariz.		25,400	304,348
*Sullivan, s. L.	Maine.			5,340
Standard, g.	Cal.		167,648	1,052,464
Star, s.	Nev.		19,090	75,324
Stormont, s.	Utah			77,349
Syndicate, g.	Cal.		5,800	44,387
Tintic M. and M. Co.	Utah	6,943	6,943	60,167
Tip Top.	Ariz.			209,590
*Tombstone.	Nev.		157,553	727,305
*Union Con., g. s.	Nev.			43,100
Vandewater.	Cal.		1,700	1,700

C. Copper. G. Gold. S. Silver. L. Lead. * Official. † Net. ‡‡ Estimated up to July 1st.

ARIZONA.

Contention.—Officially reported by the secretary: The total production of bullion since the opening of this mine up to June 28th, 1881, has been \$1,949,463.32.

Copper Queen.—We are in receipt of the following interesting statement from this company, covering its production by months from January 1st to July 1st of the present year:

Month.	Tons.	Value.
January	147	177
February	164	165
March	116	167
April	112	881
Total		581

* 23 1/2 days in blast. † 18 1/2 days in blast. ‡ 28 days in blast.

Old Dominion.—The secretary states that the smelting furnaces will be completed and in running order shortly.

Tombstone Mill and Mining Company.—Officially reported by the secretary: Bullion product for June, assay value, \$157,553, with expectation of larger yield for July.

CALIFORNIA.

Bodie.—The superintendent, under date of June 27th, reports as follows: 136 tons of ore have been hoisted; 119 tons were hauled to the mill. The mill crushed 126 tons of ore, yielding \$7586.16 (bar No. 277). The average of the pulp-assays for the week was \$54.14 per ton, and of tailings \$10.01 per ton. The excess of yield over net pulp-assay is made up by the gold from the battery sands.

Hydraulic Mines.—The North Bloomfield, the Milton, and Blue Tent mines, which are all at a stand-still on account of the injunctions granted by the courts, produce about \$3000 worth of gold bullion per day when in operation. The Nevada Transcript says that in the matter of water alone, which is now going to waste, their loss is not less than \$1000 per day; and yet these are only three out of a dozen equally productive, and as many more small ones, similarly affected.

COLORADO.

Caribou.—One hundred and forty-four tons of ore produced 6890 ounces, or an average of 61 ounces to the ton. The ore continues good, and the mill and water-power are working splendidly.

Chrysolite.—The manager telegraphs: Shipped, on July 2d and 5th, 105 tons of ore.

Freeland.—It is stated that 600 tons of ore was the output of this mine for June.

Fryer Hill.—The Leadville Democrat says the scarcity of lead ore is becoming a noticeable fact. The mines of Fryer Hill, which formerly produced such large quantities of

high-grade ore, have changed altogether in the nature of their product. While the output of the hill continues very large, and is extraordinarily rich in silver, yet it scarcely carries any lead. The products of the Leo, Matchless, Hibemia, Big Pittsburg, and the bulk of the Dunkin ore do not contain a particle of lead. A number of the Carbonate Hill mines have also undergone a great change in their ores, and several heavy producers are not sending in enough lead to treat their own ores. During 1870 and the first half of 1880, it was safe to calculate that every ton of ore smelted would yield 500 pounds of lead, or 25 per cent. At the present time, the average is scarcely 12 per cent.

Iron Silver.—The Leadville Democrat says that the mines of this company have yielded during the past three months as follows:

Month.	Tons.	Value.	Profit.
March	6,258	\$121,138.51	\$58,704.64
April	5,064	121,309.69	60,870.70
May	6,131	119,633.67	47,658.10
Totals	17,453	\$362,081.87	\$167,233.44

During the first half of June, 2841 tons of ore were produced, making a total of 20,295 tons since the 1st of March, 1881. The average yield of ore shipped during March, April, and May was 19.93 ounces of silver to the ton, and 3 1/4 per cent of lead on the gross weight. The profit equals 46.18 per cent of the gross receipts, after deducting for all expenses, including heavy legal costs and the prosecution of a great deal of prospect and development work.

Iron Mine.—The output was 20,205 tons during 105 days, ending on June 15th; the grade was rather less than twenty ounces silver and 3 1/4 per cent in lead. The expense of getting out and smelting the ore was 54 per cent of its value.

Little Pittsburg.—For the month of June, 630 tons were shipped and 690 settled for.

Ouray.—It is reported that six concentrators are building at this place.

Production of Leadville Mines for the Half-Year.—The Leadville Herald of July 3d publishes an interesting résumé of the production of the Leadville mines for the three months ending June 30th and for the first six months of the year. The total production for this period is given at \$6,501,813. The first quarter of the year is summarized as under:

The Grant S. Co.	\$750,502
Eddy, James & Co.	250,522
La Plata M. and S. Co.	484,920
American Smelter	128,721
Billing & Eilers	672,175
California Smelter	218,010
Taylor & Brunton	79,991
Harrison Reduction Works	24,232
Cummings & Finn	364,247
August R. Meyer & Co.	46,500
Tabor Milling Co.	39,000
Colorado Prince Mill	30,000
Total	\$3,097,820

The following statement gives the output for April, May, and June.

The Grant Smelting Co.	\$786,105
Eddy, James & Co.	231,511
La Plata M. and S. Co.	604,383
Billing & Eilers	545,626
California Smelter	260,240
American Smelting Co.	204,248
Cummings & Finn	366,609
Ohio & Missouri	160,692
Taylor & Brunton Mill	107,155
Tabor Milling Co.	47,220
August R. Meyer & Co.	49,114
Oro Stamp-Mill	4,000
Colorado Prince Mill	11,000
Shields Mill	14,000
Gulch mines	12,000
Total	\$3,403,993

The above amount does not quite equal the amount produced in the first half of last year, and if not increased, the production of 1881 will fall about two millions below that of 1880. It must be remembered, however, that almost all the smelters have been closed down part of the time, putting in new machinery and enlarging their works. The ore at present is plentiful, and the outlook is most prosperous.

