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ERRATA.—In Dr. Wyatt's concluding article on salt in our issue of December 31st, 1887, page 485, the estimated cost of production for "*management, packages, etc.,*" should read "*management, packing, etc.*" As salt is usually packed in barrels of 280 pounds capacity, each costing from 18 to 20 cents, readers will at once see the importance of this correction.

THE very able and interesting articles in this issue, referring to the exceptional advantages offered capitalists in Tennessee and Virginia mineral properties are well worthy attention. This is one of the most promising fields in this country for the investment of capital.

THE production of coal in the United States during the past year amounted to about 110,000,000 gross tons, including colliery consumption, and of this about 35,864,000 tons were anthracite and 74,000,000 tons bituminous coal; the total value at the mines of about $175,000,000. The production of coke amounted in 1887 to about 8,000,000 tons, having a spot value of about $14,000,000. The importance of this subject and the space required to do justice to it obliges us to put off our review of the coal production and trade to a later date.

AMERICAN CONFIDENCE AND COURTESY.

Never before in the history of this or any other country have reports of the production, markets, consumption and stocks of mineral products been obtained so promptly and so fully as those for the year 1887, which we herewith present to our readers.

We confess to a feeling of much satisfaction in the results of our work, but our greatest gratification and gratitude is for the confidence which has been reposed in us by the proprietors of our mines and metallurgical works, who, where asked, have, with scarcely an exception, furnished us with confidential information concerning their products, and, in nearly all cases, their stocks of metal on hand, sold and unsold. Such confidence inspires a feeling of personal friendship for each of the gentlemen who have aided us, and it will enable the ENGINEERING AND MINING JOURNAL to represent more worthily, and with greater authority, the vast industry which they have so nobly conducted.

Nowhere but in America and among Americans would it be possible for a private individual to obtain, without a single refusal, the valuable information which we are enabled to present to the world in this issue of the ENGINEERING AND MINING JOURNAL, and in thanking the broad and liberal minded gentlemen who have made our success possible, we feel we express the personal thanks of every one of our readers.

PRODUCTION AND PRICES OF ZINC IN 1887.

The make of spelter in 1887 far exceeded that in 1886. Direct returns from every maker of note, and estimates based on the production of zinc ores in the few remaining cases, show that the production of spelter in this country in 1887 amounted to about 51,000 net tons, as against 42,641 tons in 1886. Twelve of the producing companies returned 40,929 tons in precise figures, and about 19,000 more were given in approximate figures. It is possible that these figures may be slightly increased.

PRICES.

The prices ruling in this city for Western spelter, averaged for each month during the year, were: January, 4·55 cents per pound; February, 4·55 cents; March, 4·47½ cents; April, 4·45 cents; May, 4·55 cents; June 4·55 cents; July, 4·57½ cents; August, 4·55 cents; September, 4·50 cents; October, 4·52½ cents; November, 4·77 cents; December, 5·40 cents. Average for the year, 4·62½ cents per pound.

The boom in foreign spelter in Europe commenced to be felt here in November, and continued to the end of the year.

Stocks here are light, and abroad the German zinc combination appears to have succeeded in getting in nearly all the makers.

THE WORLD'S PRODUCTION OF ZINC, IN LONG TONS.

	United States.	Belgium.	Silesia.	Great Britain.	France & Spain.	Poland.	Austria.	Total.
1880	20,749	98,830	64,450	*22,000	15,000	*4,000	*2,520	227,558
1881	30,000	110,989	66,497	24,419	*18,358	*4,000	4,270	258,533
1882	*30,148	119,193	68,811	25,581	18,075	4,400	5,094	271,302
1883	32,921	123,891	70,405	28,661	14,671	3,733	4,672	278,954
1884	34,414	130,522	76,116	29,259	15,341	4,164	4,470	294,286
1885	36,309	129,754	79,623	23,099	14,847	5,019	3,890	292,571
1886	38,072	129,020	81,630	20,730	15,305	4,145	3,760	292,662

*Estimated.

IMPORTS AND EXPORTS OF ZINC.

Fiscal year ending June 30.	Imports: Blocks or pigs. Pounds.	Blocks or pigs. Value.	Sheets. Pounds.	Sheets. Value.	Total value imp'ts.	Exports: Ore or oxide. Cwt.	Ore or oxide. Value.	Plates, sheets, pigs. Pounds.	Plates, sheets, pigs. Value.	Total value. exp'ts.
1867	5,752,611	$256,366	5,142,417	$311,767	$569,968	3,676	$32,041	312,227	$30,587	$62,628
1868	9,327,968	417,273	3,557,448	203,883	622,779	8,344	74,706	1,022,699	68,214	142,920
1869	13,211,575	590,332	8,806,723	478,646	1,071,061	.....	65,411	.....	.....	65,411
1870	9,221,121	415,497	9,542,687	509,560	947,058	15,286	81,487	110,157	10,672	92,159
1871	11,159,040	508,355	7,646,821	409,243	943,964	9,621	48,292	76,380	7,823	56,115
1872	11,802,247	522,524	10,704,944	593,883	1,175,077	3,686	20,880	62,919	5,726	26,606
1873	6,339,897	331,399	11,122 143	715,706	1,108,918	234	2,304	73,958	4,656	6,960
1874	3,593,570	203,479	6,016,835	424,504	676,287	2,550	20,087	43.566	3 612	23,649
1875	2,034,252	101,766	7,320,713	444,389	572,635	3,058	20,659	38,090	4,245	25,904
1876	947,322	56,082	4.611,360	298,308	372,817	10,178	66.259	134,542	11.651	82,248
1877	1,266,894	63,250	1,341,333	81,815	147 561	6,428	34,468	1,419,922	115,122	150,708
1878	1,270,184	57,758	1,255,620	69,381	132,026	16,050	88,331	2,545,320	216,580	300,978
1879	1,419,791	53,294	1,111,225	58,050	109,718	10,660	40.399	2,132,949	170 654	211,053
1880	8,092,620	371,920	4,069,310	210.230	585,721	13,024	42,086	1,368,302	119,264	161,300
1881	2,859,216	125,457	2,727,324	129,158	262,218	11,390	16,405	1,491,786	132,805	149,378
1882	18,408,391	736,964	4,413,042	207,982	948,936	10,904	13,736	1,489,552	124,638	138,374
1883	17,067,211	655,508	3,309,239	141,823	802,932	3,045	11,509	852,333	70,981	82,224
1884	5,869,738	208,852	952,258	36,120	249,767	4,780	16,685	196.048	9,576	30,927
1885	3,513,840	113,268	1,839,860	64,781	180,103	6,840	22,824	101,685	7,270	35,065
1886	3,616,462	115,813	1,087,951	38,359	164,822	8,740	24,951	770,558	64,410	102,110

EUROPEAN SMELTERS BUYING ON AMERICAN ASSAYS, ETC.

The year 1886 will be remembered in the copper trade for the inauguration of the system among European smelters of buying on American sampling and assays. On the 12th of March last we called attention to a contract under which W. A. CLARK'S Butte argentiferous matte was sold to an English smelter on a cash f.o.b. basis on LEDOUX & Co.'s weights, sampling, and assay, and we predicted that this system once tried must extend, that no American producer need again submit to English weights, Cornish assays, and arbitrary deductions. This prediction is already verified. During the year just ended over 3000 tons of furnace material was sold on this basis and shipped to England, including, besides CLARK'S matte, small quantities of Anaconda matte and Arizona copper. During the past summer Dr. LEDOUX visited the principal smelters and metal buyers of Europe, and, as a result, his firm have already contracted to sample over 9000 tons of material that is purchased on their assays for export to England, France, Germany, and Italy during 1888. In fact we have reason to believe that this year will see very little of the furnace material exported paid for on foreign assays, and that even the Anaconda matte will finally be sampled on this side and sold on the American basis.

Besides mattes and ores, European buyers are also taking copper in the same way. Foreign metal buyers, whether justly or unjustly we are not prepared to state, complain that it is unsafe to rely on the American brand alone—that our refiners, unable as they are to secure their supplies from one constant source, produce copper of variable quality. We understand that one refiner has contracted to deliver considerable copper for export, agreeing to furnish, with each lot, LEDOUX'S certificate of physical test and grade of the shipment.

A NEW ANTIDOTE FOR THE PHYLLOXERA.

The various remedies heretofore proposed as preventives or cures for the ravages of this insect are open to various objections. Many of them are ineffective, and some are otherwise injurious to the vine. Among those which have scientific foundation and practical value, carbon sulphide is one of the best. It is prepared by the reaction of sulphur vapors upon glowing coals, the air being excluded, and the colorless, highly inflammable liquid which results is distributed, either as such, or in the form of easily decomposed compounds, in the soil. But apart from the dangerous character of the substance, its proper distribution is difficult, and moreover, although it kills the insect plagues, it does not restore plants already injured by them.

A new remedy, proposed and patented by Dr. CLEMM, in Germany, is alleged to be at once a preventive and a cure. It consists in producing in the soil a reaction between dilute acids (sulphuric, nitric and phosphoric), and easily decomposed sulphides and carbonates, such as those of potassium. The acids are brought into suitable form for this purpose by absorption in heat. The result of the reaction is two-fold: first, the liberation of hydrosulphuric and carbonic acid, which gases have been proved to distribute themselves with extraordinary rapidity and uniformity throughout the soil, and to destroy not only the smaller insects, but also the Colorado beetles, field mice and moles; secondly, the production of salts which are directly useful as fertilizers, and which reinvigorate the drooping plants.

Dr. G. KRAUSE, Cöthen (Anhalt), Germany, the editor of the well known *Chemiker-Zeitung*, offers to give further information, and to furnish free for experimental purposes, small quantities of the materials necessary for the process.

THE PRODUCTION OF COAL, COKE, AND PIG-IRON IN 1887.

The mineral production of the United States in 1887 far exceeded that of any previous year. Counting its spot value and including pig-iron instead of iron ore as a product, the aggregate value must have exceeded $500,000,000.

Every department of this gigantic industry scored a success in 1887, and if we except the sudden boom in copper, the prosperity, though exceptionally great, was of a natural and healthy growth, based upon the enduring foundation of a larger population and higher consumption *per capita* due to the increasing wealth of our people.

We give herewith, for comparison, the statistics of mineral production of the United States from 1882 to 1886, as collected for the Government Bureau of Statistics, by Mr. David T. Day, Chief of Division of Mining Statistics and Technology. We have drawn upon this valuable report for most of the statistical tables up to 1886, which appear herewith. The reports for 1887 will not appear until nearly the end of the present year, so that the statistics which we have been at such pains to collect will be in our readers' hands nearly a year before the government returns appear.

COAL AND COKE PRODUCTION.

Coal production shows an increase which we have probably underestimated at 10,000,000 gross tons, reaching the grand total 110,000,000 tons, and of coke 8,000,000, and yet the entire country is to-day without any stock of fuel and many parts of it are in serious danger of a coal famine, owing to the inability of our railroads to handle the coal which had been offered them throughout the year. The increase in rolling stock which almost every railroad in the country has made arrangement for, will, no doubt, next year permit a further increase in our coal output.

PIG-IRON AND IRON ORE.

The production of pig-iron in 1887 is estimated by Mr. Swank, Manager of the American Iron and Steel Association, at 6,250,000 tons. We elsewhere record the conditions of this trade during the year.

The production of domestic iron ores during the year we estimate to have amounted to about 11,000,000 gross tons, of which the Lake Superior region produced 6,000,000 gross tons.

The production and trade of copper, lead and zinc we treat of fully under separate headings.

HOW TO PROMOTE THE INTERESTS OF MINING.

Mining is a legitimate industry, and its interests are best promoted by making investments in the actual working of mines profitable. To do this a few things are necessary. 1st. There must be ore in paying quantity. 2d. The investment should be proportioned to the actual demonstrated value of the property. 3d. The mine must be worked skillfully and administered economically and honestly.

The interests of the industry are injured, not promoted, by encouraging gambling in mining stocks and aiding in the selling of worthless properties, or of floating on the public mining stocks at such exaggerated figures that they can not possibly be remunerative investments.

There is no mystery about mining property that makes it impossible to determine its actual value, and the reign of the charlatan in mining has nearly ceased. There are now plenty of competent, experienced, and honest mining experts who can give investors reliable advice concerning the values of mines, and who are above pretending to a knowledge that they can not have. It is no longer difficult to determine the actual demonstrated value of any mining property, and this should be the foundation on which any large investment is made. Buying "prospects," where the value is altogether conjectural and uncertain, for the most part consists in acquiring an interest in exchange for the money required to do the exploration work necessary to demonstrate value. This need never involve the loss of any large sums, and when prudently undertaken under competent advice the prizes are frequent enough to make the investments in opening and developing mines extremely profitable.

The moderate and controllable risks which capital may thus take are perfectly legitimate, and the profits should be and are correspondingly great. Nothing but injury to the industry can come when these undeveloped prospects, or mines with no demonstrated value, are sold at figures based on what sanguine people may hope or expect to find in the unknown depths, or which designing and unprincipled men may be able to make credulous and imprudent capitalists think will be found. These expectations are very rarely realized, and the investments made on them are generally lost. Mining is then denounced as simply gambling, and such, in truth, are these investments; but if mortgages were taken, or city property purchased with the same disregard for ordinary business precautions, such investments would equally be gambling and quite as disastrous.

The third condition of success is frequently neglected with precisely the same results as would follow the employment of incompetent or dishonest management in any other business.

Men experienced and thoroughly qualified to take charge of mines or metallurgical works can now always be obtained. It is no longer necessary to take the risks of giving the theoretical professor his practical education in that most expensive of schools, the management of works. Nor is it necessary to allow the so-called "practical" man, whose knowledge and experience have been confined to the narrow limits of swinging a pick or charging a furnace, to acquire in the same expensive school the wide knowledge necessary for the successful admininistration of a great enterprise. What results might be anticipated if a competent dry goods clerk were commissioned to sail an ocean steamer, or a stoker were put in charge of its complicated machinery?

The risks in mining are necessarily greater than in first-class mortgages on city property or in government bonds, but the profits are infinitely greater, and the risks may be rendered moderate by the exercise of ordinary business prudence in ascertaining the value of what is offered before buying, and in securing honest and competent administration thereafter.

LEAD PRODUCTION AND TRADE IN 1887.

With the utmost courtesy every important producer of lead in the United States has furnished us a statement of production in 1887, and nearly all have mentioned also their stocks of lead on hand at the close of the year. We feel under great obligation to the several gentlemen

who have thus enabled us to furnish at this early date full and reliable statistics of this most important industry.

The production of lead in this country in the year 1887 was the heaviest in the history of the trade, and as reported direct to us by the ten large refiners and about as many soft-lead producers amounted to 160,000 tons, about 131,000 tons of which were desilverized, and 29,000 tons were soft lead from Missouri, Kansas, Illinois, Wisconsin, and Virginia.

This enormous increase in production, though greater than anticipated, was not quite unexpected. It was due to several causes; first, to the improved prices, which commenced in the latter part of 1885 and continued through to the present time, and which were maintained, indirectly, by the combination now embracing many of the lead producers; and, secondly, to the natural great increase in consumption which the general improvement in business throughout the country in 1886 and 1887 brought about.

The production of argentiferous lead, which is now almost a bye product, will be affected by the discovery of large bodies of rich silver-bearing ores, and will be more or less independent of the market price of lead; but the continued production of non-argentiferous lead from the irregular deposits of galena in Missouri, Illinois, and some other States is wholly dependent on the market value of the metal. This industry, from the nature of the ore deposits, is carried on in many small, independent operations, which are profitable when they simply pay the wages of the miners, it has been more than usually successful under the prices of the last two years, as is shown in the handsome dividends of that excellently managed enterprise, the St. Joseph Lead Company. Nevertheless, the production of non-argentiferous lead is declining in relative importance. During the last year it amounted to less than one fifth of the entire make of the metal.

The production of Western argentiferous lead, though affected by the very low price of silver, which unfortunately gives no sign of immediate improvement, has increased in a wonderful and thoroughly healthy manner. No such lead "gushers" as the Horn-Silver, Telegraph, or the famous old Leadville deposits have brought about this increase, but the lead has, as a rule, come from lower grade ores than formerly, ores which are now workable, thanks to the improvements in concentrating plant and to the lessened cost of transportation which the many new railroads have brought about. The lessened cost of smelting, which is due to cheaper fuel and to the great improvements which our American metallurgists have made in the smelter's art, has also greatly contributed to the present highly satisfactory condition of this industry.

It is certain that at an average price of 4·25 cents a pound for lead in New York, our lead industry can now be conducted at a satisfactory profit even under the present low price of silver, and at this figure no foreign lead can come in under the tariff of two cents a pound.

A correspondent calls attention on another page to the large imports of Mexican lead which come in free of duty as silver ore, and are smelted in this country. While this unquestionably benefits the smelters who can compete for these ores, it will presently affect the market for the product of our own mines by adding to our supplies of the metal.

It has been suggested that this ill can be cured by annexing that portion of Mexico which produces the ore; but this remedy, if adopted as a general cure, might necessitate the eventual absorption of the entire continent, a cure which might bring other and greater evils on us. No doubt a duty on the lead in the ore corresponding to that on pig lead would be only fair and just, so as to equalize the conditions under which all foreign lead may enter our markets, and to abolish all tariff would cause irreparable injury to our smelting establishments and to many mines.

It is difficult to estimate the amount of lead that has thus come in free of duty during the past year, but no doubt 10,000 tons would be a moderate figure, and it is certain that this amount will be largely increased under similar conditions in the future. This is unquestionably the most important of our new sources of lead supply if the ore be admitted free.

PRODUCTION OF LEAD IN THE UNITED STATES.

YEAR.	Arizona and Cal	Colorado	Idaho and Montana.	Mo., Kan Ill., and Wis.	Nevada.	Utah.	Other States.	Total production.
1873....	.....	76	.....	22,581	.....	15 000	5,103	42,540
1874 ...	.....	312	.....	.....	.....	20,000	31,768	52,080
1875...	.....	818	.....	24 699	.....	19 000	15,123	59,640
1876 ...	.....	667	.....	26,421	.....	25 000	11,982	64,070
1877....	.....	897	.....	31 152	19,724	27,000	3,127	81,900
1878....	.....	6,369	.....	26,770	31,063	21,000	5,858	91 060
1879....	.....	24,074	.....	28,130	22 805	14,000	4 171	92,780
1880....	.....	35,674	.....	27,690	16,659	15,000	2,802	97,825
1881....	.....	40,547	.....	30,770	12 826	24,000	8,942	117,085
1882 ..	.....	55,000	.....	29,015	8,590	30,000	10,285	132,890
1883....	3,200	70,557	11,000	21,600	6.000	29,000	2 600	143,957
1884 ..	4,300	63,165	14,500	19,676	4 000	28,000	6,256	139,897
1885....	.....	.....	.....	.....	3,500	23,000	.....	129,412
1886....	.....	59,000	17,000	22,000	3,400	20,000	14.229	135,629
1887....	.....	75,000	.....	28,000	.....	24,000	33,000	160,000

Colorado still maintains its supremacy as a lead producer, Leadville mines having been remarkably successful during the year. Aspen has not yet realized expectations, owing to litigation concerning the titles to some of the large mines; but when this shall have been settled, it will add a large amount of lead and silver to our annual output.

Idaho is a very promising field, and as it becomes more fully opened up by railroads, and as freights decline, it can be counted on to become a heavy producer.

Montana is also good for an increasing output, and Utah is gradually recovering from the set-back it received by the failure of such great mines as the Horn-Silver, Old Telegraph, Flagstaff, and Emma.

The great Nevada mines, the Richmond and Eureka, have not improved during the year, and their character is too uncertain to base any safe prediction for the future upon.

The conditions which have brought about the increased production of the past year still obtain. Mines are operated with constantly increasing economy and profit, due largely to the lessened cost of supplies, lower wages, lower freights, the more general use of concentrating plant which makes available vast bodies of low-grade ore which formerly would not pay to handle. Concentration not only saves freight and smelting charges, but enables the smelter to pay a higher price per unit for the lead in the ore.

The great reduction in the cost of fuel, and the lessened cost of operating expenses in the large modern smelting and refining establishments, have all benefitted the miner.

AVERAGE MONTHLY PRICES OF LEAD IN NEW YORK, IN CENTS PER POUND.

Year.	Jan.	Feb.	Mar.	Apl.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
1870	6·25	6·21	6·15	6·20	6·22	6·22	6 25	6·35	6·33	6 31	6·30	6·30	6·25
1871	6·22	6 22	6·17	6·15	6·14	6·13	6 12	6·06	6·05	5·93	5·95	5·87	6 08
1872.	5·95	5 93	5·93	6·00	6·43	6 50	6 50	6·45	6·40	6·51	6 55	6·51	6·30
1873.	6·32	6·45	6 37	6 37	6·50	6·33	6·06	6·12	6·50	6 50	6·25	6·03	6·32
1874.	5·95	6·12	6·18	6·07	5·87	5 81	5·71	5 72	5 87	6 22	6·37	6·26	6 01
1875.	6·10	5·87	5·68	5·83	5·92	5·82	5·97	5·91	5·78	5·62	5·76	5 90	5·85
1876.	5·93	6·17	6·45	6 26	6·10	6·37	6 27	6·32	6 12	5·90	5·75	5·67	6·13
1877.	6·12	6·30	6·62	6·37	5·77	5·65	5 50	5·00	4 80	4·58	4·62	4·55	5·49
1878.	4·17	3 75	3·75	3 62	3·37	3·30	3·43	3·35	3 35	3·48	3·77	3·95	3·61
1879.	4 25	4 50	3·87	3 06	3 00	3·46	4·00	4·02	3·87	4·75	5·30	5·55	4·14
1880	5 80	5·93	5·62	5·57	4·82	4 62	4·50	4 65	4·85	4·76	4 80	4·50	5 04
1881	4·65	4·95	4 75	4 60	4·47	4·37	4·70	4 85	5·16	5 05	5 07	5·12	4·81
1882.	5·05	5 10	5·00	4·95	4·72	4·72	5·02	5·02	5·05	5 00	4 70	4 62	4·91
1883.	4·65	4·55	4·57	4·50	4·47	4·42	4·35	4 25	4·31	4.22	3·85	3·67	4·32
1884.	4·12	3·90	4·12	3·84	3·63	3 61	3·62	3·61	3·65	3 67	3·46	3 62	3 74
1885.	3·65	3·65	3 65	3·65	3·35	3·75	4·00	4·25	4·25	4 20	4·10	4·55	3·95
1886.	4·75	4·75	4 90	4·78	4 70	4·75	4·87	4 75	4·65	4·62	4 35	4·35	4·63
1887.	4·31	4·37	4·32	4·27	4·52	4·65	4·55	4·58	4·50	4·25	4·40	5·12	4·50

Improvements in metallurgy have been made, and still greater are said to be now beyond the experimental stage, though not announced publicly. There is, therefore, every reason to expect a still larger production in the future, and though the consumption of lead has increased enormously, and stocks of the metal are now very low, it is not difficult to foresee a return to somewhat lower prices in the not very distant future. How far this may be postponed will depend somewhat on the operations of the combinations and trusts which are now the fashion both here and in Europe.

IMPORTS, CONSUMPTION, AND STOCKS ON HAND.

The amount of pig lead paying duty which was imported during the year 1887 was about 3900 tons, and of this a large partremain in store.

From the returns of most of the producers and refiners, we are enabled to say that stocks of refined lead and of bullion are quite small, and, including the foreign lead now in store at this port are about the same as those with which we commenced the year. The consumption of lead therefore nearly equaled our enormous production. It is probable, however, that stocks of manufactured lead are larger than they were a year ago andare more widely distributed.

UNITED STATES IMPORTS AND EXPORTS OF LEAD, 1867-87.

Fiscal years ending June 30	Imports.							Total imports.	Total exports
	Pigs and bars.		Sheets, pipe and shot.		Old and scrap.		Not specified.		
	Pounds.	Value.	Pounds	Value	Pounds.	Value.			
1867...	65,322,923	$2,812,668	185,825	$9,580	1.256,233	$53.202	$6,247	$2 881,677	$32,859
1868...	63,254,677	2,668,915	142,137	7,229	2 465,575	101,586	6,843	2,784,573	71,329
1869...	87,865,471	3,653,481	307,424	15,531	2,983,272	123,088	18,885	3,810,985	47.249
1870...	85,895,724	3.530,837	141,681	6,8:9	3,756.785	150,379	10,620	3,698,715	28 315
1871...	91,498,715	3,721,096	86,712	4,209	2 289,688	94,467	8,740	3,828,512	79,880
1872...	73,086.657	2,929 623	12,518	859	4,257,778	171,324	21.616	3,123 422	48,132
1873...	72,423 641	3,233,011	105	12	3,545,098	151 756	21,553	3.406,332	13,392
1874...	46,205,104	2,231,817	.....	.....	395,516	13,897	37,833	2,283,547	302,044
1875...	32,770,712	1,559,017	.....	.....	382,150	13,964	26,098	1,599,079	429.309
1876...	14,349,366	682,132	.....	.....	265,860	9,534	28,310	719,976	107,726
1877...	14.583,845	671,482	.....	.....	249,645	8,383	2,303	682,168	49,835
1878...	6,717.052	294,233	.....	.....	106,342	3,756	1.076	299,065	314,904
1879...	1.216,500	42 983	.....	.....	42,283	1,154	1,139	45,275	280,771
1880 ..	6.723,706	246.015	.....	.....	213,063	5,262	425	251,702	49,899
1881...	4,322,068	189.129	.....	.....	220,702	5,949	3,048	211.500	178,779
1882...	6,079 304	292,603	.....	.....	1,094,133	31,724	8,126	169,958	44,108
1883...	4,037,867	130.108	.....	.....	160,356	4,840	2,005	92,860	135,156
1884...	3,072,730	85,396	15,040	630	4,866	106	1.429	166,855	123,466
1885...	5.862,474	143,103	971,951	22,217	17,943	686	1,698	298,243	114,098
1886...	11,005,083	294,856	24,087	1,023	.....	.....	.....	669,282	141,154
1887...	.....	.....	.....	.....	.....	.....	.....	.....	.....

