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ACCORDING to local newspapers, Mr. JOHN A. CHURCH, of Tombstone, Arizona, has formed a partnership with Mr. DOUGLAS GRAY, formerly of TREADWELL & GRAY.

THE fifth annual meeting of the United States Association of Charcoal Iron-Workers will be held at St. Louis, Mo., beginning Tuesday, September 30th. As usual, the association will be earnest in its attention to business, no less than five or six sessions being contemplated, together with three excursions.

OUR Butte friends are coming forward with official figures, which, so far as they go, are valuable and interesting. According to the *Inter-Mountain*, the shipments of ore and matte for the first quarter of 1883 were 11,694 tons, and for the second quarter, 17,972 tons, a total of 29,666 tons. July is credited with over 8000 tons. Unfortunately, this tells only a part of the story, since it is impossible to judge from them, even approximately, how much copper they represent.

THE National Mining and Industrial Exhibition at Denver will be opened on September 1st and 2d, under the auspices of the Denver Cham-

ber of Commerce and Board of Trade. Special attention is to be given to the coal mining interests of the State, and we are informed by Mr. G. H. HOLT, commissioner, that among the novel features will be a model coal mine, built with the coal exhibited, showing main entry, air-courses cross-entries, rooms, machinery, and ventilating methods.

WE learn that the programme of the fortieth meeting of the American Institute of Mining Engineers will be issued in a circular from the Secretary's office in a day or two. It comprises an opening session of the Institute on Tuesday evening, September 2d, and further sessions Wednesday morning and afternoon, Thursday afternoon, and Friday morning; also, "an excursion and tea" on Wednesday afternoon, after the session, and an excursion to the anthracite regions on Saturday. Moreover, the Institute is invited to attend on Tuesday, at noon, the opening of the International Electrical Exposition; on Thursday, at ten A.M., the opening session of the American Association for the Advancement of Science; on Thursday evening, a lecture before the same society; and on Friday evening, the delivery of the annual address by President C. A. YOUNG, A.A.A.S. A large attendance is expected; and members are advised to secure rooms early. The hotel head-quarters are at the St. George's hotel; the Committee headquarters are at the rooms of the Engineers' Club, 1523 Chestnut street. Mr. JOHN BIRKINBINE is Chairman and Mr. CHARLES A. ASHBURNER Secretary of the Local Executive Committee.

WE are equally shocked at the irritability and the contempt for the Queen's English shown by our E. C. With the gentleness of an IZAAK WALTON, we set forth the few points in the management of the coal trade in which we differ. To our amazement, we find the effect to have been that of the traditional scarlet rag. Our E. C.'s loss of temper seems also to have involved the loss of that elegant diction that excited the admiration of its friends and the envy of its rivals. We can not attempt to pick our way through the archipelago of surprises in what we suppose is fondly believed to be an argument. Sound sense must be wrecked when the discrepancy is not discovered by one who can write, "The best informed coal authority now living will not risk the assertion that 35,000,000 tons can be mined and transported in one year for twenty years to come," and in the next paragraph can be ready to concede that 750,000 tons can be sent to market per week during the second half of this year. Multiply 750,000 tons by 52, dear, deluded E. C., and compare the product, 39,000,000 tons, with the estimate of your "best informed coal authority living." His obituary, or yours, is now in order. But our E. C. is right. "Newspaper controversies are of no interest to those whose money is at stake;" and to them the spectacle of our mutilating a butterfly with a cannon must appear unprofitable and inhumane.

THE MINERAL STATISTICS OF GREAT BRITAIN FOR 1883.—II.

Turning to copper, we find the yield of the English mines again falling back, having aggregated during 1883 only 46,288 tons of low-grade ore containing only 2555 tons of metallic copper and 65 tons of precipitate, a total of 2620 tons, of which Cornwall is credited with about one half, or 1361 tons. How much England has fallen off as a producer of this metal may be gathered from the following table, the figures of which we extract from Mr. ROBERT HUNT's recent work on British mining:

COPPER ORE AND COPPER FROM THE MINES OF THE UNITED KINGDOM.

Year.	Copper ore. Tons.	Copper Tons.
1856.....	218,659	14,775
1860.....	362,696	15,968
1865.....	198,298	11,888
1870.....	106,698	7,175
1875.....	71,528	4,323
1880.....	52,118	3,602
1881.....	52,550	3,875
1882.....	52,907	3,440
1883.....	46,288	2,620

It is almost useless to say that the current year, with its low prices will undoubtedly cause a further shrinkage in the product of the English mines, and that England's mines, once a great factor in the world's product, will sink to utter insignificance. Meanwhile England continues to increase in importance steadily as the great metallurgical center, and it is not without regret that Americans see their own country contributing to England's aggrandizement by becoming the principal contributor of raw material.

From foreign ore, matte, precipitate, and pyrites, England's metallurgical works have turned out the following quantities of metal, which is exclusive of all such material as Chili bars, or Australian and American fine copper received:

COPPER PRODUCED IN ENGLISH METALLURGICAL WORKS FROM FOREIGN RAW MATERIAL.

Year.	Tons.	Year.	Tons.
1871.....	23,650	1878.....	58,042
1872.....	21,788	1879.....	51,083
1873.....	26,738	1880.....	45,245
1874.....	27,894	1881.....	42,483
1875.....	36,573	1882.....	46,100
1876.....	42,843	1883.....	50,370
1877.....	53,582		

The pyrites trade of Great Britain is one of great importance, since it furnishes about 30 per cent of the copper from foreign raw material.

The following interesting table shows the sources from which the cupreous iron pyrites worked in Great Britain are derived :

IMPORTS OF CUPRIFEROUS IRON PYRITES.

Year.	Norway.	Portugal.	Spain.	Other countries.	Total.
1874.	41,044	162,569	294,117	907	498,637
1875.	21,820	165,433	344,019	6,283	537,555
1876.	7,688	56,579	419,080	21,417	504,752
1877.	8,564	149,562	498,977	22,209	679,312
1878.	5,773	136,705	419,561	12,318	579,261
1879.	8,485	82,529	374,505	15,873	481,392
1880.	10,952	166,519	463,199	17,379	658,047
1881.	6,009	140,079	379,216	17,074	542,378
1882.		114,132	497,807	15,761	627,700
1883.	1,271	121,137	473,343	5,537	601,288

The pyrites of the Peninsula, it will be seen, almost completely monopolize the market now. The figures given below, according to data furnished by Mr. J. A. PHILLIPS, show the amount of ore treated, of metallic copper and precious metals extracted, the latter by the Claudet process :

METALS EXTRACTED FROM BURNT CUPRIFEROUS PYRITES.

Year.	Ore. Tons.	Copper. Tons.	Gold. Ounces.	Silver. Ounces.
1880.	415,567	15,000	1043	246,981
1881.	396,737	14,000	1490	258,463
1882.	434,427	15,300	1500	400,000
1883.	439,156	15,370	1911	348,210

The principal extraction-works in England are the following :

ENGLISH EXTRACTION-WORKS.

Company Name	Burnt ore. Tons.
Widnes Metal Company, Widnes	24,465
Tharvis Sulphur and Copper Company, Widnes, Newcastle, Birmingham, Glasgow, and Cardiff	196,650
D. McKechnie, St. Helen's	30,000
Globe Alkali Company, St. Helen's	15,937
Wigg Brothers & Steele, Runcorn	21,030
Runcorn Soap and Alkali Company, Weston	23,794
Musprat Brothers & Huntley, Flint	12,224
W. Russell & Sons, Newcastle-on-Tyne	14,000
Bede Metal and Chemical Company, Newcastle-on-Tyne	24,029
Gibb, Johnson & Co., Newcastle-on-Tyne	19,079
Morris & Co., Doncaster	14,064
South Down Metal and Chemical Company, Devonport	10,248

Lead.—The production of lead has fluctuated within pretty wide limits, but on the whole shows a tendency to decrease, the return for the year 1882 being the lowest since 1870, though probably the continued low prices in this year will bring about an even more unfavorable result. The following table will be instructive :

PRODUCTION OF LEAD IN GREAT BRITAIN.

Year.	Ore. Tons.	Lead. Tons.	Silver. Ounces.	Silver per ton. Ounces.
1870.	98,176	73,420	784,562	10,687
1871.	93,965	69,007	761,490	11,050
1872.	81,564	60,420	628,920	10,402
1873.	73,500	54,283	531,077	9,792
1874.	76,801	58,777	509,277	8,672
1875.	77,746	57,433	487,358	8,485
1876.	79,096	58,637	483,422	8,253
1877.	80,850	61,403	497,375	8,100
1878.	77,350	58,023	397,471	6,850
1879.	66,878	41,635	333,674	6,462
1880.	72,245	56,940	293,518	5,189
1881.	64,702	48,587	308,398	6,347
1882.	65,001	59,328	372,446	6,278
1883.	50,980	39,190	314,653	8,780

As the following figures show, the home production is not even sufficient to cover the demand of the United Kingdom. England, however, handles a good deal of lead and base bullion, and ships it all over the world in the shape of pig and of manufactured lead.

THE LEAD TRADE OF GREAT BRITAIN.

Year.	Home production.	Imports.	Exports.	Available for home consumption.
1874.	58,777	74,351	41,321	91,807
1875.	57,433	80,705	38,024	108,516
1876.	58,637	91,010	42,685	106,962
1877.	61,403	105,472	47,885	118,990
1878.	58,020	112,977	36,478	134,519
1879.	51,635	117,014	40,530	128,119
1880.	56,949	107,211	38,344	125,816
1881.	48,587	106,503	48,153	106,927
1882.	50,328	100,311	40,018	110,641
1883.	39,190	118,521	42,848	114,863

The following are the principal sources of the 20,249 tons of ore, 101,715 tons of pig and sheet-lead, and the 15,780 cwts. of lead manufactures imported into Great Britain in 1883 :

IMPORTS OF LEAD INTO GREAT BRITAIN.

Country.	Ore. Tons.	Pig and sheet. Tons.	Lead manufactures. Cwts.
Germany	47	3,933	6,355
Holland	5	6,566	2,100
Belgium	61	1,251	78
France	2,763	377	2,398
Spain	2,906	80,855	3,911
Italy	5,386		
Greece		6,827	
Turkey	1,330		
Algeria	1,881		
United States	50	1,208	912
Peru	1,416		

The exports are pretty well scattered all over the world, the leading countries receiving the metal and its manufactures being the following, the total aggregating 340 tons of ore, 23,580 tons of pig, and 15,732 tons of manufactures :

LEAD EXPORTS OF GREAT BRITAIN.

Country.	Pig. Tons.	Manufactured. Cwts.
Russia	2,614	2,113
East Indies	1,278	2,546
China	6,139	214
Hong Kong	6,242	745
Victoria	1,026	265
New South Wales	175	2,624
British North America	1,578	571

Zinc.—England is largely dependent on foreign countries, both for supplies of ores and of metal. Its own mines in 1883 produced 29,723 tons of ore, containing 13,603 tons of zinc. Its imports for 1883 aggregated 45,835 tons of ore, 40,792 tons of metal, and 407,391 cwts. of manufactured zinc, obtained chiefly from the following sources :

IMPORTS OF ZINC INTO GREAT BRITAIN.

Country.	Ore. Tons.	Zinc. Tons.	Manufactures. Cwts.
Algeria	15,347		
Belgium	177	13,208	85,747
France	581	846	10,710
Germany	5	13,231	159,686
Greece	10,105		
Holland	290	13,203	150,681
Italy	16,961		
United States	694	30	550
Spain	1,642		65

Its exports aggregated 7107 tons of British zinc, 4089 tons of foreign metal, and 3524 tons of ore, the latter to Belgium, which also took 1444 tons of metal. The heaviest consumers were the British East Indies, which absorbed 4058 tons of British and 2233 tons of foreign zinc, or more than one half of the entire quantity.

Phosphate Rock.—The total production of phosphate of lime, coprolites, and phosphatic nodules is estimated by Mr. W. COLCHESTER, of Ipswich, to have been 49,580 tons, valued at £101,729. The following import statistics deserve attention as showing the growing quantity of phosphate rock imported into England :

IMPORTS OF PHOSPHATE ROCK INTO GREAT BRITAIN.

Country.	1882.		1883.	
	Quantity. Tons.	Value. £.	Quantity. Tons.	Value. £.
Belgium	18,248	45,820	17,862	43,974
France	9,764	29,561	6,582	19,014
Portugal	42,878	139,190	48,212	149,244
United States	106,197	288,774	123,186	356,237
Dutch West Indies	4,952	27,654	21,227	113,748
British North America	8,187	39,851	16,531	66,714
British West Indies	6,699	33,888	11,056	57,299
Other countries	2,503	8,460	2,289	7,595
Total	199,428	613,198	246,945	813,825

Manganese Ore.—The quantity of manganese ore mined in Great Britain was not greater than 1287 tons, valued at £2976. The imports, however, are quite heavy, as is shown by the following figures :

IMPORTS OF MANGANESE ORE.

Country.	1882.		1883.	
	Quantity. Tons.	Value. £.	Quantity. Tons.	Value. £.
Australasia	1,349	1,723	1,349	1,723
British North America	1,188	4,414	1,188	4,414
Russia	10,687	2,628	10,687	2,628
France	1,255	2,610	1,255	2,610
Italy	13,493	5,685	13,493	5,685
Portugal	5,468	1,629	5,468	1,629
Spain	1,205	671	1,205	671
Turkey	1,948	3,135	1,948	3,135
United States	3,860	1,123	3,860	1,123
Chili		1,125		1,125
Other countries				
Total	29,766	22,362	29,766	22,362

EMERY MINES AND EXPORTS.

Our consul at Smyrna writes to the State Department as follows : As no inconsiderable part of the annual product of the emery mines of this province is exported to the United States, and as it is the sixth article in point of value thus exported, some facts bearing on this production may not come amiss. For many years, one or two parties holding concessions from the government maintained a virtual monopoly of the emery mining industry, and kept up prices accordingly, the rough stone being sold at the rate of £16 sterling per ton. To-day, £5 sterling per ton is the average price. How much of this falling off in price is due to competition, deterioration, or decrease of consumption can only be estimated. The mines are worked either under firmans or concessions, obtained from the government only with difficulty and great expense, or through contracts made with the "estates of the Church Ottoman," known as "vacouf." In the latter category, are the mines of Gumnah Dagh, near Sokia, about four hours distant from the station of Azizie, on the line of the Ottoman Railroad, which station is about seven miles from Ephesus. These mines pay to the "vacouf" a royalty of so much a ton on all the ore extracted, which is transported on mules and donkeys to the station at Azizie, and taken thence to Smyrna by rail. The road from the mines to the station being very rough and over mountains, camels can not be employed—a serious drawback, inasmuch as the carrying capacity of a mule is only equal to about one ninth of a ton. The quantity of emery yet unmined in these quarries of the Gumnah Dagh is large, but the quality is below the standard. The Thyra mines, known as the Aliogoli, are located on a range of hills between Cosbunar and Thyra, within four and a half hours by camel from Cosbunar to the station on the Ottoman Railroad, forty miles from Smyrna. They are operated by several parties under concessions from the Turkish government, for a term of ninety-nine years. Formerly, large quantities of excellent emery were taken out : but of late years, it has become difficult to extract the ore, which is conveyed on the backs of donkeys to the plain. At the foot of this range of hills, is the Cursak mine, a large, irregular bed of emery. It is easy of extraction, no powder being required, but is covered with from fifteen to twenty-five feet of silt, the accumulation of ages. Much of this inferior quality of stone finds a market in Germany and in the United States. In all emery deposits, there is the risk of a sudden exhaustion of the ore. This fact, taken in connection with the difficulty of procuring concessions, the peculiarities of Turkish laws, and the export duty of twenty per cent, calculated at the selling price in Europe, does not encourage enterprise to open up new mines or to deepen old ones, although experience proves that the best emery comes from the greatest depths.

experienced from the breaking of the iron rods and basket, and the constant stops and repairs increased the cost of concentration seriously in the first month of operation. After repeated trials, the side bars were shortened, and the basket enlarged, and the machine has now put through 10,000 tons without a break. This agitator, which is 30 inches in diameter, has worked up 170 tons in one day. It discharges to a bucket elevator, which raises the pulp about 24 feet to the top of the mill.