In addition to the above figures, it must be remembered the outside camps which are in a measure dependent and tributary to Leadville are not estimated. For the first quarter of 1881, the Robinson mine alone produced and shipped ore and bullion to the amount of \$200,000. For this last quarter, over \$400,000 worth of ore has been shipped, nearly all going through to Denver, besides which there has been shipped in bullion produced at the Robinson smelter a value of \$104,000. The smelter has not been run continuously as it is doing at present, or this amount would be much larger. The White Quail smelter has also been largely productive of bullion.

The figures in the Leadville Democrat of the 3d inst., showing the production of the Leadville mines for the past six months do not quite agree with those in the Herald, but sufficiently near enough for our purpose. The Democrat divides the output of the mines given for the second quarter as follows:

Pounds of bullion produced	19,881,635
Pounds of lead	19,766,363
Ounces of silver	1,947,603
Value of lead	889,479
Value of silver	2,191,463
Value of gold	58,104
Value of ore	280,624
Total	\$3,419,670

The product for the first quarter of 1881 was as follows:

Pounds of lead produced	16,620,152
Ounces of silver	1,810,524
Ounces of gold	1,500
Tons of ore	3,986 1/2
Value of silver	\$2,036,048
Value of lead	736,517
Value of ore	297,022
Value of gold	30,000
First quarter	\$3,099,587
Second quarter	3,419,670
Total for six months	\$6,519,257

IDAHO.

Ore-Shipments of the May Flower, Bullion, and Jay

Gould Mines.—The Wood River Times of June 22d says: These three mines commenced shipping their ore on the 12th of May, and have up to date shipped 6742 sacks, averaging 125 pounds to the sack, making a total of about 843,000 pounds shipped. It is stated that this ore will average \$200 per ton; this would, therefore, give an aggregate production within the period named—40 days—of \$100,000.

Ornament Hill Mines.—During the past three days, about 150 sacks of ore have been received from these mines, which is shipped to Salt Lake. Some of the ore shipped from these mines last year brought \$50 to the ton.

Salmon River M. and S. Co.—The first run at the company's furnace on the base ores from its mines has just been completed with gratifying results. The furnace was fired up on the 24th of May, and up to June 19th, twenty-five days, had produced 80 tons of bullion of the value of \$450 per ton in silver, aggregating \$36,000.

MEXICO.

San Miguel and Roncesvalles Mines.—The Philadelphia Ledger of June 25th says: A portion of six tons of silver ore from the San Miguel and Roncesvalles mines, in Mexico, has been received at Windmill Island, to be reduced by the smelting-works of the Tatham Brothers, at that point. New machinery is now being received and put in place at the mines, and, pending that operation, it has been necessary to shut off the reduction-works for a period of six months. The Windmill Island works being the most available, the ore was sent there for reduction. It was necessary to carry it north from the mines on pack-horses, through a mountainous region for 300 miles, whence it was transferred to the Mexican Central Railroad Company at El Paso, and came the remainder of the way by rail. This shipment is experimental, as the tax on silver bars taken out of Mexico is ten per cent, while it is nothing on the ore, and the purpose is to save the ten per cent, provided the profits will leave a margin in favor of reducing the silver in this country. This lot of six tons is estimated to be worth about \$50,000.

MONTANA.

Belmont.—The 30-stamp mill at this mine is kept constantly running on pay-ore which pays \$13 per ton. The expense of mining and milling, it is said, does not exceed \$6 per ton.

Glendale.—Both stacks of this furnace are now running daily, and the production per diem is said to amount to twelve tons of base bullion.

NEVADA.

Vandewater.—The superintendent telegraphs that this mill started up June 27th; \$1700 in bullion was shipped July 1st, being the product of three days' run; mill working nicely; expect to shift regularly hereafter.

UTAH.

Salt Lake City.—For the week ending June 30th, the shipments aggregated \$149,935.28.

Silver Reef.—The bullion shipments through Wells, Fargo & Co. for June aggregated \$27,096.21. The mills will start up next month, and the shipments will, it is thought, assume their former magnitude.

Stormont.—A considerable quantity of ore has been extracted by contract at this company's mines, and is awaiting shipment to the mill.

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 \$277,823.61, as against \$432,665.08, reported in our last.

Gold and Silver Production of the States for 1880.—Colorado now stands at the head as a silver and gold producing State. Nevada carried the flag for years, but in 1880 she had to yield it up to Colorado. The figures are as follows: Gold and silver production for 1880: Colorado, \$23,000,000; California, \$19,000,000; Nevada, \$15,000,000; Utah, \$6,000,000; Dakota, \$4,000,000; Arizona, \$3,500,000; Montana, \$3,500,000; Idaho, \$2,000,000; Oregon, \$1,000,000; New Mexico, \$600,000; total, \$77,600,000. Colorado increased her production of the precious metals from \$17,000,000 in 1879 to \$23,000,000 in 1880, and the estimate of her production for 1881 is \$35,000,000.

A Year's Work at the Mints.—WASHINGTON, July 3.—The following is a statement showing the coinage at the United States mints during the fiscal year ending June 30th, 1881:

Gold.	Pieces.	Value.
Double-eagles	767,276	\$15,345,520.00
Eagles	3,338,905	34,389,050.00
Half-eagles	5,996,438	29,982,180.00
Three dollars	1,566	4,698.00
Quarter-eagles	3,653	9,140.00
Dollars	3,276	3,276.00
Total gold	10,111,115	\$78,733,864.00

Total gold.....10,111,115 \$78,733,864.00

Silver.		
Dollars	27,637,955	\$27,637,955.00
Half-dollars	9,355	4,677.50
Quarter-dollars	14,555	3,638.75
Dimes	39,955	3,995.50
Total silver	27,698,820	\$27,640,966.75

Base.		
Five-cent pieces	3,555	\$177.75
Three-cent pieces	1,080,555	32,416.65
Cent pieces	37,251,555	372,515.55
Total base	38,335,665	\$405,109.95
Grand total coinage	76,145,600	\$100,788,940.70

Coin Assets of the U. S. Treasury, July 1st, 1881.