THE PROFITS IN MINING.

The following table gives the dividends paid by the principal mines in the United States.

The results are not as satisfactory as we had anticipated, though the dividends paid by sixty-three companies amount to the goodly sum of $10,515,753, which exceeded the dividends paid in 1886 by more than a quarter million dollars.

The thirty-eight companies whose stocks are quoted, or for which we have been able to get a quotation, have a present market value of about 89 million dollars, and have paid in dividends during the year $9,217,075 equal to 10⅓ per cent on the market value; a much better result than in most classes of investment. These same thirty-eight companies have already paid in dividends no less than $89,000,000, or almost exactly the amount of their present market value. The actual or original investment was but a small part, probably not one fifth, of their present value, so that had a fortunate holder invested originally in developing these mines, and held his interest to the present time, he would have received back his original investment many times over and could now sell out for four or five times the amount he put in.

The mines quoted are by no means the only dividend-paying mines in this country; indeed, it is well known that a very large number of private companies, or mines owned by individuals, have paid far larger returns on the investment than has the average stock company.

There are a number of iron ore mines on Lake Superior that have paid enormously, and our great metallurgical works have also paid magnificently.

The great Granite Mountain heads the list of dividends with $2,000,000 for the year, or just twice what the Calumet & Hecla has paid, though this is perhaps the more valuable mine of the two. Each has many millions yet in store for its stockholders.

The Consolidated Virginia & California revives the ancient glory of the Comstock, and quietly and without boom, in fact under declining prices for its stock, it has paid the second largest dividend on the list and more than 25 per cent on the present value of its stock.

DIVIDENDS DECLARED IN 1884, 1885, 1886 AND 1887.

	In 1884.	In 1885.	In 1886.	In 1887.
Arizona	$372,500	$200,000	$225,000	$175,000
California	1,714,474	1,132,169	1,035,684	877,085
Colorado	1,349,000	1,542,000	2,044,250	1,427,500
Dakota	578,250	775,000	773,500	400,700
Idaho	.....	87,500	195,000	75,000
Michigan	1,802,500	1,970,000	1,900,000	1,575,000
Missouri	40,000	66,000	184,000	93 000
Montana	847,000	1,377,050	2,439,622	3,127,918
Nevada	198,500	175,000	436.287	1,328,000
New Hempshire	15,000	18,750	3,750	.....
New Mexico	199,000	.....	70,000	79,000
North Carolina	.....	37,200	.....	.....
Utah	2,137,500	1,055.000	975,000	1,357,500
Vermont	31,000	30,000	.....	.....
Total	$9.305,724	$8,465,669	$10,282,093	$10,515,753

DIVIDENDS PAID FROM AMERICAN MINES IN 1887 AND TOTAL TO DATE.

NAME OF COMPANY.	Location of mine.	Amount of dividends paid in 1887.	Total amo'nt of dividends paid to date.	Present market value of the comp'y.
Adams	Colorado	$15,000	$555,000	$393.750
Amy & Silveramith	Montana	42.678	247,530	*
Aurora	Michigan	155,000	155.000	750,000
Atlantic	Michigan	40,000	360 000	540,000
Bellevue, Idaho	Idaho	37,500	187.500	*
Big Bend Hydraulic	Dakota	48,000	258,000	*
Brooklyn Lead	Utah	25,000	127,000	750,000
Buxton	Dakota	5,000	5,000	*
Calumet & Hecla	Michigan	1,000,000	29,350,000	19,500,000
Central	Michigan	40.000	1,820,000	250,000
Cons. Cal. & Va	Nevada	1,188,000	1,252,000	4,536,000
Colorado Central	Colorado	82,500	268,750	563,750
Daly	Utah	375.000	375,000	*
Deadwood Terra	Dakota	100,000	1,000,000	580.000
Derbec Blue Gravel	California	20.000	180.000	*
Dunkin	Colorado	30.000	250,000	200,000
Eclipse	Colorado	10,000	20,000	*
Elkhorn	Montana	20,000	170.000	*
Empire	Montana	70 500	70.500	1,500,000
Eureka	Nevada	50,000	4,868.000	275,000
Franklin	Michigan	40,000	600,000	610,000
Garfield	Nevada	12,500	25,000	525,000
Granite Mountain	Montana	2,000,000	3,600,000	24,000.000
Gypsy Queen	New Mexico	4,000	4.000	*
Hecla	Montana	30,000	1,077,500	*
Homestake	Dakota	300,000	3,993.750	1,500,000
Honorine	Utah	37,500	125,000	200,000
Hope	Montana	25,000	183,252	700,000
Illinois	New Mexico	25,000	25,000	*
Iron Hill	Dakota	43.750	156,250	225.000
Iron Silver	Colorado	300,000	2,100,000	1,425,000
Idaho	California	139,500	4.539.000	*
Jay Gould	Montana	95,000	95.000	*
Jumbo, Colo.	Colorado	35,000	35,000	170.000
Lady Franklin	New Mexico	50.000	50.000	*
Leadville Cons.	Colorado	20,000	424,000	112.000
Mammoth	Utah	20,000	20,000	*
Mary Murphy	Colorado	70,000	87,500	*
Montana, Lim.	Montana	718,740	1,680,968	11.550,000
Morning Star	Colorado	75.000	750,000	*
Moulton	Montana	60,000	380,000	600,000
Mount Pleasant	California	45.000	150,000	*
Mugwump	Dakota	4.000	4,000	*
Ontario	Utah	900,000	8,825,000	3.900,000
Original	Montana	12,000	117,000	*
Oceola	Michigan	100.000	1,072,500	1,100.000
Paradise Valley	Nevada	10.000	150.000	*
Parrott	Montana	54,000	156,000	*
Plymouth Cons.	California	375,000	2,240,000	2,000.000
Plumas Eureka	California	42,580	1,941,655	350,562
Quicksilver Preferred	California	128.739	1,181,192	1,440,000
Quincy	Michigan	200,000	4,610,000	2,400,000
Richmond Con	Nevada	67,500	4,312,587	1,215,000
Russell	California	30.000	30.000	375,000
Sherwood	Missouri	3,000	3,000	*
Silver King	Arizona	175.000	1,950.000	450,000
Sierra Buttes	California	76,256	1,552,833	398,125
Small Hopes	Colorado	600,000	3,112.500	1,250,000
Standard	California	20,000	3,545,000	225,000
St. Joseph's Lead	Missouri	99,000	844,000	*
Swansea	Colorado	3,000	3,000	*
Viola, Limited	Idaho	37,500	75,000	1.237.500
Yankee Girl, Colo.	Colorado	187,500	1,275,000	1,500,000
Total, 63 companies		$10.515,753	$98,519,767	$89,096.135
In 1886, 59 companies		10,282,093	81,751.981	85.707,771

* Stocks not dealt in.

MINERAL PRODUCTS OF THE UNITED STATES, 1882 to 1886. (FROM MINERAL RESOURCES OF U. S. FOR 1886.)

	1882.		1883.		1884.		1885.		1886.	
	Quantity.	Value. Dollars.	Quantity.	Value. Dollars.	Quantity.	Value. Dollars.	Quantity.	Value. Dollars.	Quantity.	Value. Dollars.
Metallic.										
Pig-iron, spot value, long tons	4,623,323	106,336,429	4,595.510	91,910,200	4.097,868	73,761,624	4.044,525	64,712,400	5,683.329	95,195,760
Silver, coining value, troy oz.	36,197,695	46,800,000	35,733 622	46.200,000	37,744.605	48,800,000	39,910,279	51,600,000	39,445,312	51,000,000
Gold, coining value, "	1,572,186	32,500,000	1,451,249	30,000,000	1.489,949	30,800,000	1,538,376	31.801,000	1,881,250	35,000,000
Copper (value, New York), lbs.	91,646,232	16,038,091	117,151,795	18,064,807	147,805.407	18,106,162	170,962,607	18,292,999	161,235,381	16,527,651
Lead " " short tons	132.890	12,624,550	143.957	12,322,719	139,897	10.537,042	129,412	10,469.431	135.629	12,667,749
Zinc " " " "	33 765	3,646,620	36,872	3,311,106	38,544	3,422,707	40,688	3,539.856	42,641	3.752,408
Quicksilver (at San Francisco) flasks	52,732	1,487,042	46,725	1,253,632	31,913	936,327	32,073	979,189	29,981	1,060,000
Nickel (at New York), lbs	281,616	309,777	58,800	52,920	64,550	48,412	277,904	191,753	214,992	127,157
Antimony (at New York) short tons	60	12,000	60	12,000	60	12,000	50	10,000	35	7,000
Platinum (crude, at N. Y.), troy oz.	200	600	200	600	150	450	250	187	50	100
Aluminum (at New York), "	.....	.....	1,000	875	1,800	1,350	3,400	2,550	.....	27,000
Total metallic products	.....	219,755,109	.....	203,128,859	.....	186,426,074	.....	181,599,365	.....	215,364,825
Non-metallic (Spot Values).										
Bituminous coal, long tons	60,861,190	76,076,487	68,531,500	82,237,800	73,730,539	77,417,066	64,840,668	82,347,648	65,810,676	78,481,056
Anthracite, "	31,358.264	70,556,094	34,336,469	77,257,055	33,175,756	66,351.512	34,228,548	76,671,948	34,853,077	76,119,120
Petroleum, barrels	30,053,500	23.704,698	23.400,229	25.740,252	24,089,758	20.476,294	21,842,041	19,193,694	28,110,115	20,028,457
Lime, "	31,000,000	21,700,000	32,000,000	19.200.000	37,000,000	18,500,000	40,000,000	20,000,000	42,500,000	21,256,000
Building stone	.....	21,000,000	.....	20,000,000	.....	19.000,000	.....	19.000,000	.....	19,000,000
Salt, barrels	6,412,373	4,340,140	6,192,231	4,211.042	6,514,937	4.197,734	7,038,653	4.825,345	7,707.081	4,736,585
Cement, "	3,250,000	3,672,750	4,190,000	4,293,500	4,000,000	3,720,000	4,150,000	3,492.500	4,500,000	3,990,000
Limestone for iron flux, long tons	3,850,000	2,310,000	3,814,273	1,907,136	3,401,930	1,709,965	3,356,956	1,678,478	4,717,163	2,830,247
Phosphate rock, "	332,077	1,992,462	378,380	2,270.280	431,779	2,374,784	437.856	2,846,064	430,543	1,872,936
New Jersey marls, short tons	1,080,090	540,000	972,000	486,000	875,000	437,500	875,000	437,500	800,000	400,000
Borax, lbs.	4,226,291	338,903	6,500,000	585,000	7,000,000	490,000	8,000,000	480,000	9,778,290	488,915
Mica, "	100.000	250,000	114.000	285,000	147,410	368,525	92,000	161.000	40.000	70,000
Ocher, long tons	7,000	105.000	7,000	84,000	7.000	84,000	3,950	43,575	15,800	285,000
Crude barytes, "	20,000	80,000	27,000	108,000	25,000	100,000	15,000	75,000	10,000	50.000
Precious stones	.....	75,000	.....	74,050	.....	82,975	.....	69,900	.....	79,056
Gold quartz jewelry	.....	75,000	.....	115,000	.....	140.000	.....	140.000	.....	40,000
Pyrites, long tons	12,000	72,000	25,000	137,500	35,000	175,000	49,000	220.500	55,000	247,500
Manganese ore, "	3,500	52,500	8,000	120,000	10,000	120,000	23,258	190,281	30.193	277.636
Chrome iron ore, "	2,500	50,000	3,000	60,000	2,000	35,000	2,700	40,000	2 000	30,000
Asbestos, short tons	1,200	36,000	1,000	30,000	1,000	30,000	300	9,000	200	6.000
Graphite, lbs.	425,000	34,000	575,000	46,000	.....	.....	327,883	26,231	415,525	33,242
Cobalt oxide, "	11,653	32,046	1,096	2,795	2,000	5,100	68,723	65,373	.....	36,878
Slate pigment, long tons	2,000	24,000	2,000	24,000	2,000	20,000	1,975	24,687	3,000	30,000
Sulphur, short tons	600	21,000	1,000	27,000	500	12,000	715	17,875	2,500	75,000
Asphaltum, "	3,000	10,500	3,000	10,500	3,000	10.500	3,000	10,500	3,500	14.000
Corundum, "	500	80,000	550	100,000	600	108,000	600	108,000	645	116,190
Feldspar, long tons	14,000	70,000	14,100	71,112	10,900	55,112	13,600	68,000	14,900	74,500
Zinc-white, short tons	10,000	700.000	12,000	840.000	13,000	910,000	15,000	1,050,000	18,000	1,440,000
Bromine, lbs.	250,000	75,000	301,100	72.264	281,100	67,464	310,000	89,900	428,334	141,350
Mineral waters, gallons sold	.....	.....	7,529,423	1,119,603	10,215,328	1,459,143	9,148,401	1,312,845	8,950,317	1,284,079
Natural gas	.....	215,000	.....	475,000	.....	1,460,000	.....	4,854,200	.....	9,847,150
Gypsum, short tons	.....	.....	.....	.....	.....	.....	90,405	405.000	95,250	428.625
Flint, long tons	25,000	100,000	25,000	100,000	30,000	120.000	30,000	120 000	30,000	120,000
Fluorspar, short tons	4,000	20,000	4,000	20,000	4,000	20,000	5,000	22,500	5,000	22,500
Novaculite, lbs.	.....	.....	.....	.....	.....	.....	1,000,000	15,000	1,160,000	15.000
Rutile, lbs	500	1,800	550	2,000	600	2,000	600	2,000	600	2,000
Total non-metallic products	.....	228,410,389	.....	242,111,889	.....	220,050,674	.....	240,114.544	.....	243,963.063
Total metallic products	.....	219,755,109	.....	203,128,859	.....	186,426,074	.....	181,599,365	.....	215,364.825
Unspecified mineral products, est.	.....	8,000,000	.....	8,000,000	.....	7,000,000	.....	7,000,000	.....	6,000,000
Grand total	.....	456,165,489	.....	453,240,748	.....	413,476,748	.....	428,713,909	.....	465,327.888

OUR COPPER PRODUCTION IN 1887.

The following figures, representing the production of copper during the past year, will prove a great surprise to nearly every one in the trade. It was not supposed that our output would attain such enormous dimensions, especially since it was known that the Lake Superior mines were sending out less than in 1886.

The figures of copper production printed herewith are in every case official, having been furnished us by the officers of the several companies mentioned. In the case of Colorado, the figures were furnished by the smelting-works, and, so far as could be done, the copper produced by lead desilverizing was credited to the State from which the ores came. It is probable that 500,000 pounds of that still credited to lead smelters came from Colorado ores. Returns from the Colorado smelters place the copper output of the State at nearly 4,000,000 pounds, but this is evidently exaggerated.

Wells-Fargo estimate the production of copper in Utah shipped in ore and matte in 1887 at 2,491,320 pounds.

The production from other States and territories was reported to us in detail by the several smelting-works, as were also the items of the production from foreign ores.

As the output of the mines was estimated by the officers of the companies for a portion of the month of December, the figures may not be accurate to within a few tons, but probably the slight errors will balance, and we feel confident that the totals given are accurate, within the limit of perhaps one per cent.

SUMMARY OF COPPER PRODUCTION IN 1887.

	Pounds.	Tons of 2240 lbs.
Lake Superior	74,660,000	33,330·31
Montana	78,900,000	35,223·21
Arizona	18,000,000	8,035·71
Colorado	2,000,000	892·85
Other States and territories	2,400,000	669·64
Lead smelters	1,240,000	553·57
Domestic production	177,200,000	79,107·14
From foreign ores	5,300,000	2,366·07
Total, 1887	182,500,000	81,473·21

From this table it will be seen how Montana has forged ahead, the Anaconda alone having produced, according to our report received direct from Mr. J. B. HAGGIN, no less than 57,000,000 pounds, distancing by about 11,400,000 pounds its great rival the Calumet & Hecla.

Montana is now about 4,300,000 pounds ahead of Lake Superior as a copper producer, and is quite likely to maintain the lead during the coming year.

The New Boston & Montana Consolidated properties have as yet done but little. This will, however, in a few years become no unworthy rival for the great Anaconda.

Arizona has increased some 2,000,000 pounds, or to 18,000,000 pounds. The output of the State in 1886, appears, from the returns made to us by the several companies, to have been fully 16,000,000, as we reported last year.

No new sources of supply have been felt in this year's production, and none are now being opened that can greatly affect the supply of copper during the present year.

COPPER PRODUCTION OF THE UNITED STATES IN 1887.

Lake mines.	Pounds.
Calumet & Hecla	45,600,000
Quincy	5,502,000
Osceola	3,565,000
Franklin	3,924,000
Allouez	885,000
Atlantic	3,550,000
Central	2,000,000
Copper Falls	560,000
Phœnix	11,000
Huron	1,471,000
Ridge	85,000
Cliff	2,300
National	25,200
Tamarack	7,390,000
Kearsarge	52,000
Tributers	67,500
Total, 1887	74,660,000
Colorado	2,000,000
Other States and Territories	2,400,000
Lead desilverizers	1,240,000
From foreign ores	5,300,000

Montana mines.	Pounds.
Anaconda	57,000,000
Parrott	10,000,000
Boston & Montana	1,500,000
Clark's Colusa	7,100,000
Butte Reduction Works	1,565,000
Williams	1,495,000
Other mines	240,000
Total, 1887	78,900,000

Arizona mines.	
Copper Queen	5,945,550
Old Dominion	1,444,770
Arizona Copper Co.	5,714,000
Detroit Copper Co.	4,404,321
United Verde	272,124
Other mines	219,235
	18,000,000

Grand total production in 1887 182,500,000

COPPER PRODUCTION OF MONTANA.

	1884.	1885.	1886.	1887.
Anaconda	23,000,000	36,000,000	33,267,864	57,000,000
Parrot	9,300,000	9,809,000	10,000,000	10,000,000
Boston-Montana	6,600,000	7,500,000	500,000	1,500,000
Liquidator	.....	.....	1,500,000	
Clark's	600,000	10,000,000	7,000,000	7,100,000
Bell and Butte Reduction-Works	2,000,000	2,500,000	1,700,000	1,565,000
Williams	.....	1,200,000	2,000,000	1,500,000
All others	1,593,054	798,864	1,643,621	200,000
	43,093,054	67,798,864	57,611,621	78,900,000

COPPER PRODUCTION OF ARIZONA.

	1884.	1885.	1886.	1887.
Copper Queen	7,700,000	6,721,535	3,800,000	5,945,550
Old Dominion	7,400,000	4,688,640	4,567,665	1,444,770
Arizona Copper Company	3,760,000	6,832,880	5,250,000	5,714,000
Detroit	2,940,000	3,456,000	2,135,000	4,404,321
United Verde	3,680,000	.....	.....	272,124
Other mines	1,254,345	1,007,301	.....	219,235
	26,734,345	22,706,366	16,000,000	18,000,000

The following table gives the production of the several mines and districts for a number of years in a convenient form for reference:

THE PRODUCTION OF LAKE SUPERIOR COPPER MINES

MINES.	1881.	1882.	1883.	1884.	1885.	1886.
Calumet & Hecla	31,360,781	32,053,539	33,125,045	40,473,585	47,247,990	50,518,222
Quincy	5,506,848	5,665,796	6,012,239	5,650,436	5,848,530	5,888,517
Osceola	4,179,976	4,176,782	4,256,409	4,247,630	1,945,208	3,560,786
Franklin	2,677,932	3,264,120	3,488,708	3,748 652	4,007,105	4,264,297
Allouez	1,473,007	1,683,557	1,751,376	1,928,174	2,170,476	1,725,463
Atlantic	2,528,009	2,631,708	2,682,197	3,163,585	3,582,633	3,503,670
Pewabic	1,876,244	1,482,666	1,171,847	227,834	.....	.....
Central	1,418,465	1,353,597	1,268,556	1,446.747	2,157,408	2,512,886
Grand Portage	26,264	757,598	745,598	255,860	.....	.....
Conglomerate	386,091	734,249	222,117	1,198,691	.....	.....
Mass	467,684	737,440	659,474	481,396	365,000	200,000
Copper Falls	669,121	587,500	804,000	891,168	1,168.000	1,400,000
Phœnix	409,357	537,177	512,291	631,004	344,355	100,060
Hancock	571,897	540,575	484,906	562,636	203,037	150,000
Huron	254,515	364,579	729,213	1,927,660	2,252,484	1,992,695
Ridge	235,606	102,936	60,155	74,030	63,390	158,272
St. Clair	135,493	87,126	135,225	139,407	.....	.....
Cliff	79,382	66,053	10,374	28,225	.....	22,342
Wolverine	.....	25,623	699,622	751,763	328,610	3,125
Nonesuch	119,061	26,450	.....	23,867	28,484	.....
Isle Royal	47,308	35,477	.....	16,074	.....	.....
Minong	15,397	21,380	3,582	.....	.....	.....
National	.....	17,060	26,066	87,368	162,252	184,706
Minesota	24,227	10,672	6,226	1,144	12,608	.....
Belt	.....	5,625	16,402	130,851	27,433	7,300
Sheldon & Coum	10,031	3,299	.....	9,828	.....	.....
Adventure	7,500	429	.....	4,333	4,000	1,000
Peninsula	.....	.....	849,400	1,225,981	.....	.....
Tamarack	.....	.....	7,435	.....	181,669	3,646,517
Ogima	16,776	4,207	3,000	1,106	12,000	.....
Other mines and tributers	61,935	159,419	.....	21,167	35,500	51,000
Total	54,548,909	57,155,980	59,702,404	69,353,202	72,148,172	79,890,798

COPPER PRODUCTION OF THE UNITED STATES.

	1882.	1883.	1884.	1885.	1886.	1887.
	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.
Lake Superior	56,982,765	59,702,404	69,353,202	72,148,172	79,890,798	74,660,000
Arizona	17 984,415	23 874,961	26,734,345	22,706,366	15.657.035	18,000,000
Montana	9,058,284	24,664,346	43,093,054	67,798,864	57 611,621	78,900,000
New Mexico	869,489	823,511	59,450	79,839	558,385	.....
California	826,695	1,600 862	876,166	496,028	430,210	.....
Colorado	1,494,000	1,152,652	2,013,125	1,146,460	409,306	2,000,000
Utah	605,880	341,885	265,526	166,199	500,000	
Wyoming	100,000	962,468	.....	.....	.....	
Nevada	350,000	288,077	100,000	8,871	50.000	
Idaho	.....	.....	46,667	40,381	.....	2,400,000
Middle States	294,695	324,706	232,114	190.000	.....	
New England	1,555,000	612,124	904,423	211,602	315,719	
Southern States	400,000	395,175	317,711	40,199	29,811	
Lead refiners	125,000	782,880	950.870	910,144	1,282,496	1,240,000
Dom. prod'ct'n	90,646.232	115,526,052	144.946,653	165,875,766	156,735,381	177,200,000
Imported ores	1,000,000	1,625,742	2,858,754	6,056,841	4,500,000	5,300,000
Total prod'ct'n	91,646,232	117,151,795	147.805,407	170.962.607	161,235,381	182,500,000
Stocks, Jan. 1st	.....	.....	30,000,000	30,000,000	35,000,000	30,000,000
Av'l'ble supply	.....	.....	177.805,407	200,962,607	196,235,381	212,500,000

THE PRICES OF COPPER IN 1887.

The following tables give the average monthly prices of Lake copper in New York and the prices and average yearly stocks of Chili bars in London. At present the London quotations are of peculiar interest.

It must be borne in mind that the consumption has increased so greatly that the stock of 42,000 tons which in 1877 represented a *four* months' supply for the world's consumption, now represents less than *two and a half* months' supply, so that if stocks were *twice* as great as they are they would, as compared with consumption, be but little larger than they were in 1877, when the price was £70 5s. per ton.

The highest price ever reached by Chili bars was in June, 1882, when they were quoted £107 10s., with stocks of 35,880 tons, or a three months' supply. The lowest price ever reached by bars was in December, 1886, when £38@£38 10s. was quoted, with 63,290 tons stock. The highest stock ever held was in August, 1886, 66,111 tons, and the smallest stocks were in June, 1868, when they were 25,975 tons, with the price £77 per ton.