Within the mill, there are two sets of machinery, one for sizing, the other for washing the pulp. The sizing apparatus consists of two barrel screens and seven separating hoppers. Four of the latter have a rising current of water, the remainder being merely settling-tanks with discharge at the bottom. The washing apparatus consists of two jigs, each with two sieves, seven buddles, or, more exactly, German "round tables," and 10 dead tyes. The jigs are of the ordinary Harz pattern, with discharge through the beddings. They have a quick down-stroke and slow return, a style that is not in vogue now, but works well with the material treated. The buddles are 15 feet in diameter, with a slope that varies with the coarseness of the material to be washed, from 7 to 4 1/2 inches in 7 1/2 feet. Four have iron frames, three are built of wood. The latter is found to be sufficiently stable, even in this dry climate, when built heavily and covered with sheet-iron before cementing. All surfaces are made of Akron cement. The buddles revolve 105 times in 100 minutes. The cement surface is well adapted to hold the extremely fine slime of carbonate of lead, which finds its way to all the machines in spite of the care exercised in sizing. Though covered with streams and jets of water, these buddles will retain slime that is too fine and light to settle in the tanks after leaving the tables.

The total amount of ore passed through the amalgamating mills, since the beginning of operations, is 89,608 tons, and the quantity concentrated is 28,282 tons, leaving 61,000 tons for future operations.

CONCENTRATIONS.
April 1st, 1883, to March 1st, 1884

	Old mill.	New mill.	Total.
Days run.....	126	144	270
Tons treated.....	3,346	13,623	16,969
New tailings.....		6,150	6,150
Old tailings.....	3,346	7,317	10,663
Ore crushed.....		156	156
Product, tons.....	395.20	1,495	1,890.20
Ratio tailings to product.....		....	1 : 8.9
Per cent saved :		By concentrates.	By tailings.
Gold.....		48.81	55.53
Silver.....		40.57	53.11
Lead.....		72.06	77.61
Cost of treatment :			
Labor.....	\$4,375.50	\$15,671.70	\$20,047.20
Supplies.....	292.36	5,273.71	5,566.07
Total.....	4,667.86	20,945.41	25,613.27
Per ton, tailings.....	1.39	1.537	1.509
Per ton, concentrates.....	11.81	14.010	13.550

The extremely fine condition of the concentrates has made it necessary to introduce an unusual adjunct to a furnace plant—a brick-machine. In it the concentrates and flue-dust are mixed with the finest slimes from the tailing beds, molded, placed on hacking pallets, and dried in the sun. The system is successful, and would be more so if clay were available to use for binding material in place of slimes. The latter are merely ground quartz, containing 85 per cent of silica, and do not have the compressibility or binding power of clay. On this account, burning does not improve the bricks enough to be profitable, and at first it seemed probable that the running of the furnace might be dependent on sunshine, a thing that is uncertain, even in Arizona. Repeated trials have shown, fortunately, that even this light material, so fine that the breath will blow it easily from the hand, can be smelted without bricking. The sand sometimes pours out at the tuyeres unmelting; but as a rule, the greatest objection to the use of sands is the quantity of flue-dust made. On this account, every effort is made to confine the furnace to work upon bricks.

The furnace started up in May, and ran successfully until the cracking of a jacket caused it to be blown out. For some months after, great trouble was experienced from this cause, and the stoppages were frequent and costly. In November, a fresh start was made with wrought-iron jackets, and the difficulties ceased. The new jackets are of the same shape as the old ones, and are made on a different plan from the ordinary wrought jackets. The front and back plates are of soft boiler iron, and the edges of 4 1/2-inch channel iron, the front plate being put on with rivets, and the back with patch bolts. Water inlets are of cast-iron, and of the usual shape. This style of built-up jackets has proved extremely satisfactory, and gives the greatest strength just where the most wear comes.

The furnace stack was increased to a height of 80 feet, and improvements made in the dust-chambers, these changes having been required by the loss in dust during the winter. Other difficulties, caused by the tendency of the lead and silver to pass into the slag, when fine dust was charged, were overcome by changing the composition of the slag. The first start with the wrought jackets was made when the old concentrating mill was shut down, and the new one was not finished; in 122 days, all available material was exhausted, and the furnaces shut down for three weeks, making a fresh start February 25th, since which time it has run without accident. (Shut down for repairs June 9th.)

The operations of the year are shown in the following statement. The quantity of fuel reported includes waste in handling, blowing in and out, and all other items :

FURNACE.
April 1st, 1883, to March 31st, 1884.

	Materials used.		Percentages of charges.	Total.
	Tons per charge.	Total.		
Days run.....		279		
Number of charges.....	21,829			
Weight of charge.....	0.390	8,512.152		
Weight of fluxes.....	0.083	1,815.580		
Concentrates, slums, and flue-dust.....	0.137	2,969.000	0.352	
Ore.....	0.052	1,130.082	0.132	
Manganese.....	0.161	3,511.000	0.412	
Limestone.....	0.006	124.070	0.014	
Slag and cleanings.....	0.034	748.000	0.092	100.2
American coke.....		1,269.180		
English coke.....		464.000		21.329
Charcoal.....		52.400		

In the table of production, the quantities given are distributed by shipments, and not by actual current product. The difference is small, and in a yearly statement only affects the closing month.

THROUGH ANGEL PASS TO DARK CAÑON

Correspondence of the Engineering and Mining Journal.

After giving the coal interests of this section some attention, I next visited a few "rock" mining camps. My inspection has been limited to mines and prospects in the rim of Baxter Basin and on the southwest side of Dark Cañon. From this city up to Pittsburg, a distance of six miles, there is a fine wagon-road along the base of the coal mesas, or more properly along the valley of Slate Creek.

Pittsburg is much smaller than its name, which, I presume, is prophetic of what it may become in the not distant future. In the naming of camps and mines in the West, there is no lack of ambition and oddity. At Pittsburg, "Treasury" Mountain and "Poverty" Gulch invite you to the right. A gulch opening into Slate Creek, before you reach Pittsburg, rejoices in the title of "O Be Joyful;" but the claims of this gulch are said to be poor, while those of Poverty Gulch are rich. To the left, as you pass Pittsburg, "Cascade" Mountain confronts you with its numerous noisy cascades. At its base, the road ends, and the trail begins which leads by steep grades into Baxter Basin, where large masses of snow still stubbornly linger in defiance of the sun's rays and the hopes of miners who have ores to ship. As I write, the United States Geological Survey is going into camp near the lake and sulphur spring. Messrs. Emmons and Eakins, I believe, are in charge. This region will certainly give the party abundant opportunities for hard work.

I have visited the Domingo, Jacob Strader, Gift, and Excelsior mines in the rim of Baxter Basin. The Domingo opens on the southwest side beyond the Angel Pass; the others open on the northeast or on this side of the pass. The ores are similar, fissures very well defined, troubled with dikes somewhat, gangue mostly calc-spar, minerals nearly every form of sulphides known to catalogues of minerals. Besides galena, these ores carry brittle silver in paying quantities. More development-work has been done on the Domingo than on the others. There are at least 2000 tons of 100-ounce ore in sight, taking results of last shipments as estimating units. There is some gold in the Domingo ores. Glancing through thirty assay certificates, I find an average of 435 ounces of silver per ton of ore. The lowest is 22 ounces, derived from a sample of pink spar. Another, being a sample of quartzite, yields 35 ounces of silver. The highest notch reached is on a sample of brittle silver or stephanite, and it calls for record at 2618 ounces of silver and one ounce of gold. An average of three mill-runs gives 250 ounces of silver. The mine is owned by the Harry A. Lee Mining Company, of Crested Butte, Colo., and Butler, Mo. Harry Lee, a mining and civil engineer of practical ability, is the superintendent. Through many difficulties, the enterprise has become a success. With amateur management, a different result would have been obtained, namely, failure. I am under many obligations to Superintendent Lee for favors shown me, especially for aid in climbing up the steep snow "draw" into Angel Pass, an hour past sundown, with dark clouds about us and rain upon us. I suppose the pass is so named because it is so high, and not because of the angelic character of those who pass over the range by that route. About the only creature in this country that seems to have angelic attributes is the meek, trusty, patient burro, who often passes there with his burden of two hundred pounds. The Jacob Strader is also a fine mine, and is shipping ore at a net profit of about thirty-two dollars a ton. The cost of transportation will be much lower ere long, and, of course, the net profits of these producing mines will be largely increased. The Jacob Strader is worked by private parties, and produces from two to five tons a day of ore of good grade. Both of these mines yield specimens of "mineral wool" in the dark-black ores of highest grade. This "wool" seems to elude the grasp of the assayers and chemical manipulators, not only here but back East and also in Denver. "Practical miners" call it "bromide of silver," and go right along as if nothing had happened the least bit unusual.

The Augusta, Big Elephant, Little Nell, and a dozen others are on this same rim in granite. The Augusta is probably the most noted mine on the rim; it is a regular producer of high-grade ore. I did not visit the mine, but have seen shipments of its ores, and possess a fine specimen of dark ruby silver, presented to me by Mr. M. B. Gillette, the happy owner of the mine. Over beyond the Domingo, looking into Dark Cañon on the left, as you go toward it, is the Richmond, which is said to be a fine mine. It is noted here because Dennis Ryan, of Horn-Silver and Bassick mine fame, is a part owner. He and his party, whoever that may mean, made the Richmond a flying visit last week. Mr. John Ryan, brother of the former, is resident manager. It is currently reported that "this strong team" will ere long put up a smelter here—a one-stack affair, to be increased as encouragement increases in the shape of increased ore outputs. Reed & Rose start up their sampling-works to-morrow, which looks like a revival of the silver interest here.

To the right of the Richmond, and a half-mile up on the southwest side of Dark Cañon, is the Silver King, a large vein of galena in the Cretaceous shales, so well shown there and so distinctly marked by the lode on the surface. The outcroppings are abundant. A shaft, carried down on a very well-defined foot-wall to the depth of thirty-five feet, and a level twenty feet northeast, constitute the sum total of the work done so far on the claim. The mine is the property of the Gold and Silver King Mining Company, with headquarters at Topeka, Kan., and Lexington, Ky. Gen. Willard Davis is president. Assays, exploitations, mill-runs, expert reports, etc., show grades of ore from ten to nearly two hundred ounces in silver per ton, some samples giving also an ounce in gold. Galena, zinc-blende, iron pyrites, and mispickel make up the mineral streak, which varies from four inches to four feet. The marcasite carries more silver than I supposed would be the case. The vein-stuff is mostly calc-spar and a thin strip of quartz, which courts closely the region of the foot-wall. When the shales have been passed, or sooner, may be, an abundance of pay-rock may be looked for. A much prized trophy of my tramps along the dizzy trail heights of Dark Cañon is an almost perfect *inoceramus*, a characteristic fossil of the Cretaceous period.

The floral displays of the mountain sides were something wonderful and surprising. Columbines, pinks, roses, wistarias, celery plants, lilies, ferns, dog-toothed violets, wind-flowers, crucifers of various kinds, and pea-flowers of a dozen or more sorts were out in all their beauty and

glory. There was no trouble in performing that wonderful feat of gathering a bouquet with one hand and at the same time a bunch of beautiful snow with the other. Now for Tomichi.
T.
CRESTED BUTTE, COLO., July 28.

THE LAW OF THE APEX.*

By Rossiter W. Raymond, New York City.

(Continued from page 75.)

I. THE LODE.

As already observed, the terms, "vein," "lode," and "ledge," employed in the statute, are intended to be synonymous. I shall, therefore, use the word "lode," instead of either of the others, or all three together. Of course, the question, "What is a lode?" arose early in litigations under the law. It had less importance under the old miners' customs, although even then it occasionally became the question upon which the possessory title to property depended. I think it fair to say, however, that, prior to 1866, courts, juries, and parties assumed that any ore-bearing zone of rock in place was a lode.† The contest was usually between two claimants, one of whom maintained that the other was working on *his* lode, while the other denied the identity of the deposit as disclosed in the two sets of workings. The conclusive proof of identity was the continuous occurrence of ore, connecting the two. Against such proof, if unimpeached, resistance was impossible. In the absence of such proof, it was not easy to get identity admitted on mere geological or mathematical grounds. Under the law of 1866, however, and still more under the law of 1872—the one now in force—the nature of the deposit, as a lode or not a lode, became matter for keen dispute; since, if it were not a lode, even continuity of ore would not justify the locator in following it beyond his location, while, if it were a lode, the local absence of ore in places would not destroy that right.

The view held by the General Land-Office at Washington on this subject has been liberal from the beginning. Passing over some of the earlier rulings, made by Commissioner Joseph S. Wilson, whose experience in agricultural land law was wide, but whose notions on the subject of mining were somewhat hazy, I quote the following clear and sensible decisions of Commissioner Willis Drummond, which are remarkable as stating in advance the ground to which the courts subsequently came: ‡

"DEPARTMENT OF THE INTERIOR, GENERAL LAND-OFFICE, }
WASHINGTON, D. C., July 20, 1871. }

HON. THOMAS BOLES, DARDANELLES, ARKANSAS:

"SIR: In reply to your inquiry of the 11th instant, I have to state that the term 'rock in place,' as used in the mining acts of Congress, has always received the most liberal construction that the language will admit of, and every class of claims, that, either according to scientific accuracy or popular usage, can be classed and applied for as a 'vein or lode,' may be patented under this law.

"The plain object of the law is to dispose of the mineral lands of the United States for money value, and it is a matter of indifference to the government whether the metal occurs in the form of a true or false vein.

"It may be observed, as an important point, that no proof is required to establish the vein formation of the deposit. The law requires the surveyor-general to certify 'to the character of the vein exposed;' but this is understood to mean that the certificate should show whether the vein exposed contains gold, silver, cinnabar, or copper. Very respectfully,
"WILLIS DRUMMOND, Commissioner."

It will be remembered that this refers to the law of 1866.

"DEPARTMENT OF THE INTERIOR, GENERAL LAND-OFFICE, }
WASHINGTON, D. C., February 12, 1872. }

"THOMAS N. STODDARD, ESQ., SONORA, CALIFORNIA:

"SIR: . . . If it was intended to ask if the auriferous cement claims, found in what are sometimes called ancient river-beds, and usually worked by the hydraulic process, properly come within the signification of the term 'rock in place,' as used in the second section of the mining statute of July 26th, 1866, then the answer must undoubtedly be in the negative; several claims of that character having already been patented under the placer mining law of July 9th, 1870, they fully coming under the meaning of the term 'placer' as defined in said act. . . .
"Very respectfully,
"WILLIS DRUMMOND,
"Commissioner."

The placer mining law here referred to is now substantially contained in sections 2329, 2330, 2332, 2335, 2340, and 2344 of the Revised Statutes. In 1868, there being no U. S. statute covering this class of mines, Mr.

* Read at the Troy Meeting of the American Institute of Mining Engineers, October, 1883.

† It was not even necessary that the rock claimed should be in place. Thus, in *Brown vs. Quartz Mining Co.* (15 Cal., 152), it was held that where quartz rock was broken and parted from the original vein, but it was found by the jury as a fact that it was a portion of the same quartz lode or claim, it was immaterial whether it was upon the surface or beneath it, or in what condition the quartz was; the first locator of the lode was entitled to it. He is not confined simply to the solid quartz actually embodied in the bed-rock, but is entitled to the loose quartz rock and decomposed material that were once a part of the lode and are now detached, so far as the general formation of the ledge can be traced. The right of the quartz miner comes from his appropriation, and whenever his claim is defined, there is no reason in the nature of things why the appropriation may not as well take effect upon quartz in a decomposed state as any other sort, or why the condition to which natural causes may have reduced the rock should give character to the title of the locator. Such quartz rock, therefore, would be included under the general term of a "quartz ledge." I quote the foregoing from the digest of this decision given by Blanchard and Weeks (*The Law of Mines, Minerals, and Mining Water Rights*, San Francisco, 1877, p. 21).

‡ In the famous Eureka case (4 Sawyer, 311), these decisions of the Land-Office were, if I remember correctly, not quoted either by the counsel or the court. Although "Department law" is not binding upon courts, yet it seems to me that these decisions not only carry the force of their own reasoning, but are directly in point as the acts of the authorized representative of the government, fixing the sense in which it, as one party to the sale of mineral property, construed the terms describing the property. That is to say, the government, through its executive agent, declares to the miner, with regard to a certain deposit, "I sell you this thing as a lode. You will not be allowed to apply for it as any thing else." After that, does not the purchaser acquire with the deposit all the rights and privileges attached by the government to a lode? This consideration, however, was not required to bring the court, in the Eureka case, to a correct decision.