Gold coin	\$74,153,944
Gold bullion	89,017,716
Standard silver dollars	62,544,722
Fractional silver coin	27,247,696
Silver bullion	3,309,949
Nickels and minor coins	786,005

WASHINGTON, Thursday, July 7.—The Treasury Department to-day purchased 35,000 ounces of fine silver for delivery at the Philadelphia and New Orleans mints.

METALS.

NEW YORK, Friday Evening, July 8.

Outside of copper and lead, there has been but little business done.

Copper.—Sales of 18,000,000 lbs. of copper to manufacturers at 16@16½c., for delivery throughout the balance of the year, are reported. It is too early to judge of the influence of this sale on the market. At the close, the jobbing price is 14½c. Chill Bars have declined in London to £58.

Our London advices include June 24th, from which we take the following :

June 20th. The sales, including the 18th, aggregate about 250 tons at £59½@£60 good ordinary and named brands, usual cash terms, and £60@£60½ sundry forward prompts.

June 21st. Sales about 300 tons at £59½ cash, and £60 three months, both net money, and £59½ usual cash terms.

June 22d. Sales 250 tons at £59½ net money, and £59½ usual cash terms, and £59½ for arrival early in July.

June 23d. Market quiet, the only sale reported being a warrant of Lota in Swansea, at £59½ usual cash terms.

June 24th. Market very quiet. G. o. bs. quoted at £59@£59½; Wallaroo, £68@£70; Burra, £65@£66; Tough Cake, £63½@£64½; Select, £65@£66.

Tin.—There is only a jobbing business. Straits and Australian are held at 20½@20½c.; Billiton, 21c.; and L. & F. 20½@21c. London quotes Straits, by cable, at £88 15s. on spot and £89 10s. futures, with a dull and inactive market. Singapore and Penang have an active business, with small stocks, and an upward inclination to prices. The former quotes £29½, and the latter \$27.85, with exchange at 3s. 10d.@3s. 10½d.

Our English advices include June 24th, from which we take the following :

June 20th. The market excited with speculation. Sales of about 300 tons on the 18th and to-day at 91½@91½s. cash, prompt payment; 91½@91½s. fourteen days; 91½@92s. one month; 91½@92½s. six weeks; and 92@92½s. three months.

June 21st. Sales about 60 tons, at 91½@91½s. cash, and 92@92½s. forward.

June 22d. Yesterday's sale of 24,700 slabs of Billiton in Java averaged 61'66fl. per picul, equal to about 92s. laid down in warehouse, Holland, including commission to merchants there. London market quiet at 91½@91½s. sharp cash; 91½@91½s. fourteen days; 91½@92½s. forward. For delivery end of July, 1000 slabs of Billiton sold at 91½s.

June 23d. Market a little lower, and more active. Sales of about 100 tons, from 91½@90¾s. cash; 91½@91½s. one month; 91½@91½s. three months.

June 24th. Sales about 150 tons. Opened at 91½s. three months, and 90¾s. June 30th, then recovered to 90¾s. sharp cash; 90¾s. fourteen days. Sales of 500 slabs of Billiton, for delivery end of July, at 90¾s.

Under date of July 1st, Mr. E. P. White issued the following circular :

June 1st, 1881, Stock in all hands, New York, Boston, and Philadelphia.....	Tons.	2,065
Imported during June, Straits and Malacca, into Boston.....	Tons.	50
Imported during June, Straits and Malacca, into New York.....	Tons.	415
Imported during June, Australian, into New York.....	Tons.	230
Imported during June, L. & F., into New York.....	Tons.	25 710
Consumption during June.....	Tons.	2,775
Total Spot Stock.....	Tons.	800
Total in all hands, spot and afloat.....	Tons.	1,975
Afloat to date, Straits and Malacca, May and June shipments, per sail.....	Tons.	275
Afloat to date, Straits and Malacca, April, May, and June, per steamers.....	Tons.	945 1,220
Total in all hands, spot and afloat.....	Tons.	3,195

Immediately after the publication of my last monthly circular, the therein mentioned parcel of Malacca tin—about 400 tons, which had been the sport of our market for a fortnight, found buyers, at an average of about 19½c., and from that moment, the true position of tin was allowed to exercise its legitimate influence. Importers and dealers, who had for over six months, presumably from purely philanthropic motives, been content to supply the requirements of consumers at from ¼ to 1c. per pound below first cost, thereupon returned to the old-fashioned commercial principle of buying in the cheapest and selling in the dearest market, and rapidly raised their prices from 19½@20¼c.

Those, however, who had hesitated to replenish their exhausted stocks, entered the market with spirit, and secured whatever was available, both on the spot and to

arrive. The total transactions during the first fourteen days of June, exceeded 1000 tons Straits and Malacca, of which about 600 tons were spot, at from 20c. up to 20½c., and the balance to arrive, at from 20@20½c., delivered on dock.

Those of our importers who based their operations in the East upon the favorable statistical position of the article, and recognized the late depression as purely artificial, were enabled to anticipate this revived demand at moderate prices; say from \$27@27¼ in Singapore; whereas, those who rushed after them were subjected to a considerable squeeze at the hands of John Chinaman, who was fully prepared to take advantage of the position, and latterly ran up his price to \$28½.

Our consumers and out-of-town dealers were more or less taken by surprise (notwithstanding repeated warnings) by this sudden advance; and although the demand from them has been good, they have only bought for their daily requirements. Should this system be much longer continued, consumers will have themselves to blame, if they see prices running away from them.

The London market, which had closed firm at £88 on the spot, responded to our improvement, immediately on the reopening of business, after their Whitsun holidays, and prices gradually advanced to £91; from this, after a few minor fluctuations, rose rapidly to £91 15s. spot, and £92 10s. to arrive; but this was followed during the last week of the month by a sudden reaction, leaving off at £88 15s. spot, £89 10s. futures. It is difficult to account for this sudden relapse, but it may have been brought about by speculative manipulation, a heavy short interest having of late been opened there, in the face of the favorable statistical position of the article.