Lake copper prices are more or less independent of the Chili bar rate, and in the not distant future are likely to become the standard of values. They have averaged during the year 11¼ cents per pound, or ¼ cent more than in 1886. The lowest price ever recorded was in May and June, 1887, when 10 cents and even 9·90 was recorded, a figure which was below cost to all but a few of the largest mines, as was shown in the ENGINEERING AND MINING JOURNAL, April 23d, 1887, where the cost to each company was analyzed.

The highest monthly average price which Lake copper has ever attained was in June, 1864, when it reached 59¼ cents; and the highest

yearly average price was 46½ cents, also in 1864: 1886 gave the lowest yearly average, 11 cents, but had it not been for the sudden boom in November and December, 1887 would have shown much the lowest yearly price on record.

Casting brands have improved in quality of late years, and they tend to approach Lake copper in price. They have varied from ¼ cent to 1 cent below Lake during the year. Electrolytic made by the Bridgeport Copper Company and by Messrs. BALBACH & SONS is of excellent quality, and is approaching very near to Lake in price.

AVERAGE PRICE PER POUND OF LAKE COPPER AT NEW YORK.

Year.	Jan. cts.	Feb. cts.	Mar. cts.	Apr. cts.	May. cts.	June. cts.	July. cts.	Aug. cts.	Sept. cts.	Oct. cts.	Nov. cts.	Dec. cts.	Year. cts.
1860..	23¾	23⅞	23⅝	23¾	23⅞	22⅛	21⅝	21½	21⅝	21¾	20⅞	20	22¼
1861..	19½	19¼	19½	19⅝	19½	18⅛	17¾	18⅜	19⅝	20⅛	21⅜	24¾	19⅛
1862..	27½	26½	24	22¼	21½	21⅞	23½	24¼	25⅝	29⅞	31⅝	31	25¾
1863..	33	36	34	30½	30¼	30¾	30½	30	31⅝	34⅝	36¾	38⅝	32⅞
1864	40⅜	41⅝	42	43¼	43½	46⅛	58⅜	51¼	50	47½	48	48¼	46¼
1865..	48¼	4	39¼	34½	32	29½	29⅛	31⅞	31⅝	32⅛	39½	42⅜	36¼
1866 .	40	39⅛	32⅜	29¼	29⅞	32½	32¼	30⅜	31⅛	30⅞	28¾	27⅜	31¾
1867..	28⅛	27½	25¾	24	24⅛	24¼	25	26	26¼	24¾	22⅞	22⅜	2 ⅛
1868..	22½	23¼	23⅛	23¼	24⅛	23⅜	23¾	23⅛	23⅞	23½	23¼	24⅛	23⅝
1869..	25	26½	25⅝	23⅝	24	22⅝	22	22½	22⅛	22⅜	22¼	21¾	23⅛
1870.	21⅜	20⅝	19¾	19⅛	19	18¾	20⅜	20½	21⅛	21¾	22¼	22¼	20⅝
1871..	22⅞	21⅞	21½	21½	21¼	21⅜	21⅛	22¾	23⅜	23¼	24½	26½	23⅝
1872..	27¾	28⅜	33	41¼	36¼	33⅛	33¾	33½	33⅛	32½	31⅝	32¼	33
1873.	34½	34⅝	34¼	33½	31⅛	29¼	27¾	27⅛	26	23¼	23⅛	24¼	29
1874..	24¾	24⅜	24⅜	24⅞	24¾	24⅜	21⅞	20	21⅛	21¾	2 ¾	23¼	23¼
1875.	22¼	22¼	21⅛	21½	21⅛	22¾	23	23	23¼	23⅛	23	23⅜	22½
1876..	23⅛	2 ⅜	22	22	21⅞	20	19¾	19	20	20⅜	20¼	19¾	21
1877.	19¼	19¼	19¼	19⅜	19⅛	19⅛	19	18½	18	17⅜	17⅜	17⅛	18⅝
1878..	17⅛	17¼	17	16⅜	16⅛	16¼	16⅛	16½	16	15¾	15⅜	15⅞	16¼
1879..	15¾	15½	15¾	15⅝	16	16⅛	16	16⅛	16¼	19⅛	21¼	2 ¼	17⅛
1880..	23	24⅛	23¼	24⅜	19	18⅝	18½	19	18¾	18¾	18¾	19	20⅜
1881..	19¼	19¼	19⅛	18⅞	18½	17	16¾	16⅜	17¼	18⅛	18½	19¼	18⅛
1882..	20¼	19⅛	19	18⅞	18⅛	18⅛	18⅛	18⅛	18⅛	18⅛	18	18	18½
1883..	18	17¾	17¼	15⅞	15⅜	15¼	15	15	15¼	15⅜	15	14⅞	15⅞
1884..	14⅞	14⅞	14⅞	14½	14¼	14⅜	14	13⅞	13⅛	13	12¾	11⅝	13⅝
1885..	11¼	11⅛	11⅜	11	11⅛	11⅜	11⅜	11⅛	11⅛	11⅛	11	11¼	11⅛
1886.	11⅛	11⅜	11⅜	11⅝	10½	10	10	10	10½	10½	11¾	12	11
1887..	11⅝	11	10½	10¼	10	10	10⅜	10½	10⅜	10½	12⅝	17	11¼

PRICES OF CHILI BARS IN POUNDS STERLING PER TON OF 2240 LBS.

Year.	Sto'ks. Tons.	Jan. £	Feb £	Mar £	Apl. £	May £	June. £	July. £	Aug. £	Sep. £	Oct. £	Nov £	Dec. £	Year. £
1866.....	29,588	95	93	88	86	80	83	79	74	83	80	75	72½	82⅝
1867.....	32,084	70	76	74	71	71	73	70½	68	73½	68½	68	69½	71⅝
1868	33,500	67	69½	71	73½	77⅛	77	75	68½	68	67	69	69	71
1869.....	41,921	73¾	73¾	72⅛	71	70¼	68	67¼	68	68½	67½	67½	66¾	69¼
1870	43,365	66½	66¾	66¼	65¾	67¾	67¼	68½	63½	63½	63¼	62½	62¾	65⅜
1871.....	40,092	64½	63½	66¼	64¾	65¼	67¼	68¼	68¾	67⅛	68½	68	76	67⅛
1872.	36,497	86¾	85	83⅛	99¾	101	107½	103	102	91	83¼	86	84½	92⅞
1873.....	41,082	91	87½	85	91	88½	84½	80½	81½	84½	83	83½	83½	85¼
1874.....	36,868	83½	81½	77	75	74	74	78	76	77½	80	83½	83½	78⅛
1875.....	36,316	84	83	82	80	83	83	82	79	82¼	82¼	82	87½	8 ¼
1876.	36,962	81½	81	76¼	77½	79½	77½	74½	72¼	71¾	72¼	76½	81	76¼
1877.....	42,313	76¼	73	71½	70½	68¾	69	69	69	67½	65½	65½	76¼	70¼
1878.....	48,399	65¾	65¾	63	62	62	64½	64	61½	61¼	60	57⅛	6 ½	6 ⅞
1879.....	57,837	58	56	54¾	56	56	55	56	53¼	54¼	58¾	66	58½	58⅝
1880.....	62,855	68¾	73¼	70¾	65½	60	56¼	60	61	61¼	61¼	61	66½	63½
1881.	58,149	61¾	62	61	61	59	59	58½	59	59	62¼	63¼	67	61⅛
1882.....	49 696	71	64	64	64¼	63¼	63½	67	68¼	67¾	71	69	66¼	67
1883.....	49 878	65	65	65	64¾	62⅞	63¾	64	63⅝	64	63	61¼	59½	63¼
1884.....	45,880	56½	55⅝	53⅞	56¼	56	54⅛	55	53⅞	54½	52⅝	51¼	47¼	53⅞
1885	55 939	48¾	47⅝	46¼	44½	44⅝	44⅞	44¼	43¼	41⅞	39⅞	41½	41⅛	44
1885.....	61,741	40¼	40¼	42⅝	41¾	40¼	39⅝	39⅝	39½	40¼	41½	40⅝	39¼	40¼
1887.....	42 301	38⅞	39⅝	39½	39⅝	39¼	40	40	40⅛	39¾	44¼	66¾	75¾	45¼

STOCKS OF COPPER.

It is a very difficult matter to arrive at any approximately correct estimate of the amount of copper, whether sold or unsold, in the hands of producers. Last year we made efforts to get this very important information, and though most of the producers gave us, in confidence, the amounts of their stocks, yet, owing chiefly to the oversight of a large block of casting copper then held in second hands, and to an underestimate of one other lot, our figures were too low. We have now increased them to 30,000,000 as the stock on hand January 1st, 1887.

We have this year been favored with fuller statements of stocks in first hands, and we are able to estimate, we believe with a fair degree of accuracy, though by no means as closely as is desirable, the stocks on hand, sold or unsold, outside of manufacturers' hands, and chiefly, though not altogether, in producers' hands.

We estimate our entire stock of copper in this country at 27,000,000 pounds; the greater part of this is at or near New York, and nearly three fourths of the whole is Lake copper. We hope in succeeding years to get this item still more accurately.

CONSUMPTION OF COPPER IN 1887.

The consumption of copper is most easily and most accurately arrived at by deducting from the total available supply the exports and estimated stock on hand at the close of the year. The available supply is obtained by adding the stock on hand at the commencement of the year to the production and the imports—production includes nearly all the imports.

A year ago we estimated the consumption at 124,000,000 pounds. This figure was too high, owing to the insufficient allowance for stocks both at the beginning and end of the year. It probably did not exceed 114,000,000 pounds, and may have been as low as 112,000,000 pounds.

During the year 1887 the consumption is estimated to have absorbed 140,500,000 pounds of copper:

Stocks, January 1st, 1887	30,000,000
Production in 1887 (includes nearly all imports)	182,500,000
Available supply	212,500,000
Exports.... 45,000,000	
Consumption..140,500,000	185,500,000
Stocks on hand January 1st, 1888	27,000,000

FOREIGN PRODUCTION.

We have been unable to get any reliable estimate of the foreign production of copper, but as a matter of interest we annex the following table, which gives the copper production of the world for the years 1879 to 1886, compiled by Messrs. H. R. MERTON & Co., of London. We have added to it the production of the United States and Canada for 1887. That of Canada is nearly all smelted in this country, and of that we have exact figures:

THE PRINCIPAL FOREIGN COPPER PRODUCERS.

The copper production of the world, 1879 to 1886 inclusive.

COUNTRIES.	1887.	1886.	1885.	1884.	1883.	1882.	1881.	1880.	1879.
EUROPE.	Long tons.	Long tons.	Long tons.	Long tons	Long tons.	Long tons.	Long tons.	Long tons.	Long tons.
Great Britain..		*a* 1,471	2,773	3,350	2,620	3,464	3,875	3,662	3,462
Spain and Portugal:									
Rio Tinto....		24,700	23,484	21,564	20 472	17,389	16.666	16,215	13,751
Tharsis.....		11,000	*a*11,500	*a*10,800	9,800	9,000	10,203	9,151	11,324
Mason & Barry.....		7,000	*a*7,000	*a*7,500	8,000	8,000	8.170	6,603	4,692
Sevilla.....		2,135	1,800	2.000	2,026	1,885	1,340	1,705	1,360
Portugueza..		1.258	1,665	*a*2,300	2,357	1,700	1,410	1,000	770
P derosa....		3,560	2,424	2,251	1,000	800	800	800	800
Germany:									
Mansfeld		12.595	12,450	12,582	12,634	11,536	10,999	9,800	8,400
OtherGerm'n		1,870	*a*2,800	*a*2,200	3,568	3,552	1,743	1,000	600
Austria.....		550	585	670	572	474	474	500	255
Hungary.....		500	504	614	661	800	900	900	1,0 9
Sweden...		600	775	992	732	798	995	1,074	800
Norway.... ..		2,220	2,560	2.706	2,630	2,590	2,640	2,426	2,412
Italy.....		900	835	1.325	1.600	1,400	1,480	1,380	1,140
Russia		4,875	*a*5,100	4,700	3,500	3.537	3,411	3,154	3 081
Total Europe		75,234	76,255	75,224	72,172	66,786	65,506	59,370	53,866
NORTH AMERICA									
United States..	78,571	69,971	74.053	63,555	51.574	40,467	32,000	27,000	23,000
Canada.	1,400	1,440	2,500	238	1,055	500	500	5 0	50
Newfoundland: Bett's Cove..		1,125	778	668	1,053	1,500	1,718	1,500	1,500
Mexico.....		850	375	291	489	40	333	400	400
T'l N. America		73,386	77,706	64,750	54,171	42,863	34,551	28,950	24,950
SOUTH AMERICA.									
Chili.		35,025	38,500	41.648	41,099	42,909	37,989	42,216	49,316
Bolivia: Corocora.....		1,100	*a*1,500	*a*1,500	1,680	3,259	2,655	2,000	2,003
Peru.....		75	229	362	395	440	615	600	600
Venezuela: N. Quebrada.		3,708	4,111	4,600	4,018	3,700	2,823	1,800	1,597
Argentine Rep.		180	233	150	293	800	307	300	300
T'l S. America		40,088	44,573	48,269	47,485	51,108	44,389	47,616	53,815
AFRICA.									
Algiers.....		110	250	260	60	600	600	500	500
Cape of Good Hope....		6,015	5,450	5,000	5 975	5,716	3,467	4,739	4,328
Total Africa.		6,125	5,700	5,260	6,575	6,316	4,067	5,239	4,828
ASIA.									
Japan.....		10,000	*a*10,000	*a*10,000	7,600	4,800	3,900	3,900	3,900
Total Asia...		10,000	10,000	10,000	7,600	4,800	3,900	3,900	3,900
AUSTRALIA.									
Australia.....		9,700	11,400	14,100	12,273	8,512	10,000	9,700	9,500
Total production.... ..		214,533	224,218	216,338	200,274	180,390	161,913	154,775	150,859
Stocks: Chili bars.....	42,301	61,742	55,939	45,880	49,878	49,696	58,149	62,855	57,837

a Estimated.

THE OUTLOOK FOR THE FUTURE.

The increase of production during the present year must come chiefly from a very few companies.

LAKE SUPERIOR.

Calumet & Hecla, if the present fire be extinguished at an early date, and if the damage underground be not very great, may possibly increase to 55,000,000 pounds as a maximum, and more likely will be 52,000,000 pounds.

Tamarack, which has its second shaft down now to about 1050 feet, or say half way to its upper levels, and is going down now about 70 feet a month, will increase its output probably to 12,000,000 pounds in 1888. None of the other Lake mines can greatly increase, though if the Quincy were better provided with milling facilities, it would be in condition to force output considerably. The total Lake production in 1888 will not probably exceed, if it reaches 85,000,000 pounds.

MONTANA.

The Anaconda has reached its maximum, and as it has to draw on its lower levels for a larger proportion of the ore it concentrates, the output will undoubtedly decline.

The Chambers syndicate mines, which will supply the new mill, estimated to start in the second half of the year, will produce argentiferous stuff that will not greatly add to the copper output. If we allow for the two works a total of 65,000,000 pounds in 1888, it will probably be a very liberal estimate, and may exceed the actual outturn.

The Boston & Montana will undoubtedly increase, and up to May may be counted on for 1,000,000 a month; after that, should its new smelters get running, it may double this amount. Including sales of high-grade ore we may count its possible maximum 23,000,000 pounds for the next twelve months. It must be remembered that this will take the place of the old Colusa, Liquidator and Clark's works. No other property in Montana is likely to increase to any important figures. Montana in 1888 may possibly reach a maximum of 90,000,000, which leaves no room for accidents of any kind.

ARIZONA.

The Queen will probably increase somewhat, but none of the other mines, except the Old Dominion (if it has good luck in finding ore, for it has no reserves), can increase materially. Twenty-five million pounds will probably be a full output in 1888.

The scattering production of other States and Territories will increase, but it can not attain any large figures; so that an estimate of 200,000,000 to 210,000,000 pounds in 1888 is a very liberal one, which fires or other accidents so common at the mines may very quickly invalidate.

The foreign mines that affect our supplies are chiefly those in Canada and Mexico. Of these the Sudbury will do something, but this deposit has been vastly over-valued both in quantity and quality of ore, and as we stated a year ago, it is not likely to become a heavy producer in 1888, if at all.

The Coxheath, in Nova Scotia, has many natural advantages, and in time will probably become a producer of some importance, but until its railroad from the mine to the harbor, six miles, is completed, which can not be before August or September, it can not produce any copper, so that its output in 1888 can not under any circumstances amount to much.

The Boleo in Lower California, the great French nightmare, is less menacing than it was a year or two ago.

At a recent meeting of the company in Paris, it was stated that 1750 tons of fine copper have been already produced, but our private advices discount that amount liberally. The most notable admission made at that meeting was in estimating the yield of the ore at 6 per cent; formerly it was counted at from 18 down to 9 per cent.

Though we learn that the management at present is somewhat better and less extravagant, it is still such that the stockholders will have to add a good deal to the £28 a ton which they are told is the actual cost of production.

IMPORTS AND EXPORTS OF COPPER.

The following statements of the imports and exports of copper for the eleven months ending November 30th, 1887, have been furnished us by the courtesy of Mr. F. SWITZLER, Chief of the Department of Statistics, Washington, in advance of their official publication.

To these full official figures we have added the imports and exports from this port during December, and our estimate of the quantity of copper in the ore and matte exported.

COPPER IMPORTS AND EXPORTS JANUARY 1ST TO NOVEMBER 30TH, 1887.

	Imports, 11 months.		Exports.	
	Quantity.	Value.		
Copper ore	3,358,376 lbs.	$168,177	Tons 20,783	$282,490
December, estimated.			3,500	
Bars, pigs, ingots	182,008	10,894	Lbs. 11,514,453	1,110,248
December, estimated.			2,000,000	
Sheets			123,886	24,668
Other manufactures		90,981		82,846
December, estimated.				

Fine copper exported in 1887, partly estimated, 45,000,000 pounds:

UNITED STATES COPPER IMPORTS.

	Bars, ingots, and pigs.		Old, fit only for remanufacture.		Fine copper contained in ores.		Regulus and black copper.*	
	Quantity	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Pounds.		Pounds.		Pounds.		Pounds.	
1867.	1,635,953	$287,851	569,732	$81,930		$936,271		
1868.	61,394	6,935	318,705	42,652	3,496,994	197,203		
1869.	13,212	2,143	290,780	34,820	24,960,604	448,487		
1870.	5,157	418	255,386	31 931	1,036,875	134,736		
1871.	3,316	491	369,634	45,672	411,315	42,453	499	$60
1872	2 638 589	578,965	1,144,142	178,536	584,878	69,017	4,247	1,083
1873	9 697 608	1,984,122	1,413,040	255.711	702,086	80.132	1,444,239	279 631
1874	713 935	134 326	733,326	137 087	606,266	70,633	28,880	5 397
1875	55 475	10,741	396,320	55,564	1 337,104	161,903	12,518	2,076
1876.	5,284	788	239,987	35.545	538,972	68 922	8,584	1.613
1877.	230	30	219 443	28.608	76,637	9.756	1,874	260
1878.	1	.....	198.749	25,585	87,039	11.785	.....	.....
1879.	2,515	352	112 642	11,997	51,959	6.199	.....	.....
1880.	1,242,193	206,121	695,255	91,234	1 165,283	173,712	2,201,394	337,163
1881.	219,802	36 108	541,074	63,333	1,077 217	124,477	402,640	51,633
1882.	6,200	836	508 901	59.629	1.473.109	147,416	224,052	30.013
1883.	.....	.....	330,495	36,166	1,115,386	113 342	.....	.....
1884.	(b) 542	107	149,701	12,099	2,204,670	219,957	2.036	204
1885.	914	172	81,312	6,638	3,665,739	343,793	285,322	20 807
1886.	159	24	41,025	2,647	4,123,842	413,276	186,887	14,962
1887.	111,941	6,420	.....	.....	4,219,182	214,645	.....	.....

COPPER EXPORTED FROM THE UNITED STATES, 1864 TO 1887.

Fiscal years ending June 30.	Ore. Cwts. of 112 lbs.		Pigs, bars, sheets, and old.		Value of manufactures.	Total value.
	Quantity.	Value.	Quantity.	Value.		
	Cwts.		Pounds.			
1867	87,731	$317,791	*4,637,867	$303,048	$171,062	$791,901
1868	92,612	442,921	1,350,896	327,587	152,201	922,409
1869	121,418	237,424	1,184,360	233,932	121,342	592,698
1870	*19,198	537,505	2,214,658	385,815	118,926	1,042,246
1871	*54,445	727,213	581,650	133 020	55,198	915,431
1872	35,564	101,752	267,868	64,844	121,139	287,735
1873	45,252	170,365	38,958	10,423	78,288	259,076
1874	13,326	110,450	503,160	122,457	233,301	467,208
1875	*51,305	709,578	5 123,470	1,042,516	43,152	1,815 266
1876	15,304	84,471	14,304,160	3,098,395	243,544	3,526,410
1877	21,432	109 451	13,461,553	2,718,213	195,730	3,023,394
1878	32,947	169,020	11,297,876	2,102,455	217,446	2,488,921
1879	23,07	102.152	17,200 739	2,751,153	79,900	2,933,205
1880	21,623	55,763	4,206,258	667,242	126,213	849,218
1881	9 958	51 499	4,865,407	786,860	38 036	876,395
1882	25,936	89,515	3,340,531	565 295	93,646	748,456
1883	112,92	943,77	8,221 365	1,493,947	110,286	2,348,004
1884	386,140	2,230,895	17,044,700	2,527,829	137,135	5,595,859
1885	432,300	4,739,601	44,731,858	5,339,847	107,536	10,187,024
1886	544 020	3,068,879	24,292,393	2,493,898	108,971	5 671,748
1887	307,280	1,693,879	19,735,666	1,947,900	85,623	3,727,402

* Evidently errors in quantities.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.

Free Trade in Mexican Lead.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I desire to call your attention to the most serious menace to the lead mining and smelting interests of the United States, arising from the enormous increase of importations of lead ore from the Republic of Mexico, *which come in without paying tariff duties.*

Either through the imperfection of existing laws, or through the wrongful administration of the laws, Mexican ores containing lead and siver are classified by the Custom-House authorities at Paso del Norte, and presumably at other places of entry, as *silver ores*, and are admitted free of duty when the silver content of the ore reckoned at $1.29 per ounce exceeds in value the lead content of the ore at 40 cents per unit. Thus an ore assaying 50 per cent or less of lead, and 16 ounces or more of silver, comes in free of duty.

Pure galena ore, if it carries 30 ounces or more of silver, comes in free. It is well known that Mexican lead ores are almost universally argentiferous. Hence the effect of the above ruling and practice of the Custom-House is practically to open the door for free importations of Mexican lead ores. If any ore is too low in silver to enter free, the mixing in of a little high grade ore with it cures the trouble, and the compound enters free.

Since the completion of the Mexican Central Railroad the importations of Mexican ores have nearly trebled every year, as will be seen by the inclosed statement furnished me by the Bureau of Statistics of the Treasury Department.

What portion of this amount is lead we have been unable to ascertain with accuracy, but from our observation and experience in handling Mexican ores we estimate that not less than 2000 tons per month of lead are now being imported from Mexico free from duties. When we consider that the entire lead production of the United States is estimated at 11,500 tons per month and that of Spain at 7000 tons per month, the great danger to the lead interests of the United States from this free importation of lead ores will be appreciated.

There is, moreover, every reason to believe that the quantity will be doubled in another year. The lead mines of Chihuahua are practically limitless. The laws of Mexico compel the working of mines six months in the year in order to maintain title. Labor is obtainable at one quarter the wages we pay.

STATEMENT OF THE VALUES OF GOLD AND SILVER ORES IMPORTED INTO THE UNITED STATES FROM MEXICO DURING THE YEARS ENDING JUNE 30TH, 1883 TO 1887.

CUSTOMS DISTRICTS INTO WHICH IMPORTED.	Ores.					
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
	1883.		1884.		1885.	
	$	$	$	$	$	$
Brazos de Santiago, Tex	.....	92	.....	411	.....	1,116
Corpus Christi, Tex	.....	9	.....	3,535	.....	.....
Paso del Norte, Tex. and N. Mex.	.....	7,668	400	124,352	.....	430,159
Saluria, Tex	.....	.....	.....	1,400	.....	.....
San Francisco, Cal	3,137	12,256	14,210	27.895	4,564	19,640
All other Customs districts	2,287	39,704	5,057	14,461	1,998	9,920
Total imports	5,424	59,729	19,667	172,054	6,562	460,835
Customs Districts into which Imported.			1886.		1887.	
Brazos de Santiago, Tex			.....	.....	.....	.....
Corpus Christi, Tex			14	15,349	12	234,709
Paso del Norte, Tex. and N. Mex			890	1,168,147	.....	3,038,229
Saluria, Tex			.....	21,168	.....	56,406
San Francisco, Cal			.....	22,758	4,598	100,885
All other Customs districts			493	35,836	9,461	368,055
Total imports			1,397	1,263,256	13,671	3,798,284

If free trade in Mexican ores is allowed to continue and grow at its

present rate we can foresee irreparable injury and speedy destruction to lead mining and smelting in the United States.