Wilson, then Commissioner of the General Land-Office, made a startling decision, including placer, gravel, and cement mines under the act of 1866. So far as I know, there was no patent issued in accordance with this ruling; and Mr. Wilson's successor appears to have ignored it. The passage of the placer mining law removed all temptation to claim such deposits as lodes, the patentable placer claim being both larger and cheaper per acre than the lode claim.*

The following is taken from a general circular of instructions, issued to surveyors-general, and registers, and receivers:

"DEPARTMENT OF THE INTERIOR, GENERAL LAND-OFFICE,
WASHINGTON, D. C., July 15, 1873.

"GENTLEMEN: . . . It will be observed that the mineral-producing lands are divided into two classes: the one class embraces lands where the mineral matter is within 'rock in place,' or, geologically speaking, *in situ*; and the second includes placers and all forms of deposits, excepting those in 'rock in place.' In this connection, I deem it a matter of importance to give the construction this office places upon the expression, 'vein or lode of quartz or other rock in place,' to prevent mistakes in locating the two classes of mines referred to, thereby saving to claimants considerable expense and delay.

"In geology, and among miners, veins or lodes imply generally an aggregation of mineral matter found in the fissures of the rocks which inclose it, but are of great variety, veins differing very much in their formation and appearance. 'Lode' is a term in general use among the tin miners of Cornwall, and was introduced on the Pacific coast by emigrants from the Cornish mines, and signifies a fissure filled either by metallic or earthy matter. In several of the mining districts, the terms 'lead' and 'ledge' are employed in the local regulations concerning mines. 'Lead' is used to convey the same idea as 'lode,' while 'ledge' would seem to indicate a layer or stratum of mineral interposed between a course or ridge of rocks.

"Veins may be either sedimentary, plutonic, or segregated, or of infiltration or attrition, depending upon the peculiar formation, or the mode of occurrence of the mineral deposit. There is also another form of deposit different from either of those mentioned above, called 'contact-deposit.'

"European miners mention still others, called in England 'floors,' in Germany 'Stockwerke,' and a form of deposit known as 'Fahlband.' These latter are, more properly speaking, ore-bearing belts, irregular in their dimensions, but presenting a certain degree of parallelism with each other. Similar in some respects to the fahlbands, are the metalliferous zones, or 'amygdaloidal bands,' which are said to exist on Mount Lincoln and Mount Bross, Colorado.

"However, if the question were raised, neither of the forms of deposit known as contact-deposit, fahlbands, or segregated veins could be accepted as true metalliferous veins; nor could it frequently be made to appear, without expensive excavation, whether the metal in the mine for which a patent is sought occurs in the form of a true vein or not.

"But there is no reason for supposing that the terms were employed in their strict geological signification. The plain object of the law is to dispose of the mineral lands of the United States for money value; and whatever form of deposit can be embraced in the general phrase, 'vein or lode of quartz or other rock in place,' must be sold at the rate of five dollars per acre.

"It is evidently the policy of the government to include as much land as possible under this designation, for the reason that, as the most valuable metals and minerals occur in the several vein-formations, it is desirable that the lands wherein they are discovered should be sold in limited quantities, thereby preventing the few from monopolizing large tracts, which ought to remain open to all for exploration and development; and for the further reason that the government derives a larger revenue from the sale of lands of this description.

"In fine, I include in the first class all lands wherein the mineral matter is contained in veins or ledges, occupying the original *habitat* or location of the metal or mineral; whether in true or false veins, in zones, in pockets, or in the several other forms in which minerals are found in the original rock, whether the gangue or matrix is disintegrated at the surface or not. . . . Very respectfully, your obedient servant,
"WILLIS DRUMMOND, Commissioner."

The Commissioner's geology is an amusing illustration of the danger of indiscriminate cramming on such a subject. But his common-sense is all the more conspicuous on that account. The courts were not at first equally liberal in fixing the scope of the term "lode," which, since 1866, has assumed a vital importance. They attempted to hold fast to the technical definition of a fissure-vein. Thus, in *Foot vs. National Mining Company* (2 Montana, 402), it was declared that a quartz lode "is a fissure or seam in the country-rock filled with quartz matter bearing gold or silver." In *North Noonday Mining Company vs. Orient Mining Company* (1 Federal Reporter, 522), the vein or lode authorized to be located is defined as a seam or fissure in the earth's crust, filled with quartz or some other kind of rock in place, carrying gold, silver, or other valuable mineral deposits named in the statute. "It may be very thin or many feet thick, or irregular in thickness, and it may be rich or poor, provided it contains a trace of any of the metals named in the statute." I quote from the digest in *Copp's U. S. Mineral Lands* (edition of 1881), p. 423. The proviso is scarcely intelligible, considering that the statute comprehensively includes all valuable mineral (not merely metallic) deposits.

* In the report of 1869 (for the year 1868) of the U. S. Commissioner of Mining Statistics, the following language is used (p. 218, foot-note) concerning the strange ruling of Commissioner Wilson:

"A recent decision of the Commissioner of the General Land-Office includes placer, gravel, and cement mines under the operation of section 2. The words of the Chairman of the Committee on Mines and Mining, in reporting the bill to the Senate, May 28th, 1866, were: 'By this bill it is only proposed to dispose of the vein mines. . . . It is not proposed to interfere with, or lay any tax upon, the miners engaged in working the placer mines.' The words of the law are, 'vein or lode of quartz or other rock in place, bearing gold, silver, cinnabar, or copper.' There is no possible construction of these words which will include placer mines, or alluvial deposits or beds. The Commissioner argues that there are different kinds of veins, and that it is difficult to decide how a vein was formed—all of which does not touch the case. Amid all the discussions of geologists about vein-formation, the distinction between all veins and alluvial deposits has never been disturbed. It is found in the earliest laws, and is perfectly comprehended by the ordinary miner. The United States law of 1866 can not be applied to mines of the latter class: it was an experiment, applied only to 'quartz mining'; and the attempt of the Land-Office to extend it over placers, before a single quartz mine has received a patent under it, only tends to bring the whole law into contempt."

The case of Eureka Consolidated Mining Company vs. Richmond Mining Company, already cited, settled the point that a lode under the statute need not be a fissure-lode. "We are of opinion," says the Court in that case, "that the term, as used in the acts of Congress, is applicable to any zone or belt of mineralized rock lying between boundaries clearly separating it from the neighboring rock." Great apprehension was expressed by some experts,* at the time of this decision, that the principle laid down in it would prove revolutionary in its application, classing whole geological formations or mountain ranges as lodes. But, as the writer then pointed out, the decision simply emancipated judges and juries from the tyranny of technical definitions. They were more free than before to decide on grounds of equity and common sense whether a given zone of rock claimed as a lode should be practically so considered. It was not long before the justice of this reply became manifest. In Mount Diablo Mining Company vs. Callison (5 Sawyer, 439), tried, I believe, in 1878, the year after the Eureka decision, Judge Sawyer, one of the three judges who had rendered that decision, limited its application by declaring that, while metalliferous rock in place, not in a fissure, may be found under such conditions within clearly defined boundaries as to require recognition as a vein or lode, a broad metalliferous zone, having within its limits true fissure-veins, plainly bounded, can not be regarded as a single vein or lode, although such zone may itself have boundaries which can be traced. Whether this declaration would have been made in the special case of the Mount Diablo, if the light of subsequent developments had been thrown upon that case, I do not purpose to discuss. The principle declared is clearly equitable. A belt of country-rock, containing independent fissure-veins, is not a lode.

In a more recent case, Holmes Mining Company vs. Northern Belle Mining Company, tried in 1883 before the same judge, the theory of the plaintiff was, that a certain belt (apparently the continuation of the Mount Diablo belt) was a "compound fissure-vein," according to the definition of Professor Cotta, given, not in his text-book, *Die Erzlagertstättenlehre*, but in an article contributed to the *Berg- und Hüttenmännische Zeitung* (1864, p. 395), on "The So-called Vein Clay-Slate of Clausthal." This proposed distinction between simple and compound fissure-veins is adopted and credited to Cotta by Director Grodeck, in his treatise on Mineral Deposits (*Die Lehre von den Lagerstätten der Erze*, Leipzig 1879, p. 34). I quote his definition:

"Compound fissure-veins (*die zusammengesetzten Gänge*) consist predominantly of rock—the so-called vein-rock (*Ganggestein*). This is either unaltered country-rock, or it has been derived therefrom by chemical and mechanical metamorphosis. In the vein-rock, occur irregularly distributed veinlets (*Trümmer*), or regularly coursing simple fissure-veins (*einfache Gänge*) filled with minerals."

The above-mentioned case was given by the jury to the plaintiff; but I am unable to say, not having seen the charge of the judge, what view was taken by the court as to the legal location of a "compound lode." From the testimony in the case, however, I am forced to infer that this class of lodes was recognized, and it was left to the jury to decide whether the mine in suit belonged to it.

The principle that a legal lode need not be a fissure-vein having been generally accepted, a new difficulty was raised concerning the term "in place." This has been chiefly confined to cases arising in the Leadville District, where most of the silver-lead deposits claimed under lode locations lie at or near the contact between limestone and overlying porphyry, and have a comparatively small dip, say 15 degrees from the horizontal plane. This dip renders it an easy and comparatively inexpensive matter to reach the "contact" with a vertical shaft at a considerable distance from its outcrop; and the whole region was covered at an early day with claims, in most of which there was no visible outcrop. But the proprietors went vigorously down with exploring-shafts and in many cases reached the contact zone or vein, the outcrop of which was already located by others. Litigation naturally followed; and a series of interesting and bitterly contested cases, running through the last five years, was the result. In most of these cases, the Iron Silver Mining Company has been a party. That company was formed by Mr. William Stevens, a pioneer who, for many years after the decay of the early gold-washing operations in California Gulch, near Leadville, had remained in the locality, maintaining faith in its future and locating and perfecting numerous claims. With much labor and patience, Mr. Stevens traced the outcrop of the "contact" along the sides of California Gulch, and located lode claims upon it until he had in all a mile and a half of continuous claims of this character, which were transferred, together with other property (placer claims, water-rights, etc.) to the Iron Silver Mining Company. When the rush of prospectors came, they swarmed over the hills, and many of them located "on the back" of the Stevens claims, and, profiting by the explorations which had discovered the position of the ore-bearing zone, proceeded to "go for it" with vertical shafts. Confining our attention for the moment to the Iron Hill, we may say that from the Stevens outcrops for a long distance eastward, there was practically but one legal vein known to exist. This of itself would not constitute a strongly exceptional case. The same is true, for instance, as the courts have decided, at the Comstock and at Eureka. But in those cases, the deposit stands so steeply that, although much litigation has been necessary to establish its unity, the point once established has not again been disputed, because it would be too costly an undertaking to pierce the vein by deep vertical shafts far off in the hanging-wall, merely as a preliminary to a fight. Moreover, the cost in time, perhaps even more than in money, was prohibitory. The occupant of a steeply dipping lode, working down upon it by incline, in ore, could reach a given point either before his rival could arrive at it with a vertical shaft through barren rocks, or else so soon after as to leave no time for that most convenient operation, the extraction of ore from the disputed ground—an operation which is usually relied upon to furnish the sinews of war. At Leadville, on the other hand, the deposit was so nearly horizontal that shafts through cracked and soft rock might reach points far in advance of the inclines from the outcrop, months before the latter. The thousands of prospectors who had not been pioneers and had not made original discoveries, yet would not submit to an application of the law that would exclude them from a share in the ownership of the good

things developed by earlier locators, created an irresistible popular feeling against the right given by the law to lode claimants, of following the lode beyond their side-lines. Moreover, many, even of the earliest locations, had no visible outcrops; and their owners could not foresee what might be the consequences to them of the general exercise of this right. They might, perhaps, follow their deposit into a neighbor's land, provided it was a lode, and they had the apex; but if somebody else should prove that he held the apex, they might lose all. Hence, they bowed to the popular feeling, and either tacitly or by formal agreement with adjoining owners, established vertical boundaries, drawn through the side-lines of their locations. But the Iron Silver Mining Company, having for a long distance, at least, a clear outcrop, and a well-defined vein, and laying claim to a magnificent property, decided to fight for its rights, and hence "the Iron Mine cases." Since, under the laws of Colorado, the title to real estate can not be determined by a single trial, if the beaten party demands another, the trials have been more numerous than the disputes. In the course of them, all possible defenses have been set up against the claims of the company. In one case, it would be argued that the deposit was not a lode; in another (or in the second trial of the same), that, although a lode where the plaintiff worked it, it was barren for some distance between plaintiff's and defendant's workings, and thus lost to identity; or it was cut off by a dike, and lost its identity in that way; or being so flat, it was a kind of vein not contemplated by the law—a brand-new kind, in fact (not departing from the perpendicular, but departing from the horizontal); or the plaintiff had no apex, and, therefore, no right to follow beyond its side-lines; or the plaintiff's end-lines were not properly drawn; and so on. We are concerned at this time with the first class of defenses only—those that denied the character of the deposit as a lode.

In 1879, one of these cases, the Iron vs. Grandview (Stevens and Leiter vs. Williams), came to trial at Denver before Judge Hallett and a jury. From the charge to the jury (reported in the *Denver Weekly Times*, February 19th, 1879, and in *Carpenter's Mining Code*, third edition, Denver, 1880, p. 67), I make the following extracts:

"The language of the act is, mining claims upon veins or lodes of quartz or other rock in place, bearing gold, silver, cinnabar, lead, tin, copper, or other valuable deposits. . . . And, as to the meaning of these words, in place, they seem to indicate the body of the country which has not been affected by the action of the elements; which may remain in its original state and condition as distinguished from the superficial mass which may lie above it. . . . And when this act speaks of veins or lodes in place, it means such as lie in a fixed position in the general mass of country-rock, or in the general mass of the mountain. . . . Now, whenever we find a vein or lode in this general mass of country-rock, we may be permitted to say that it is in place, as distinguished from the superficial deposit, and that is true, whatever the character of the deposit may be; that is to say, as to whether it belongs to one class of veins or another; it is in place if it is held in the embrace, is inclosed by the general mass of the country. And as to the word vein or lode, it seems to me that these words may embrace any description of deposit which is so situated in the general mass of the country, whether it is described in one way or another; that is to say, whether, in the language of the geologist, we say that it is a bed, or a segregated vein, or gash-vein, or true fissure-vein, or merely a deposit; it matters not what the particular description of it may be, in respect to these distinctions, which are observed by geologists in defining the different classes of deposits that lie in the embrace, or are inclosed by the general mass of the mountain. In all cases, I suppose that they are lodes if not veins. It may be true that many of these deposits will not come under the description of veins as known to geologists; but if they are not so described—if they can not be so correctly described—they are, at least, lodes, and are recognized as such by miners in their search for them. In other words, whenever a miner finds a valuable mineral deposit in the body of the earth, as I have described it, he calls that a lode, whatever its form may be, and however it may be situated, and whatever its extent in the body of the earth. The books make some distinctions between beds and lodes, and they make distinctions in the different classes of veins, as you have heard from counsel; but these distinctions are not important in relation to this matter of the discovery and taking of these mineral deposits. It has been decided that Congress, in passing this act, intended by this description to embrace and include all forms of deposit which are located in the general mass of the mountain, by whatever name they may be known, and the distinctions which are adopted by geologists in respect to the different kinds of veins are not important except for one question and for one purpose, which I may invite your attention to farther on. So that we may say, gentlemen, with respect to the case which is now before you, that, whether this may be called a true vein or a contact vein, or a bed; whether it lies with the stratification or transversely to it, the matter is of no importance for the purpose of determining this question; it is, in any event, a lode if it lies in place within the meaning of this act. And it is in place if it is inclosed and embraced in the general mass of the mountain, and fixed and immovable in that position. Perhaps I ought to say further, in view of some things that were said by counsel in the argument, that it is not material as to the character of the vein-matter; whether it is loose and disintegrated, or whether it is solid material. In these lodes, the earth that is found in them, the earthy matter which may be washed or treated with water or steam, is often the most valuable part. It was never understood here or elsewhere, so far as I know, that such earthy matter was not embraced in the location because it was of that character. It is the surrounding mass of country-rock; it is that which incloses the lode rather than the material of which it is composed, which gives it its character; so that even if it be true, as counsel have stated in the course of their arguments, that this is mere sand, is a loose and friable material which can not be called rock in the strict definition of that word, if that be true, it does not affect the character of the lode. If it were all of that character, it would still be a vein or lode in place, if the wall on each side, the part which holds the lode, is fixed and immovable. . . .