Under the influence of large buying orders from Europe and this side, prices in the East rose rapidly during the month—at Singapore, from \$27@28½, and at Penang, from \$29½@32½; but during the past few days, a part of this advance appears to have been lost again.

The usual bi-monthly Billiton sale, at Batavia, on the 21st ult., comprising 13,000 piculs, went considerably higher than in April; namely, at from 61'64fl., equal to 20½c., laid down here. But little interest, however, has been taken in the sale for American account, and offers afterward submitted to us were considered too high.

Having gone over the principal events in the trade during the past month, it may be useful to review the events of the first six months of the year, with reference to supply and demand. Of late, statements have been made in Europe that the production of tin has been latterly on the decline in various parts. As far as my information enables me to judge, the production of English tin in Cornwall, which, in 1880, was less than 8000 tons, as compared with 10,000 tons in 1879, will show during the present year a further deficiency, variously estimated at from 7 to 15 per cent, thus reducing the total for this year to 7000 tons.

The official returns of the Billiton Company give the following figures as the

Production of 1880-81.....	Piculs.	78,928
As compared with 1879-80.....	Piculs.	84,712
As compared with 1878-79.....	Piculs.	93,498
To this we must add the official returns of the Banca production for 1880, as.....	Piculs.	72,684
Against official Banca production for 1879.....	Piculs.	77,615
Both showing a falling off in production of from 6 per cent to 8 per cent.		

From the Straits settlements, complaints of falling off in the mines must be accepted with great caution, their shipments to Europe and America combined so far this year having amounted to 5050 tons, against 4965 tons in 1880, and 5805 tons during 1879; it is of more importance to watch the last six months of the year. Will they be able now to spare nearly 7000 tons, as they did in 1880?

From Australia, the supplies are, so far, fully equal to those of last year, averaging from 700 to 750 tons per month.

The following are the quantities of tin brought from the East into the European and American markets during the first six months of the year :

Straits and Malacca.....	Tons.	5,050
Australian.....	Tons.	4,200
Three Banca sales in Holland.....	Tons.	2,000
Three Billiton sales in Batavia.....	Tons.	2,700
Tons.....	Tons.	13,550

The deliveries into consumption in Europe and America during the same period show the following results :

Combined deliveries, Great Britain and Holland.....	Tons.	11,200
Consumption in United States.....	Tons.	5,050
Tons.....	Tons.	16,250

Showing that the demand for consumption has exceeded the supply by about 2700 tons; and out of this, the loss of stock here since January 1st amounts to 2300 tons.

Subjoined are the figures of importations and floating supplies during the first six months of the present year, as compared with the same period of last year :

1881.		
Arrivals in New York and Boston, Jan. 1st to July 1st :		
Straits and Malacca.....	Tons.	2,775
Australian.....	Tons.	367
L. & F. and Refined.....	Tons.	105
Banca and Billiton.....	Tons.	18
Total.....	Tons.	3,265

Afloat on July 1st, 1881 :

Straits and Malacca.....	Tons.	1,220
Australian.....	Tons.	unknown
Billiton.....	Tons.	unknown
Tons.....	Tons.	1,220

1880.

Arrivals in New York and Boston, Jan. 1st to July 1st :		
Straits and Malacca.....	Tons.	5,610
Australian.....	Tons.	790
L. & F. and Refined.....	Tons.	685
Banca and Billiton.....	Tons.	1,215
Total.....	Tons.	8,300

Afloat on July 1st, 1880 :

Straits and Malacca.....	Tons.	970
Australian.....	Tons.	300
Billiton.....	Tons.	none
Tons.....	Tons.	1,270

Taking into consideration the unfavorable state of the Welsh tin plate trade, causing the entire stoppage of

many works that were large consumers of tin, and on this side our protracted winter, with its prolonged blockades of roads in the West, there is now every probability that the ensuing busiest six months of the present year will, both in Europe and here, absorb increased quantities of this metal. Whether the producing countries will be able and willing to supply these requirements without a further advance in prices, remains to be seen.

Tin Plates.—The market for coke tins is stronger with light spot stocks. The stocks of tin plates generally are small and much cut up. There is but little doing, the business being confined to supplying consumers, who are buying fairly for spot and future delivery. 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@5½ for 14 x 20, and \$10½@10½ 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 23d, say of tin and terne plates :

The improvement noted in coke tin has hardly been maintained. While there is decidedly no further advance, parcels at the lower prices recently touched are extremely scarce, and when offered quickly snapped up. Other kinds continue dull at steady prices.

Lead.—There have been sales during the week of 800 to 1000 tons, selling up to 4½c., at which price it closes.

Spelter and Zinc.—Both are quiet. The former is quoted at 4½@5c., and the latter at 6½c.

Antimony.—This article is quiet. Hallett's is quoted at 14c., and Cookson's at 14@14½c.

Quicksilver.—The San Francisco Commercial Herald of June 30th says :

The spot stock is small, and the general asking price 37½@38c. Purchases from the wharf are picked up day by day at less than the inside figure. We submit the following London market report of Joseph Bennett Brothers: The improvement in the deliveries of quicksilver in the United Kingdom still continues, imports falling off. Figures stand as follows :

JANUARY TO MAY (INCLUSIVE).					
		Exports		Imports	
		Pounds.	Flasks.	Pounds.	Flasks.
Years.		about.	about.	about.	about.
1880.....	399,391	5,300	3,091,133	40,850	
1881.....	751,483	9,960	2,699,220	35,770	
London quotation, June 9th, 1881, £6 5s. per flask.					
The exports for the week, by sea, were as follows :					
To Yokohama, per City of Peking, hence 23d inst.:					
		Flasks.		Value.	
Donaldson & Co.....		100		\$3,000	
Previously sent Jan. 1st, 1881.....		20,287		585,467	
Totals.....		20,387		\$588,467	
Totals same period 1880.....		17,882		549,248	
Increase in 1881.....		2,505		\$39,219	
Receipts since Jan 1st, 1881, 27,580 flasks.					
Overland shipments from Jan. 1st to June 1st, 1881, 2354 flasks.					