The situation demands prompt and vigorous action on the part of the owners of lead-producing mines in securing either necessary legislation or the prompt enforcement of the laws.

Yours truly,
AZEL F. HATCH.

REVIEW OF THE IRON MARKET IN 1887.

The production of iron and steel in the United States in 1887 has been the largest ever recorded. At this writing it is not possible to give exact statistics of production, but the following figures, from the careful estimates prepared by Mr. James M. Swank, General Manager of the American Iron and Steel Association, give a sufficiently close approximation to the enormous business of the year:

	1887. Gross tons.	1886. Gross tons.
Production of pig-iron	6,250,000	5,683,329
Production of steel rails	1,950,000	1,574,703
Imports of pig-iron	500.000	.....
Imports of steel rails	160,000	.....
Total imports of iron and steel	1,800,000	.....
Production of iron ores	11,000,000	10,000,000
Imports of iron ore	1,250,000	1,039,433

In general it may fairly be stated that the above figures represent the consumption of the enumerated articles, as there is no excess of stocks above those of a year ago; on the contrary, stocks are generally believed to have diminished.

Not less remarkable than the enormous production and consumption has been the steadiness of prices.

We give below a table showing the average monthly prices in this market of pig-iron, steel blooms, and steel rails, together with the average prices for the whole year, and the extreme variations in price as shown by these monthly averages.

MONTHLY AVERAGE PRICES. NEW YORK MARKET.

Tons of 2240 lbs.	Jan.	Feb.	Mar.	Apl.	May.	Jun	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Aver	Varia.
Pig-iron:														
No. 1 foundry	21.87	22.25	21.69	21.50	20.96	20.81	21.15	21.25	21.44	21.25	21.00	21.00	21.35	1.29
No. 2 foundry	20.31	20.94	20.75	20.50	19.94	19.81	20.00	20.00	19.62	19.05	19.00	19.00	19.91	1.94
Forge	18.87	18.50	18.56	18.97	18.87	18.19	17.95	17.75	17.47	17.20	17.00	17.00	17.99	1.97
Bessemer pig, Dom.*	19.62	20.00	20.00	20.19	19.94	19.62	19.50	19.50	19.50	19.40	19.12	19.00	19.62	1 19
Foreign	20.67	21.18	20.87	20.50	20.06	19.87	20.42	20 75	20.37	20 10	19.87	20.62	20.46	1.00
Scotch Coltness	23.19	23.12	22.87	22.40	22.06	22.09	22.75	22 75	22.78	21.87	21 44	21.97	22.44	1 75
Clyde	21.31	21.15	20.81	20 56	20.50	20.34	20.72	20.75	20.81	20.07	19.87	20.45	20.61	1.44
Spiegeleisen Eng. 20%	28.31	28.12	27.65	27.50	27.25	27.25	27.25	27.50	27.25	27.00	26.62	26.80	27.38	1.69
Steel blooms	30.25	30.25	30.25	30.00	29.25	29.25	30.05	31.25	31.25	30.55	30.25	30.25	30.24	2.00
Steel rails.†	39.12	39.50	39.50	39.50	38.75	38 50	38.50	38.50	37.62	35.30	32.19	32.45	37.45	7.31

* At eastern furnaces. † At eastern mills.

NOTE.—The quotations of steel rails for September, October and November for prompt delivery futures lower.

American Pig-Iron.—The year opened with the sale by the Thomas Iron Company of 152,000 tons for 1887 delivery. Prices were buoyant and had an advancing tendency. The Thomas Company sold this large amount of iron at $20, $19 and $18 for No. 1, No. 2, and Gray Forge. This action of the largest producers doubtless had a great effect in steadying the market, which was felt through the whole year. But when it is remembered that during the year the production of pig-iron was seriously affected by the coke strikes, the anthracite strikes, and the bad working of many of the Lehigh Valley furnaces in midsummer, and that for many months past there has been a great scarcity of good brands of No. 1 Foundry iron, it is somewhat difficult to understand why there should have been no advance in prices. The steadiness has been partly due to the easier condition of the lower grades of iron, partly to a lack of speculative feeling in the iron market, and partly, though it is hard to estimate to what extent, to the fact that the Southern furnaces are actually in the New York market as competitors. Before 1887 the product of the Southern furnaces was absorbed in the South and West. But during this year there has been a decided increase in the amount of Southern irons used by the foundries near New York and in New England. This branch of the pig-iron trade is likely to grow still further with the increased capacity of the Southern iron works.

Bessemer Pig-Iron has likewise been very uniform in price during the year, the average variation being scarcely more than $1 per ton.

Steel Rails.—The capacity of our rail mills was estimated early in the year at 2,000,000 tons, and the actual product will fall not far short of this amount. It must, however, be remembered that about 10 per cent of the rails made in 1887 were from foreign blooms.

Fully half of the deliveries of steel rails in 1887 were on orders taken in 1886. And on the allotments by the Board of Control for 1887 delivery a considerable amount, somewhere between 60,000 and 100,000 tons, has been carried over to 1888. Thus the present condition of the rail mills is very different from that of one year ago. But it is well known, as we have frequently stated, that a number of large orders are held in abeyance, and will shortly be placed. The highest price at which rails were sold from Eastern mills was $40, and the lowest $31.50; but not many orders were taken at these extreme figures.

Steel Blooms.—Importations of rail blooms came to a standstill when the price of rails fell below $36. The average price of imported blooms being $30 at New York, the cost of rolling requires that rails should be sold above $36 at mill to make a profit.

Other Manufactures of Steel.—The year has shown great development of the uses of steel for many purposes for which iron was formerly used, such as beams, angles, plates, bars, etc. The trade in steel wire rods, both domestic and foreign, has been very large, the increase being chiefly due to the greatly increased use of wire nails.

Manufactured Iron.—The rolling mills and bridge shops have done an immense volume of business. Never before has there been such a demand for iron structures.

Old Rails.—The market for Old Rails has been in a peculiar condition all through the year: The opening prices were $25@$25.50 for Tees, and $26@$26.50 for Doubles. Prices declined until in May Tees were quoted $21@$22, and Doubles $22@$22.50. Prices were a trifle higher in July and August, but fell off again. Frequently during the year it has been impossible to sell old rails for the cost of importation; on the other hand it has been often stated that good supplies of Old Rails could not be bought at current quotations. However that may be, the consumers of Old Rails have somehow managed to buy what they needed.

Combinations of Iron Makers.—The tendency of manufacturers to work together in controlling products and fixing prices has had many illustrations during the year. In addition to the previously existing associations of the steel rail manufacturers, the makers of rolled beams, the nail makers, and others, in 1887 new associations have been formed, such as the two Merchant Steel Associations, the Iron Bridge Makers' Association, and the Association of the German Makers of Wire Rods. As a rule, these associations are of great benefit to the various branches of the iron trade, and such understandings or agreements among manufacturers give steadiness to prices and a fair distribution of business over the country.

REVIEW OF THE PETROLEUM MARKET FOR 1887.

Specially Reported by Messrs. Watson & Gibson, New York.

The break in prices of oil from 81¼ in the early part of December, 1886, was succeeded by a stringent money market and a sharp decline in railway stocks. The new year of 1887 opened with oil at 70¼ cents per barrel, and the highest price during the month of January and the highest for the year up to September was 72½. Trade was dull through January, but early in February there was a scare over developments at Lima, Ohio, which precipitated a fresh and rather sudden decline to 60 cents, which was the lowest price of the year till July, when 54 was recorded as the extreme low water mark of the year.

Lima, Ohio, oil in February commanded 35 cents per barrel, and a great many wells were drilling, and at one time the production ran up to 15,000 barrels a day in that field. The Standard Oil Company were then erecting a large refinery there, and one smaller independent refinery was about ready to essay the treatment of the Ohio oil. This oil had a remarkably strong odor, and while it was doubted by many experienced oil men whether the oil could be successfully refined, others believed with a good show of reason, that the Standard would not be putting up such expensive works unless their tests justified the investment.

The field is still there, but the Standard claim that they were unable to get a good illuminating kerosene out of it, and upon gradual reductions by the Standard of the price they were willing to pay for the Ohio crude, it finally became unmarketable. We think that if the plans of the Pennsylvania producers continue to operate, to restrict production, of which we shall shortly speak, that the Lima and Findlay, Ohio, fields may again be revived, and we can not escape the conclusion that modern chemistry will eventually triumph over the most rebellious oils.

Passing on we see a speculative recovery in April to 68⅞ on a growing belief that Lima had been overestimated and that a bill introduced into the Pennsylvania Legislature in the interest of the producers would benefit the product. This was known as the Billingsly bill. It contemplated a radical reduction in the storage charge, and the charge for delivering the oil and made other restrictions designed to benefit the producers. The Standard fought this bill, and it was finally defeated; but on May 1st the National Transit Company, an adjunct of the Standard and the company that stores all th oil dealt in on the exchanges, voluntarily reduced the per diem storage from 40 to 25 cents per 1000 barrels. This did not stimulate speculation and did not enhance values. The change fell flat on the market and the producers were disatisfied. They organized secret lodges, and during this period of agitation when the relations between the Standard and producers were somewhat strained and about coincident with the speculative depression in wheat after the Chicago wheat deal burst, in coffee after the collapse of its artificial boom, and the sudden slump in Manhattan and railway stocks generally, oil also broke to 54 cents.

Business in June and July was at its lowest ebb. The transactions of each of these months aggregated only about one-third that of February. That the public never buy any thing at relatively low prices, is almost a speculative proverb.

The producers and the Standard held conferences late in the Summer and early in the Autumn, to see if some alliance could not be made in the interest of the former particularly. The organization of producers, perfected during the Summer, aided them in their negotiations. They contended that while the Standard were getting rich they were getting poor, and yet the Standard's prosperity was exclusively based on their product. Ordinarily, the interest of a manufacturer and transporter, and that is what the Standard is, lies in low prices for the crude product, as the world will use more and allow a greater profit to the transporter and manufacturer under such conditions.

This made it difficult to believe that any important result could be accomplished by a coalition between the two interests. But the Standard, whether from liberality or policy, met the producers in a fair spirit, and told them that if they would curtail production, and thereby reduce the stock of crude oil above ground, that higher prices would result. The Standard agreed to set aside a certain quantity of oil, said to be 5,000,000 of barrels, at 62 cents, to be sold at higher prices, and the resulting profit divided equitably between those who should agree to drill no new wells nor torpedo the old. The Standard, undoubtedly, had accumulated a very large stock of crude during the summer period of low prices, and as a shut down would leave less fresh oil to buy from day to day, they could thus use the producers' shut down agreement to enhance the values of their holdings. Moreover, the stock of refined in European ports was light, and navigation being closed in Russia, whose petroleum industry had been seriously retarded by two years' low prices of American refined, the Standard were in position to mark up the price of refined. Altogether it seems like a mutually desirable arrangement, if the scattered and isolated producers would consent to bind themselves inexorably. The probability that the scheme would succeed caused a sharp advance to 75 in September but the pace was too rapid, and the speculative public were not prepared to follow the market

up until the shut-down agreement was successfully enforced. Hence a sharp break within two days from 75 to 62 cents. Later in October prices rose again to 75⅛, and for some time held in that vicinity. The first day of November the producers' agreement went into operation, and production was lessened by about 20,000 barrels per day. The full effect of this compact was not felt, for through the autumn months a new oil field was developing at Saxonburg. There were some very large wells and uncertainty of course as to its prolific area. Well news had a daily influence, and fears of dangerous developments deterred some from confident buying. This territory was not owned by parties to the shut-down agreement, and there was naturally some fear that the latter might become discontented at seeing their shut-down benefitting the unrestricted independent producers. But the combination held fast, Saxonburg declined to small proportions, and the reduction of stocks in November amounted to over one and a quarter million barrels, with the same estimate for December. The market during the last half of December has reflected more nearly the expectations of the producers, and talk of dollar oil is again heard in the land. It has been two years since oil was as high as at present. The most discouraging feature to the bulls is the apathy of the general speculative public, which has not made money in oil for several years, but the bulls say that when speculators come to fully appreciate the changed situation they will renew their ventures.

There are only say twenty-five million barrels of oil to begin the new year, and even this small stock is likely to be depleted a million per month during the winter, and any considerable speculation based on this small foundation might easily carry prices above the dollar mark. The market has reached that point now where it will be susceptible to sharp movements, and it is likely that flurries now and then will give the speculatively inclined a chance to make money.

STATEMENT PRODUCTION OF PETROLEUM MADE BY THE NATIONAL TRANSIT CO., DEC. 10, 1887.

Showing gross stocks, and sediment and surplus, at close of each month; also receipts from all sources and total deliveries for each month beginning with January.

1887.	Gross stocks.	Sediment and surplus.	Receipts from all sources.	Total deliveries.
January	33,126,853·96	3,424,316·87	1,716,114·89	2,048,512·25
February	32,939,761·99	3,559,721·32	1,406,483·91	1,724,918·33
March	32,779,587·01	3,630,528·75	1,765,907·67	1,990,813·23
April	32,952,525·44	3,803,145·35	1,665,810·51	1,657,057·03
May	32,889,159·25	4,043,054·03	1,767,448·13	2,035,913·79
June	32,884,448·83	4,152,801·13	1,688,785·15	1,798,010·52
July	32,912,595·80	4,237,448·98	1,581,532·39	1,637,751·05
August	32,576,610·26	4,086,058·47	1,704,404·28	1,884,209·73
September	32,179,251·92	3,849,549·52	1,730,614·38	1,886,690·83
October	31,534,990·85	3,511,905·80	1,852,563·59	2,151,022·18
November	30,440,606·37	3,363,467·89	1,242,638·04	2,183,888·30

The above "Receipts from all Sources" were made up as follows:

Runs from wells	820,071·25
Received from other lines	421,819·99
Received in iron tanks	746·80
Total	1,242,638·04

The above "Total Deliveries" were made up as follows:

Regular shipments	2,168,203·46
Delivered to other lines	15,684·84
Total	2,183,888·30

The above figures are in barrels of 42 gallons each.

FLUCTUATIONS IN PRICES PER BARREL OF PIPE LINE CERTIFICATES DURING 1887.

Months.	Opening.	Highest.	Lowest.	Closing.	Sales.
January	70¼	72⅛	68¼	69⅛	54,899,000
February	69	69⅝	60	61⅝	64,182,000
March	61⅞	65⅝	61⅛	63⅜	48,425,000
April	63⅜	68⅛	62¾	66⅛	33,403,000
May	65	67⅛	61⅜	63¼	31,633,000
June	63¼	64⅛	60¾	61⅛	22,415,000
July	61⅛	61⅞	54	57¼	22,023,000
August	58	65	56⅜	64⅛	30,974 000
September	64⅞	75	62	68⅝	52,300,000
October	68½	75⅜	67	73	57,057,000
November	73	75⅝	71	74⅝	32,973 000
December	74¾	89⅛	75⅛	87¾	56,377,000
Year	70¼	89⅛	54	87¾	506,661,000

THE COAL ROAD STOCKS IN 1887.

The year 1887 has, with a few noticeable exceptions, carried quotations for all coal producing and coal carrying companies considerably higher than the opening price; but (again with a few exceptions) the closing quotations are found to be below the figures at the opening in January last. In one aspect this may be termed hardly satisfactory; yet, when the marked improvement in the production and distribution of anthracite coal is considered, and when the general condition of the more important of the great coal carrying properties is taken into account, a general review of the leading coal securities can not be regarded as unsatisfactory. That the past twelve months has brought somewhat different results than were anticipated is true. The revelation as to the financial unsoundness, the overloaded condition of the Baltimore & Ohio Railway Company leaves that company's securities less prized than they were one year ago, although a faculty of distinguished financial physicians have taken its case in hand, and promise an ultimate recovery.

It is worthy of note that with the exception of Central of New Jersey, Philadelphia & Reading, and D laware & Hudson, all of the score of coal stocks quoted in connection herewith were highest in the earlier months of 1887 and lowest in the autumn. The nearest to an exception to this is observed in Delaware, Lackawanna & Western and in Lehigh Valley, the highest quotations for which were made in June, and the lowest in October. Of thirteen other shares quoted, six were highest in January, two in February, four in April, and two in May. Lowest quotations for these shares were made as follows: Six in September, six in October, and two in November.

The high prices of Jersey Central in January last were incidental to the special demand for the stock of that company by the Corbin interest and by others who were and are still behind the reorganization of that railroad's finances, carrying the price steadily up to the highest point for the year, 86¼ in April, which is but 11¼ points above the closing price for 1887. The strength and altitude of quotations for Jersey Central shares must be admitted to be in some degree artificial; not based on its dividend-paying capacity, but rather on the desire of those who are in control of it to retain possession for other reasons than the immediate actual value of the stock. In November, the orders were made discharging the receivers of the Jersey Central and of the Philadelphia & Reading railroad companies, to take effect January 1st, 1888. This was the result of two of the most remarkable feats of reorganization of railway company finances undertaken by strong combinations of capitalists in interest, and must be characterized as the most important events affecting coal road properties in the past if not in any preceding year. In November, also, the month in which the order was made discharging the Reading receivers, the quotation for Reading shares touched its highest point, 71¼, since which date (November 16th) it has reacted only six points. Reading shares have been the most active of any listed on the New York Stock Exchange, as is natural when great changes are making in the affairs or condition of a corporation, thus affording wide opportunities for price fluctuations. The settlement of the Reading reorganization trustees with the objecting holders of the consolidated 5s in October, paving the way as it did for taking the railway out of the receivers' hands, greatly stimulated speculative activity in Reading shares during that and the succeeding month. During December, rumors of impending trouble with Reading employés served to depress the stock some, but when the strikes came (within a fortnight) there was less effect observed than might have been anticipated. The great success in the Reading reorganization scheme lay in the collection of the assessment from the stock and junior bonds with which to pay off the floating debt, thus placing, as expected, some $9,800,000 ahead of the stock. The new management, too, has not only reduced operating expenses and fixed charges (through reorganization), but, owing to the increased demand for and production and sale of coal at materially higher prices than one year ago, succeeded in showing net earnings for ten months of the last fiscal year amounting to $9,815,686, as compared with $4,651,627 in a like portion of the preceding year. The prospect for its fiscal year complete is for total net earnings of nearly $13,000.000, against $7,400,000 in the year before. The total fixed charges (estimated now) for the year will be about $11,000,000, pointing to a possible 6 per cent on the stock. One year ago, the Reading Company was apparently floundering hopelessly in debt, with foreclosure staring it hard in the face. Some of the ablest financiers and railroad men at home and abroad declared that the property could be put on its feet only through foreclosure. Yet there were those who not only dared to think differently but who have demonstrated their opinion. The rehabilitation of Jersey Central has been somewhat similar, but presents no such startling financial results. Its earnings have undoubtedly been affected some by the prolonged strike of 25,000 miners in the Lehigh Valley. Fixed charges have been reduced over $400,000 per annum through conversion of bonds, about 11 per cent, and the car trust and floating debts have been paid and funds provided for new equipment. The nine months exhibit of earnings indicate 25 per cent increase net, with about 5 per cent reported decrease in operating expenses.

Delaware, Lackawanna & Western has presented no special features beyond being moderately active (as compared with preceding years) and continuing to earn 7 per cent per annum. The highest price of this stock was recorded June 1st, 139½, since which it has lost about 10 points, leaving off December 31st 7½ points below the opening quotation in January, 1887. The principal point of note respecting the N. Y., L. E. & W. is to be found in the discriminating improvements of rolling-stock and betterment of the roadway, which have been steadily pushed by the new management.

A classified and condensed table of quotations of prominent coal carrying and producing company shares is appended, indicating the range of prices for 1887:

EASTERN COAL ROAD SHARE FLUCTUATIONS.

	Opening, January.	Highest and Lowest Quotations.	Closing, December.
Cent of N. J.	56	Lowest, Jan. 3, 55⅛ Highest, April 13, 86¼	75
Del., L. & West.	137¼	Highest, June 1, 139½ Lowest, Oct. 14, 123⅛	129¾
N. Y., L. E. & W.	34⅝	" April 12, 35⅝ " Oct. 14, 24½	28⅛
N. Y., Susq. & W.	12⅛	" Feb. 14, 14 " Sept. 20, 7¾	8¾
Phila. & Reading	37	Lowest, Feb. 1, 34 Highest, Nov. 16, 71¼	65¾
Del. & Hud. Can	103¾	" Sept. 21, 96⅛ " Nov. 25, 1 6⅛	103¼
*Lehigh Valley		Highest, May-June, 57¾ Lowest, Oct.-Nov., 54½	
*Penn. RR.		" April, 60 " Oct., 53¾	
Morris & Essex.		" Feb., 141¾ " Nov., 135⅞	

SOUTHEASTERN COAL CARRYING AND COAL COMPANIES.

Balt. & Ohio							
Ches & Ohio	9	Highest, Jan. 8,	9½	Lowest, Nov. 11,	2		3¼
Maryland Coal		" Jan.,	17	" Sept.,	10		
Maryland Con. Coal		" May,	32	" Oct.-Nov.,	7		
Norfolk & W.	23¼	" Jan. 3,	23⅜	" Oct.,	11½		16
Tenn. Coal & I	45	" Jan. 14,	54½	" Sept. 19,	21½		28

WESTERN COAL COMPANIES AND CARRIERS.

Cameron Coal		Highest, Jan.,	50	Lowest, Oct.,	28		
Col & Hock. Val		" April,	49	" Oct.,	22		
Hock. Valley & Toledo	38	" Jan. 11,	39¾	" Sept. 19,	15		24
Col. Coal & I	40½	" May 19,	53¼	" Sept. 20,	30		35½

* Half stock.

The leading influences which have had most effect upon prices of coal-road charges, aside from those already indicated, are: First, the doubt as to the effect of the Inter-State Commerce law (depressing), which, after experiment, was found to prove a

positive financial advantage; second, bear raids in June, owing to speculative demoralization in other lines, notably in wheat, and in October owing to the pronounced and long continued absence o. public support in the stock market; third, the light money scare in September, overcome later by the action of the Secretary of the Treasury in anticipating bonds and in depositing government funds with the banks; and last, the large increase in railway earnings over preceding years due to an enlarged volume of traffic and to steadier rates, except at the close of the year. The earnings of the coal roads, of course, so far as the leaders (at the East) are concerned, were relatively greater, inasmuch as the expansion of anthracite coal production, shipment, and distribution was so notable.

THE NEW YORK AND SAN FRANCISCO MINING STOCK MARKETS IN 1887.

The New York mining stock market has never exhibited much activity which showed any of the elements of a healthy permanent interest in legitimate mining. The baseless booms which were formerly so common in San Francisco, and which have occasionally been imported here, have never taken root in this soil. The facts are that here in the East there are so many industries in which to make investments that the emptiness of a bubble boom is soon exposed by those who have counter attractions to offer. In the old Comstock days, when mining was the only industry in California, gambling community returned again and again to mining speculations, even after many bitter experiences; but there, as here, it now requires some more solid foundation than a worthless prospect within sight of a mine to maintain an interest in mining.

The boom which we recorded near the end of 1886 was due to the opening, or reopening, of a valuable ore-body in the Con. Virginia-California ground.

This discovery or development (for it was generally believed that two years before the ore body was known to exist) was skilfully worked, and the stock pushed up from $1.25 to $65 per share, before any dividends were earned. Since then the mine has paid no less than $1,252,000.

With every revival of interest in mining shares, the market is promptly flooded with worthless or highly inflated schemes worked by smooth-tongued and enticing advocates, and the disappointment and disgust that follow the exposure of the swindlers or the pricking of the bubbles pervade the entire ranks, and mining is roundly abused and very unjustly charged with the losses due only to a degree of idiotic credulity that would do credit to first-class spiritualists or a devotee of the divining rod.

The ENGINEERING AND MINING JOURNAL, serving the interests of legitimate mining and of those who invest in mines with the intention of working them, exposed the worthlessness of a number of the schemes that were offered, and pricked some magnificent bubbles, in each of which the public were invited to invest enough money to have opened a dozen good mines.

Thus the Security, the Phœnix, the Tortilita, the Amador, and Middle Bar, Phœnix of Arkansas, and several other concerns, ran for a time; but the exposures of this journal finally brought them to grief and saved the inevitable opprobrium that would have been put upon legitimate mining by those who had invested in those unprofitable stocks. It is fair, however, to say that the Phœnix (Arizona) mine appears to be developing favorably, and may yet become a profitable producer.

The listing of any kind of worthless stock on the exchanges has been a great injustice to legitimate mining. The new year, it is hoped, will witness the boycotting of all mining schemes of a doubtful character.

Towards the close of the past year, the feature in the mining market was the decline in Sutro Tunnel, which, after selling up to 45 in May and July, sold down to 9 cents on account of the issue of bonds in the month of December and the anticipated extinction of the common stock. This, however, failed to exert any influence upon the market.