"This brings us to a question, gentlemen, which really is the important question in this case, and that is whether there is any lode in the position which has been mentioned by the witnesses; and in that connection, in the consideration of that question, the character of the deposit, as to

* See *Transactions*, vi., 560.

whether it is a true fissure-vein, or a contact deposit, or a bed, or something of that kind, is of some value; because, in respect to fissure-veins, we accept the cavity or chasm which is found between walls and filled with what they call vein-matter as indicating or showing the existence of the lode, even if the matter which is found in it is not very valuable—that is, if there is any thing which usually accompanies valuable ores or minerals. But in respect to this kind of deposit, my impression is, that it is to be known, called, and regarded as an irregular deposit; one which, if it should be interrupted for any considerable distance—that is, if what they call the contact or junction between the porphyry and lime should become barren for a considerable distance—that it should no longer be called a lode. As I understand it, this line which exists, which always exists when there is a union of rocks of different ages and different formation, may carry ore or it may not; it may be productive or it may be barren; and if this should be found at any point in its course to become barren, and remain so for any considerable distance, I do not see how it could be called a lode in that part of it so that it could be followed with the result to claim what lies beyond. I should say, with reference to such a line of contact between rocks of different formation, that, to find that line of contact in one place, unless there were in it valuable minerals which were carried along with something like a continuous course along the line of contact, no lode would be discovered. It could not be said that any had been found until such minerals were found. I do not mean by this that any slight interruption for a few feet of the valuable part of the ore would have the effect to show that the deposit was broken in its continuousness. I do not mean that, nor do I mean that, if any dike or other extraordinary foreign matter should be interposed in the course of the lode so as to cut it off, and it should follow on immediately after that interruption, that would be regarded as such a displacement in the continuity of the deposit as would deprive it of its regular character. Whenever it may appear that the fissure has existed at one time, or at any time, with a continuous body of ore in it which may have been interrupted by some subsequent convulsions, on the character of the deposit would remain the same as if the interruption had never occurred. But if there was such an intervening space in the contact, as these witnesses call it, barren in its continuity, as might show a separate and distinct body of ore, which had always been such, I should say that it would not pass with the grant of the first. It may help you, gentlemen, for me to express this in other language, and ask you to extend the line which is laid down on that map (showing) for some distance farther, and to suppose that, in the course of that line, we may say that you find that there is, at the head of the deposit, that nearest the surface, a hundred feet or more of continuous ore lying upon the line between the porphyry and the lime, and then there should be an interruption of a hundred feet or more of this contact which is perfectly barren; the lime and the porphyry coming together carrying nothing whatever; and below that again, another body similar to that which was found at the head, the position which I think might be taken upon this, the position of these ore-bodies, would be that there would be two lodes rather than one, the first above, and the second below; but if there is a continuous body of ore, or practically continuous, and there is no such interruption as exhibits other than a casual and fortuitous displacement, then it would be one lode.

There may be other deposits in that neighborhood, gentlemen, which show entirely different features, or show the same features, but whether that be true or not is not a matter for present consideration. We determine these questions only upon what appears in this case, and without reference to any others that may arise in the same locality. Other deposits in this neighborhood may be of an entirely different character; they may be such as can not in any sense be called lodes at all. Whether this is true or not, is not for present consideration. We determine this case, as I said before, upon the evidence given here, leaving other questions which may arise in respect to other locations to the facts as they may be developed in respect to them.

Some of the witnesses—one in particular—was of the opinion that the ore in this deposit was not found in place until a point had been reached east of the east line in the Iron location; others, the witnesses of the plaintiffs, were very confident that it was found as indicated upon the map, at a point where the shaft-house is, there within those lines. That is an important question, gentlemen, because the point where it is found in place determines the ownership of the vein. In other words, if the point at which it is found in place is not within the plaintiffs' location, they can not claim any right to go beyond the limits of their patent and pursue it elsewhere. I think you understand that point pretty well by this time.

(TO BE CONTINUED.)

THE SEGREGATION OF IMPURITIES IN BESSEMER STEEL INGOTS ON COOLING*

By Prof. Byron W. Cheever, University of Michigan, Ann Arbor, Michigan.

In the *Journal of the Iron and Steel Institute* for 1881 (Vol. II., page 379), will be found an article upon this subject. The analyses there reported were of samples taken from an ingot made especially rich in impurities and then cast in a sand-mold, in order to give the elements a better chance to redistribute themselves, on account of the steel solidifying more slowly than when cast in an iron mold. Wishing to ascertain how much, if any, segregation takes place when the steel is cast in the ordinary way, I placed the subject in the hands of Mr. W. J. Olcott, a graduate of the Michigan University, who has carefully collected and analyzed samples taken from different parts of ingots and billets.

In this undertaking, he found himself somewhat embarrassed on account of being distant from steel-works, and therefore unable to supervise the selection of samples.

He found, however, a competent and willing aid in the person of E. F. Wood, M.E., Chemist of the Pittsburg Bessemer Steel Company, Limited, who has spared no pains in collecting the desired samples and furnishing drawings and descriptions of the ingots from which the samples were taken.

The following are the results obtained:

Ingot No. 1—This ingot was about 5 feet long and 13 by 13½ inches at

* Transactions of the American Institute of Mining Engineers.

the point of fracture, which was 2 feet from the bottom. The samples were taken from points 1, 2, 3, and 4, holes 1½ inches in diameter being drilled with a twist drill. The results of the analyses are given in the following table, which also gives the distance in inches of the center of the holes from two sides of the ingot, the holes being on a line from the center of the ingot to one of its corners. No. 1 was therefore drilled near the center of the ingot, and No. 4 very near one of its corners. The ingot was badly honeycombed:

RESULTS OF ANALYSES.				
	1	2	3	4
Position of holes, inches.....	5¼, 5¾	3, 3¾	1½, 2¼	¼, 1
Silicon.....	0.269	0.195	0.083	0.279
Phosphorus.....	0.966	0.966	1.000	0.966
Sulphur.....	0.220	0.130	0.050	0.290
Combined carbon.....	0.4900	0.4200	0.3700	0.4500

Ingot No. 2.—This ingot was 4 feet 6 inches long and 13 by 13 inches at the point of fracture, which was 2 feet 6 inches from the bottom. It was a soft ingot. The sample holes, 1, 2, 3, and 4, were 1½ inches in diameter. All measurements are to the edge of the hole, and not the center.

RESULTS OF ANALYSES.				
	1	2	3	4
Position of hole, inches.....	5¼, 6¼	3½, 4	1½, 2¼	¼, ¾
Silicon.....	0.15	0.08	0.03	0.13
Phosphorus.....	0.197	0.131	0.082	0.086
Sulphur.....	0.078	0.059	0.03	0.23
Combined carbon.....	0.100	0.100	0.100	0.090

Billet No. 1.—The billet was 6 inches square, and three holes were drilled, one, No. 1, near the center; one, No. 3, near one corner of the billet; and one, No. 2, about midway between Nos. 1 and 3:

RESULTS OF ANALYSES.			
	1	2	3
Position of hole.....	Center	Midway	Corner
Silicon.....	0.16	0.15	0.15
Phosphorus.....	0.75	0.74	0.81
Sulphur.....	0.26	0.27	0.28
Combined carbon.....	0.210	0.230	0.200

Billet No. 2.—This billet was 7 inches square, and samples were taken from three holes drilled in the same places as in the case of billet No. 1:

RESULTS OF ANALYSES.			
	1	2	3
Position of hole.....	Center	Midway	Corner
Silicon.....	0.40	0.37	0.39
Phosphorus.....	0.85	0.89	0.89
Sulphur.....	0.37	0.36	0.38
Combined carbon.....	0.400	0.400	0.420

Billet No. 3.—This billet was 4 inches square, and three samples were taken in the same manner:

RESULTS OF ANALYSES.			
	1	2	3
Position of hole.....	Center	Midway	Corner
Silicon.....	0.6	0.15	0.15
Phosphorus.....	0.75	0.76	0.73
Sulphur.....	0.26	0.25	0.24
Combined carbon.....	0.390	0.400	0.400

On examining the foregoing analyses, it will be seen that there is a tendency on the part of some of the impurities to separate from the cooling mass and concentrate in that part of the ingot that remains fluid the longest. This concentration, however, is so slight, in the ordinary ingot, as not to be manifest in the billet. The fact that segregation does take place calls for some attention on the part of the manufacturer of large steel castings, on account of the large percentage of silicon present and the slow cooling of such castings, which gives the impurities a better chance to concentrate. It is evident that the more rapidly the fluid steel is cooled, the less the segregation. Therefore the steel should be cooled as rapidly as is consistent with good work, in order to secure in the casting as perfect uniformity as possible.

WIRE ROPE TRANSMISSION FOR PUMPING.

A recent issue of the transactions of the *Société de l'Industrie Minière* contains the description of two small pumping plants at the Ségur pit of the Montchanin colliery and the Orléans shaft of the Brassac colliery, France. Both are interesting examples of the employment of wire rope transmission for driving underground pumps by surface machinery. At the Ségur shaft, the hoisting-engine is used for pumping at night, but, especially during sinking, additional pumping is necessary, and this is done in the following way: An engine on the surface, 130 meters (426½ feet) from the shaft, making 40 revolutions, drives a sheave making 360 revolutions a minute, the speed of the 12 millimeter (0.47 inch) rope being 22.6 meters (74.4 feet). The duty is 0.3 cubic meter (10.6 cubic feet) of water per minute from a depth of 135 meters (442.9 feet). The pumps are two single-acting plunger pumps 200 millimeters (7.87 inches) in diameter, and 500 millimeters (19.7 inches) stroke, making 10.8 strokes a minute, and requiring theoretically 10.5 horse-power. The wire rope is kept taut by a sliding counterweight arrangement making a tension of 255 kilograms (562.1 pounds). The average life of the rope is 1900 working hours, during which 34,000 cubic meters (1,200,000 cubic feet) of water are raised. At the Orléans shaft, the pumps were used to sink from a depth of 264 meters (866.2 feet) to a depth of 325 meters (1066.3 feet). They were driven by an old horizontal 350 by 1000 millimeter (13.8 by 39.4 inch) engine, making 60 revolutions, driving the main sheave from which the rope was conducted into the shaft to two old Letestu pumps, 200 millimeters in diameter (7.9 inches), and with 660 millimeter (26 inch) stroke. Making 16 strokes, they were capable of lifting 0.5 cubic meter (17.7 cubic feet) of water. The rope was conducted underground over three sheaves, two of them gearing down to the speed of the pumps, while the third was used for the suspension of the weight to keep the rope taut. The sheave on the surface makes 200 revolutions, and the pump sheaves 312, the speed of the rope being 20 meters (65.6 feet). One rope lasted 73 days, a second 81 days, the total length being 590 meters (1935.8 feet) and its diameter 13 millimeters (0.51 inch). The wear of the ropes in both cases seems excessive.

Spearman and Mabel furnaces, at Sharpsville, Pa., have both gone out of blast. Douglas furnace is the only one out of ten in that vicinity that is in blast. It has been in blast four years and a third, and, the *Advertiser* says, is working well, with no signs of blowing out. It has made over 90,000 tons of iron during the blast thus far. This is claimed to be the longest and most successful run ever made by any furnace in the Shenango or Mahoning valleys. Mabel furnace was in blast nearly four years.

FURNACE, MILL, AND FACTORY.

The following is the condition of all the furnaces in the Mahoning Valley with daily capacity :

OWNERS.	In blast.	Out of blast.	Tons capacity.
Andrews & Hitchcock, Hubbard.....	1	1	165
Andrews Brothers & Co., Haselton.....	..	2	160
Eagle Furnace Company, Brier Hill.....	..	1	60
Mahoning Valley Iron Company, Youngstown.....	1	..	100
Brown, Bonnell & Co., Youngstown.....	..	2	150
Brier Hill Iron and Coal Company, Youngstown.....	2	2	460
Brown, Bonnell & Co., Struthers.....	..	1	120
Ohio Iron and Steel Company, Lowellville.....	1	..	90
Girard Iron Company, Girard.....	1	..	116
Thomas Furnace, Niles.....	..	1	75
Himrod Furnace Company, Youngstown.....	..	2	180
Total.....	6	12	1676

Andrews Brothers & Co., Brier Hill Iron and Coal Company, and Girard Iron Company are carrying a good stock of metal, while the others are light or have none on hand.

The firm of James R. Thompson & Co., proprietors of the Jersey City Steel Works, New Jersey, has organized itself as the Jersey City Steel Company, under which name it will hereafter conduct its business of manufacturing all kinds of steel. There is no change in the ownership of the works in any respect.

The Wilmington Malleable Iron Company, of Wilmington, Delaware, organized in 1881, is completing a second enlargement of its works.

The Edgar Thomson people have recently been trying the experiment of charging cold spiegel into the converters, but have gone back to the old system.

The Harrisburg Copper Mining and Smelting Company has called a special meeting of the stockholders for the purpose of voting on the question of making the stock of the company assessable.

Work was resumed August 5th at the rolling-mill of the Reading, Pa., Iron Works. This gives employment to several hundred men.

On the morning of July 25th, the fourteenth annual meeting of the North Chicago Rolling-Mill Company was held at the company's offices, northwest corner of La Salle and Randolph streets. The product of the works for the year ended June 30th, 1884, was given as follows: Pig-iron, 188,000 tons; steel rails, 171,000 tons; merchant iron and steel, 45,000 tons; nails, 74,000 kegs. The volume of business transacted showed an increase of 12 per cent over that for 1883, and the gross earnings of the company were shown to have been \$7,900,000. The following directors were elected for the ensuing year: Stephen Clement, Milwaukee; Nathaniel Thayer, Boston; and O. W. Potter, Chicago. At a subsequent meeting held by the directors, the officers were chosen as follows: O. W. Potter, President; Nathaniel Thayer, Vice-President; Stephen Clement, Treasurer; and R. C. Hannah, Secretary. The report of the officers showed the works generally in full operation. Fifty-eight hundred men are in the employ of the company. Of the \$5,000,000 stock, \$4,209,600 was represented by those present at the meeting.

The St. Louis Hot-Pressed Nut and Bolt Manufacturing Company, with a capital of \$100,000, made an assignment on the 18th of July. The assets, consisting of raw and manufactured material, book accounts, and plant, are valued at something like \$70,000; the liabilities aggregate very nearly if not quite as much. The creditors are all local parties, and none of them is secured. They include Chouteau, Harrison & Valle with \$12,000, and the Mechanics' Bank with \$16,000. The failure, says the *Age of Steel*, is referred in a general way to the depression in business, but more directly to unsold stock on hand and inability to collect promptly \$5000 due from railroad companies.

The wrought-iron tube manufactories in Pittsburg have been especially favored during the last six months, owing to the demand by the natural gas companies. Elsewhere, the situation is different. The pipe mill at Reading, which was in partial operation for some time, has shut down entirely. The suspension is due to lack of orders and the large stock on hand.

The work of laying the conduits and putting in the engines and machinery of the Philadelphia Traction Company's new cable roads in Philadelphia is rapidly pushing to completion. As at present contemplated, the cable roads of the Traction Company will extend sixteen miles. There will be three grand divisions of the road, and as many distinct circuits of the steel cable motor, each propelled by a 250 horse-power Corliss engine. A great portion of the machinery for the engines at Twenty-third street and Columbia avenue has arrived, and will be speedily put in place and the foundations for the other engines are laying. In about a week, the iron conduit will be completed on Market street to the river, except at a few intersections with other streets. The work on Sansom and Ninth streets has not been started yet. The cable rope is of steel. It is manufactured by Roebling, at Trenton, and consists of six strands of nineteen steel wires each, making its diameter one inch and a quarter. The iron tubes are manufactured at Phoenixville, Tioga, and other places. The cables will be run seven miles an hour, the full limit of the law in the city, and the cars will be run in trains of two or three, as in Chicago and other cities. Each engine of 250 horse-power will haul about fifty or sixty cars ordinarily loaded.

A large machine-shop and foundry belonging to Barnum, Richardson & Co., of Lime Rock, Salisbury, Conn., was burned. Total loss, \$85,000; insured for \$60,000. The firm will rebuild at once.

The Elba Iron-Works, at Pittsburg, Pa., closed down August 4th, all departments except the bolt factory, on account of lack of orders and unsatisfactory prices.

Charles F. Elmes, of Chicago, has just secured an order for the construction of twenty additional Harrison coal-mining machines.

The Youngstown (Ohio) *News Register* says: The six departments of the Forest City and Union rolling-mills, near Cleveland, will start up August 4th. The machinery of the new Cleveland Rolling-Mill Company's rod department has been tested, and work will begin August 4th. Two hundred more men will now receive employment.

Cartwright, McCurdy & Co. have three of their six mills in operation.

The furnaces of Andrews & Hitchcock at Hubbard are damped down.