IRON MARKET REVIEW.

NEW YORK, Friday Evening, July 8.

The week under review has been a broken one, owing to the observance of the national holiday and a disinclination to settle down to business during the succeeding hot days. As a consequence, the business done has been small, but there has developed great strength and the indications point to an unprecedented demand for iron during the last half of this year. As we come into competition with the products of the whole world, and a cable order will bring fresh supplies within a few weeks, there is not much chance of great advances in prices; but the quotations which have been current were too low, and somewhat better prices may be looked for all around. There is not an article in iron that will be overproduced, unless it be pig-iron, and with reduced importations of foreign brands, it is probable that even this will not be in excessive supply. The consumers appear to be using all that their works will consume, and it is stated that they hold but very small supplies.

American Pig.—There have been no important transactions reported, although there is a suspicion that some very large contracts have been made and not announced to the public. If such is not the case, it may be stated that there are some large water-pipe orders pending, which will soon be placed. We quote No. 1 Foundry at \$24; No. 2 Foundry, \$21½; and Forge, \$20. Although a liberal quantity of iron can be purchased at these figures, there is not an inclination on the part of makers of the best brands to contract ahead at current rates to any great extent. It is stated that the weak lots of iron which have been in the market for some weeks are more firmly held.

Scotch Pig.—The sales aggregate 1000 tons of various brands at fair prices. There is much more firmness shown. Glasgow prices are firm, while freights continue strong at 10s. The large amount of Besse-

mer iron already contracted for will make a very large demand for freights, and will most likely maintain if not advance rates. We quote Coltness at \$23½; Gartsherrie, \$23; Summerlee, \$23@23¼; Glengarnock, \$22¾; and Eglinton, \$21. English iron is quiet at \$18@18¼. Bessemer pig is quoted at \$24@25.

Messrs. John E. Swan & Brothers, of Glasgow, under date of June 24th, report 120 furnaces in blast, as against 116 at the same time last year. The quantity of iron in Connal & Co.'s stores was 565,226 tons, an increase of 1494 tons for the week. The shipments show a decrease since Christmas of 108,028 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 32,716 tons. The following were the quotations of the leading brands of No. 1 pig-iron: Gartsherrie, 55s.; Coltness, 56s.; Langloan, 56s.; Summerlee, 54s.; Carnbroe, 53s.; Glengarnock, 52s.; Eglinton, 48s. 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 June 25th say: Although there has been practically very little change in the position of the pig-iron markets during the week, the tendency is much more cheerful and healthy, and sellers express more confidence in the probability of rising markets. This is a feeling, however, that may have but slight grounds for indulgence. A larger trade has certainly been done, and prices have at least been steady, but the entire position is such as to preclude the possibility of reading future prospects with any degree of clearness. The large shipments from Middlesbrough have encouraged makers to quote higher, and sales at an advance of from 3d. to 4½d. per ton have taken place. As the end of the week approached, this was confirmed, and the number of weak sellers was materially reduced. No. 3 is now quoted 36s. 9d.; No. 4 Foundry, 36s.; No. 4 Forge, 35s. 9d. Quotations for forward delivery are also proportionately higher. Glasgow Warrants, with slight fluctuations, have advanced from 46s. 9d. to 47s. 2d., and some considerable sales have been effected at the higher figure. Hematites are without change, excepting for some additional inquiry. Derbyshire and Lincolnshire makers will, as a rule, only sell on their own terms, which limits the amount of trade.

Rails.—We learn of no business in steel rails, which are quoted at \$53@56 at mill for fall and winter delivery, according to the points to which they are to be delivered. The lower price is necessary to compete with foreign rails in Southern and California ports. In iron rails, there is a business of 8000 to 10,000 tons reported to have been done by Western mills. We quote foreign at \$45@46½ here, and domestic at \$48@50 at tide-water.

Old Rails.—The sales of T's amount to 2000 to 3000 tons at \$25@25½. We quote at \$25½@26. D. H's are very quiet and quoted at \$27@27½.

Wrought Scrap.—The sales have been small. We quote good store lots at \$26@27½, and from yard at \$27@29.

We publish the following letters from our regular correspondents:

Louisville, July 5.

[Specially reported by GEORGE H. HULL & Co.]

The expected July advance has not yet manifested itself, though advices from the East show some little stiffening in prices there. Southern furnaces will not make any concessions to sell, preferring to take chances of the market. Our quotations are nominally unchanged, and are on a cash basis.

FOUNDRY IRONS.		
	No. 1.	No. 2.
Hanging Rock Charcoal...	\$28.00@29.00	\$26.00@27.00
Southern Charcoal.....	23.50@ 24.00	22.50@ 23.00
H'n'g Rock, Stc'l & Coke...	23.50@ 24.00	22.00@ 23.00
Southern Stonecoal & Coke	23.50@ 24.00	22.00@ 23.00
"Amer. Scotch" \$22¼@23¼	Silver Gray, \$20.00@22.00	
Scotch Iron.....	24 @ 25	
MILL IRONS.		
No. 1 Charcoal, cold-short and neutral.....	\$21.00@22.00	
No. 1 Stc'l & Coke, cold-short and neutral..	20.50@ 21.00	
No. 2 Stc'l & Coke, cold-short and neutral..	19.50@ 20.00	
No. 1 Missouri and Indiana, red-short.....	25.00@ 27.00	
White & Mottled, cold-short and neutral...	18.00@ 19.00	
CAR-WHEEL AND MALLEABLE IRONS.		
Hanging Rock, cold blast.....	\$35.00@41.00	
Alabama and Georgia, cold blast.....	35.00@ 40.00	
Kentucky, cold blast.....	35.00@ 40.00	
Hanging Rock W. B.....	30.00@ 35.00	

Richmond, July 5.

[Specially reported by ASA SNYDER.]