During the year, the course of the general stock market appears to have exercised little effect upon mining shares. The big Baltimore & Ohio deal, the Reading & Pennsylvania negotiations looking to a truce in the railroad war, the Richmond & Terminal developments, the smash in Manhattan and threatened Black Friday, with other movements in the financial world, were without effect upon mining shares, which dragged along, advancing one day and declining the next, the movement being shaped to a greater or less degree by the course of the Comstocks. A feature of the year was the large dealings in some of the recently listed shares, and the quietus given to others in the same category, among which may be mentioned Found Treasure, Hector, New Germany, Oneida Chief, Phœnix of Arkansas, Renfrew, Santiago and Stanislaus. While the feeling at the close of the year was by no means jubilant, it was generally believed that the year 1888 would certainly witness a decided improvement in mining speculation. The extirpation of the rotten schemes attempted to be floated on the market, and the support given by the ENGINEERING AND MINING JOURNAL, seconded by other honorable journals, in exposing the same, together with a disposition to inquire more carefully into the merits of new mines proposed to be introduced in this market, is likely to intimidate floaters of questionable undertakings in this direction. They are sure to be exposed at the very threshold. Would-be investors are ready for fresh ventures as soon as it appears that the conditions warrant an expectation of favorable returns. It is scarcely possible that the new year will again be marked by such limited operations as have marked the old, and while past operations have been extremely small, and many of the developments in the speculative world of a nature not calculated to invite confidence, legitimate mining presents, as it has in the past, an excellent field for capitalists and speculators, and we believe that the coming year will witness a decided revival in the demand for mining securities. A perusal of our remarks on our dividend-paying mines will show how profitable good mine investments are.

The following mining companies were listed in 1887 at the Consolidated Stock and Petroleum Exchange in this city: New Germany Gold Mining Co., Amador Gold Mine, Middle Bar Gold Mine, Security Mining and Milling Co., Gold Cup Mining and Smelting Co., Silver Queen Mining Co., Phœnix Lead Co., Santiago Gold Mining Co., Renfrew Con-Consolidated Gold Mining Co., Carson River Dredging Co., Brunswick Gold Mining Co., Phœnix Gold Mining Co., of Arkansas, Moreno Valley Gravel Gold Mining Co., Monitor Mining and Milling Co., Oneida Chief Gold Mining Co., Hector Gold Mining Co., Found Treasure Gold Mining Co., Surinam Gold Mining Co., of Dutch Guiana, San Sebastian Gold Mining Co., Corupano Mining Co., of Venezuela, Proustite Mining Co., Tornado Gold and Silver Mining Co., Tortilita Gold and Silver Mining Co.

The San Francisco market is so closely allied with the New York that what affects the one at once reacts on the other. As we write this review, it is intimated that a new boom is in process of incubation on the Comstock, under the inspiration of the managers of Consolidated California & Virginia.

As an example which might be followed with great advantage by our New York exchanges, we cite the following resolution which has been adopted by members of the San Francisco Stock and Exchange Board:

"*Resolved*, That the president be authorized to employ an expert accountant, as occasion may demand, for the purpose of making a thorough examination of the books and vouchers of the various mining companies listed at this Board, and reporting the result thereof in each case as completed: such report to contain full particulars of the financial administration of the said companies, and such other details of management as may be necessary for the information and guidance of the members of this Exchange in arriving at proper conclusions as to their true condition. The president is further authorized and empowered to request, on behalf of this Board, that said companies permit such investigation to be made, and, should he meet with refusal from any of them, then to qualify said account to legally enforce his demand to the right to carry out the object of this resolution."

FLUCTUATIONS IN PRICES OF MINING STOCKS AT PHILADELPHIA IN 1887.

	Opening, Jan., 1887.	Highest and lowest during the year.		Closing Dec. 31, 1887.	Sales.
Cincinnati	.05	.06	.05	.05	5,300
Denver City, Colo	.08	.08	.07	.08	2,100
Lake Valley, N. Mex	.25	.25	.25	.25	2,000
Rara Avis, Ariz	.06	.06	.06	.06	700
Sierra Apache, N. Mex.	.03	.03	.03	.03	1,000
Silver Cird, Colo	.35	.45	.30	.30	2 900
Silver Mining Co, of Lake Valley, N. Mex	.12	.27	.10	.20	25,350
Tombstone, Ariz	.10	.11	.10	.11	1,000
Total sales					37,450

BOSTON MINING STOCK MARKET IN 1887.

From our Special Correspondent.

The year 1887 has been marked by many irregularities in the market for mining stocks in Boston, especially in the Lake Superior copper stocks. The decline in values in the early part of the year and the closing of 1886 was followed by a slight upward movement, which was not, however, of long duration, and quotations soon settled back to the old prices, with but very little activity in the market. Later in the season, owing to the action of the great monopoly mine in breaking the price of ingot copper to ten cents per pound, which precluded the possibility of the smaller mines competing successfully in the market, the prices of stocks reached their lowest point, and there was no disposition to speculate or invest in this class of securities. During the summer and early fall months business was at a very low ebb, and it looked as if there was to be no rally for the year; but the past two months has witnessed quite a revival of the old timed activity and a consequent advance in prices all along the line. This has been brought about by two causes: first, by a fire in the Calumet & Hecla mine, which reduced the production for several weeks, followed later by a second fire which, so far, has not been controlled, thereby reducing the output of the mine from about 3000 tons per month to less than 1500. Second, the formation of a powerful syndicate in foreign countries to purchase the visible supply of ingot copper and advance prices to a figure which will yield handsome returns to all the active producing mines in this country. As a result ingot copper has advanced from 10 cents to 18 cents per pound, and many of the mines have realized not only on their present stock, but have largely anticipated their future production. These causes, it will be readily seen, have had their influence upon the prices of copper stocks, and while Calumet & Hecla, from the causes above mentioned, has declined from $223 to $175, the extremes for the year, nearly all of the other producing mines have advanced, and at the close of the year were selling at the highest point for the season. At the same time, the stocks have not shown as much vigor and activity as the present price of ingot would seem to warrant. This is due, doubtless, to a want of confidence in the ability of the syndicate to maintain prices at the present quotations, although many of our operators believe that the price will be maintained, and even predict higher figures, and say that 20c. per pound will not be impossible, but highly probable, and even if it should settle back to 15c. per pound and hold at that price through the year, that copper stocks will look cheap at current prices, and predict a lively boom in them which will put 1881 far in the shade. It is certain that there is more attention given to these stocks now than for several years past, and people who have always looked doubtfully upon them as investments are buying them for a big advance. In general mining stocks the past year has not been a very active one; a few new enterprises have been put upon the market and dealt in to some extent, but there has been a general lack of confidence in them, and as a "burnt child dreads the fire," so, remembering the experiences of 1881, they have been let severely alone. Some of the old favorites are still in good demand and more or less dealt in, among which is the Duncan Silver Mining Company, of Colorado, which has recently struck a good body of paying ore, and has paid dividends aggregating 30c. per share for the year. Catalpa and Crescent also have many friends in Boston, and are expected ere long to yield a return for the investment. There have also been some mines placed here which have not to any extent been made public, but are paying the holders good returns for their money.

In looking over the transactions of the year, we find that they fall rather below, than above, the average in volume; but, as a rule, prices are above those of last year. Franklin sold in 1886 as low as $8¼, while for the current year $9¼ was the lowest point touched, and it is now selling at $15@$16, ex-dividend $1 per share. Osceola has, perhaps, shown wider fluctuations than any other, selling as high as $35¼ in June and at $15 in October. The conflicting reports in regard to the prospects of the mine having the Calumet & Hecla vein has doubtless had somewhat to do with its uncertain market value. Quincy has been remarkably steady in its quotations, touching $45 during the spring months as the lowest point, and throughout the summer and early fall ranging from $47@$52, and only on the recent advance did it touch $63, which is a little lower than the highest point of last year. Atlantic has been but little dealt in, selling at $8¼ in May and $13⅜ in December. Tamarack has steadily gained in favor, and is looked upon as a formidable rival to the Calumet & Hecla. Its lowest point was in June, at $85, and is now selling at $125, and in good demand at this price. With the present outlook for ingot, it will doubtless begin to pay dividends during the coming year.

Kearsarge is looked upon as one of the coming mines, and is expected to show good results and higher prices for 1888.

The Huron mine last spring levied an assessment of $3 per share to pay off its debt and replenish its machinery, which was destroyed by fire. The stock declined to 5c. per share, and a large number of its shares were sold for the assessment. The work at the mine has been pushed forward, and it is hoped that the coming year will see it on a good paying basis. After the payment of the assessment the stock sold at $3½@$3¼, and recently at $5@$5¼.

Allouez sold in September at 50c., on reports of an intended assessment, which proved to be unfounded; and the stock subsequently advanced, and sold quite recently at $1¼.

The recent boom in the shares of the producing and dividend-paying mines has called out many of the speculative stocks, some of which have not seen daylight for many years, and there seems to be a very general impression that this class is to participate in the general advance. Some of our shrewd operators are quietly buying up all they can get hold of, and predict big profits during the coming six months, all of which may or may not be realized, as there is nothing more uncertain than the future of unproductive mining stocks.

The year now gone, while it may not have realized all its anticipations, has, on the whole, been a fairly average one, and with the present outlook we venture to predict that the coming year will be a notable one in the history of the mining stock market in Boston.

PITTSBURG STOCK MARKET IN 1887

From our Special Correspondent.

While all branches of business have been unusually prosperous in Pittsburg during 1887, none has shown greater activity or more marked increase in volume than trading in local stocks. This was due partly to the growth in wealth available for such investments, and the creation of new classes of securities which, paying liberal dividends, have appealed strongly to popular favor. Among these the most prominent have been the shares of the natural gas companies, which have been more largely dealt in than any others. There are now some $30,000,000 invested in these corporations in Western Pennsylvania, the stocks of nearly all which are dealt in here. The stock of the Philadelphia Natural Gas Company, capitalized at $7,500,000, and paying one per cent monthly, has monopolized a large proportion of the business in this line, probably 60 per cent of the aggregate transactions. As shown by the table of quotations given elsewhere, it sold highest in January, when it commanded a premium of 15 per cent, but during the last half of the year has sold below par. This was not due to any lack of faith in the stability of the natural gas business, but to the fact that the activity in all branches of commerce and industry caused a demand for all the money available at the banks, and parties who would have carried the stock on margin were not able to use it as collateral to any considerable extent. These remarks are applicable in a general way to Chartiers Valley and most of the other natural gas corporations. The consolidation of the latter with the Philadelphia Company, giving a united capital of $11,500,000, will do away with the cutting of rates heretofore prevalent, and cause a marked increase in the joint earnings, which must in time cause a sharp advance in the prices of the two stocks. The gross earnings for 1888 are expected to reach $2,750,000, which, after $400,000 are deducted for expenses, will be divided between the two in the ratio of 70 per cent to the Philadelphia and 30 per cent to the Chartiers.

In mining shares La Noria Silver Mining Company, of Mexico, has been most actively dealt in here. New milling machinery has been for several months in course of construction, and is expected to go into operation at once. In view of this fact there was an advance in the price of the stock during December from $2.75 to $4.25, and the year closed with a strong upward tendency. The stock of the corporation is largely owned here. Yankee Girl Mining Company, of Colorado, stock has not been much dealt in during the year, owing to the suspension of dividends on account of large expenditures for new machinery. The stock of the Silverton Mining Company, of Colorado, practically a Pittsburg corporation, showed some activity early in the year, but during the last half was neglected and declined largely in value. Coal mining stocks have been badly hurt by the general adoption of natural gas throughout western Pennsylvania, and have shown a steady and marked decline, in some cases as much as 30 per cent.

Oil stocks have been dull and declining in sympathy with the petroleum market, with very few transactions. Should the present manipulation of the oil market for higher prices continue to be successful, there will undoubtedly be a recovery in this class of securities.

Westinghouse air brake stock has attracted much attention during the year, and with the large transactions shows an advance for the year of 55 points, selling during December at a premium of 105, though it closed on the 31st at 150, ex-dividend. The appreciation has been due partly to large earnings and liberal dividends, but more largely to the fact that the Westinghouse improved freight brake is likely to be adopted on all the leading railroads of the country. The earnings of the company were never so great, and it is probable its capital stock will within a few days be increased from $3,000,000 to $5,000,000, in order to increase its facilities. It has now on hand a cash surplus of about $1,500,000, which will go to present stockholders, while $1,000,000 of the new stock will be sold at par to railroad companies adopting the new freight brake. Another very prosperous local corporation is the Westinghouse Electric Company, which has a capital of $5,000,000, and has lately absorbed the Thomson-Houston Electric Company, of Boston, and the Consolidated Electric Lighting Company, of New York, thus gaining control of patents which give it a perfect system of incandescent lighting. Its stock, $50 par, now commands a premium of $50 per share. The company's business for December reached $150,000, and shows a steady increase.

During the year, two corporations have been formed to operate cable street railways, one with a capital of $5,000,000, the other with $1,500,000 capital and an issue of $1,000,000 in bonds, making an investment of $7,500,000. Many other new enterprises requiring the investment of large amounts of capital are under way or in contemplation, and 1888 promises to be a very active one in this line.

The outlook for general business was never better. Thanks to natural gas, manufacturing industries are coming hither from all sections, and the growth of Pittsburg in industrial and commercial importance, in wealth and population, promises to be phenomenal for some years to come. Capital is being sent here for investment from the east and from Europe in large sums, and, while no "boom" is looked for or desired, steady progress and great prosperity is assured unless some unforeseen revulsion should interfere to interrupt it.

The following dividends have been paid during the year by companies whose stocks are dealt in on this market: Bridgewater Natural Gas Company, one dividend of one per cent; Chartiers Valley Natural Gas Company, four dividends of two and one half per cent each, or $300,000; Hazlewood Oil Company, one dividend of seventy-five cents per share, or $6,000; Pennsylvania Gas Coal Company, four dividends of one and one half per cent each, or $6,000; People's Natural Gas Company, three dividends of two per cent each, or $60,000; Philadelphia Company, twelve dividends of one per cent each, or $900,000; Tuna Oil Company, five dividends of four per cent each, or $26,400; Westmorelan & Cambria Natural Gas Company, three dividends of two and one half per cent.

BALTIMORE MINING STOCK MARKET IN 1887.

From Our Special Correspondent.

The mining stock market during the year 1887 has shown no improvement in the volume of business over the preceding year, and has been for the most part featureless. The market here sympathizes more or less with the more prominent ones throughout the country—New York, Boston and San Francisco; although the speculation never reaches the proportion of those cities. The shares dealt in are nearly all local, but occasionally some little arbitrage business arises with New York. Sutro Tunnel is the most prominent of those that have the dual market. Consolidation Coal, while now rarely dealt in, speculatively, and recently showing very little activity, is also listed in both cities. The last quotation was $27 bid, with none in sight. The "coalers" have all made good records during the year, George's Creek Coal and Iron scoring the greatest advance, from the neighborhood of $80 to $98. The rise in price of the shares induces belief in the rumor of an increase of dividend in January. Four per cent annually has been the rate for several years past. Atlantic and George's Creek Coal has resumed dividends, and paid during the year 15 per cent to its stockholders. The shares are steady at around $1.65. Big Vein Coal has paid the usual dividends; its stock is now rarely quoted on the market. Last sale was about $1.25.

Newburg Orrel Coal, which at one time was active in the speculative list, can boast of no record of a transaction. The quotation is about $10@$18. A fire in the mine during the active coal season caused the October dividend to be passed. In the North Carolinas, Silver Valley shows the largest trading. It has declined since the first of the year from about $2 to $1.55, at which it remains steady, with probable inside support. This is one of the old-time favorites and is generally kept going when there is any market whatever. North State Gold and Copper early in the year showed some activity and the shares sold as high as $1.15, but gradually weakened off to 50 cents, at which the last sale was made, and closes the year with the wide quotation of 20 to 60 cents. Ore Knob Copper laid dormant until the last month, when it showed itself at 10 to 12 cents. It was expected that some more of the "coppers" that have not been seen for a long time would brighten up in sympathy with the activity in the metal market, but, although quotations are a little more frequent, prices show no improvement beyond 2 or 3 cents. Baltimore and North Carolina shows a net loss for the year of about 20 cents. Diamond Tunnel was promised a boom during the fall, and the price rose to 50 cents, but now it is apparently dead around 40 cents. Conrad Hill is not yet out of its "teens;" 18 cents is about the price of it.

Altogether, the market for speculative "miners" was discouraging, and it is hoped that another year will bring better business.

FLUCTUATIONS IN PRICES OF MINING STOCKS AT BALTIMORE IN 1887.

NAME OF COMPANY.	Par value.	Opening, January, 1887.		Highest and lowest during the year.				Closing, Dec. 31, 1887.	
				Bid.		Asked.			
		Bid.	Asked.	H.	L.	H.	L.	Bid.	Asked.
Atlantic Coal. ..	10.	$1.55	$1.80	$1.70	$1.25	$1.80	$1.54	$1.40	$1.75
Balt & North'n Caro.	5.	.50	.60	.64	.20	.75	.40	.50	.40
Big Vein Coal.....	10.	.....	1.25	.....	.....	1.25	.....	1.25	...
Conrad Hill.....	5.	.20	.30	.25	.05	.30	.18	.11	.19
Diamond Tunnel..	10.	.58	.60	60	.40	.65	.48	.50	.....
George's Creek..	100.	75.00	85.00	100.00	75.00	110.00	82.00	95.00	105.00
Lake Chrome.....	5.	.10	.50	.13	.05	.50	.12	.05	.15
N. State Balto....	5.	.57	.65	.73	.20	.80	.56	.20	.50
Ore Knob	10.	11	.14	.12	.05	.15	.11	.10	.14
Silver Valley	5.	1.90	2.00	2 10	1.50	2.50	1.60	1.50	1.60

BIRMINGHAM STOCK MARKET IN 1887.

The attention which the mineral resources of the South has attracted, created an interest in the stocks of the coal, iron and manufacturing companies, and, in order to facilitate dealings in the same, a stock exchange was opened at Birmingham last April. A record of the transactions there is found in the following table:

FLUCTATIONS IN PRICES OF SOUTHERN COAL AND IRON STOCKS IN 1887.

NAME OF COMPANY.	Opening, January, 1887.		Highest and lowest during year. Bid.		Asked.		Closing, Dec. 31, 1887.	
	B.	A.	H.	L.	H.	L.	B.	A.
Aetna Iron Co	.....	105	.....	.....	105	.....	.....	.....
Ala & Ten. C. & I. Co.	.....	65	.....	.....	65	.....	.....	.....
Ala Asphalt Co	5½	8	.....	.....	13	8	.....	.....
Ala & Conn. C. & C. Co.	100	.....	100	75	100	99	.....	100
*Alice Furnace Co.	.....	105	100	.....	105	.....	.....	.....
**Alice Furnace Co.	102	.....	102	.....	.....	.....	.....	.....
Birming'm Mg. & M Co.	155	205	205	115	360	175	.....	201
*Coalburg Coal & C. Co.	.....	100	.....	.....	102	100	.....	.....
Debardleben C. & I. Co.	75	100	75	.....	105	75	.....	.....
Decatur L. Im. & F. Co	20	23¾	30¾	17½	31	18¾	25	26
Decatur Mg. & Land Co.	27½	30	35½	17	37	23½	25	30
Enterprise Mfg. Co.	100	100	100	38	125	70	40	50
Florence L. & Mg. Co.	.....	30	22	.....	30	.....	.....	.....
La Grange Furnace Co	65	75	65	.....	75	.....	.....	.....
*La Grange Furnace.	.....	90	.....	.....	90	.....	.....	.....
*Mary Pratt Furnace.	.....	101	100	.....	101	.....	.....	.....
*Pratt C. & C. Co	.....	105	100	.....	105	.....	.....	.....
Rockdale I. & Mfg. Co	.....	75	.....	.....	75	.....	.....	.....
Sheffield C. & I. Co.	175	210	175	62½	225	64	.....	.....
Selma Land & Imp. Co.	.....	90	.....	.....	55	.....	.....	60
Sloss I. & S. Co.	44	54	49	25½	54	29½	.....	25
*Sloss I. & S. Co.	95	105	95	81	105	88	.....	82
So. Pitts. RR., I. & C. Co	....	100	.....	.....	100	.....	.....	.....
Tenn. C., I. & RR. Co., New	.....	47	.....	.....	50	43	.....	.....
*Tenn. C., I. & RR. Co., New	.....	98	.....	.....	96	.....	.....	.....
†Tenn. C., I. & RR. Co., New	.....	98	.....	.....	98	.....	.....	.....
‡Tenn. C., I. & RR. Co. New	.....	85	.....	.....	85	.....	.....	.....
Tenn. Val. I. & RR. Co.	.....	35	.....	.....	35	.....	.....	.....
††Tuscaloosa C. & I. Co.	75	90	75	25	100	80	.....	.....
†††Tuscaloosa C & I. Co	25	30	25	10	40	20	.....	.....
Warner Iron Co	.....	140	.....	.....	140	.....	.....	.....
Woodstock S. & I. Co.	60	72	62	55	72	58	.....	52½

* Bonds. † Bonds South Pittsburg. ‡ Bonds ore mines. ** First mortgage. †† Paid. ††† 30 per cent paid. Closing prices are given for only those stocks quoted in December, as the greater part of the list has not been quoted for several months.

ST. LOUIS MINING STOCK MARKET IN 1887.

From our Special Correspondent.

The mining interests in St. Louis during the year of 1887 have been largely increased, probably 100 to 150 mining properties have secured purchasers in this city, making now a total of 260 mines, located over the entire Western States, and some in Mexico, either entirely or largely owned by our citizens.

The mining business has, during the past year, met with various successes and many defeats; some even disastrous prominent instances of either total or partial collapse have been the Ideal Mining Company, of Colorado, which declared several dividends of five cents per share, and was a few months ago sold out for indebtedness, making the stock worthless.

The Peacock Mining Company, of New Mexico, paid a few dividends, and the stock sold as high as $3.50 to $4 per share, and afterwards, criminations and recriminations, and quarrels, among prominent stockholders, as to whether those dividends were actually earned, caused the stock to sell down to nominal figures of 10 to 15 cents per share; and, although prospects for it are still reported as being fair, the market for the stock is 20 cents. But in order not to detail too much, suffice it to mention that several dozen mines figure in the same category, such as the Badiraguato, the Cleveland, Quincy, Courtland and St. Elmo, all in Colorado; Bremen, Grey Eagle, Laclede, Lochiel and Sheridan, in New Mexico; and others located elsewhere have had a similar fate. Of course in the large majority properties were placed on the market as valuable developed mines when they were only fair prospects, and where the mining interest in them was in the commission to be *earned* by the promoters.

A number of mines owned and controlled in St. Louis are now in a fair way of development, and promise to become dividend payers; among which may be prominently mentioned, the Black Oak, in California, the Golden Era and Rena, in Montana, and others not necessary to enumerate herein.

The most interest is manifested among the speculative mines, in the Mary Murphy, Lady Murphy and the Pat Murphy. The former having paid some dividends already, and the other two, it is confidently believed, can be made dividend payers. Speculative attention is also largely paid to the West Granite property, lying contiguous to the Granite Mountain and Bi-Metallic properties, in Montana.

The stock at times fluctuates violently, and has this year ranged from 40 cents to $3 per share. This is caused by information reaching here from time to time of valuable "strikes," causing investors to believe or hope that they may find either the Bi-Metallic or Granite Mountain veins.

The Granite Mountain mining property had paid during this year about $2,500,000 in dividends, and the belief in the property is unabated. That company expects to erect additional reduction works during 1888, when the output is expected to equal nearly $5,000,000 in dividends annually.

The Bi-Metallic property will likely erect mills and become a regular dividend payer in the coming year.

The Hope mine, in Montana, has resumed dividends this year, and a dollar ($1) per share is expected from the property annually.

To sum up the adventures in mines, in St. Louis, they have been in instances very profitable, and as before recited, in many cases disastrous, and it is believed, that if a clear debit and credit could be had, on the business in general, the aggregate has resulted in a fair profit.

When the properties owned here are fairly developed, it is likely that we will have many dividend payers, and that the venture which St. Louis has undertaken in the line of mining enterprises, will in the aggregate return manifold.

GOGEBIC STOCKS IN 1887.

The great Gogebic boom which commenced in 1886 continued through the first four months of 1887, and at one time was very severe. Not only good mines, but "options" which were not near the iron-ore belt, and which were manifestly worthless, were sold on every street corner.

The plan of operations involved no expense to the promoter, and whatever he could get for the stock above the cost of printing was profit. This, of course, led to much swindling, which, however, was not confined to the "wild cat" mines.

Fabulous prices were put upon all the property on the range by people who did not know the value of a mine and cared less; workmen were left unpaid and debts accumulated until the day of reckoning came, and the good and bad mines were alike discredited.

Notwithstanding all this, the Gogebic Range possesses some excellent mines that will pay handsomely under honest and capable management, and we shall again see several of the stocks selling at fair prices.

The following quotations were furnished from actual transactions by Mr. A. W. Helmer, Milwaukee:

ACTUAL PRICES OF GOGEBIC STOCKS IN MILWAUKEE DURING 1887.