The two large furnaces of the Brier Hill Iron and Coal Company are running steadily. The company is still drilling for gas.

The Mahoning Valley Iron Company has all its finishing mills running and part of the puddle mills.

The nail factory of Brown, Bonnell & Co., which has been idle for the past eight weeks, will start Monday morning. Only a part of the mills have been in operation the past week.

Booth, Miller & Co. are filling a number of orders for the Pullman Iron Company.

The Russia mill in Niles, O., will soon be running with Youngstown capital.

The McNab & Harlin Manufacturing Company, Paterson, N. J., is preparing to put a new engine and boiler into its works.

The Blevney Manufacturing Company, No. 56 Academy street, Newark, N. J., has purchased land in East Newark, and will at once erect a shop for the manufacture of Blevney's friction-clutches, pulleys, and couplings.

The Lamb Smelting and Refining Works have received a lot of silver ore from the Lake Superior District, and will begin operations soon.

The Osceola mine, Lake Superior, has awarded a contract for a hoisting-engine to the Reliance Machine-Works, Milwaukee.

The automatic nail-feeder invented and patented by Mr. Junius Dunbar, a machinist at Brown, Bonnell & Co.'s works, is now in successful operation in the nail factory connected with the mills.

LABOR AND WAGES.

The foundry of Rainbow & Co., of Beaver Falls, Pa., was compelled to shut down on the 25th ult., on account of the men refusing to work. It appears that some of the foundries in Pittsburg that are closed on account of the strike there, sent their patterns to this place to have the work turned out by Rainbow & Co. As soon as the men found it out, they refused to work, and the foundry is now idle.

Every department of the Hartman Steel Company's works, at Beaver Falls, Pa., is in operation, and non-union men only are employed.

A petition was presented to the mayor of Cincinnati on the 25th ult., by the proprietors of the stove foundries of that city, praying for the protection of the non-union men in their employ. They state their men are assaulted and beaten day after day, and receive no protection from the police. If they can not be protected, they will remove their factories to another city.

Shipley & Wells, the largest boiler-shop and iron foundry in Binghamton, N. Y., have notified the men of a cut in wages of 10 per cent. The alleged cause is the dullness of trade. The men will accept the reduction.

The striking stove molders at Pittsburg, if reports are true, are receiving financial assistance from other labor associations.

On the 25th of July, Sheriff Cook came down from Beaver, Pa., and arrested seven of the striking union men at the Hartman Steel-Works, Beaver Falls, on the charge of conspiracy. In default of \$1000 bail in each case, they were taken to jail at Beaver, but they afterward secured bail and were released.

A dispatch from Pittsburg, Pa., dated August 4th, says that Graff, Hargas & Co.'s stove foundry will resume work to-morrow at the old rate of wages after a suspension of ten weeks.

RAILROAD NEWS.

A special dispatch to the New York *Tribune*, dated Rochester, N. Y., August 4th, says that County Clerk McNaughton to-day received the notice of pendency of action and the original complaint, to be filed in his office, in the suit of the Union Trust Company of New York against the Rochester & Pittsburg Railroad. These documents are dated August 2d, 1884, and come from Miller, Peckham & Dixon, attorneys for plaintiff, New York. The complaint sets forth the making of the second mortgage of \$4,000,000 on February 1st, 1884, by the railroad company, to secure bonds for that amount, payable in 1924, with semi-annual interest at 6 per cent, payable on August 1st and February 1st, in each year; this mortgage covers the entire railroad from Rochester and Buffalo to Punxsutawney; also the coal and iron mines in Pennsylvania and steam barges and canal-boats, and stock of the East Buffalo terminal railroad. These bonds have not been all issued or sold. The complaint alleges that only \$2,615,000 have been authenticated by the Union Trust Company and issued; of that amount, \$1,132,500 are alleged to be sold to bona fide purchasers, and \$1,482,500 have been pledged by the railroad company to secure the floating debt, which is alleged to be \$1,100,000. As the bulk of it is alleged to be due to W. H. Brown & Brothers, it is possible that this enterprising firm, whose head is president of the railroad company, holds the greater part of these pledged lands as collateral to such debt. It is likely that the stockholders will have an overhauling of accounts to discover where all the money has gone and to discover the true inwardness of the debt. The mortgage is now sought to be foreclosed because the interest was not paid on August 1st, 1884, on these bonds. The complaint states that the first mortgage bonded debt and consolidated mortgage is \$5,160,000, and that the earnings of this company have lately been sufficient to pay all its honest debts and interest on this bonded debt also. It is likely that an accounting will be demanded. The complaint also asks that a receiver be appointed of the railroad company.

The case of the Pennsylvania Railroad Company against the Alleghany Valley Railroad and others, involving the foreclosure of a mortgage of the latter for a large amount, and affecting the status of the income bond and stockholders of the Alleghany Valley Railroad Company, was before Judge McKenna in the United States Circuit Court, on August 5th, on an application to remand it to Westmoreland County, where the case originated. Counsel for the Pennsylvania Railroad desired to proceed; but the special attorney for the defense opposed them on the ground of the absence of counsel; and upon the suggestion of the court, an agreement was filed that the argument shall be heard on September 2d, and meantime the Court of Westmoreland shall have jurisdiction to direct the receivers of the Alleghany Valley Railroad; this to be without prejudice to either party concerned.

A dispatch from Philadelphia, dated August 5th, says that the Philadelphia & Reading Railroad has defaulted on the coupons of the second series consol 5s, due August. When the coupons are presented at the company's office, the answer is, that no provision has been made for their payment. The bonds outstanding amounted to something more than \$1,600,000 last November, when the annual report was written, and some of those are supposed to be held by the Reading Company, or put up as collateral on loans. There is as yet no provision for the payment of interest on the incomes or adjustable scrip. Holders of the latter will make the necessary notice to the trustees this week for the sale of the income bonds, by which they are secured, at the expiration of ninety days after default, or October 1st. It is unofficially stated that the money will be paid on that date, and that it will not be necessary to sell the income bonds.

The Seaboard, Pennsylvania & Western Railroad surveyors employed for several months in planting stakes and locating points for the new railroad that is to span the country between Pittsburg and Ashland have almost finished their work. At the foot of Jackson Mountain, are inexhaustible, easily workable, and valuable beds of iron ore hitherto inaccessible.

The freight rate on iron ore on the Iron Mountain Railroad to St. Louis is now 75 cents per ton.

The Marquette, Houghton & Ontonagon Railroad has reduced the price of hauling ore from Ishpeming to Marquette to 40 cents a ton.

COAL TRADE NOTES.

CANADA.

Dr. Dawson has just received copies of a pamphlet containing a paper on the geology of the line of the Canadian Pacific Railroad, read by him during his recent trip to Europe before the Geographical Society. Describing a coal-bearing stratum near Medicine Hat, Dr. Dawson stated that about 90 feet from the base of the section is a bed of coal three feet thick, and covered with a shale rock, or parting, of two feet six inches, above which is another stratum of coal, four feet thick, with a shale roof. For about 50 feet above this, the cliff is occupied with shales holding several thin coals, and on this rests another bed of coal 3 feet 10 inches thick, with roof of shale 3 feet thick, and over this a small coal stratum 10 inches thick. Above this, shales again occur, and, near the top, a bed of ferruginous and pebbly sandstone. The less pure coals in this section are brown coals, composed of leaves and vegetable debris compacted together. The better coals, including the thicker beds, are apparently composed principally of coniferous wood, having the texture of a bright, hard lignite approaching to the

character of true bituminous coal, and affording a valuable fuel. Beds of this character are very extensively distributed over the region. Beds of coal, some of them supposed to overlie those seen at Medicine Hat, occur at Maple Island, Blackfoot Crossing, and elsewhere near the base of the mountains. West of Calgary, as the Cretaceous and Laramie beds enter the Rocky Mountains and approach the junction with the Paleozoic rocks, they become much folded and disturbed, and the coals contained in them become harder and drier in quality, in some places approaching to anthracites.

PENNSYLVANIA.

ANTHRACITE.

North Ashley colliery was thrown idle for a day by the caving in of an old air-way, in which the steam pipes running to the pump in the slope are laid. Elmwood colliery was thrown idle on Monday afternoon by the dirt plane rope breaking. At Glendon colliery, they have struck a ten-foot vein of coal, and it is said that it is of very good quality.

Schuylkill colliery, operated by the Philadelphia & Reading Coal and Iron Company, has started to hoist out of the new slope inside, by means of a pair of engines outside. Some time ago, a hole was drilled from the surface to the inside of the mine about eight inches in diameter and about thirty yards long, and lined with a pipe through which the rope passes. By this means, the cars are hoisted out of the new slope and are then transferred to the shaft, where the cars are hoisted to the top of the breaker and then dumped.

COKE.

There is more trouble in the Connellsville coke region, between the producers and the Pittsburg & Lake Erie Railroad. Although the company named is behind its percentage under the pool contract, the producers last week refused to load its cars, and finally on Monday the latter were pulled out from the sidings and those of the Baltimore & Ohio and Pennsylvania railroads put in their place, which were then loaded and shipments resumed. The coke business is very dull, else this could not have been done. Some people say there is a scheme on foot between the producers and the other roads to beat the Lake Erie out of its percentage of the coke business, and that this is a part of it.

GENERAL MINING NEWS.

ARIZONA.

COPPER KING.—A mine known by this name, owned by Messrs. Spencer and Ridenour, located in the Grand Cañon of the Colorado, about sixty miles from Peach Springs, has been examined in the interests of California capitalists, and the report was so favorable, the ore by assay yielding from 40 to 80 per cent copper and from \$15 to \$16 silver, that they intend to develop it.

MINERAL CREEK DISTRICT.

MONARCH.—This company has a very promising property, known as the Mineral Creek, but it is not developed. One of the richest claims in the district is the Monarch, owned by D. H. Snyder and Dr. T. C. Stallo. Considerable work has been done on it, and the mine is developing finely. Mr. Snyder will continue work on his claim. Mr. Taylor is interested with Mr. Snyder in some valuable properties, namely, the Center, on which considerable work has been done and which looks remarkably well; the Tom Benton, an extension of the Monarch; and the Apache.

RAY.—At the Ray mine, on Mineral Creek, six miles from Riverside, there is unusual activity and a town is rapidly springing up. Already there are three saloons, a store, the Ray Company's boarding-house, and a number of cabins and tents. The Ray Copper Company has in process of erection concentrating-works that will have a capacity of 75 tons. They are completed with the exception of the roof, the iron for which has not yet arrived. It expects to have every thing in readiness to start up on the 1st of August. Nothing is doing in the Ray mine at present, nor will there be until the reduction-works are completed. There is a large quantity of ore on the dump, and the mine is well developed, showing large bodies of rich ore. Work is energetically pushed on the Poorman mine, belonging to the same company, and it improves with development.

ST. LOUIS & YAVAPAI.—About two months ago, John Cover and H. M. Lobb, of the St. Louis & Yavapai Mill and Mining Company, made a rich strike on the Lower Humbug, in the hill just east of Thompson's camp. The new discovery is a few hundred yards below the Road Runner, and a parallel vein. The ledge is one foot in width, the quartz iron stained and in the center freely honey-combed.

CALIFORNIA.

The San Francisco Exchange gives the following statement of the money metal product of California for the year ended December 31st, 1883:

	Silver.	Gold.
San Bernardino.....	\$1,610,097	\$1,300
Amador.....		1,677,585
Butte.....		530,606
Calaveras.....		410,898
Inyo.....	13,300	73,050
Mono.....	38,705	1,461,615
Plumas.....		854,488
Shasta.....	40,000	2,474,447
Nevada.....	15,511	2,932,656
Placer.....	965	832,932
Sierra.....		1,218,726
Siskiyou.....		385,182
Trinity.....		425,323
Tuolumne.....		292,625
El Dorado.....		535,527
	\$2,309,966	\$13,382,794
Grand total.....		\$15,752,750

AMADOR COUNTY.

The gold product for the year 1883, as compiled from the receipts of bullion at the mint and other sources, foots up over \$1,750,000, a heavy increase over the production of the previous year, but falling considerably below the estimate of Wells, Fargo & Co. Of this amount, the Plymouth Consolidated contributed over a million, or an average of about \$90,000 monthly. The Keystone takes second place, with a total of over \$400,000; and the Zeile third, the total output of which can not be approximately ascertained.

INYO COUNTY.

FREEBORN CAÑON.—M. G. Nixon has bought the Freeborn Cañon mill and mines, and expects to have a force of men at work at an early day.

NEVADA COUNTY.

MOUNTAINEER.—The mine has a two-foot ledge in one drift, and a four-foot ledge in another, and the rock is of good grade. The new 20-stamp mill will be put in operation the early part of next month.

SIERRA COUNTY.

EXPRESS.—The quartz property of this company embraces three locations, named respectively the Meadow, Star, and the Golden Cross, situated on Butcher Ranch ridge, about three fourths of a mile from Hog Cañon. On the Golden Cross claim, a shaft has been sunk to a depth of 75 feet, encountering an eight-foot vein. From the bottom of the shaft, a tunnel has been started into the hill, which will eventually tap the ledge at a distance of three hundred feet below the

surface. Another shaft has been sunk 40 feet on the Meadow ledge. This is a north and south vein, and averages about five feet in width. In the bottom of this shaft, a second ledge, measuring four feet and seven inches, was uncovered, running east and west, or at right angles with the Meadow vein.

COLORADO.

GILPIN COUNTY.

The following summary will show a slight increase over the production of the county for the same time last year, which was \$1,256,315.80:

Source.	Amount.
7056 tons smelting ore.....	\$529,200
6935 tons tailings.....	194,180
Bank shipments.....	523,000
Gregory gold.....	18,220
Grand total.....	\$1,264,600

The principal bullion producers have been the California, Nimrod, West Flack, Kansas Prize, and Hubert in Nevada District, the Gunnell in Eureka District, and the German on German Mountain. The Bobtail Mining Company has confined its operations to developing the Side lode, and continuing and completion of the cross-cut north from the Mammoth vein to intersect the Kip mine, which is under lease to that company. The Republican Mining Company in Russell, as also the Leavenworth and Hazeltine companies, have contributed a share of the total product. In Lake District, but little work has been done, the Williams being closed down, and the work accomplished on the Clay County being dead or development-work. The Rollins Gold and Silver Mining Company was delayed in the spring months by the snow-storms.

CALIFORNIA.—The mine produced \$130,570.72 in the first six months of 1884.

DENVER GOLD.—The product for the six months was:

Gold bullion, 2163.33 ounces, sold for.....	\$32,871.37
Smelting-ore, valued at (estimated).....	15,065.59
Value of gross output.....	\$47,936.96

GUNNELL.—The following table shows the production of this valuable property for the six months under review, which are furnished to the Register-Call from the books of the company by William Fullerton, of Black Hawk, and can be relied upon as being correct:

Month.	Amount.	Month.	Amount.
January.....	\$8,697.39	May.....	9,344.66
February.....	7,988.90	June.....	7,262.19
March.....	7,918.59		
April.....	5,248.58	Total.....	\$45,860.41

REPUBLIC.—The miners working in the Pewabic lode, worked by the Republic Mining Company, have struck a good body of ore fully two and a half feet in width. It is considered the best strike made in that property for the past two years. The company employs the usual number of miners in the Iron mine, and keeps its 25-stamp mill at the mouth of Graham Gulch busy crushing mill dirt.

HINSDALE COUNTY.

UTE AND ULÉ.—On the Ute and Ulé mines, the property of the Crookes Mining and Smelting Company (Limited), preparations are making to sink for the ninth level. The west drift, on the eighth level, is in 90 feet; the east drift is in 12-feet. The ore-body is unusually fine. The improvement has been decided. Eight steam-drills are in operation in these lower workings, drifting and stopping. Ten tons of first-class, carefully assorted ore are laid on the dump daily. One side of the concentrator is running night and day on second and third-class ore. Mine and mill are in prosperous condition.

LAKE COUNTY.

A correspondent of the Denver Republican says of the Leadville mines: While there has been no absolute exhaustion at any particular point, there have been changes in the location of the heaviest ore chute, a few of which will be briefly noted. To the north and east, Little Ellen Hill is coming out in strong shape, and a visit there to-day disclosed marked evidences of this change. The Morning and Evening Stars have dimmed in luster in comparison with the magnitude of the showing in the Maid of Erin, Clontarf, and Brooklyn back of and contiguous to them. The Colonel Sellers is regarded by many as the strongest ore-body in this vicinity, and as it reaches out into virgin territory, is as yet of undetermined though magnificent proportions. The Crown Point, Pinnacle, and Florence deposits indicate a plethora of ore demonstrating that their zenith has not been reached.