Our iron industries continue prosperous. The demand

for pig-iron has for the past two weeks been in excess of supply. Values firm at quotations.

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 sail, \$1.75 per 2240 lbs.	

St. Louis, July 2.

[Specially reported by HOFFER, PLUMB & Co.]

The condition of the market is unchanged since our last report, and prices are nominally as follows:

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

Philadelphia, July 8.

Notwithstanding this has been a dull week as to business, prices have been strengthened under two influences, namely: A revival of business in the west partly due to decreased output. Second, to a decline in the amount of iron thrown upon the market. Furnace interests breathe freer to find the declining tendency in prices permanently arrested, as is believed. Bar-iron interests are better under the increasing demand and improving tendency in prices. In some iron an advance has been made of a tenth over the minimum prices of three or four weeks ago and a further improvement is looked for. In general, there is such an accumulation of work and such an activity among buyers, that should no universal causes intervene, a permanent upward tendency of from four to ten per cent is regarded as possible; much depends on the course of foreign iron. The mills here and throughout the State are, for the most part, repairing. Bar is firm at 2.35c. Nails dull at 2.90c. Tank active at 2.75c, and orders crowding in. Sheet mills two to three months ahead with orders. Cast pipe mills unable to promise deliveries. Wrought pipe active and firm at quoted discounts. Steel and iron rails inquired after, and much southwestern business going abroad. Old rails dull at \$25.50.

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

LONDON, E. C., June 23.

STEEL RAILS.—£5 15s. @ £5 17s. 6d. Warrington, £6 @ £6 5s. per ton Welsh and other good ports, the demand being chiefly for light sections, 35 and 40 pounds per yard, which are difficult to get except for delivery, September forward.

IRON RAILS.—£5 2s. 6d. per ton for sections 45 pounds per yard and upward; light sections 35 pounds per yard are £5 5s. @ £5 7s. 6d. per ton net cash, delivery August forward.

BAR IRON.—Steadier at £5 per ton. **OLD RAILS.**—Required for shipment to Philadelphia chiefly 73s. per ton offered for June or July documents, but very little business doing.

HEAVY WROUGHT SCRAP-IRON.—60s. per ton, f. o. b. **OLD RAILWAY LEAF SPRING STEEL.**—£5 15s. per ton asked, and £5 12s. 6d. per ton bid for July shipments; supply very small.

OLD CAST-IRON RAILWAY CHAIRS.—43@45s. per ton. **STEEL BLOOMS 7' x 7' AND UPWARD.**—£5 12s. 6d. @ £5 15s. per ton, nominal.

CROP ENDS OF RAILS.—65s. per ton, f. o. b. **BESSEMER PIG-IRON, NOS. 1, 2, AND 3.**—Very steady at 55@60s. per ton. **SCOTCH PIG-IRON.**—Steady market at 47s. per ton cash. **MIDDLESBROUGH PIG-IRON, No. 3.**—Firm at 36s. 9d. @ 37s. per ton cash.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, July 8.

Anthracite.

As might be expected, the advent of Independence day has checked the business of the week under review. There has been, however, a very much larger business than was expected, and prices have strengthened. The outlook is a very flattering one, and the evidences favor a demand that will make regulation on the part of the managers unnecessary for some weeks to come at least. It is also indicated that there will be an advance in prices on August 1st. This, however, must apply to domestic sizes alone; for the competition among bituminous producers is so great as to give that coal a decided advantage in many markets, even with the present prices of manufacturing sizes of anthracite coal.

Although the production of coal for the first six months of the year was at the rate of over 25,000,000 tons per annum, showing a gain of over two and a quarter millions of tons for the first half of the year,

the outlook favors a much larger business for the last half, although probably not so great an increase over the corresponding half of 1880.

The production of anthracite coal last week was 655,969 tons, as compared with 475,058 tons the previous week, and 410,301 tons the corresponding week of 1880. The total production from January 1st to July 2d was 12,577,684 tons, as against 10,321,876 tons for the like period of last year, showing an increase this year of 2,255,808 tons.

Our Philadelphia correspondent writes as follows, under date of July 7th:

The local trade remains sluggish. New orders for shipments are scarce, but a better supply of vessels has cleared many of the orders which had accumulated for weeks, and the stocks at tide-water are much lessened. It is feared by many that a curtailment of six days for the month of July, including the fourth, is hardly sufficient to maintain the prices, and before an advance is put on, as threatened, on August 1st, it would be well to establish the present prices more firmly than they are. The trade is as good as could be expected at this season with the high ruling prices, 2,000,000 tons excess to present time compared with last year, and increased capacity of production. Freight rates remain very steady at \$1.50 to Boston—a higher rate than buyers expected in the spring, but likely to be maintained. Light-draught vessels remain very scarce.

Bituminous.

There is but very little to be said on the trade in this coal. The demand is small and the competition is so great that ridiculously low prices are the result. With the improvement in anthracite, some benefits may fall to the bituminous trade. For the week ended July 2d, the shipments by the American and Maryland coal companies over the Pennsylvania Railroad amounted to 4597 tons.

Messrs. C. A. Miltenberger & Co., under date of New Orleans, July 1st, say:

We inclose statement of stock of coal on hand this day, which exhibits a small amount on hand and a good consumption for the month of June. A number of arrivals of tows of coal from Pittsburg are anticipated this month, they already having a depressing effect on the market, prices having declined to the figures given below.

Coal on hand in this city July 1st: Pittsburg coal, 105 boats and 8 barges. Consumption during June: Pittsburg coal, 25 boats and 4 barges. Arrivals during June: Pittsburg coal, 7 boats and 11 barges.

PITTSBURG COAL.	
At wholesale.....	40c. per bbl.
To steamboats.....	55c. "
" factories, etc.....	60c. "
" families.....	70c. "
In hogsheads.....	\$7.00 per hhd.

ANTHRACITE COAL.	
At wholesale.....	\$7.00@8.00 per ton.
" retail.....	9.50@10.00 "

ALABAMA COAL.	
At retail.....	45@55c. per bbl.

San Francisco, June 30.