Name of company.	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sep.	Oct.	Nov.	December. Asked.
Anvil	5.00	7.00	12.00	12.00	10.50	9.50	9.00	8.50	8.00	5.75	5.00	2.00@‡1.00
Aurora	30 00	*20	17.00	17.00	17 00	17.50	§	§	§	14.00	14.00	8.00@‡7.00
Ashland	26.00	26.00	+	+	+	+	+	+	+	+	+	+
Atlantic	6.00	7.00	5.50	4.75	4.50	4.50	4.50	4.50	4.00	2.75	1.50	1.60
Bessemer	.....	9.00	9.00	8.50	8.25	7.75	7.50	7.25	7.25	7.00	6.00	4.00
Bourne	4.00	5.00	5.00	4.50	4.15	4.00	4.00	4.00	3.75	3.00	1.25	75@‡.25
Bonnie	10.00	10.00	7.75	7.50	7.50	7.50	6.50	6.50	6.50	5.00	4.00	2.00
Blue Jacket	7.00	7.00	6.50	6.00	5.00	4.00	4.00	4.00	4.00	3.50	3.00	1.00
Brotherton	4.50	6.25	5.75	5.50	5.40	4.50	4.00	4.00	2.75	1.75	2.00	1.75@‡1.50
Caledonia	3.50	3.50	2.75	2.50	2.00	2.00	2.00	1.75	1.50	.50	.35	.25
Emma	3.50	3.50	3.00	2.50	2.00	2.00	2.00	1.75	1.50	.50	.35	.25
FirstNat'nal	5.00	5.50	4.00	3.75	3.50	3.00	2.50	2.40	2.00	2.50	2.00	1.50
Germania	12.50	13.00	13.00	13.00	12.50	12.50	12.50	12.50	12.50	12.50	12.00	12.00
Gog. Sy. Ir.	4.00	5.25	5.00	4.00	3.50	3.00	3.00	2.80	2.00	.75	.65	.75@‡.50
Iron Chief	4.00	4.75	4.50	4.30	4.25	4.00	4.00	4.00	3.50	3.00	2.50	.25
Iron King	12.50	15.00	17.00	17.00	16.50	15.75	15.00	14.50	13.75	11.75	11.75	8.00
Ironton	12.00	12.00	11.00	10.00	9.00	9.00	8.00	8.00	8.00	5.00	5.00	5.00
Iron Prince	2.50	4.25	5.75	3.50	3.00	2.50	2.00	2.00	1.00	.25	.25	.10
Iron Sides	2.50	3.50	3.25	3.50	3.00	2.50	2.00	2.00	1.00	.25	.25	.10
Kakagon	8.50	12.50	12.00	12.00	11.50	11.50	11.50	11.50	11.00	10.25	10.00	4.00
Montreal	20.00	20.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18 00	18.00
Moore	4.00	3.75	3.75	3.25	3.00	2.75	2.50	2.50	2.25	1.50	.75	.50
Nimikon	7.00	10.00	10.25	9.75	7.00	7.00	7.00	6.75	6.50	5.50	5.00	2.00
Nor'n Chief	100	+	+	+	+	+	+	+	+	+	+	+
Norrie	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00
Norway	1.50	2.50	2.50	2.25	2.00	1.75	1.75	1.60	1.50	.50	.25	.10
Odanah	10.00	10.00	10.75	10.75	10.75	10.75	10.75	10.75	10.75	10.50	10.50	10.50
Pence-Sny'r	3.00	4.00	4.00	4.00	4.00	3.75	3.50	3.50	2.75	1.50	1.00	.75
Prosp't Hill	.....	.....	.....	2.00	3.00	2.40	2.40	2.25	2.25	2.00	1.50	.25
Puritan	17.00	19.00	22.00	19.00	19.00	19.00	19.00	19.00	13.00	10.00	7.00	1.00
Ryan	5.00	5.50	5.50	5.25	5.00	4.75	4.75	4.75	4.75	4.75	4.75	4.75
Superior	3.00	3.00	3.25	3.35	3.25	3.25	3.00	3.00	2.75	2.75	2.50	2.50
Sec. 33	7.50	11.00	11.00	10.75	9.75	9.25	9.25	9.25	9.00	8.00	7.00	7.00
Sunday Lke	5.00	7.50	7.75	7.50	7.25	7.25	7.00	6.50	6.50	6.00	2.00	2.00
Tontine	3.00	4.00	4.00	3.00	3.00	2.00	1.75	1.50	1 00	.75	.25	.20
Un.I & L Sy	2.50	.40	.65	.60	.55	.30	.25	.20	.15	.10	.10	.08@‡.05
Union	3.50	3.50	3.00	3.00	2.00	2.00	2.00	1.75	1.50	.50	.25	.25
Valley	4.00	4.00	3.50	3.00	2.75	2.50	2.40	2.25	2.25	1.75	.75	.75@.‡50

‡ Bid. † No stock on the market. § Sudden break from $1.75 to 18c. within five days. * The capital was increased from $1,000,000 to $2,500,000. § Pooling arrangement. No stock offered. No stock of the Pabst Mining Company for sale.

DEADWOOD MINING STOCK MARKET IN 1387.

From our Special Correspondent.

During the past year the mining stock market has been quiet, and has witnessed no boom, as in the preceding year, when Iron Hill, the leading stock, advanced to $9, creating a great interest in mining stocks and brought about the opening of a stock exchange at Deadwood. The past season has, however, witnessed a great activity in the different mining camps of this district; there has been more development work accomplished than ever before and the outlook is said to be very encouraging.

FLUCTUATIONS IN PRICES OF MINING STOCKS AT DEADWOOD, IN 1887.

NAME OF COMPANY.	Opening, January, 1887.	Highest and lowest during the year.		Closing, Dec. 31, 1887.	NAME OF COMPANY.	Opening, January, 1887.	Highest and lowest during the year.		Closing, Dec. 31, 1887.
Bullion	.02	.10	.01½	.03	*Mugwump	.03	.04	.01	.02½
Centre Shot.	.02	.07	.01	.01½	†Pocahontas	.02	.03½	.00¼	.01
Cora	.10	.12	.04	.02	†Rattler	.23	.34	.07	.11
Enterprise	.02	.05	.01	.02	†Ruby Bell	.06	.10	.00½	.04
†Eureka	.05	.10	.01½	.04	†Seabury	.20	.22	.03	.07
†Hester A.	.007	.20	.01½	.06	†Sog Iron H.	.12	.20	.02	.04
*Iron Hill	$1.75	$3.50	.80	.80	Silver Ridge	.02	.05	.00¼	.03
†Jefferson	.27	.30	.03	.15	Spanish R.	.20	.26	.05	.23
†Liberty	.02	.05	.00¾	—	†U S. Grant	.01½	.05	.01	.01½
†Minna	.01	.03	.00¼	.02	Uncle Sam	.85	1.00	.09	—
†Mutual	.05	.15	.02½	.05	West Va	.10	20	.01	.02

* These companies paid dividends during 1887. † These companies levied assessments during 1887.

Iron Hill is the only dividend-paying mine dealt in at the Deadwood Exchange. The stock demanded considerable attention during the year. It opened at $1.75, and advanced to $3.50 when the company resumed the payments of dividends. The erection of smelting-works and other machinery caused the suspension of dividends, and since then the stock has gone below the dollar mark. The properties of most of the other companies listed are but mere prospects, and since there is a lack of working capital, assessments are in order, which accounts for the low price of most of the stocks given in the table published herewith.

Uncle Sam was a favorite in times gone by, and next to Iron Hill shows the highest prices. Segregated Iron Hill attracted some attention, owing to the fact that the property adjoins that of the Iron Hill Mining Company. The same may be said of Spanish R., Rattler, Jefferson, and a few others. On the whole the Deadwood mining stock market has been devoid of all interesting features, and will probably continue so until a few more dividend-paying mines are added to the list.

ASSESSMENTS BY MINING COMPANIES IN 1887.

NAME AND LOCATION OF COMPANY.	Total levied in 1887.	Total levied to date.	NAME AND LOCATION OF COMPANY.	Total levied in 1887.	Total levied to date.
Alpha, Nev.	$30,000	$510,000	Keystone, Nev.	10,000	240,000
Alta, Nev.	100,000	2,140,800	Kossuth, Nev.	10,800	432,000
Andes, Nev.	50,000	900,000	Locomotive, Ariz.	75 000	75,000
Anchor, Utah	70,000	70,000	Manhattan, Nev.	200.0 0	250, 00
Atlantic Cons , Nev.	10,000	70,000	Mayflower, Cal.	150.000	260.000
Belcher, Nev.	52,000	2,614,000	Mexican, Nev	50 400	3,330,200
Bellevue-Idaho, Id.	31,250	57,500	Mikado, Mich	9,200	9,200
Belle Isle, Nev.	35,0 0	145,000	Missoula Plac'r, Utah	2,000	4,000
Benton Cons., Nev.	27,000	459,000	Mono, Cal	100,000	660 000
Best & Belcher, Nev	153,200	1,953,790	Navajo, Nev	50,000	425,000
Bodie Cons., Cal.	100.000	400.000	Nevada Queen Nev.	130 000	130,000
Bodie Tunnel, Cal.	25,000	2 0 000	North Belle Isle, Nev.	100,000	250.000
Bullion, Nev.	90,000	3,957,000	North Bonanza, Nev.	15.000	215,000
Bulwer, Cal.	20,000	60.000	North Comstock Nev.	10,000	.....
Caledonia, Nev.	15,000	3,155,000	N'rth Ext'osion, Utah	25,000	25.000
Challar, Nev.	112.300	1,318,000	Occidental, Nev	56,000	168 000
Comstock, Nev.	15.000	30,000	Occident'l Con.,Nev.	25.000	25.000
Concord, N. C	3,000	3,000	Ophir, Nev	50.400	4,059,440
Confidence, Nev.	12,480	287,440	Overman, Nev.	28,800	3,737,180
Cons. Imperial, Nev.	125,000	1,775,000	Peerless, Ariz	25,000	320 000
Cons. Pacific, Cal.	9,000	177,000	Phil Sheridan, Nev.	20.000	20.000
Courier, Idaho.	5,000	10.000	Potosi, Nev	145 600	1,253,600
Crocker, Ariz	15,000	80.000	Rochester, Utah.	5,000	5,000
Exchequer, Nev.	20,000	750.000	Ropes, Mich.	40.000	107,200
Felice, Ariz	20,000	20,0 0	Sampson, Utah	25.000	188 157
Fisher, Ariz	20,000	20,000	San Francisco, Cal.	22,000	22,000
Found Treasure, Nev.	6,000	6,000	Savage, Nev.	168,000	6,324,000
Gould & Curry, Nev.	162.000	4,197,000	Scorpion, Nev	20 000	285,000
Hale & Norcross, Nev.	112,000	5,086,700	Seabury Calkins, Dak.	8,750	23.750
Heath, Idaho	20,000	20,000	Seg. Iron Hill, Dak.	2,500	8,750
Himalaya, Utah.	1,800	1,800	Sierra Nevada, Nev.	100 000	6,050,000
Huron, Mich.	120,000	280.000	Taylor Plumas, Cal.	4.000	4,300
John Duncan, Mich.	1,000	1,000	Triumph, Idaho.	10,000	20,000
Julia, Nev	16,500	1,650,000	Union Cons., Nev.	75,000	2,185,000
Justice, Nev.	31,500	3 491,500	Utah Cons., Nev.	70,000	70 000
Kearsarge, Mich	50 000	190,000	Weldon Ariz	20 000	20,000
King of West, Id.	30,000	$30,003			

This list has been carefully and officially revised, and includes all of the important mining companies in the United States that have levied assessments during 1887.

THE LONDON MINING MARKET IN 1887.

From our London Correspondent

The course of the London market during 1887 has been singularly varied, and though it can not be said to have wholly disappointed the expectations formed of it, yet the partial extent to which those anticipations have been realized has been in unlooked for directions. It was thought that Queensland and Indian mines would lead off the expected boom, but the record of the year in this aspect has been one of disappointment in regard to prices, though if the mines be viewed in relation to their intrinsic merits there is no place for fear or for discouragement. The Queensland mines are making really remarkable returns, varying from half an ounce to three ounces of gold and more to the ton, and, as regards the Indian mines, the evidence is accumulating that when fully developed they will richly reward those who have placed their faith and their money in them. Prices for these descriptions were highest about March, since which time they have declined. The principal support of the London mining market in 1887 has been mines in parts of the world as scattered as the United States, Venezuela, South Africa, West Argentine, Spain and New Zealand.

The market has had numerous difficulties to contend with. In the first place, early in the year there was a war scare, and France and Germany were represented as being about to fly at each other's throats. This is becoming a favorite device with certain bellicose English newspapers, whose conduct in hounding on to war two gallant nations receives the condemnation of every thoughtful, sensible and humane man. Later in the year, the French crisis, which has passed off so happily, has been used to depress business, and also the Trafalgar Square riots. A further obstacle has been offered by the great fluctuations in the American railway market, which, curious to say, have a decided effect on mining business. If Americans are up, mining shares respond in the same way, and *vice versa*. The jubilee celebrations simply slapped business in the face, and though a good deal of money was circulated among shopkeepers and others, it did not flow into speculative channels, nor were the markets benefited thereby, but quite the reverse.

But, after all these causes have been allowed for, the chief one remains and is expressed in a word—*calls*. During the summer and autumn of 1886 a large number of new companies saw the light, and to induce subscriptions the terms of payment were made very easy to begin with—not more than 5s., or half-a-crown, being required for several months—the rest being due in, as a rule, 5s. installments. (Forty-nine out of every fifty English mining companies have their shares in the denomination of £1.) Most of the subscribers were mere premium hunters in the midst of the boom, but, as a rule, they found themselves saddled with the stock for which they had applied. As the installments became due the public became depleted of their ready cash, so that they had none to spare either to buy shares in new companies or to secure an interest in old ones. On the contrary, they have been forced to come as sellers into the market to realize money to pay their calls. Upon the result to business and to prices we need not dwell.

A feature in the year's proceedings has been the reconstruction of a large number of American and other mining companies, and in almost every instance this has been attended with satisfactory results. The process may be described in a few sentences: A company, we will suppose, starts with a certain amount of capital in £1 shares, and proposes to do certain things. Before those things are done it finds itself without any shots in its locker, and the necessity arises of raising more capital. Naturally debentures, or preference shares, would suggest themselves. But no! The English investor cordially detests any such arrangement, and besides, the burden in these cases usually falls upon the willing few. The expedient has latterly been adopted of winding up the old company and forming a new one. The interest of every person in the old company is lost if he does not enter into the new one, which is usually formed with the same number of shares, but bearing a liability of from 2 to 5s. per share, as the case may be. If the shareholder refuses to accept this liability he is blotted out, and though the right remains of having his shares in the old company assessed at their value when the resolution was passed to wind up, it is not worth his while to exercise it. The new shares are therefore issued with a certain liability which is called up by installments. In this way the company is provided with funds, and the works are continued sometimes to a successful issue. Amongst the companies that have undergone this process the names of New Emma, Gold Hill, Russell Gold, Almada & Tirito, Colorado, Potosi, La Plata and New Consolidated (the old South Aurora), will not be unfamiliar to American ears.

Reconstruction is, in fact, a sort of modification of the cost book system upon which most of the Cornish mines are worked—the *theory* of which is that profits are divided each 16 weeks, and that calls are made to cover losses, but frequently the *practice* is to allow large deficits to accumulate.

On the whole, not so many new companies have been floated during 1887, for the simple reason that the markets have not offered much temptation to promoters to be up and doing. Any thing like a real boom would see them forthcoming in shoals, for nearly every second man you meet in the city has his prospectus ready, and we have just met an old promoter who has *three*. The path of the American promoter has been made thorny by the alien act of which English investors have an unreasonable dread, and that path has not been made less rough by the frequently adverse decisions to British litigants when defending their properties from outside assault in American courts of law. The general feeling here is expressed in the words: "We can't always be in the wrong." It is in vain that it is explained that the alien act is intended not to apply to established mining companies at all; English investors continue to express their fears at the periodical meetings of their companies that this is the thin edge of the wedge to sacrifice their entire interests. This casts a difficulty in the way of securing British capital for the development of American mines, which might be removed if an authoritative declaration were made on the part of the Government of the United States.

Towards the end of October metals began to rise. About the middle of November that rise became accentuated, and towards its close there was a veritable boom, the end of which we have not yet seen. English tin, at the end of October, was about £100 per ton, and during November it rose no less than £45 per ton—advancing in early December to £161. The rise is mainly due to the action of a bold French syndicate which calculated that one million sterling would buy up all the available supplies, and they operated accordingly, enormously to their own advantage and greatly to that of the mines producing this metal. Present producers have it practically all their own way, for it takes years to open up and develop a tin mine—even assuming that the metal is found in paying quantities when the work is done. While it is thought the present rise in tin can not be sustained—indeed there have been several relapses already—yet the future outlook of this metal is exceedingly good, and correspondingly so is that of the mines producing it. No new tin district has been found, and the attempt to deal with the Harney Peak on the English market was rendered nugatory by the hostile criticism with which it was received.

The copper market is not regarded with such hopeful feelings, though a relapse to the old prices is not thought of. During the whole of the early part of the year copper, as *Falstaff* says, has been "dwindling vilely," until at one time it became as low as £38 per ton for Chili bars, the usually accepted standard. Some activity was given to it about the end of August by the fire in the Calumet & Hecla mines, but in your columns the real as distinguished from the exaggerated nature of the damage was shown, and English producers were told to look for a rise, not from the misfortunes of their neighbors, but from an improved state of the market. Thus copper remained at the dull level of about £39 per ton until the upward movement in tin commenced, when it also advanced until the price at the close of the year is over £85 per ton—a rise of about £47 in about three weeks.

In sympathy with the sister metals undressed lead, which had been as low as £8, rapidly advanced to £17 10s., causing the quotations of almost all the shares of mines producing that metal to double.

Having thus dealt with the general features of the year, we shall summarize the details in the order in which they naturally group themselves.

AMERICAN MINES.

The record of American mines during 1887 has been, upon the whole, good. Montana heads the list with its dividend of 30 per cent, and its enormous returns, though of late the mine has certainly fallen off in some of its levels, and the shares have declined. The profit for the last six months was £99,000, and the total output of ore was worth $1,126,191. The mine has been sunk to the 900-foot level, and every preparation made to carry it to a depth of 2000 feet. The ore extracted from the commencement of the English Company has equaled $4,000,000, and there is said to be in sight and in reserve 236,000 tons of second-class ore. A good opinion is entertained of Empire, and also of the Carlisle, in New Mexico, two companies floated last year. The Richmond has not been able to make any very important discoveries, and its furnace has been shut down. The mines in the Utah district, such as New Emma, Flagstaff, and Last Chance have done nothing worthy of record. The most hopeful of the group is thought to be the New Emma, which has just bought the Bay City Tunnel, and will work all the winter. The shares are largely held in Salt Lake City, and this is thought by English investors to be a good sign.

Flagstaff has many persons who speak in its name but it is thought to

FLUCTUATIONS OF PRICES OF MINING STOCKS IN NEW YORK DURING 1887.