BANGKOK.—It is reported that work is to be resumed on the Bangkok shaft, on East Fryer Hill. This shaft is situated on the line of the great ore-chute opened in the Matchless and other productive mines on Fryer Hill, and extends great promise of disclosing good and profitable ore-bodies with depth. The shaft already is quite deep, and work was only suspended on account of the great flow of water. When, on account of the water, it became impossible to sink the shaft to greater depth, a diamond drill was bought into requisition. The drill, after going a short distance, it is reported, struck ore, and continued in fair mineral for a great number of feet. The ore-body opened by the drill, it is stated, brought up cores of mineral that assayed from one to three hundred ounces of silver to the ton.

BIG CHIEF.—The parties working this mine are meeting with most gratifying results. The shaft has lately been sunk to greater depth, developing, it is stated, a second contact. The new ore-body consists of about eighteen inches of fine galena ore, containing from one to three hundred ounces of silver to the ton. The fact that it exists in a second or lower contact has not yet been fully demonstrated; but should such prove the case, it will open up a new feature in the Carbonate Hill properties, adding greatly to the present value of the Morning Star, Adams, and Maid of Erin properties.

FOREST ROSE.—Mr. Fogel and others who are working the Forest Rose mine, on Little Ellen Hill, have made a good strike. The new discovery consists of a two-foot vein of carbonate and galena ore, running well in silver and gold. The ore-streak is opening up very rapidly, and there is little doubt but that the two-foot seam now open will soon develop into a large body of very desirable smelting ore. The ore-chute disclosed is thought to be distinct from the one previously opened in the Opulent and Australian mines.

SMALL HOPES.—Years ago, Small Hopes was the title given to a group of mines on Stray Horse Gulch, which, though profitable at the start, descended in the scale of reputation until generally regarded as "played out" ground. During the past twelve months, from one claim of this group (the Forest City) and contiguous properties, nearly one million dollars have been realized by the discovery of a strong new ore-chute, which is yet yielding its wealth to persistent exploitation. It is asserted that the limits of the ground from which this money has been extracted are only 300 by 600 feet.

OURAY COUNTY.

SILVER LINK.—Two years and a half ago, a company from the oil regions of Pennsylvania began the Silver Link tunnel, to cut the Silver Link lode, about four or five miles from Ouray, on the Uncompahgre. The machinery for running the tunnel was manufactured purposely for the place, and was packed there in sections by burros. The drill was run by steam for the first 1100 feet of the tunnel, and by compressed air for the remainder of the distance to the vein. Recently, 1490 feet from the opening, the tunnel cut the vein, and opened eighteen inches of gray copper. Messrs. William Thompson, President of the company; A. S. Dodd, Secretary; and Messrs. Bennett, Mulhall, and Mather, stockholders, were present when the strike was made. The Silver Link is shown now at a greater depth than any vein in the San Juan country.

PARK COUNTY.

PERU EXTENSION.—The new buildings are now nearly completed and ready for the accommodation of an increased force, which will probably soon be added to the one already engaged.

WYANDOTTE.—It is now certain that the mine will soon be able to begin regular shipments of high-grade ore, as the long-looked-for vein has already been opened, and indicates that the quality of mineral is equally rich with any that has ever been taken from the lode.

DAKOTA.

FATHER DE SMET.—The report from July 21st to August 1st shows ore extracted from the first, second, and third levels, 3000 tons. Ore milled, 3000 tons. Tramway headers advanced 14 feet; headers in 85 feet. Golden Gate east cross-cut, second level, begun July 23d, advanced 16½ feet.

GREENWOOD.—At the present time, there are employed thirty miners, while a large force is working at the saw-mill, and another force on the grade for a 120-stamp mill as large as any now in operation on the Homestake, which is now in transit from the manufactory to the site preparing for it. The Merrimac group consists of five locations, three of which, the Merrimac No. 3, Pantheon, and San Pedro, lie abreast, and the others, the Merrimac No. 1 and Merrimac No. 2, adjoin on the north. The Merrimac No. 3, Pantheon, and San Pedro show a wonderful outcrop of ore: in fact, the three locations may be called a mass of ore, and on the central location a mammoth open cut is now making. This cut will have a width of 125 feet, and will have a depth, when faced up, of 150 feet. As this whole face will be in mining ore, it will be readily understood with what little labor large quantities may be broken. The mill, which will be located at the southwest corner of the Merrimac No. 3, will be connected with this great open cut by a railroad, upon which a locomotive and cars will be used to transport the ore. As the mill will have the latest improved crushers and other labor-saving appliances, and as the Box Elder Creek will supply an abundance of water, a vast quantity of the rock may be milled per day. At the same time that the work upon the open cut is in progress, a force of men is employed in running a tunnel eastward from the west side of the Merrimac toward the center of the ore-body. This tunnel, at a length of 450 feet, will be 250 feet under the surface at the center of the Pantheon. The men now employed on the tunnel work in three eight-hour shifts, and the work is pushed rapidly. The tunnel is now under cover a length of fifty feet.

IDAHO.

SENATE.—The company three years ago built a forty-ton smelter and in all has spent about sixty thousand dollars in the camp, but now its property is lying almost idle. A few days ago, a good strike was made on the Senate, and there is hope that work will hereafter be more vigorously pushed in the interest of the company.

SILVER KING.—The Silver King mine has a concentrator lying near it ready to be put up, to concentrate the low-grade ores of it and the Pilgrim. This mill is expected to be in operation this fall.

VIENNA.—Owing to the mines being troubled with water, little ore is taken out now; but it is the intention of the company to put fully two hundred men at work within the next few weeks. The water is getting out of the mines, and a new tunnel, about completed, will drain the Vienna so they will have no further trouble down a long distance below the present workings.

MEXICO.

The mines at Pachuca are increasing rapidly in amount of work done and number of workmen. Only three months ago, the pay-roll of the Real del Monte Company was, on an average, from \$3000 to \$4000 per week, while now it averages from \$7000 to \$8000 per week.

An English company has completed the purchase of the rich mining properties in the Mineral de Amoles, State of Queretaro, belonging to General Olvera, the Governor of the State. The price is said to be \$50,000, of which the amount of \$20,000 has already been paid, and the company has guaranteed to immediately begin operations on an extensive scale.

The Cinco Señores Mining Compano of Zacatecas has recently imported and set up a five stamp mill with three batteries, and an engine to furnish power. This is largely an experiment, and other companies are watching its development.

MICHIGAN.

COPPER MINES.

ALLOUEZ.—In the course of five or six weeks, the Allouez expects to be able to avail itself of its additional or third head of Ball's stamps, which is going to materially increase the output of the mine and lessen its cost.

ATLANTIC.—Work on the new or fifth Ball's head in the Atlantic mill is well forward. Charles J. Hodge, of the Lake Superior Iron-Works, has just cast the mortar-bed for this additional crusher, which weighs 13 tons, and is the largest casting of the kind ever made in the district. It is thought the company will have the benefit of this new head in the course of a few weeks.

FRANKLIN.—The July product was 175½ tons. A letter reports the mine generally looking well; the No. 3 shaft down to the 24th level, where cross-cutting is to be begun. "The lode at the 24th level south of No. 2 shaft is," the superintendent writes, "opening quite well in barrel and stamp mineral. At this level, we have started to stope north of the line from Pewabic, which is showing some rich ground. We have hoisted through Pewabic shaft from this stope about 200 tons of rock that will doubtless yield from 2 to 3 per cent of mineral. We expect to connect this level with Pewabic about September 10th, which promises to give us a large and rich block of ground."

NATIONAL.—Some very fine masses of copper are now taking out of the National mine; about a week ago, a mass of about fifteen tons was blasted down, and this week another one of about twenty tons has been blown down.

PENINSULA.—Capt. W. A. Dunn, of this mine, has gone below to consult the management relative to the future policy of the company. It is not improbable that the mine will shut down, or at least continue operations only long enough to settle its pecuniary obligations, and wind up its affairs until times are more propitious than at present.

TAMARACK.—The Calumet News says that the officials of the Tamarack mine have been examining the shore of Lake Superior for the purpose of selecting a site for a stamp-mill, but as yet have not been able to find one suitable without building a high trestle-road, and have therefore cast their eyes toward Dollar Bay. Mr. Klepetko, the company's mining engineer, has lately been running lines, etc., to determine upon the desirability of that place as a site.

IRON MINES.

The lake shipments of iron ore for the last week in July were as shown by the table given below:

Name of Port.	Gross tons.
Marquette.....	47,699
Escanaba.....	53,487
L'Anse.....	1,778
St. Ignace.....	3,238
Total.....	106,202

DETROIT.—The company has struck ore on its third diamond drill-hole, having gone through 13 feet of it, which is a very encouraging fact for the management. In the main shaft, they are now within 30 feet of the fine deposit of ore found by the diamond drill in the second hole put down.

MISSOURI.

The great lead mineral now worked at Granby on the old Johnson prairie diggings, is one of the finest ever struck in that famous mine. Two drifters

easily cut from 50,000 to 60,000 pounds of mineral a week, and, if they desired, the company could easily make a turn-in of 100,000 per week.

MONTANA.

LEWIS & CLARKE COUNTY.

The group of mines consisting of the Berlin, Marguerite, Gustavus, Leaf, and Eva, situated northeast of the Bell mine, have been bonded to a San Francisco company at \$100,000. The Berlin is the most developed of the group, having a 400 foot tunnel and several shafts.

ANACONDA.—The company has, in July, shipped 4000 tons of ore, reported by the *Inter-Mountain* to average between 35 and 38 per cent of copper.

LIQUIDATOR.—Operations are confined chiefly to the 300-foot level. The east drift has penetrated the ledge for a distance of 120 feet, and an ore-breast 20 feet wide is exposed. The ore product is coming principally from the stopes, and averages 100 tons a day, of which 40 tons daily are contracted for and taken by the Montana Copper Company at \$15 per ton net. This gives the Liquidator people a steady income of \$600 per day. Last month, the Montana Company took 1200 tons of 25 per cent ore, and this month the Liquidator will supply 1100 tons that will realize almost \$20,000, as the ore will sample 28 per cent. On the dump are about 15,000 tons of low-grade ore, worth as it is, \$6 per ton, or \$90,000. This, it is stated, will also be taken by the Montana Company before the expiration of the contract, which will end in two months. It is in contemplation by Superintendent McDermott to remodel the old Clipper 5-stamp mill and convert it into a concentrator for the treatment of the Liquidator product, which sample less than 20 per cent.

MONTANA COPPER.—The smelting plant of the Montana Copper Company consists of ten calciners, six matting-furnaces and one blast-furnace. The average product of the mine is 120 tons daily, of which 75 tons are put through the concentrator, the remainder being smelted into matte without preliminary treatment. The matte product of the works is about 25 tons a day, assaying from 50 to 70 per cent copper, and containing considerable silver. The blast-furnace is not at present in operation. During the present year, it is more than likely that the capacity of the works will be increased, but this depends partly on the nature of future contracts to be made by the company, and also on the work of development now progressing on the Parrott fraction and the Colusa. On the former, the shaft has attained a depth of 100 feet. On the latter, the main three-compartment shaft, upon which sinking was lately resumed from the 400-foot station, is almost 500 feet deep. From the 500 foot station, a cross-cut will be extended to intersect the ledge, and sinking will then be continued to a point 100 feet deeper. The mine is stated to be looking well, and an important strike of high-grade silver-copper ore is reported in the east 400-foot drift, in an uprise.

ORIGINAL.—Una has been suspended. It is expected that an arrangement will be effected to work it from the Gagnon Mining Company's shaft at greater depth.

PARROTT.—Active building operations continue on the new Parrott smelter, and the appearance of the mine fully justifies the contemplated heavy expenditures. The process by which the ore will be reduced in the new works differs from that employed in the present smelter. Instead of matting-furnaces, a blast-furnace will be employed with a capacity of 75 tons a day. The product of the blast-furnaces as well as that of the smelting-furnaces will no longer be shipped East as a matte, but will be converted into blister or ingot copper before transportation, by what we presume from the rather crude description in the *Inter-Mountain* is the Manhès bessmerizing process.

MEAGHER COUNTY.

HUDSON.—Mr. Levi Newcomb, of Boston, president of this company, asks us to correct an item reflecting on this company, copied by us from the *Inter-Mountain*. From his statement we make the following extracts:

"We would say, in relation to our development of this property, that we now have a shaft 101 feet deep, from which two levels have been run on the vein. One, at the depth of 50 feet, extends 18 feet, all in ore; and one, at the depth of 100 feet, extends 24 feet, also all in good paying ore, averaging from 4 to 5 feet wide. Another shaft is down 30 feet, and the vein at that depth is 10 feet wide, 4 feet of which have given assays from 50 to 75 ounces of silver to the ton.

"A parallel vein has been opened on the same claim 60 feet west; four cuts have been made, from 6 to 11 feet deep, exposing a body of ore 7 feet wide between the walls, assaying from 24 to 182 ounces, according to the width of the pay-streak included in the sample."

A large number of assays taken from day to day in sinking 41 feet of the main shaft vary from 41 to 1328 ounces of silver.

"The following is a list of assays made in Boston by Professor Sharples, the samples being brought by a gentleman sent out by one of the largest stockholders to examine the property and report to him: No. 1, dump sample, averaging 97 ounces; No. 2, dump sample, coarse ore, 63.6 ounces; No. 3, ore in shaft-house, 341 ounces; No. 4, ore at a depth of 50 feet, 325.46 ounces; No. 5, ore at a depth of 28 feet, 499.06 ounces; No. 6, picked sample, 1088 ounces. One sample of sulphates and chlorides, assayed by W. French Smith, of Boston, gave 23.310 ounces at 65 feet depth. A general sample gave 3 feet of vein, 69.21 ounces; a streak 9 inches wide, gave 211.24 ounces. A new discovery between No. 1 and No. 2 shafts on this vein exposes ore on the surface assaying 819.90 ounces.

"We think, with this showing, and with 200 tons of ore on the dump, and at least 2000 tons exposed by shafts, and drifts that will average at least from 50 to 70 ounces to the ton, we are warranted in contracting for a ten-stamp mill, to assist in the further development of this property. The fact that ore is shipped from this camp, teamed 80 miles, to the Northern Pacific Railroad, and freighted to Omaha at a cost of \$155 a ton for freight, working charges, and over \$100 a ton has been returned to the owners, is evidence that the ores of Neihart are worth treating in that camp."

NEW YORK.

ENTHUSIASTIC OVER PURE SALT.—Two salt veins, one over seventy-five and one thirty feet thick, have been found at East Gainesville, at the depth of 2400 feet. The deposit is not only of unusual depth, but it yields 99.50 per cent of salt, almost absolutely pure.

NEVADA.

The furnace at Palisade is running. Work was resumed July 26th on the 2800 level of Hale & Norcross, a force having been put on six-hour shifts. The atmosphere at the point of operation has been reduced considerably by the blowers brought from the Savage. The Navajo Company shipped, July 29th, five bars of bullion, valued at \$10,649.98.

STAR.—Recently the hoisting-works of the Star mine, at Cherry Creek, were destroyed by fire, and at last accounts the timbers in the shaft were still burning. The loss is estimated at \$25,000.

HUMBOLDT COUNTY.

The Paradise Valley mine has thus far in 1884 paid \$30,000 in dividends.

REESE RIVER.

The Reese River *Reveille* of the 22d ult. says: Last evening, the large 10-inch Cornish plunger-pump that the Manhattan Company has erected on the Frost shaft made its first revolution. It consists of two 10-inch pumps, and lifts 480 feet in two lifts. It will raise 15,000 gallons of water an hour, and will easily handle all the water in all the mines on Lander Hill. The water is now handled easily, and the problem of draining Lander Hill is settled. In fact, the pump raises water so fast that, though running at about seven strokes a minute, it crowds the drain-boxes. It is raising 12,000 gallons an hour now, and is not running much over half its speed.

FINANCIAL.

Gold and Silver Stocks.

NEW YORK, Friday Evening, August 8.

The mining market was very dull this week, and there is but little of interest to note in any of the transactions. The Comstocks suffered a still further decline, and closed weak. The Bodie were almost neglected, and the Leadville stocks were also very quiet, ruling at steady prices. The Tuscaroras were held firmly, with small transactions. Horn-Silver continues strong, and records a fair business. There was considerable selling of Caledonia at very strong prices. A complete summary of the market is given below. The total number of shares sold was 55,981, as against 113,140 last week.