COAL.—Advices from Washington territory are to the effect that the Seattle mine is arranging for a daily output of 1000 tons. British Columbia advices lead us to expect a transfer of its coal mines to an American syndicate allied to the Oregon Improvement and Transportation Company. The spot price of coal to dealers and consumers was lowered \$1 per ton the day following our last issue. Arrivals during the week embrace the following cargoes: Hylton Castle had 1580 tons Wellington; Empire from Tacoma, 820 tons Carbon Hill; Alfred D. Snow from Liverpool, 2671 tons; City of Florence from Newcastle, N. S. W., 1645 tons. We quote trade prices from yard to dealers: Coos Bay, \$6.50 @ \$7.50 per ton; Seattle, \$7.50; Wellington, \$9; Scotch Split, \$9; West Hartley, \$9.50; Carbon Hill, \$9; Nanaimo, \$9; Cumberland, bulk, \$12; do., cks., \$13.50; do., sks., \$13; Lehigh, \$16@17.50; Welsh Hartley, \$8.50; Black Diamond, \$6.75; do. screenings, \$4.75; and to this all consumers who buy by the ton delivered have to pay \$2.50 per ton additional. It is proper for us to add that the large number of cargoes of Australian, English, and Welsh, sold to arrive, range in price from \$5.75 to \$6.50 per ton. The Neruss, from Glasgow, brings 1500 tons Scotch. The River Indus, from Newcastle (Eng.), brings 1328 tons. The Enterprise, from Sydney, brought 2350 tons Steam. The British ship British Commerce, from Newcastle (Eng.), brought 1328 tons. The bark Madeira, from Leith, brought 1160 tons.

STATISTICS OF COAL PRODUCTION.

The Production of Bituminous Coal for the week ending June 25th was as follows:

Tons of 2000 lbs., unless otherwise designated.	Week.	
	Tons.	Year.
Cumberland Region, Md.	48,310	950,756
*Tons of 2240 lbs.....		
Barclay Region, Pa.	8,231	213,670
*Barclay RR., tons of 2240 lbs.....		
Broad Top Region, Pa.	3,642	107,392
*Huntingdon & Broad Top RR.....	1,520	34,081
East Broad Top.....		
Clearfield Region, Pa.	2,082	47,510
Snow Shoe.....	49,617	1,125,069
Tyone and Clearfield.....		
Allegheny Region, Pa.	5,524	132,611
Pennsylvania RR.....		
Pittsburg Region Pa.	5,079	153,635
West Penn RR.....	829	14,708
Southwest Penn. RR.....		
Penn & Westmoreland gas-coal, Pa.	19,303	410,770
RR.....	11,622	294,130
Pennsylvania RR.....		

* For the week ending July 2.

The decrease in shipments of Cumberland Coal over the Cumberland Branch and Cumberland & Pennsylvania railroads amounts to 117,610 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 2d amounted to 4633 tons, making a total of 23,311 tons since the beginning of transportation.

The Production of Coke for the week ending June 25th, and year from Jan. 1st :

Tons of 2000 lbs.	Week.	Year.
Penn. RR. (Alleghany Region).....	1,821	48,668
West Penn. RR.....	1,306	56,158
Southwest Penn. RR.....	19,328	685,254
Penn. & Westmoreland Region, Pa. RR.....	4,132	92,049
Pittsburg, Penn. RR.....	7,556	307,403
Snow Shoe (Clearfield Region).....	245	3,940
Total	31,388	1,193,472

Comparative statement of the production of anthracite coal for the week ending July 2d, and years from January 1st :

Tons of 2240 lbs.	1881.		1880.	
	Week.	Year.	Week.	Year.
Wyoming Region.				
D. & H. Canal Co.....	84,043	1,651,298	48,944	1,438,780
D. L. & W. RR. Co.....	95,736	1,960,377	65,707	1,622,429
Penn. Coal Co.....	35,414	565,883	20,617	470,275
L. V. RR. Co.....	32,721	542,830	18,033	476,200
P. & N. Y. RR. Co.....	3,193	39,449	1,036	14,322
C. RR. of N. J.....	38,861	1,107,664	25,051	717,850
Penna. Coal Co.....	16,207	164,724	15,266	155,855
	306,175	6,052,225	194,654	4,895,720
Lehigh Region.				
L. V. RR. Co.....	117,582	2,041,830	58,136	58,136
C. RR. of N. J.....	38,882	942,405	38,012	38,012
S. H. & W. B. RR.....	.....	1,224	.....	6,331
	156,464	2,985,459	96,148	2,405,457
Schuylkill Region.				
P. & R. RR. Co.....	183,414	3,054,759	99,996	2,638,833
Shamokin & Lykens Val.....	* 8,341	454,224	18,717	341,447
	191,755	3,508,983	118,713	3,000,280
Sullivan Region.				
St. Louis & Sul. RR. Co.....	1,575	31,017	788	20,419
Total	655,969	12,577,684	410,301	10,321,876
Increase.....	245,698	2,255,808		
Decrease.....				

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

Total same time in 1876.....	7,165,324 tons.
" " " " 1877.....	9,915,120 "
" " " " 1878.....	7,212,665 "
" " " " 1879.....	12,033,998 "

* This report is not full.

FREIGHTS.

Rates of Transportation on Coal for Northern and Western Shipment.

SOUTHERN CENTRAL RR., IN CONNECTION WITH THE LEHIGH VALLEY, PENNSYLVANIA & NEW YORK, UTICA, ITHACA & FARMERS, NEW YORK CENTRAL & HUDSON RIVER, AND ROME, WATERTOWN & OGDENSBURG RAILROADS.

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

To Auburn (local).....	\$2.35
" " for shipment N. Y. C. & H. R. RR.....	1.82
" " points east of and including Syracuse.....	1.82
" Weedsport (local).....	2.35
" " for shipment.....	2.01
" " Rochester.....	1.90
" " points between Rochester and Buffalo.....	2.01
" " for Charlotte and Genesee Docks.....	1.67
" " Buffalo, International Bridge, and Suspension Bridge.....	1.64
" Sterling (local).....	2.55
" " for shipment R. W. & O. RR.....	2.27
" " Oswego.....	2.27
" Fair Haven for shipment.....	2.29
" " from Penn Haven.....	2.54

Rate, L. & B. Junction, to Buffalo, Black Rock, Suspension Bridge (via Weedsport), \$2.86 per gross ton.