NAME AND LOCATION OF COMPANY.	Par value.	January.		February.		March.		April.		May.		June.		July.		August.		Septemb'r.		October.		November.		December.		Sales.
		H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Alice, Mont	$25	1.50	....	1.45	1.25	1.60	1.40	1.45	1 40	1.35	....	1.25	....	1.20	1.00	1.10	1.00	...	....	.85	...	.90	.80	....	....	6,650
Alta, Nev	100	....	....	....	....	....	....	2.50	....	3.60	....	1.40	1.30	....	....	....	....	....	....	....	....	....	....	2.80	....	1,150
Amador, Cal	2	1.00	....	1.55	1.00	2.35	1.40	2.15	1.65	2.20	1.65	2.10	1.10	1.30	1.15	1.50	1.25	1.65	1.40	1.55	1.20	1.50	1.30	1.85	1.40	197,055
Am. Flag, Nev	10	.17	.14	.12	.10	.12	.10	.10	.10	...	...	....	....	....	...	.06	....	.09	.04	.07	.05	.07	.06	.09	.08	28,425
Allouez, Mich	25	...	...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.45	1.25	500
Argenta, Nev	10	....	....	....	....	.30	.15	.47	.15	.52	.35	.52	.46	.45	.42	.43	....	....	....	.30	.25	....	....	....	....	14,100
Barcelona, Nev	25	.20	.08	.20	.17	.42	.20	.40	.37	.37	.30	.37	.27	.43	.44	.40	.34	.66	.38	.68	.49	.52	.46	....	..	100,070
Bassick, Colo	100	.22	.17	.19	.17	.13	.12	.15	.10	.18	.12	.16	.15	....	....	....	....	....	....	....	....	....	....	....	....	3,300
Belcher, Nev	100	....	....	....	....	....	....	....	....	....	....	....	....	12.25	....	8.50	....	....	....	9.38	6.13	11.50	9.25	....	....	1,350
Belle Isle, Nev	100	.60	.45	.49	.30	1 10	.45	.89	.64	.95	.75	1.50	.90	1.50	1.00	1 15	.60	.68	.60	1.00	.70	.20	.75	.65	.40	92,900
Best & Belcher, Nev	100	12.50	9.50	10.87	9.50	14.25	5.50	9.13	6.25	9.75	6 63	8 50	6.50	8.75	6 50	6.63	5.50	6 25	4.40	7.38	6.25	8 88	7.13	....	....	9,380
Bodie Cons., Cal	100	3.50	2.05	3.10	1.75	3 05	1.00	2.70	2.10	3.00	2.70	2 95	2.25	2.90	2 00	2 25	1.10	2.25	1.60	2.50	1.70	3.10	2.00	3.25	2.25	35,589
Breece, Colo	25	35	....	.50	....	.60	.50	.72	.60	60	.52	.55	....	.58	.48	.54	.35	.35	.30	.55	.37	.42	.38	.40	.38	20,000
Brunswick, Cal	5	....	....	....	....	....	....	....	....	1.50	1.05	1.60	1.40	1.55	1.50	1.65	1.50	1 65	1.30	1.60	1.55	1.65	1.55	536,280
Bullion, Nev	100	....	....	....	....	....	....	....	....	....	....	....	....	2 60	....	....	....	1.65	....	....	....	3.70	....	2.70	....	200
Bulwer, Cal	100	1.60	1.15	1.50	1.10	1.35	1.20	1.30	1.10	1.30	1.20	1.25	.90	1 00	.90	1.10	.65	.95	.90	1.00	.95	1.15	.96	1.00	.95	14,175
Caledonia, Dak	100	1.30	1.10	1.40	1.25	1.40	1.20	1.60	1.20	1 50	1.15	1.80	1.50	1.75	1.50	1.90	1.50	1.70	..	1.55	1.35	1.65	1.40	1.85	1.65	23,240
Cal. & Hecla, Mich	25	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	196½	190	70
Carupano, C. A	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.40	1.60	2,500
Cashier, Colo	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.73	.35	.65	.40	.56	.35	.49	.15	296,330
Castle C eek, Idaho	100	.13	.11	.13	.11	.30	.11	.27	.16	.20	.19	.16	.14	.16	.13	.23	.15	.19	.10	.11	.08	.13	.09	.11	.05	118,010
Central Ariz	10	.19	.13	.16	.10	.15	.13	.13	.11	.13	.10	.12	.10	....	....	.08	....	.10	.05	.09	.08	.10	.07	.09	.07	34,230
Chollar, Nev	100	11.25	10.75	8.00	.	9.00	8.25	8.25	7.50	8.00	6.75	..	....	9 00	5.63	6.25	4 40	5.75	4.75	5 50	5.25	6.50	5.88	7.63	6.13	4,220
Chrysolite, Colo	50	.67	.59	.58	....	....	....	.60	.55	.55	....	....	....	.52	.50	.52	.40	.50	.44	.58	....	....	....	.50	.40	3.645
*Colorado Central, Colo.	10	....	...	2.75	2.60	3.00	2.70	2.65	2 50	2.80	....	2 70	2.40	2.55	2 50	2.45	1.95	2.25	....	2.30	2.20	2.15	2.10	2.05	....	9,700
Columbia & Beaver	..	.04	.03	.03	....	.07	03	.06	.04	.05	.03	.03	....	....	....	.02	....	.04	.02	.02	....	....	....	....	....	60,200
*Cons. Cal. & Va., Nev	100	27.13	20 50	22.87	17 37	20.00	13.00	16.50	13.75	22.75	14.50	24.38	18.75	23 25	17.00	19.75	15.50	20.50	16.00	19.25	16.00	28.88	16 25	26.00	20.25	32,972
Cons. Imperial, Nev	100	....	....	....	....	2.75	2.00	....	....	....	....	....	....	2.35	....	....	....	1.50	....	2.20	1.60	3.35	2.25	3.10	....	5,900
Cons. Pacific, Cal	100	.40	.11	.30	.29	.32	.28	.28	....	....	....	.30	.23	....	....	.18	.15	.20	....	.25	.20	.21	....	.15	....	4,500
Crown Point, Nev	100	....	....	....	....	....	....	5.87	....	....	....	7.75	....	18.00	9.00	10.75	9.13	6.00	....	12.88	8.00	10.75	8.00	9.75	7.25	2,940
Dahlonega, Ga	1	....	....	....	....	.02	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3,000
*Deadwood-Terra, Dak	25	2.75	2.00	2.40	2.10	3.00	2.00	2.10	2.00	2.00	1.90	1 95	1.85	2 90	1.90	3.70	2.80	3.20	2.90	3.00	2.75	2.90	2 50	2.60	1.70	34,105
Decatur, Colo	5	.01	....	....	....	.02	.01	.01	.01	.01	....	....	....	....	....	....	....	....	....	.01	....	....	....	....	....	9,000
*Dunkin, Colo	25	.40	.35	....	....	....	....	.38	....	.44	.40	.45	....	.50	.43	.76	.55	1.20	.70	1.15	.95	.87	.85	.98	.95	16,200
Durango, Colo	1	.06	.04	.08	....	....	....	.03	.02	.03	.02	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3,700
Eastern Oregon	..	....	....	....	....	.04	.02	.04	.02	.05	.02	.04	.03	.04	.03	.03	.02	.02	....	.02	....	.02	....	....	....	167,950
Eclipse, Utah	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.25	1.38	3,300
El Cristo, U. S. of C	2	3 00	2.30	4.30	2.25	9.63	4 00	7.37	6.00	7.75	6.00	6.38	5 00	6.00	4.90	5.13	3.50	3.90	2.60	2.50	1.75	3.00	2.00	2.60	1.90	614,735
*Eureka, Nev	100	7.00	4.05	7.13	6.50	....	....	7.00	6.50	6.25	....	6.38	6.00	5.88	...	7.75	6.50	7.75	7.25	7.00	6.63	7.37	6.88	7.75	6.50	3 436
Exchequer, Nev	100	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.40	2.00	2 90	1.80	2.150
Father de Smet, Dak	100	.85	.75	.85	.75	.80	.70	.66	.50	.70	.45	....	....	.70	.55	.60	.45	.58	.50	.50	....	.40	....	.40	....	8,479
Found Treasure, Nev	100	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.60	2.25	2.35	2.00	2.15	2.05	....	....	....	....	9,950
Freeland, Colo	25	1.00	....	.75	....	.75	....	....	....	.60	....	....	....	....	....	....	....	....	....	.26	....	....	....	....	....	1,450
Gold Placer, Colo	25	....	.40	....	....	....	.04	.02	.03	.02	.03	....	....	....	....	....	....	....	....	....	....	....	....	....	....	227,200
Gold Stripe, Cal	..	.06	.05	....	....	.06	.03	.04	....	.04	.04	....	....	....	....	.05	....	.04	.03	.05	....	....	....	.02	....	7,626
Gould & Carry, Nev	100	6.50	4.75	6.25	4.80	6.25	5.50	4.60	3.90	....	....	3.85	....	5.38	3.75	5.50	4.00	5.25	4.25	5.25	4.60	6.00	4.30	5.13	4.50	7,380
Green Mountain, Cal	10	.45	.30	.25	....	.45	.25	.41	.36	.40	.33	.38	....	.20	.10	.22	.10	.19	.18	.14	.05	.05	....	.04	....	35,400
Hale & Norcross, Nev	100	9 25	7.50	6 50	5.00	5.75	5.00	6.63	4.25	6.50	4.60	5.75	5.00	6.50	4.60	5.13	4.00	4.73	3.35	4.20	3.90	5.63	4.90	9 13	5.50	13,630
Hector, Cal	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.00	.95	.90	.45	.74	.50	.50	.40	5,200
Helena, Mont	5	....	....	....	....	1.45	....	1.50	....	1.10	.85	....	....	1.45	1.10	1.00	....	1.35	1.00	1.00	....	1.00	....	....	....	12,550
Holyoke, Idaho	1	....	....	.12	.14	.31	.10	.25	.14	.16	.13	.15	.12	.19	.12	.17	.14	.13	.08	.12	.08	.10	.07	.08	.06	605,050
*Homestake, Dak	100	15.00	12.50	15.00	13.00	15 75	13.50	15.87	14.00	16.00	15.00	15.50	15.00	15.12	14 75	15.00	12.50	15.00	12.50	15.00	13.00	13.00	12.00	12.75	11.60	14,161
Horn-Silver, Utah	25	1 75	1.45	1.65	1.20	1.30	1.10	1.30	1.05	1.25	1.00	1.10	.90	1 10	.95	.95	.60	.85	.75	.90	.80	1.00	.80	1.10	.80	26,135
Hortense, Colo	10	....	....	....	....	....	....	....	....	.15	.10	....	....	....	....	....	....	....	....	....	....	....	....	....	....	200
Independence, Nev	100	....	....	....	....	.60	.25	.60	.35	.60	.50	....	....	.65	.60	.65	....	....	....	....	....	.80	.40	.80	....	2,461
*Iron Hill, Dak	10	2.50	1.10	2.75	1.40	2.80	....	1 85	1.50	....	....	....	....	....	....	....	....	3.00	2.00	3.40	3.25	2.75	2.00	1.75	.90	7,830
*Iron Silver, Colo	50	2.80	2.50	....	....	3.00	2.75	2.75	....	3.00	2.65	3.10	3.05	....	....	3.00	2.90	3.00	2.90	3.00	2.80	2.80	....	2.85	2.75	7,425
Julia, Nev	100	1.80	1.15	1.25	1.00	1.10	.95	.70	.65	.85	.60	1.00	.60	1.10	.65	.95	.60	.65	.52	.70	.50	.85	.50	1.00	.75	21,570
Justice, Nev	100	2.50	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	100
Kossuth, Nev	50	.20	.10	.14	.10	.20	.10	.14	....	....	....	....	....	.12	.08	....	....	....	....	.11	....	....	....	.15	.05	12,020
Lacrosse, Colo	10	.17	.13	.17	.12	.16	.14	.19	.13	.15	.10	.13	.13	.13	.12	.12	.11	.10	.09	.12	.10	.13	.11	.13	.10	89,130
Leadville, Colo	10	.75	.70	.70	....	.70	.67	.70	.65	.65	.64	.64	.58	.54	.49	.53	.45	.52	.44	.44	.40	.37	.33	.30	.25	18,987
Little Chief, Colo	50	.30	.25	.31	.26	.32	.27	.32	.28	.29	.27	.33	.28	.31	.30	.29	.27	.29	.24	.29	.25	.29	.23	.26	.23	34,900
Little Pittsburg, Colo	100	.69	.60	....	....	.50	.40	.51	.40	.50	.44	.44	.38	....	....	....	....	.25	....	.35	.29	.33	.26	.31	....	9,404
Martin White, Nev	100	....	....	.55	.50	.74	....	1.00	.50	.80	.70	.90	.85	....	....	....	....	....	....	1.90	1.85	....	....	....	....	4,800
Mexican, Nev	100	8 50	5.88	8.00	5 75	6.87	1.50	5.38	2.80	6.00	..	5.13	4 10	5.25	4.25	4 85	3.60	4.75	3.20	5.00	4.10	7.88	4.35	5.38	....	21,800
Middle Bar, Cal	2	....	....	.85	.50	1.40	.75	1.35	.85	.99	.80	1.00	.75	.75	.48	.52	.35	.50	.37	.48	.37	.46	.27	.32	.27	1,528,585
Monitor, Colo	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.16	.10	.21	.09	.20	.15	.18	.13	.15	.11	124,040
Mono, Cal	100	4.00	2.30	3.05	2.25	2.90	2.50	3.00	1.55	2.50	....	2.75	2.10	2.50	...	1.85	1.25	1.25	....	2.00	1.60	2.50	1.60	2.20	1.40	15,050
*Moulton, Mont	5	1 75	....	1.75	1.70	....	....	....	....	....	....	1.50	....	....	....	....	....	....	....	....	....	....	....	....	....	600
Mt. Diablo, Nev	100	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4.50	....	....	....	100
Navajo, Nev	100	.88	.60	1.05	.85	1.45	.77	1.40	.90	1.40	1.05	1.50	1.10	1.40	1.25	1.50	1.25	1.40	....	1.40	.92	1.15	.92	1.05	.85	55,790
New Germany, N. S	1	.48	.5	.52	.42	.72	.50	.53	.40	.44	.41	.43	.25	..	....	....	....	....	....	....	....	....	....	....	..	140,100
New Pittsburg, Colo	10	....	....	....	....	....	....	....	....	.60	.50	....	....	....	....	....	....	....	....	....	....	....	....	....	....	300
North Belle Isle, Nev	100	4 00	2.90	5.25	3.95	8 75	4.50	9.00	7.50	9.62	7.50	9.50	8.38	11.13	9.00	9.88	7.00	9.00	7.25	11.50	8.75	10.75	8.30	8.88	7.13	20,990
North Standard, Cal	100	....	....	....	....	.12	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.12	.10	....	..	5,700
Oneida Chief, Cal	4	....	....	....	....	....	....	....	....	....	....	2.00	....	....	....	....	....	....	....	....	....	....	....	....	....	1,000
*Ontario, Utah	100	25.50	22.10	26.00	25.00	26 00	25.00	25.50	25.00	25.25	25.00	25.50	25.00	26.50	24.50	27.00	25.00	27.00	26.13	27.25	26.00	27.00	26.25	27.50	26.50	6,957
Ophir, Nev	100	17.13	11.50	14.25	9.87	12.00	10.25	9.13	7.75	12.13	8.50	10.75	9.88	9.63	7.50	8.50	6.50	8.27	7.75	8.75	7.00	13.00	7.75	12.88	9.25	9,460
Oriental & Miller, Nev	25	.19	.14	.29	.16	.28	.22	.22	.20	.21	.20	.18	.17	.19	.17	.14	....	....	....	.12	....	.11	.10	.10	.07	118,450
Phoenix of Ark	25	..	....	....	....	....	....	....	....	....	....	2.30	2.00	2.25	1.75	2.25	1.55	1.90	1.60	1.70	1.60	2.50	..	.80	.65	86,715
Phoenix of Ariz	1	....	....	9.13	5 00	8 62	3.00	6.60	2.87	3.50	1.50	1.88	1.00	1.40	1.00	1.00	.90	.95	.70	1.40	.60	.75	.70	.50	....	1,016,565
*Plymouth, Cal	50	16.50	16.00	17.25	16.50	17.75	15.50	18 87	17.87	19.88	18.75	20.75	20.00	21.87	20.50	21.13	18.50	21.00	18.00	21.00	18.00	18.75	18 00	19.50	18.00	16,416
Plutus, Colo	10	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.75	....	....	....	....	....	....	....	....	....	200
Potosi, Nev	100	....	....	....	....	8.00	....	....	....	10.00	9 00	8.00	....	....	....	....	....	....	....	6.00	5.75	8.18	5.88	7.38	....	78,030
Proustite, Idaho	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.00	1.00	16,150
*Quicksilver, Cal., pref.	100	33.50	28.00	31.00	29 00	31.50	30.50	31.75	29.00	35 25	31.00	34.00	31.00	31.00	30.00	30.00	27.00	25.00	....	25.00	23.00	30.25	26.00	34.75	31.75	44,485
" com.	100	8.75	7.50	7.75	6.75	7.50	6.25	6 75	6 00	8 00	6 50	7.00	6.50	6.50	6.00	6.50	5.50	5.50	5.00	5.25	4.50	7.00	5.25	12.00	7.13	25,424
Quincy, Mich	25	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	60.50	59.50	140
Rappahannock, Va	1	.21	.14	.17	.14	.18	.15	.20	.16	.22	.18	.22	.16	.22	.19	.22	.20	.21	.15	.20	.16	.23	.18	.21	.18	455,250
Red Elephant, Colo	1	.06	.04	.07	.05	.07	.04	.06	.04	.05	.03	.04	.03	.03	.03	.03	....	.03	.02	.02	....	.02	.01	....	....	93,900
Renfrew, N. S	..	....	....	....	....	....	....	1.60	1.50	1.75	1 60	1.65	1.40	1.60	1 30	1.40	1.25	....	....	....	....	....	....	....	....	20,300
Robinson, Colo	50	.45	....	....	....	.44	.40	.50	.45	.41	.36	.38	....	.35	....	....	....	.45	.40	.41	.40	.40	.35	.40	.35	8,920
Saint Kevin, Colo	1	....	....	....	....	.75	.50	.76	.59	.67	.64	....	....	....	....	....	....	....	....	....	....	....	....	....	....	119,130
San Sebastian, San Salv	..	....	....	....	....	....	....	....	....	5.75	3.50	4.00	2.75	....	....	....	....	....	....	....	....	3.55	3 25	3.35	3.00	10,910
Santiago, U. S. of C	2	....	....	....	....	4.60	3 75	5.15	3 50	4.90	4.00	3.85	2.85	3.55	3.05	3.20	2.50	2.55	2.50	....	....	3.05	....	3.05	....	235,760
Savage, Nev	100	10.50	7.50	6 38	....	7.00	5.25	5 50	....	7 00	....	5.88	4.75	7.50	6.13	8 50	6.13	7.88	6 50	9.25	7.00	9.50	7.00	8.50	7.38	9 005
Scorpion, Nev	..	....	....	1.20	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	200
Security, Colo	10	....	....	7.87	4 00	7.50	5.25	7.25	4.50	7 50	6.25	9.60	6.00	7.00	4.50	5.50	1.50	2.38	.90	2.13	.90	2.00	1.25	1.75	.75	782,888
Sierra Nevada, Nev	100	8 28	6.00	6.00	4.40	5.25	3.75	4.10	2.90	5.00	4.50	5.50	4.00	5.75	4.10	4.90	3.10	4.70	2.70	4.95	4.00	7.75	4.60	6.88	4.35	11,205
Silver Cliff, Colo	..	.35	.20	.20	.05	.18	.12	.19	.15	.18	.13	.13	....	....	....	.06	.05	.11	.09	.09	....	....	....	.03	....	93,052
* Silver King, Ariz	100	7.00	...	7.75	7.38	9.50	8.00	10.25	8.00	9 50	....	9 50	8.50	9.00	8.00	8.00	5.50	6.50	6.00	6.50	5.50	6.25	4.50	4.75	4.25	8,329
Silver Hill	100	.75	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.60	....	....	....	....	....	300
Silver Leaf	..	....	....	....	....	....	....	.49	.45	.58	.49	.60	....	.60	....	.62	.61	....	....	....	....	....	....	....	....	5,100
Silver Queen, Ariz	25	....	....	.20	....	.29	.20	.18	.14	.17	.12	.09	.06	.06	.03	.07	.05	.05	....	.03	.02	.05	.03	.04	....	81,050
*Standard, Cal	100	1.45	1.20	1.20	....	1.25	1.00	1.20	.90	1.20	1.10	1.20	1 05	1.80	1.20	1.50	1.35	1 85	1.40	1.60	1.40	2.55	1.45	2.50	2.10	33,577
Stanislaus, Cal	10	2.55	.75	2.25	1.05	3 55	2.85	3.45	2.30	2.95	2.00	2.15	1.30	....	....	....	....	....	....	....	....	....	....	....	....	116,975
State Line. 1 & 4, Nev	1	.05	.03	.08	.03	.08	.04	05	.04	.04	.03	.02	....	.04	.02	.04	....	.04	....	....	....	....	....	....	....	85,500
" 2 & 3, Nev	1	.06	.03	.09	.03	.08	.05	.10	.07	.08	.05	.07	....	.05	....	.05	....	.03	....	....	....	....	....	....	....	147,800
Stormont, Utah	1	.13	.09	.16	.09	.13	.11	.11	....	.10	....	.10	.09	.10	.08	.12	.08	.06	....	....	....	.07	.05	....	....	39,225
*Surinam, Dutch G	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3.35	3.00	3.70	3.05	4.50	3.60	....	....	10,400
Sutro Tunnel, Nev	10	.37	.18	.23	.18	.30	.18	.29	.22	.45	.26	.39	.22	.45	.32	.46	.31	.38	.29	.40	.3	.39	.22	.25	.10	1,694,536
Taylor-Plumas, Cal	5	.20	.10	.10	.06	.10	.07	.08	.04	.06	.04	.04	.02	.08	.03	.05	.01	.01	....	.04	.01	.04	.03	.05	.02	477,000
Tioga, Nev	10	.20	..	....	....	....	....	....	....	....	....	....	....	....	....	.10	....	....	....	....	....	....	....	....	....	200
Tornado, Nev	1	..	....	....	....	....	....	....	....	....	....	....	....	1 05	.80	1.15	1.00	1.10	1.05	1.25	1.00	1.35	1.25	1.00	....	115,700
Utah, Nev	100	....	....	....	....	....	....	....	....	....	....	....	....	2.25	2.20	....	....	....	....	....	....	2.55	2.50	2.10	....	950
Union Cons., Nev	100	5.50	4.85	5 75	3.40	4.15	2.80	2.90	2.80	5.00	3.60	4.75	3 60	3 60	3 00	3.75	2.50	3 90	2.70	4.05	3.40	5.38	3.30	5.00	4.25	8,700
Yellow Jacket, Nev	100	7.38	6.75	5.63	4.00	6.00	4.50	4 75	4.00	5 13	4.65	6.60	5.50	8.75	5 50	6.00	4.25	4.65	4.25	7.50	5.50	7.25	5.00	7.63	5.60	4,620

* These companies paid dividends in 1887.

Total sales, 11,689,388.

FLUCTUATIONS OF PRICES OF MINING STOCKS IN SAN FRANCISCO DURING 1887.

NAME AND LOCATION OF COMPANY.	Par val.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
		H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
Alpha, Nev	100	5 00	2 26	3.70	1.90	5.50	3.50	4.70	3.25	4 60	3 00	4 35	3.00	6.00	3.90	4.35	2.50	4.75	3.10	6.75	1.70	2.35	1.70	2.50	1.90
Alta, Nev	100	7.70	2.20	2.00	1.25	2.50	1.30	2.80	1.95	4.40	2.35	3.15	1.70	3.00	2.05	2.25	1.55	2.40	1.85	3.90	2.00	3.65	2.85	2.75	1.25
Andes, Nev	100	2.00	1.25	1.15	.60	1.30	.90	2.00	.95	2.30	1.55	1.85	1.15	1.85	1.25	1.45	.80	1 30	1.00	1.50	1.20	1.85	1.35	1.75	1.35
Argenta, Nev	100	.25	15	.15	....	.45	.10	.35	10	.60	.25	.70	.30	.40	.35	.40	.25	.25	.15	.35	.20	.25	.20	.25	.20
Belcher, Nev	100	5.63	3 50	3 50	2.20	3.70	2 30	4.25	2.70	5.50	3 75	7.25	4.50	12.75	5.50	8.00	3 90	7.00	4.10	13.50	4.50	12.38	8 00	12.50	7.00
Brophy	100	1.25	.65	.75	.30	.70	....	....	....	....	....	....	....	....	....	.40	.20	.40	....	.45	.40	....	....	....	....
Best & Belcher, Nev	100	12.75	9.00	11 00	8.00	12.13	6 00	7.00	5.25	11.25	6.38	9.88	6.00	9 00	6 13	7.25	3.80	5.75	3.70	7.63	4.70	10.00	6 38	8.88	5.13
Bullion, Nev	100	4.00	2.50	2.50	1.65	3.20	1.95	3.00	1.15	3.10	2.20	2.70	1.85	2 95	1.80	2.00	1.00	1 95	1.00	2.50	1.65	2.75	2.05	2.50	1.75
Baltimore, Nev	100	1.25	.70	1.00	.50	1.00	.60	1.15	.70	1.30	.95	1 20	.75	1.70	.95	1.40	.75	1.60	.85	1.30	.90	1.15	.90	1.40	1.00
Belle Isle, Nev	100	.45	.35	.40	.25	.75	.30	1 00	.60	1.55	.65	1.35	.90	1.35	1.00	1.20	.45	.75	.55	1.00	.65	.75	.60	.80	.40
Bodie Con., Cal	100	3.05	1 95	2 50	1.80	3.30	2.00	2.50	2.10	3.00	2.50	3.0	2 15	2.95	2.00	2 20	1.00	2.10	1 25	2.75	1.65	3.50	2.00	3.25	2.45
Benton, Nev	...	1.25	.75	.50	.30	.95	.30	1 00	.60	3.30	.95	2.70	1.10	2.60	1.85	2.95	1.30	4.30	2.00	4.75	3.00	4.75	3 25	3.95	3.00
Bodie Tunnel, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Bulwer, Cal	100	1.60	1.20	1.50	1 00	1.45	1 15	1.30	1.10	1.40	1.20	1.25	.90	1.05	.90	1.15	.60	1.20	.85	1.15	.80	1.15	.90	.95	.85
*Con. Va. & Cal., Nev	100	26.00	20.03	24.50	15.75	19 75	15.25	16 00	12.50	24 00	14.00	21.00	19.25	23 00	17 50	19.50	14.25	18.25	14.88	19 63	15 75	27.00	16.25	23.75	19.50
Challenge, Nev	..	3.00	.95	3.25	1 30	4.00	2.00	2.50	2.00	3.20	2 10	2 70	1.00	3.80	2 25	2.50	1.75	2.65	1.60	2.80	1.95	3 20	2.55	3.10	2.85
Champion, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Chollar, Nev	100	11.50	7.90	8.00	6.25	9.00	5 05	8 00	5.75	9.00	6 25	8.25	7.00	9.00	6.25	6.50	3.60	5.00	3.35	6.00	3.90	7.38	5.50	8.00	5.38
Confidence, Nev	100	9.00	4.50	8.00	5 50	16.00	7.38	9.25	7.00	10.00	8.50	9 50	5.63	11.00	7.25	8.50	5.75	7.00	6.13	10.00	8.00	12.5	9.50	11.13	9.50
Con. Imperial, Nev	100	2.50	1.75	3.00	1.00	3 05	2.00	2.50	1 90	2.25	1 75	2.30	1.00	4.00	2 15	3.00	2.00	1.60	.....	2.60	1.8	3.70	2.50	3.25	2.90
Caledonia, Dak	.....	.95	.65	.85	.50	.75	.40	.70	.35	95	.6	.85	.50	1.00	.50	.65	.25	.50	.40	.70	.45	.85	.55	.75	.50
Con Pacific, Cal	100	.45	.25	.30	.25	.35	.30	.30	.25	.60	.25	.30	.20	.30	.20	.20	.15	....	....	.25	.05	.20	....	.20	....
Crown Point	100	7.00	4.75	5.25	2.75	4.95	3 50	5 88	3.70	8.13	5.13	9.00	6 75	20.00	7.25	10.50	5 38	8.75	5 75	12.13	6.00	11.25	7.25	10.88	6.88
Crocker, Ariz	100	1.50	.95	1.25	.88	1.50	.60	1.00	.80	1.00	.75	1 25	.80	1.50	.85	1.00	.75	1.10	.60	1.00	.75	1.10	.85	1.10	.85
Central	25	70	.50	.60	.40	.75	.55	.75	.65	.60	.50	.65	.50	.75	.60	.60	.50	....	....	....	....	.45	....	....	....
Dudley, Cal	....	.60	.25	.25	....	....	....	.25	....	.50	.20	.25	....	.25	.25	....	....	....	....	....	....	.15	.10	.50	.20
East B. & B., Nev	....	2.00	....	1.70	1 00	1.50	1 35	1 3	1.25	1.40	....	1 80	.80	1.05	.90	....	....	....	....	.55	.30	.60	.50	....	....
*Eureka Con., Nev	100	7 38	4 75	6.75	5.25	6 63	6.50	6.50	5.50	6 50	4.30	6 13	4 50	6.75	5.50	8.00	6.75	8.00	7.13	7.00	6 50	7.00	6.62	6.75	5.50
Exchequer, Nev	100	2.65	1.60	1 60	1.15	2 45	1.30	2 00	1.30	2.10	1.55	1 85	1.20	2.10	1 15	1.65	.90	1 50	1.05	1 60	1.20	1.75	1.40	1.60	1.10
Grand Prize, Nev	100	.50	....	....	....	.80	.70	1 00	.90	1.30	1.10	1.75	1.35	2.10	1.60	....	....	....	....	1.35	1.10	1.15	1.00	1.35	1.00
Gould & Curry, Nev	100	7.75	5.00	6.25	4 10	6.00	3.25	5 00	2 90	6. 5	4.00	5.88	3.25	5 63	3.15	5 38	2.80	4 60	3 05	6.00	3 45	6.00	4.25	7.00	4.50
Hale & Norcross, Nev	100	11.00	5.63	8.50	5 00	5.63	3 50	6.50	3.25	6.37	4 60	6 13	3.9	6.50	4.30	5.75	3.00	4 45	3.15	4.50	3 50	6.15	3.95	10.25	5.75
Holmes, Nev	100	2.60	2.45	4.0	2.50	3 50	2.75	....	....	2.50	....	2.50	2.00	2.00	....	2.00	....	....	1.50	....	....	....	....	1.50	....
Independence, Nev	100	....	....	....	....	.25	.15	.50	.40	.60	.35	.75	....	....	....	.80	.60	....	....	....	....	....	....	....	....
Iowa, Nev	....	2.00	1.00	1.30	.65	1.10	.55	1.10	.90	1 90	.95	1.95	.80	1 50	1 00	1 20	.60	.35	.25	.50	.40	.50	.30	.50	.45
Julia, Nev	100	1.25	.60	.70	.45	.75	.40	.95	.40	.90	.40	.95	.50	1.00	.50	.75	.50	.55	.40	.60	.40	.80	.50	.65	.50
Justice, Nev	100	3.00	1 50	1.70	.90	1.85	1.10	1.50	1.25	2.00	1.5 5	2 10	1 40	2.00	.50	1.30	.60	.95	.60	1.60	.70	1.70	1.40	1.50	.90
Kentuck, Nev	100	2 40	1 80	1 55	1.50	1.65	1.50	1.50	1.25	1.75	1.25	1.70	1 55	4.00	1.50	3 00	2.40	....	....	....	....	2.50	....	2.50	2.25
Lady Wash, Nev	....	.90	.40	.25	.15	.55	.15	.65	.40	1.30	.50	1.20	.60	1.05	.70	.75	.55	.85	.60	.90	.65	.95	.75	.70	.35
Martin White, Nev	100	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.00	.20	....	....	....	....	....	....	....	....
Mono. Cal	100	3.90	2.65	3.60	2.20	3 00	2.00	2.25	1.80	3 10	2.00	3 00	2.15	2.75	2.20	2.00	1.10	1.65	1.20	2.25	1.15	2.50	1.80	2.20	1.50
Mexican, Nev	100	8.00	5.75	7.50	5.00	6.75	4.05	5.25	3 45	7.00	4.65	6.00	4.00	5.50	4.10	5 45	2.10	4 40	3.00	5.00	3.40	7.25	4.55	7.00	4.65
Mt. Diablo, Nev	100	3.00	3.00	4.00	3.50	4.25	4 00	4 25	3.75	4.25	3.75	..	....	3.75	....	4.25	4.00	4.00	....	4.25	....	5.00	....	....	....
Northern Belle, Nev	100	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Navajo, Nev	100	.80	.60	1.45	.45	1.20	.85	1 30	.90	1.65	1.20	1.65	1.10	1.50	1 30	1.55	1.20	1.40	1.15	1.25	1.10	1.05	.85	1.10	.30
North Belle Isle, Nev	100	3.90	3.25	4.75	3.10	8.00	4.50	9.00	6.25	9.50	6.75	10.00	8 50	10.38	4.50	9 88	6.50	8.38	7.00	.....	.....	10.00	8.00	9.50	7.25
Niagara	100	.50	.45	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Nev. Queen, Nev	100	1.10	.70	1 90	.90	3.30	1.35	3.30	1.90	5.50	3.20	5.25	4.1	5.75	4.40	5.88	3.80	4 65	4.05	5.25	4.2	4.25	3.15	4.20	2.25
North G. & C., Nev	....	.95	.55	.55	.45	.55	.35	.50	.....	.60	.50	.55	.50	.70	.50	....	....	....	....	.45	.30	.50	.45	....	....
Occidental, Nev	100	6.25	3.75	3.50	2.60	4.40	2.50	3.60	2.55	4 00	2 90	3.50	2.00	3.40	2.25	3.80	1.50	3.25	2.25	4.00	2.00	2.45	1.65	2.00	1.10
Ophir, Nev	100	16 25	10.50	13,75	9.25	12 38	6 63	9.13	5 25	13 25	7 63	12 00	7.25	9.88	7 50	9.00	4.80	8.00	5.75	9 5	6.50	14.00	8.00	12.38	8 88
Overman, Nev	100	2 30	1.30	2.75	.75	2.25	1.30	2 00	1.35	2.60	1.50	2.40	1.00	3.35	1.65	2 10	.85	1.45	.40	3.05	1 30	3.45	2.30	3.20	1.95
Potosi, Nev	100	11.00	8.25	9.00	7.00	10 50	6.25	8.75	6 50	10.00	5.1	8.63	6.50	9.00	6.25	6.38	3.6	5.25	3.60	6.88	4.10	8.75	5.13	7.50	5.00
Peerless, Ariz	100	.75	.60	.80	.50	.75	.45	.70	.55	.75	.55	1.05	.65	2.20	.95	1.40	1.00	1.80	.90	1.40	.95	2 00	1.25	1.70	1.40
Peer, Ariz	100	.80	.35	.55	.35	.50	.35	.45	.35	.65	.35	.65	.40	1.25	.50	.90	.65	1.05	.55	.75	.50	.85	.65	.75	.65
P. Sheridan	100	.45	.15	.15	.10	.10	.05	.05	....	.25	0.5	.15	.10	.15	.10	.10	....	....	....	.15	.10	....	....	....	....
Silver Star, Nev	....	....	....	.30	.10	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Savage, Nev	100	10.50	7.50	7.75	5.00	7.00	4.90	6.75	4.10	7.50	5.13	6.38	4.10	7.88	5.88	8.50	5.38	7 75	6 25	8.75	6.50	9.25	6.88	9.25	7.00
Seg. Belcher, Nev	100	....	....	....	....	1.00	....	1.55	1.00	1.50	1.40	3.80	1.00	5.25	2.35	2.60	2.35	....	....	....	....	....	....	....	....
Sierra Nevada, Nev	100	9.50	4.75	5.75	3.90	5.25	4.10	4.40	2.75	6.63	2.65	5.88	3.85	5.50	4.00	4.60	2.50	4.20	3.00	4 80	3.40	7 00	4.55	7.13	4.25
Silver Hill, Nev	100	.75	.35	.45	.20	.45	.30	.38	.20	.65	.35	.65	.40	.60	.45	.45	.25	.35	.25	.50	.35	.90	.40	.70	.40
Silver King, Ariz	....	7.50	....	7 50	....	9.00	....	8.88	....	9.00	....	9.00	....	....	....	....	....	....	....	....	....	4.75	....	4.50	....
Scorpion, Nev	...	2.00	.85	1.10	75	1 00	.60	.85	.60	1.15	.65	.90	.60	1.00	.70	.80	.40	.70	.55	.75	.55	1.25	.65	1.20	.85
Syndicate, Cal	....	.35	.35	.25	15	.25	.20	.20	.15	.30	.25	.30	.20	.30	.20	.45	.15	.20	.15	.20	.15	.20	.15	....	....
Union Con., Nev	100	9.25	4 90	5.13	3.50	4.50	2.70	3.45	2.30	5.25	2.80	4.40	3.00	4 50	3.15	3 00	2.10	3.40	2.50	3.80	2.80	4.95	3.65	6 63	4.00
Utah, Nev	100	8.00	5.50	7.25	4 50	1.80	1.05	1 30	.90	3.00	1.00	2.45	1.35	2 20	1 70	1.95	.95	1.70	1.20	2.25	1.45	2.60	1.90	2.25	1.50
Yellow Jacket, Nev	100	8.50	6.00	5.63	3.60	6.13	3.75	5.75	4.00	6.75	4.50	6.38	4 50	9.25	5.25	5.88	2.80	5.50	3.30	6.75	4.30	7.50	5.25	8.00	5.13