The Comstock shares were but moderately dealt in, and sold at weak prices. California was quite weak on account of another assessment having been levied; it dropped from 24@10@12c. under small sales. Consolidated Virginia also sold at weak prices, declining from 35@26c., with a moderate business. Sierra Nevada was quiet and weak, selling at from \$2.75@2.25. Union Consolidated sold at irregular prices, under a small business; it was quoted at from \$2.05@1.75@2. Mexican sold at \$2.35. Sutro Tunnel was actively dealt in, selling at weak prices; it declined from 20@16c.

The Leadville stocks were quiet and ruled at steady prices. Amie sold at from 8@6c., with a small business. Chrysolite was moderately dealt in at steady prices, selling at 80c. Iron Silver recorded a small business, and was steady; it sold at from \$1.25@1.20. Little Chief was quiet and steady at 32@30c. Climax sold at from 3@2c.

The Bodie stocks were very quiet. Bodie Consolidated was weak, with a small business, selling at from \$2@1.85. Consolidated Pacific records an active business at strong prices, selling at from 53@50@54c.

The Tuscarora stocks were moderately dealt in, and ruled firm. Grand Prize was strong, selling at from 35@42c., with a small business. Argenta sold at 20c. Belle Isle records a small business at strong prices, selling at from 57@60c. Navajo sold at \$4. North Belle Isle was quiet at 24c.

In the miscellaneous list, Alice was quiet and steady, selling at \$2.50. Bassick, with one small transaction, sold at \$4.50. Green Mountain was quiet and steady at \$1.95. Horn-Silver was active and strong; it sold at from \$6.25@6.50. Silver King sold at \$5.

Caledonia was active at very strong prices, selling at from \$1@1.25@1.05. Central Arizona was also strong, with a small business, selling at from 24@22c. Harlem sold at 4c. Oriental & Miller was steady, selling at 12c., with a fair business. Rappahannock sold at 17c. State Line Nos. 2 & 3 were quiet and steady at 7c.

MEETINGS.

Ulster Iron Works Company, Limited, No. 2 Wall street, Room 29, New York City, annual meeting of the stockholders, August 19th, at one o'clock P.M.

DIVIDENDS.

The following companies have declared dividends payable in August:

The Plymouth Consolidated Gold Mining Company has declared its usual monthly dividend of fifty cents a share, payable immediately at the office of the company, No. 23 Nassau street, New York City.

The Adams Mining Company, of Colorado,

announces its first dividend of \$15,000, payable on the 20th inst., at the office of the company, No. 280 Broadway, New York City.

PIPE LINE CERTIFICATES.

Messrs. Watson & Gibson, No. 49 Broadway, report as follows for the week:

The boom inaugurated one week ago last Monday at 63½c. continued all last week, and Saturday, opening at 77½c., the market rallied to 79c., closing at 77c. Monday, there was a break to 74½c., and early Tuesday morning the feeling was weak, and 73½c. was registered, rallying before the close to 78c. On Wednesday, it was strong during the forenoon, weakening later to 76½c., and Thursday morning to 75½c., when a sharp buying movement was started, closing at 79½c. To-day, the market was quiet, selling down from 80¾@79c., with a considerable strength of undertone.

The following table gives the quotations and sales at the New York Mining Stock and National Petroleum Exchange:

	Opening.	Highest.	Lowest.	Closing.	Sales.
Aug. 2.....	\$0.77½	\$0.79	\$0.76½	\$0.77	6,556,000
4.....	.76¾	.77	.74½	.74¾	5,322,000
5.....	.74½	.78	.73¾	.77¾	8,849,000
6.....	.78¼	.79	.76¾	.76¾	7,666,000
7.....	.76¾	.80½	.75¾	.79¾	8,894,000
8.....	.80½	.80¾	.78¾	.79	3,152,000
Total sales					40,439,000

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

NAME OF COMPANY.	CLOSING QUOTATIONS.					
	Aug. 1.	Aug. 2.	Aug. 4.	Aug. 5.	Aug. 6.	Aug. 7.
Albion.....						
Alpa.....						
Alta.....	2	2	1½	2	2	2½
Argenta.....						
Bechtel.....						
Belcher.....	1½	1½	1	.95	1	1
Belle Isle.....						
Best & Belcher.....	2½	2½	2½	2½	2½	2
Bodie.....	1¾	1¾	2¼	1¾	1¾	2
Bullion.....						
Bulwer.....						
California.....	.20	.25	.20	.10	.10	.10
Chollar.....	2½	3	3¼	2¾	3	2¾
Con. Pacific.....	.50	.50	.50	.50	.50	.50
Con. Virginia.....	.25	.35	.35	.25	.25	.30
Crown Point.....	1½	1½	1½	1½	1½	1½
Day.....						
Elko Cons.....						
Eureka Cons.....				2½	2	2½
Exchequer.....						
Gould & Curry.....	2½	2½	2½	2½	2½	2½
Grand Prize.....						
Hale & Norcross.....	3½	4	3½	2¾	2½	2½
Independence.....						
Martin White.....						
Mexican.....	2½	2½	2½	2	2½	2
Mono.....						
Mount Diablo.....						
Navajo.....	3½	3½	3½	3¾	3¾	3¾
Northern Belle.....						
North Belle Isle.....						
Ophir.....	1½	1½	1½	1½	1½	1½
Overman.....						
Potosi.....	1¼	1½	1½	1½	1½	1½
Savage.....	1¼	1½	1½	.85	1	1
Scorpion.....						
Sierra Nevada.....	2½	2½	2½	2½	2½	2½
Silver King.....						
Tip Top.....						
Union Cons.....	1¾	1¾	2	1¾	2	1¾
Utah.....	1¾	1¾	1¾	1¾	1¾	1¾
Wales Cons.....						
Yellow Jacket.....	2½	2½	2½	2½	2½	2½

Copper and Silver Stocks.

[From our Special Correspondent.]

BOSTON, August 7.

There has been quite an active demand for Calumet & Hecla and Quincy stocks the past week, resulting in an advance from \$160@165 for the former, and a steady market for the latter at \$36@36½ ex dividend. The demand for Calumet & Hecla is for investment. Many holders who parted with their stock on the late scare are now anxious to replace it, even at the higher figures, and all the stock offered at \$165 is freely taken. At the present ratio of dividends, namely \$3 quarterly, the stock at \$165 yields about 7½ per cent a year on the investment, which

is little enough, considering the risks always attending mining operations, and we are inclined to think that the top figures have been reached for the present. All the sales of Quincy, until to-day, were at \$36; but an order to buy to-day could not be executed at that price, and \$36½ was paid for it. A sale of Atlantic at \$8, and about 50 shares of Osceola at \$12, comprise the dealings in the rest of the list. Late advices from the Franklin report the mine generally looking well, with the product for July at 175½ tons. For the stock, \$7½ is bid, and but little offered even at \$8. The reports from the Huron are good, and some small lots of mass and barrel copper are found. The July product was 116 tons. The stock is \$1½ bid, \$1¼ asked—no sales.

In silver stocks, there is but little doing, but prices are a shade better for some of the specialties. Bonanza Development sold at 87½c. @ \$1. At the Mining Exchange, there is a little more activity in two or three stocks, with a slight advance. Bowman Silver, on a favorable letter from the mine, advanced from 9@14c. Dunkin, on report that a dividend will probably be paid during the coming fall, advanced from 19@23c., and is in demand at the latter figure. A new mine has been added to the list, the Bijou Mining Company, and sales at 12½c. a share are reported. The rest of the list is featureless.

3 P.M.—At the afternoon Board, there was no special change to note. Calumet & Hecla was offered at \$165, but there were evidently no orders to purchase, and the stock closed without a bid. Atlantic was \$8 bid, none offered. Osceola, \$12 bid. Franklin, \$7½@8. Quincy, \$36 bid, \$36½ asked. Pewabic 50c. bid. Others unchanged.

BULLION MARKET.

NEW YORK, Friday Evening, August 8.

DATE.	LONDON.		N. Y.		DATE.	LONDON.		N. Y.	
	Pence.	Cents.	Pence.	Cents.		Pence.	Cents.		
Aug. 2	50½	110½	Aug. 6	50½	110½				
4	50½	110½	7	50½	110½				
5	50½	110½	8	50½	110½				

BULLION PRODUCTION FOR 1884.

MINES.	States.	Month of June.	Year from Jan. 1st, 1884.	
			\$	\$
*Alice, G. S.	Mont.	+	520,843	8,081
*Belmont.....	Mont.		32,451	396,063
Bodie, G.	Cal.		20,013	211,904
*Bonanza King, S.	Cal.		30,774	239,779
*Boston & Montana, G.	Mont.		14,572	85,365
*Chrysolite, S. L.	Colo.		7,626	47,280
*Consolidated Bobtail, G.	Colo.		21,322	314,929
*Contention, S. G.	Ariz.		50,949	260,923
*Deadwood-Terra, G.	Dak.		14,973	73,617
*Derbec Blue Gravel, G. S.	Colo.		40,733	223,938
*Father de Smet, G.	Dak.			25,000
Grand Prize, S.	Nev.			320,052
*Hecla Cons., G. S. L. C.	Mont.	+		164,909
Helena, S. L.	Mont.		98,631	607,988
*Homestake, G.	Mont.			17,980
*Hope, S.	Utah.		225,000	1,194,087
Horn Silver, S. L.	Utah.		65,706	581,356
*Iron Silver, S. L.	Colo.		2,013	18,860
*Kentuck, G. S.	Nev.		98,594	612,686
*Lexington, G. S.	Mont.		6,983	52,949
*Little Pittsburg, S.	Colo.		**53,007	370,906
*Moulton, G. S.	Mont.			24,820
*Mount Diablo, S.	Nev.		36,500	209,030
*Navajo, G. S.	Nev.		203,443	1,021,841
*Ontario, S. L.	Utah.			29,724
*Original, S. C.	Mont.			19,907
*Oxford, G.	N. S.		2,375	45,164
*Paradise Valley, S. G.	Nev.		91,189	623,546
*Plymouth Consolidated, G.	Cal.		6,265	22,333
*Rooks, G.	Vt.		2,400	18,015
*South Yuba, G.	Cal.		7,603	84,011
*Syndicate, G. S.	Cal.			302,692
*Tombstone, S. L.	Ariz.			7,174
United Gregory, G.	Colo.			
Total amount of shipments to date.....			\$8,456,023	

* Official. † Assay value. ‡ Not including value of lead and copper. ** Silver valued at \$1.05 an ounce. G. Gold; S. Silver; L. Lead; C. Copper. — No bullion produced.

Foreign Bank Statements.—The governors of the Bank of England, at their regular weekly meeting, made no change in the bank's minimum rate of discount, and it remains at 2 per cent. During the week, the bank lost £691,835 bullion, and the proportion of its reserve to its liabilities was reduced from 44½ to 41%, against 45% per cent at this date last year. To-day, the bank lost £100,000 bullion on balance. The weekly statement of the Bank of France shows gains of 5,790,000 francs gold and 3,045,000 francs silver.

METALS.

NEW YORK, Friday Evening, August 8.

Copper.—There is absolutely nothing new. Lake is selling in a small way at 14c., and other brands command from 13½ to 13¾c., according to brand.

England cables Chili Bars, £51 10s. @ £55, and Best Selected £59 @ £60.

Tin.—The market has been firmer, and spot Straits Tin is now quoted 19 @ 19.25c. England cables £83 10s.

Lead.—The market has been quiet, though there appears to be some effort to create the impression that prices are really lower than they are. Sales during the week aggregate about 300 tons August delivery at 3.70c. and 100 tons spot cash at 3.65c. There is some uncertainty as to the immediate future, though it is hoped that the buying for the fall trade, backward thus far, but still near at hand, will bring with it higher figures. London quotes £10 17s. 6d. for Soft Spanish.

Messrs. John Wahl & Co., of St. Louis, telegraph to us as follows to-day:

Our market is stationary. Sales for the week sum up 450 tons of Refined lead at 3.40 @ 3.41c. We quote Chemical lead salable at the same figure.

Messrs. Everett & Post, of Chicago, send us the following dispatch to-day:

Our market is quiet and dull, and prices are unchanged at nominally 3.40 @ 3.45c. There is a somewhat better feeling, due to growing inquiry. Offerings are very light and from one source principally. On the other hand, the local consumption is light, the principal demand being from the East.

Spelter.—This metal is quiet, without any change.

Antimony.—There is nothing to report.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, August 8.

Messrs. G. H. Hull & Co., of Louisville, Ky., in a circular, from which we quote below, suggest that, in order to reduce the stock of pig-iron all the furnaces in the United States be banked for four weeks. They say:

"We recently addressed several of the furnace proprietors in the South, asking if they approved of and would unite in an agreement to bank up their furnaces for three or four weeks, provided the majority of the furnaces in the United States would join in the movement. The replies were all in the affirmative. By reference to the monthly reports of the Western Pig-Iron Association, it will be found that on June 1st, 1883, the amount of pig-iron on hand at furnaces in the States of Pennsylvania, Ohio, Maryland, Virginia, West Virginia, Kentucky, Tennessee, Alabama, Georgia, Indiana, Illinois, Missouri, Michigan, and Wisconsin (which States produce about 95 per cent of all the iron made in the United States) was 260,315 tons, as reported by 277 furnaces, whose weekly

capacity was 99,395 tons. One year later, the stock on hand in same territory was 254,309 tons, as reported by 324 furnaces, whose weekly capacity was 99,053 tons. The number of furnaces in blast June 1st, 1883, was 149, with a weekly capacity of 57,343, as against 129 in blast June 1st, 1884, with a weekly capacity of 51,006. The present depression in prices is undoubtedly the effect of the large stock on hand, and if we are to judge from the past, the reaction will not come until consumers find it difficult to get the iron they need. At the present rate of decrease in stock, this will not occur for three or four years, and will only be brought about by the forced stoppage of furnaces, as has been the case in the past. Most furnaces are to-day looking for an advance in the next six or eight months; and yet if it comes in that time, it will be the quickest reaction that has taken place. It is a well-known fact that prices on the downward grade do not stop at cost of production; they keep on down, with slight fluctuations, until many concerns are prostrated. Shall this be the history of pig-iron for the next three years, or will the producers, by a combined effort, and a small sacrifice to each, lift the business out of its present rut, and place it on a paying basis? The banking up of all the furnaces now in blast for four weeks will bring about a reduction in stocks that will take four years to accomplish otherwise."

The movement will not be carried out unless furnaces representing not less than two thirds of the production of those now in blast agree. Replies are to be directed to Mr. Joseph D. Weeks, Secretary of the Western Pig-Iron Association, Pittsburg, Pa.

American Pig.—The market has remained dull, and while not quotably lower so far as standard brands are concerned, there is more eagerness on the part of outside brands to find a market.

We quote standard brands: No. 1 Foundry, \$20 @ \$20.50; No. 2, \$18.50 @ \$19; and Gray Forge, \$17.50 @ \$18.50, with outside brands from 50c. @ \$1 lower. Foreign Bessemer is nominally \$19 @ \$19.50. Spiegeleisen is nominally \$27.50 @ \$28 for 20 per cent, some business having been done during the week.

Scotch Pig.—The market continues dull.

We quote ex ship and to arrive: Coltness, \$21.50; Langloan, \$21.50; Summerlee, \$20.75; Dalmellington, \$20; Gartsherrie, \$21; Eglinton, \$19.25 @ \$19.50; and Glengarnock, \$20 @ \$20.50.

At the Metal Exchange, the following cable quotations have been received: Coltness, 57s.; Langloan, 53s. 3d.; Summerlee, 50s. 3d.; Gartsherrie, 51s. 3d.; Glengarnock, at Ardrossan, 49s. 6d.; Dalmellington, 46s. 6d.; and Eglinton, 41s. Warrants, 41s. 7d.

Steel Rails.—In the aggregate, considerable business has been done. It is reported that one Pennsylvania mill sold rails for delivery at Buffalo at a figure which would net it no more than \$27.50 at mill, and there have been hundreds of even lower figures. We quote \$28 at mill, for even small lots.

Old Rails.—We quote \$18 @ \$19.

Philadelphia. August 8.

[From our Special Correspondent.]