Rate, L. & B. Junction, to Rochester (via Weedsport), \$2.57 per gross ton.

Rate, L. & B. Junction, to Buffalo, in return line cars (via Weedsport), \$2.56 per gross ton.

Regulations.

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

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

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

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

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

CHARLES A. WARDEN, General Freight Agent, S. C. RR. AUBURN, N. Y., July 1.

Horsford's Acid Phosphate In Malarial Troubles.

I have used Horsford's Acid Phosphate in malarial troubles, and in administering quinine. It has done well in my hands. W. S. McBurnie, M. D. Springfield, Ill.

Coastwise Freights.
Per ton of 2240 lbs.
Representing the latest actual charters to July 8th, 1881.

Ports.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnston, South Amboy, Hoboken, and Weehawken.
Alexandria.....		.65	
Annapolis.....			
Albany.....			
Baltimore.....			
Bangor.....			1.25
Bath, Me.....		1.60	1.25
Beverly.....			1.25
Boston, Mass.....	1.50	1.60	1.25
Bristol.....			
Bridgeport, Conn.....		1.40	.60
Brooklyn.....			
Cambridge, Mass.....			
Cambridgeport.....			
Charleston.....			.75
Charlestown.....			1.25
Chelsea.....			1.15
City Point.....			
Com. Pt., Mass.....			
E. Boston.....			1.25
East Cambridge.....			
E. Greenwich, R. I.....			
Fall River.....		.40	.80
Galveston.....		4.25	
Georgetown, D. C.....			
Gloucester.....			
Hartford.....			
Hackensack.....			1.00
Hudson.....			
Lynn.....	1.65		
Marblehead.....			
Medford.....			
Millville.....			
Milton.....			
Newark, N. J.....		1.35	
New Bedford.....		1.40	.85
Newburyport.....			1.35
New Haven.....		1.40	.60
New London.....		1.40	.75
Newbern.....			.75
Newport.....			.80
New York.....		1.25@1.40	
Norfolk, Va.....	.90	.65	
Norwich.....			
Norwalk, Conn.....			.60
Pawtucket.....		1.40	
Philadelphia.....			
Portland.....	1.45	1.60	
Portsmouth, Va.....			1.10
Portsmouth, N. H.....			1.30
Providence.....		1.75	.80
Quincy Point.....		1.40	1.30
Richmond, Va.....			
Rockland.....			
Rockport.....			
Roxbury.....			
Sac.....	11.25		
Sag Harbor.....			
Salem, Mass.....		1.70	
Saugus.....			1.15
Savannah.....		1.00	
Somerset.....			.80
Staten Island.....			
Trenton.....			
Troy.....			
Wareham.....			
Washington.....	.90@.80	.65	
Weymouth.....			
Williamsbrg, N. Y.....			
Wilmington, Del.....			1.00
Wilmington, N. C.....			

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

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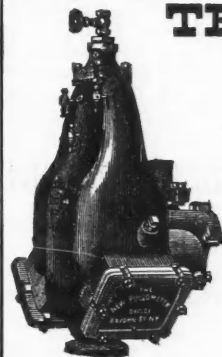
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OFFICE OF JOSEPH FIRMENICH, Steam Syrup Refinery, 1 to 25 Mortimer Street, and 385 to 412 Jefferson Street, Buffalo, N. Y., May 16, 1881.

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.:

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 30 feet from well, raising the water 9 feet vertically 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.

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....	74,650.53
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
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
Surplus on hand July 1st.....	\$75,959.50

JAS. K. SELLECK, Secretary.

ALICE GOLD AND SILVER MINING CO.;
General Office, Salt Lake City, Utah; Mine and Works, Walkerville, Montana; New York Office, 47 Broadway.

SALT LAKE CITY, UTAH, July 1, 1881
The Board of Directors of this company has declared the monthly dividend (No. 5) of Forty thousand Dollars, payable at the Farmers' Loan and Trust Company, New York, July 15th, inst.
Transfer-books will close on the 11th, and reopen on the 16th day of July, 1881.
BENJ. G. RAYBOULD, Secretary.

OFFICE OF THE ONTARIO SILVER MINING COMPANY, No. 18 Wall Street,
NEW YORK, July 5, 1881.

DIVIDEND NO. 69.

The regular monthly dividend of FIFTY CENTS per share has been declared for June, payable at the office of the transfer-agents, Wells, Fargo & Co., 65 Broadway, on the 15th inst.
Transfer-hooks close on the 9th inst.
H. B. PARSONS, Assistant Secretary.

OFFICE OF THE TOMSTONE MILL AND MINING COMPANY, 432 Walnut Street.

SIXTEENTH DIVIDEND.

PHILADELPHIA, June 30, 1881.
The Executive Committee of the Board of Directors of this Company have this day declared the regular monthly DIVIDEND OF FIFTY THOUSAND DOLLARS, being ten cents on each share of the capital stock of the company, payable on and after July 15th at this office.
Transfer-books closed from 10th to 16th inclusive.
GEORGE BURNHAM, President.
W. J. CHEYNEY, 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. HAYES, 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 have 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.
WM. S. CLARK, President.
JOHN R. BOTHWELL, Secretary.

NEW YORK, July 2, 1881.
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. B. COOK, Vice-President.

SPECIAL NOTICES.

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
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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, Cedral Mines, Villa de Musquiz, Coahuila, Mexico, via Eagle Pass, Texas.

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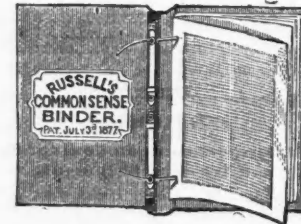
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