Pig-Iron.—Two or three of the larger blast-furnace companies have been negotiating during the past week, looking to the sale of larger than usual lots of pig-iron, to be delivered during the next three or four months; but it is probable that these negotiations will meet with the fate that a good many others have met with, and that buyers will fall back upon their accustomed policy of purchasing only what they

need, and letting the future take care of itself. At the same time, a feeling exists that the right time to buy may be not very far off. Buyers and makers of iron know that the present selling prices are not legitimate, and that circumstances and influences are bound to come to the surface favorable to the makers of iron. Just in what way they will show themselves, can not be forecast; but it is not reasonable to suppose that the present very low prices will be continued indefinitely. No. 1 Foundry has been bought at \$19, and very little can bring over \$20. For No. 2, \$18.50 is the average. But it is neglected, and no concessions that brokers seem able or willing to make have any effect upon buyers. There is some little activity in forge iron; but, owing to the backwardness in manufactured iron, mill-owners here and throughout the Eastern part of the State are buying just what they need. Any other course is seemingly unnecessary. A rumor starts up, once in a while, about large sales of mill irons as under way, but a little patient inquiry sends the rumor into smoke. There are parties here who talk about buying, but their idea simply is to buy heavily just a short time before iron takes an upward tendency. White and mottled iron is occasionally offered.

Foreign Irons.—The dullness reported for several weeks has not been broken by any significant sales. Quotations are still \$19 @ \$19.50 for Bessemer. There have been several offers of 20 per cent spiegeleisen at \$28; 10 to 12 per cent is quoted at \$23 @ \$24. Steel blooms, \$38 @ \$40.

Muck-Bars.—Quotations are \$30.50; one or two sales to-day at less than \$30.

Blooms.—The demand for blooms is very dull at \$44 for anthracite and \$54 for charcoal. Sales have been made at \$1 below and above these figures.

Merchant Iron.—The local mills are gathering up a good deal of business. Those making best bars have a good supply of business on hand for two or three weeks. Some mill-men are complaining that the newspaper reports are doing harm to trade by discouraging buyers. A truthful representation of the facts is demanded, and can not make or unmake trade. Sales of Merchant Bar have been made within a few days here at 1.70c., but not of the best makes. Small sales have been made at 1.95c. Buyers are not waiting for any better terms, but are not buying more than required. A little common iron has been selling this week away down. Stores are selling small lots. There is a little demand for agricultural machinery material.

Nails.—The same unfavorable reports continue to be made, but restriction is not applied. Prices are nominally \$2.20 @ \$2.25, with occasional transactions at less. An immense amount of building is going on, and consumption of building iron is heavy.

Sheet-Iron.—Marshall Brothers, Front and Girard Avenue, are running sixty hands, and report a fair demand for all kinds of galvanized. The building demand is quite heavy. The firms manufacturing out of town, but having offices here, report an improvement in demand since August 1st. There is no change in quotations, unless exception be made in the case of some galvanized, which has been shaded for large orders.

Plate and Tank Iron.—The reports continue to be of a favorable character, though less new business has been entered this week than last. The mills are well fixed, and the shading of prices is very exceptional. Plate iron, 2.10c.; Tank, 2.15c.; Shell, 2.75c.; Flange, 3.75c.; and Fire-Box, 4.25c.

Structural Iron.—Two or three of our brokers are looking after some large prospective orders. This

Lehigh egg coal at the new Post-Office, put in at \$4.54 a ton.

In reference to bituminous coal transactions, there is the usual dearth of news. Two or three of the operators report the placing of a few fair contracts, but the trade in general is dull. The miners are working quietly, growling, but not threatening to strike, as they are too anxious to secure what work is to be had.

Buffalo. August 7.

[From our Special Correspondent.]

There are no changes to report in the coal and coke trade of this city. As a dealer said to me this forenoon, "It is the same old story; but if you require any thing startling, you must invent a few paragraphs." Not being an admirer of sensational items, I refrain from the task, and thus save future contradictions.

Now for a few statistics: Receipts by Lake Shore & Michigan Southern Railroad for the past week, 899 tons—551 tons for Buffalo and 348 tons for other points; for the month of July, 2919 tons—1547 tons for Buffalo, and 372 tons for other points. Lake exports for July, 188,580 tons; for the season, 635,380 tons—an increase of 91,800 tons over the corresponding period of 1883. The season's figures for the year were 544 200 tons, and for 1882, 536,350 tons. Receipts by canal this season to July 31st, 38,816 tons; shipments, 19,410 tons.

Canadian tugs come here for fuel. If they take on only what is necessary for use on board, there is no duty to pay. As much as \$40 is said to be saved by a large tug in this way.

The report that five of our bituminous coal firms had made a proposition to the producers shipping to Buffalo to take their entire output and handle it at a cost of only five cents a ton, is contradicted. There has been considerable talk looking to such a result for some time. It is also proposed to regulate supply with demand. Do not be surprised if the scheme is consummated at an early date.

This year, on the 31st of July, lake freights on coal were 60c. a ton; in 1883, 50c.; and 1882, 85c., to Chicago and Milwaukee.

Lake freights on coal hence Westward, since my last letter, opened firm, with lack of tonnage for ports other than Chicago and Milwaukee. Last Monday, not a vessel was in port awaiting a charter, and only one engagement was made during the day. Since then, many small craft have arrived, but the little tonnage offered was soon taken. There is a strong feeling among vessel men, and yesterday freights advanced 10c. a ton to Chicago and Milwaukee. The following were the rates paid: To Chicago and Milwaukee, 60@70c.; to Detroit, 25c.; to Toledo, 25c.; to Saginaw, 35c.; to Superior City, 60c.; to Port Arthur, \$1, and on contract; to Duluth, 60c.; to Tawas, 40c. Closing to-day firm at 70c. to Milwaukee and Chicago, with many charters.

Shipments by lake from July 31st to August 6th, both days inclusive, 35,280 tons, namely, 14,430 tons to Chicago, 12,300 to Milwaukee, 3800 to Duluth, 1420 to Detroit, 2300 to Superior City, 500 to Port Arthur, 400 to Tawas, 250 to East Saginaw, and 3380 to Toledo.

The charters by canal were: 1 load of coal to Schenectady, at 85c. net ton, captain to pay unloading; and 3 loads coal-dust to Syracuse, 65c. gross ton, captain to pay unloading. Nominal rate to New York, \$1.30 net ton, and to Albany, 95c. net ton; captain to pay unloading.

Receipts of coal at Duluth for week ended August 2d, 11,436 tons; total thus far this season, 161,415 tons.

Car lot prices for coal at Duluth were on August 1st as follows, delivered free on board: Stove and nut, anthracite, \$6.50; egg and grate, \$6.25; Cumberland Blossburg, \$5; and bituminous from Mansfield and Laurel Hill, \$4.50; Ohio Central and Hocking Valley, \$4.25; Wheeling Creek, \$4.15; and Brier Hill, \$4.25.

Boston. August 7.

[From our Special Correspondent.]

The front of the anthracite branch of the coal market continues unchanged, on a basis of \$4.25 f. o. b. at New York for Stove coal. Some few sales are doubtless made at \$4.20, and the fact that outside coals are selling at \$4.15 for Stove and even less, makes the higher figure little better than nominal. We did not hear of any rush to buy at the close of July on the prospect of an advance to nominal rates this month, but jobbers are quite confident that higher prices will rule before September closes, whether there be a further period of suspension or not.

To those who have not followed the matter closely, it may seem strange that further suspension should be necessary in view of the fact that we have had 50 per cent more suspension than during the same period of 1883. But that fails to tell the story. The production has only fallen off about 10 per cent; reconcile the difference as best we may, whether in harder work during full-time periods, or in production of new mines.

The wharves continue crowded with vessels discharging, but this is about the only sign of life shown.

Our f. o. b. quotations are as follows: At New York, Stove, \$4.25; Broken and Egg, \$3.65; individual coals, \$4.15@4.20 for Stove, \$3.50 for Broken and Egg. At Philadelphia, \$3.90@4 for Stove, \$3.65 for Chestnut, \$3.35@3.50 for Broken and Egg, \$2.50 for Pea. Special coals, \$4.85 for Broken, \$5.35 for Stove.

The bituminous market has been disturbed this week by the reports of floods in the George's Creek region, seriously interfering with the output of several of the largest shippers for a week, and perhaps a longer period. Were it not for the fact that the market is receiving very few transient orders at this time, an advance would doubtless be obtained on George's Creek coal for the time being. There is but little coal moving outside of contractors, however. Shippers are crowding coal along as fast as possible, on their contracts. The weakening in provincial freights has again lowered the price of culm, which is now selling at \$2.40 delivered, and no one ventures to say that the bottom has been reached. Domestic coal continues at \$3.60@3.70, delivered.

The freight market continues to surprise the trade by its weakness. From Baltimore, \$1.15 is an unusually low rate. We quote Philadelphia unchanged, but New York slightly easier, noting charter of a small vessel at 90 cents. Barges are in good supply, and are running the other side of the Cape, say to New Haven, for 50 cents, and to Providence for 75 cents. The rate to Boston is still \$1. We quote:

New York, 85c.@\$1 a ton; Philadelphia, \$1.10@ \$1.20; Baltimore, \$1.15@1.20; Newport News, \$1.10; Richmond, \$1.20; Bay of Fundy, \$1.30; Cape Breton, \$1.50@1.60.

There is a fair retail trade and quite a steady market for quotations. We quote:

White ash, furnace, and egg@5.50
 " " stove and nut@ 5.75
 Red ash, egg@ 6.00
 " " stove@ 6.25@
 Lorberrry, egg and stove@ 6.75@ 7.00
 Franklin, egg and stove@ 7.50
 Lehigh, furnace, egg and stove@ 5.75
 " nut@ 5.72

Wharf quotations: \$4.35, Broken; \$4 75, Stove.

STATISTICS OF COAL PRODUCTION.

Comparative statement of the production of anthracite coal for the week ended August 2d, and year from January 1st:

TONS OF 2240 LBS.	1884.		1883.	
	Week.	Year.	Week.	Year.
<i>Wyoming Region.</i>				
D. & H. Canal Co.	117,044	1,996,147	102,642	2,147,425
D. L. & W. RR. Co.	160,402	2,732,135	131,461	2,708,390
Penna. Coal Co.	42,035	689,168	37,069	772,296
L. V. RR. Co.	35,541	753,663	27,414	785,621
P. & N. Y. RR. Co.	7,718	118,876	4,669	119,005
C. RR. of N. J.	*	*	*	1,202,078
Penn. Canal Co.	10,940	201,966	15,607	222,083
North & West Br. RR.	†	463,579	5,963	266,931
	373,680	6,955,534	324,825	8,223,829
<i>Lehigh Region.</i>				
L. V. RR. Co.	127,865	2,456,984	116,903	2,759,619
C. RR. of N. J.	*	*	*	1,126,889
S. H. & W. B. RR.	†	124,815	1,695	32,317
	127,865	2,581,799	117,998	3,918,825
<i>Schuylkill Region.</i>				
P. & R. RR. Co.	348,753	5,898,715	185,089	3,568,078
Shamokin & Lykens Val.	*	*	†	776,324
	348,753	5,898,715	185,089	4,744,402
<i>Sullivan Region.</i>				
St. Line & Sul. RR. Co.	29	43,411	851	36,035
Total	850,327	15,470,458	628,763	16,923,091
Increase	221,564			
Decrease		1,443,633		

* Included in tonnage of the Philadelphia & Reading Railroad.

† Report not received.
 Total same time in 1879.....14,843,245 tons
 " " " " 1880.....12,347,573 "
 " " " " 1881.....15,566,158 "
 " " " " 1882.....15,977,880 "

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.

Belvidere-Delaware Railroad Report for the week ended August 2d:

	Week.	Year. 1884.	Year. 1883.
Coal for shipment at Coal Port (Trenton).....	4,636	51,020	61,570
Coal for shipment at South Amboy.....	18,280	340,633	399,877
Coal for distribution.....	20,808	437,482	457,591
Coal for company's use.....	5,376	105,136	90,504
Total	49,100	934,271	1,009,542
Increase.....			
Decrease.....		75,271	

The increase in shipments of Cumberland Coal over the Cumberland Branch and Cumberland & Pennsylvania railroads amounts to 122,986 tons, as compared with the corresponding period in 1883.

Comparative Statement of the Production of Bituminous Coal for the week ended August 2d, and year from January 1st:

Tons of 2000 pounds, unless otherwise designated.

	1884.		1883.	
	Week.	Year.	Week.	Year.
<i>Cumberland Region, Md.</i>				
Tons of 2240 lbs.....	47,365	1,582,893	63,323	1,370,686
<i>Barclay Region, Pa.</i>				
Barclay RR., tons of 2240 lbs.....	4,931	183,298	5,731	182,752
<i>Broad Top Region, Pa.</i>				
Huntington & Broad Top RR., of 2240 lbs.....	4,195	110,669	3,321	109,984
East Broad Top.....	†	675		25,724
<i>Clearfield Region, Pa.</i>				
Snow Shoe.....	†	103,773	4,101	138,608
Karthus (Keating).....	†	18,688		
Tyrone & Clearfield.....	†	1,737,426	57,586	1,657,089
<i>Allegheny Region, Pa.</i>				
Gallitzin & Mountaintain.....	†	215,713	8,145	257,274
<i>Pittsburg Region, Pa.</i>				
West Penn RR.....	†	159,658	4,290	250,934
Southwest Penn. RR.†.....	†	81,116	1,630	62,760
Pennsylvania RR.†.....	†	159,855	92,047	796,019
<i>Westmoreland Region, Pa.</i>				
Pennsylvania RR.†.....	†	707,521	15,574	320,689
<i>Monongahela Region, Pa.</i>				
Pennsylvania RR.†.....	†	86,120		
Total	†	186,423	5,182,419	
Increase.....				

† Reports not received.

Comparative Statement of the Transportation of Coke over the Pennsylvania Railroad for the week ended July 26th, and year from January 1st:
Tons of 2000 pounds.

	1884.		1883.	
	Week.	Year.	Week.	Year.
Gallitzin & Mountain (Alleghany Region).....	2,861	75,165	.....	51,983
West Penn. RR.....		24,720	.....	60,766
Southwest Penn. RR.....	37,444	1,255,340	.....	1,176,420
Penn. & Westmoreland Region, Pa. RR.....	3,648	106,482	.....	128,003
Monongahela, Penn. RR.....	1,423	45,297	.....	.....
Pittsburg Region, Pa. RR.....		136	.....	501
Snow Shoe (Clearfield Region).....	536	12,975	.....	11,604
Total.....	45,712	1,520,121	.....	1,429,337
Increase.....		90,784	.....	.....

FREIGHTS.

Coastwise Freights.

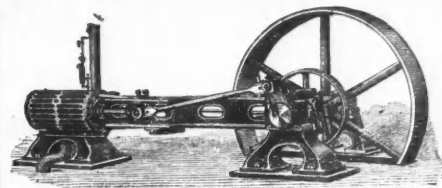
Per ton of 2240 lbs.

Representing the latest actual charters to Aug. 7th.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnston, South Amboy, Hoboken, and Weehawken.
	Alexandria.....	.65@.80	
Annapolis.....			
Albany.....	.58§		
Baltimore.....	1.15	1.15	
Bangor.....	1.05@1.10	1.10@1.15	1.00
Bath, Me.....	1.10		1.00
Beverly.....	1.00@1.10		.90
Boston, Mass.....	1.10		
Bristol.....		1.05	.50
Bridgeport, Conn.....		1.00@1.05	
Brooklyn.....	1.25§		
Buffalo, N. Y.....	1.15@1.20†		.90†
Cambridge, Mass.....	1.15@1.20†		.90†
Cambridgeport.....	.80	.70@.75	
Charleston, S. C.....	1.10		
Charlestown.....	1.00@1.10		.90
Chelsea.....			
City Point.....	1.15		.90
Com. Pt., Mass.....	1.00@1.10		.90
E. Boston.....	1.10@1.20†		
East Cambridge.....	1.05		.70
E. Greenwich, R. I.....	1.05		
Fall River.....	1.15*		
Galveston.....	.65		
Gardiner, Me.....	1.10		
Georgetown, D. C.....			
Gloucester.....			
Hartford.....			
Hackensack.....			
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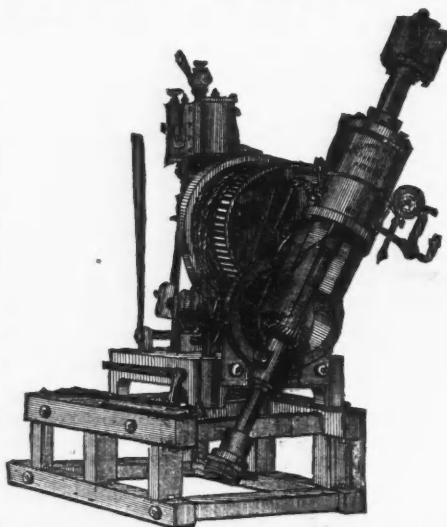
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