* These companies paid dividends in 1887.

FLUCTUATIONS OF PRICES OF COAL STOCKS IN NEW YORK DURING 1887.

Company.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	H.	L.	H.	L.	H.	L.	H	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L	H.	L.	H.	L.
Cameron C'l.	50.00	39.50	48.50	45.00	47.25	44.25	48.00	44.00	46.00	38.00	4 .00	41.00	....	....	7.0	6.00	6.50	6.00	28.00	....	32.00	....	....	....
*C. & O. RR	9.25	8.25	9.00	8.00	9.00	8.00	10.25	8.60	9 38	7.00	7.50	7.0	7.25	6.00	7.0	6.00	6.50	6.00	5.50	3.50	4.25	2.00	4.75	3.50
C. & I. C. RR.	.....	.....	54.00	52.00	.....	.....	67.00	62.00	65.00	62.00	60.00	57.50	53.00	.....	45.00	41.00	47.00	38.0	40.00	.....	40.00	.....	45.00	43.50
Do., pref	.....	.....	85.50	.....	.....	.....	.....	.....	99.50	96.00	99.00	.....	89.00	86.00	85.00	.....	88.00	85.00	87.60	.....	93.00	90.00	90.50	90.00
Col. & H. C.	.....	.....	37.63	35.50	46.50	36.88	49.38	45.25	47.13	45.00	45.88	37.00	42.00	29.50	36.00	26.50	33.75	24.00	29.00	22.00	33 88	27.00	30.75	25.00
Col. C. & I.	41.00	35.75	39.50	35.50	42.00	37.00	49.38	41.25	53.25	4 .13	51.75	46.50	47.75	38.00	43.50	33.75	41.50	33 00	37.00	31.00	40.5	21.00	38.50	32.50
Consol Coal	....	....	....	....	....	....	....	....	....	....	....	....	....	....	20.00	....	0.00	....	23.00	22 00	25.00	23.00	25 00	24.75
*Del. & H. C.	104.75	101.50	103.88	100.75	102.00	101.00	105.13	102.50	105.00	102.88	104.63	100.00	102.38	99.50	102.38	99.00	101.63	96.50	100.75	96.75	106.7	100.25	103.50	102.00
*D., L. & W. RR	137.88	133.00	137.63	135.00	136.38	132.50	138.50	134.25	138.63	136.88	139.50	131.00	134.00	126.38	132.50	126.63	134.88	124.25	130. 5	123.13	135.00	127.00	131.63	125.63
*Hock. Val.	39.25	34.00	37.75	34.00	35.75	28.88	34.00	30.00	35.50	: 0.50	33.50	29.75	30.75	23.50	25.75	21.00	25.50	15.00	24.38	20.00	27.38	22.50	26.00	22.25
L. C. & N.	51 50	50 00	51.00	50.00	50.75	50.00	51.25	50.75	51.00	50.63	50.75	49.75	50.00	49.13	50.00	47.75	49.25	47.00	47.75	46.50	48.13	45.88	47.25	46.25
Lehigh Val.	57.00	56.00	56 25	56.00	56.63	55.38	56 25	55.13	57.75	55.50	57.75	55.88	57.63	57.00	57.50	56.75	57.00	54.75	56.00	54.50	56.00	54.50	55.75	54.75
L. & W. C. & I.	....	....	....	....	....	....	....	....	....	....	109.00	....	....	....	....	....	....	....	....	....	....	....	....	....
Mar. Con. C.	....	....	....	....	....	....	....	....	32.00	27.63	28.50	22.00	22.50	11.00	13.00	9.00	15.00	....	8 00	7.00	10.00	7.00	....	....
Maryland C.	17 00	14.00	15.00	14.00	14.00	13.00	15.00	13 50	14.00	....	....	....	11.50	11.00	11.00	.....	11.00	10.00	13 25	11.25	16.00	15.00	14.00	....
*Morris & E.	140.50	139.75	141.75	138.75	139.13	127.50	139 75	137.00	140.00	139.00	140.00	136.50	139.25	137.00	139.00	137.50	138.75	137.50	138.50	135.00	137.00	135.88	138.00	138.00
N. Cent. C.	18.00	14.50	17.50	13.50	94 00	13.50	16 00	14.00	14.25	14.00	13.00	11.50	12.00	11.00	11.00	9 00	11.00	9.50	13 00	11.50	15.00	13.00	14.50	14.00
N. J. C. RR.	68.75	55.13	71.50	63.50	73.00	67.00	86.25	72.50	82.75	79.00	84.13	76.00	80.25	72.50	77.00	71.00	78.50	68.00	74.25	71.00	80.00	72.25	76.00	72.25
*N. Y. S. & W	12.63	11.38	14.50	11.00	13.63	12.37	14.00	13.00	13.75	12.13	12.88	10.75	11.63	9.50	10.50	8.63	10 25	8.00	9.50	8.75	10.25	8.88	9 50	8.50
*Do., pref.	34.63	31.50	38.50	31.00	37.50	34.75	38.75	36.25	37.00	36.13	36.63	30.00	33.00	29.00	32.00	27 00	30.75	24.50	28.75	25.00	33.00	27.50	30.38	27.50
*N. Y. P. C. & I	70.63	63.00	72.13	68.00	72.38	70.13	73.00	69.25	71.00	69.00	72.00	68.50	69.00	49.00	51.50	50.78	....	....	....	....	....	....	....	....
Nor. & W. RR.	23.88	18.00	22.00	17.50	22.00	19.88	22.75	20.88	23.38	20.50	21.00	15.00	20.00	16.00	18 63	15.00	18.00	13 00	15.50	11.50	17.00	14.50	16.38	14.25
Do., pref	54.00	45.00	49.75	44 00	51 00	47.25	54.25	50.00	55.88	51.00	53 25	44.75	49.63	41.50	45.25	40.00	45 63	38.00	42.25	34.50	44 00	39.00	43.75	40.00
Penn. Coal	282.00	....	276.00	....	....	....	....	....	....	266.00	....	....	....	....	....	....	268.00	226.00	....	....	....	....	272.00	....
Penn. RR.	57.50	54.88	58.25	54.13	58.63	57.13	60.00	58.75	59.38	55.50	56.38	55.00	56.75	55.00	55.63	54.00	57.50	54.88	56 00	53.75	57.63	54.00	54.63	53.50
Phil. & R. RR.	42.13	36 00	39 25	34 00	39.63	36.13	46.63	39.00	47.25	44.00	†53.00	47.75	58.25	47.75	57.00	50.50	63.25	55.88	63.50	59.13	71.63	62.00	69 63	64.50
Tenn. C. & I.	53.50	44.00	49.25	41.00	47.63	41.00	50.00	....	45.00	38.75	39.75	31.00	39.00	30.50	35.50	25.25	30.50	21.50	27 50	23.00	31 75	25 50	29.75	26.00
Wilmoreland C.	....	....	....	....	....	....	....	....	....	....	68.00	67.00	68.00	.....	68.00	.....	....	....	66.00	....	‡	‡	4.50	4.00
Whitebreast.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	88.75	87.50

* These companies paid dividends in 1887. † Assessment paid. ‡ On December 1st last the directors of the Westmoreland Coal Company were authorized to increase the capital stock to the extent of 4000 shares; and stockholders of record on December 15th, 1887, were given the privilege of subscribing at $60 per share to the new stock in the ratio of *one* new share to every *nine* old shares held by them. These "rights" of subscription were quoted a few days since at $4¼; to-day they are offered at $4. The parent stock is quoted about $64, with nothing doing in it.

The sales during the year of the companies quoted are as follows: Cameron Coal, 165,977 shares; Chesapeake & Ohio Railroad, 16,038 shares; Chicago & Indiana Coal Railroad, 7230 shares; ditto preferred stock, 4904 shares; Colorado & Hocking Coal, 320,742 shares; Colorado & Hocking Valley Railroad, 347,934 shares; Colorado Coal and Iron, 493,849 shares; Consolidated Coal, 2850 shares; Delaware & Hudson Canal Company, 367,877 shares; Delaware, Lackawanna & Western Railroad, 5,410,338 shares; Lehigh Coal and Navigation Company, 50,326 shares; Lehigh Valley Railroad, 25,444 shares; Lehigh & Wilkes Barre Coal and Iron Company, 10 shares; Marshall Consolidated Coal, 50,405 shares; Maryland Coal, 5020 shares; Morris & Essex, 24,490 shares; New Central Coal, 10,303 shares; New York & Perry Coal and Iron, 41,216 shares; New Jersey Central Railroad, 1,794,132 shares; New York, Susquehanna & Western, 165,373 shares; ditto, preferred stock, 197,725 shares; Norfolk & Western Railroad, 90,029 shares; ditto, preferred stock, 649,981 shares; Pennsylvania Coal, 235 shares; Pennsylvania Railroad, 426,755 shares; Philadelphia & Reading Railroad, 20,236,671 shares; Tennessee Coal and Iron, 213,199 shares; Westmoreland Coal, 200 shares; Whitebreast Fuel Company, 1100 shares. TOTAL SALES, 31,059,953 shares.

FLUCTUATIONS OF PRICES OF MINING STOCKS IN BOSTON DURING 1887.

NAME AND LOCATION OF COMPANY.	Par value	January.		February.		March		April.		May.		June.		July.		August.		September.		October.		November.		December.		Sales.
		H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
†Abington, Mass	...	...	...	...	...	...	...	1 20	...	...	...	...	...	1.00	.75	1.30	87½	1.50	1.25	...	...	...	...	...	...	8,025
*Allouez, Mich	25	2.50	2 00	2.00	1.75	2.00	1.12	1.87	1 50	1.63	1.00	1.25	1.13	1.75	1.00	1.13	.75	.75	.50	1.25	.50	1.50	1.00	1.88	1.50	42,490
†Alma	...	...	...	4.18	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3,000
Arnold, Mich	25	.55	.50	.40	...	...	...	.30	...	...	...	.30	.10	.35	.30	...	...	.25	...	.50	...	.50	.40	.65	.45	14,406
*Atlantic, Mich	25	11.00	10 00	..	..	10.00	9 00	10.00	9.00	9.00	8.25	9.00	....	11 00	9.00	10.00	9 00	9.50	8.87	11.00	8.87	12.25	11.00	13.50	13.00	2,027
Aztec, Mich	25	1.2½	...	...	...	...	...	...	...	.06	...	.07	.06	.08	.06	.08	.06	.08	.07	.08	.06	.12½	.06	.35	.10	12,750
Bijou	...	...	...	.05	...	...	...	.04	...	...	...	...	...	...	...	...	...	.03	....	.03	....	...	...	...	...	2,706
†Blue Ridge, Mich	1	.26	.20	.22	.20	.21	.18	.20	.19	.21	.18	...	...	...	...	.10	...	...	...	...	...	...	...	...	...	25 050
Boston & Mont, Mont	10	4.00	....	3.75	3.50	4 00	....	4.50	4.00	4.00	....	...	...	...	...	...	...	3.00	....	...	...	...	...	...	...	2 500
Bonanza	10	2.00	1.50	1.75	1 37	1 75	1.37	2 00	1.50	1.75	1.50	1.75	1 25	1 50	1.00	1 25	1.00	1.13	1.00	1.00	.75	1.25	.95	1.94	1.19	155,610
Bowman Silver, Nev	1	.10	.04	.13	.07	.28	.11	.10	.05	.06	.03	.05	.04	.07	.01	.07	.06	.06	.04	.06	.03	.06	.04	.05	.02	75,524
Brunswick, Cal	1	...	...	...	....	...	....	5 00	3.50	1.50	1.10	1.60	1.40	1.55	1.47	1 65	1 47	1.65	1.55	1.62	1.55	1.60	1.53	1.60	...	61,795
Breece, Colo	25	.45	.20	.42½	...	.75	.42½	.75	.50	.62½	.30	.57½	.47½	.50	.42	.47	...	.40	.30	.45	.33	.47½	.38	.40	.30	20,133
*Calumet & Hecla, Mich	25	212	203	217.50	210	223	2 0	214	205.50	212	209	212	210	220	206.50	205	182	210	196	202	190	209.50	185	196	185 25	6,268
Catalpa, Colo	10	.40	.32½	.37½	.30	.40	.32	.32½	.25	.36	.27½	.35	.27½	.31	.25	.27½	.25	.27½	.25	.26	.20	.3	.25	.35	.26	65,210
Cashier, Colo	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.48	.44	.48	...	.39	...	...	...	35
*Central, Mich	25	18.00	....	....	...	...	...	...	...	...	...	...	...	...	...	...	...	..	....	...	...	12.50	....	....	..	575
Chrysolite, Colo	50	...	...	.67½	.01	.70	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8,100
†Cliff, Colo	...	1.37	1.04	3.91	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	....	...	...	100
Consolidated Va., Nev	100	...	...	10.63	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	....	...	...	9 600
Contentment, Ariz	...	...	...	...	...	...	...	...	...	.12	.11	.08	...	...	...	.08	.05	.08	.05	.07	.05	...	...	...	...	46 660
Crescent, Colo	10	.15	.12½	.12½	.10	.15	.12	.11	.10	.15	.10	.13	.10	.15	.11	.13	.11	.11	.09	.11	.08	.09	.10	.09	.13	39 835
Cusi, Mex	10	.15	.35	.45	.32½	.35	.20	.22	.19	.20	.12½	.15	.11	.14	.12	.19	.15	.25	.16	.27	.20	.27½	.17	.16	.13	500
Decatur, Colo	5	...	...	...	...	...	...	.02	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	80,790
*Dunkin, Colo	25	.40	.35	.38	.30	.40	.30	.40	.35	.50	.38	.47½	.42½	.50	.40	.75	.55	1.25	.90	1.25	.87½	1.18	.90	1.05	.85	1 0 0
El Cristo U. S. of C	2	2.45	....	...	....	4.25	....	...	....	...	....	...	....	...	....	...	....	...	....	2.45	2.15	....	....	...	....	310
Empire, Utah	100	...	...	.04	...	.05	....	...	....	.08	.07	...	....	.07	....	...	....	.08	.06	...	....	.05	....	...	....	4,322
†Enterprise	10	...	...	...	...	...	...	...	...	...	...	...	...	1.35	....	...	....	...	....	...	....	...	....	...	....	100
†Fern	...	1.12	1.07	4.34	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7.500
Franklin, Mich	25	14.50	12.00	13 00	12 00	13.00	11.00	11.75	10 00	11 75	10.00	11.75	10.25	13.00	10 50	12.13	10.00	12.00	10.00	13.50	9.75	14 88	11.75	15.88	13.38	43,585
Freeland, Colo	25	...	...	...	...	...	...	...	...	...	...	.75	....	...	...	...	...	...	....	.60	....	...	...	...	...	110
†Gem, Colo	...	1.08	1.05	4.62	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13.000
Gogebic, Mich	...	...	...	...	....	...	...	...	...	...	...	...	...	...	...	...	...	...	....	...	....	8 38	8.00	...	...	14,800
Green Mt., Cal	10	....	...	...	....	...	...	...	...	...	...	...	...	...	...	...	...	...	....	...	...	.05	....	...	...	100
Helena, Mont	5	...	...	...	...	2.00	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	50
Holyoke, Idaho	1	...	...	...	...	.04	....	.25	....	...	...	...	...	...	...	...	...	...	...	.10	....	...	...	...	...	900
* Honorine, Utah	2	...	...	...	...	.85	.80	.85	....	...	....	1.06	...	...	....	.92½	...	...	....	...	...	...	...	.80	...	2,100
Humboldt, Mich	25	.20	....	....	....	.15	...	...	....	...	....	.10	...	.12	.10	...	....	...	....	...	...	...	...	.30	.15	3,150
Hungarian	...	...	...	...	...	...	...	...	...	...	....	...	...	...	...	...	...	...	....	...	...	.15	3.50	.30	.25	400
Huron, Mich	25	3 00	1 63	....	....	2.00	1.00	1 25	.75	.87½	.10	3.25	2.00	3.37	2.25	3.12	....	3.25	3.13	....	..	5.25	....	6.0	4.25	12,250
Ironton, Iron Co., Mich	...	...	...	...	...	...	10.00	8.00	9 13	7.87	8.75	8 50	...	...	...	...	...	...	...	...	...	...	....	...	...	2,545
Kearsarge, Mich	25	10.00	9.00	2.00	1.75	8.00	7.50	7.00	....	6 50	6 00	6 0	....	7.25	6 50	...	...	...	...	...	...	5.00	....	6 75	5 00	9,697
Kossuth, Nev	...	...	...	...	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.10	....	...	....	...	...	310
†Lima	...	.93¾	.80¾	3.82	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	....	...	...	3,000
Little Chief, Col	50	...	...	.27½	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	400
Mesnard, Mich	25	.40	.25	.25	...	.25	...	...	...	...	...	...	...	...	...	...	...	...	...	.30	.25	...	...	...	...	5,100
†Mono, Cal	100	94½	...	4.14	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.32½	...	.70	.30	1,500
Napa, Cal	2	1.13	.87½	1.00	....	1.00	.90	1 38	1.00	1.25	1.13	1.50	1.00	1.13	1.00	1 12	....	1 25	1.12	1.25	....	1.13	....	2.00	1 13	24,335
Native, Mich	...	...	...	...	...	.10	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.40	.12½	3,150
National, Mich	25	1 50	...	1 00	...	.50	....	.62½	...	...	...	...	...	.50	...	...	...	...	...	...	...	...	...	3.63	1.00	2,660
†Oro	...	1 04	1.01	3 86	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3,500
Oriental & M., Nev	25	.17	...	.30	.17	.10	.23	.24	.20	.22	.20	.22	.19	.22	.18	.20	.15	.18	.15	.18	.12	.15	....	.15	....	41,311
* Osceola, Mich	25	26.	20.	22.50	22 00	23.00	20.50	25.00	23.25	27.00	25.00	35.00	26.00	30.00	7.00	27 50	24 00	27.00	21.50	27.00	16.50	21.50	18.50	26.00	19.25	33,392
Pewabic, Mich	25	2.50	...	2 25	....	2 13	2.00	2.00	...	2.06	2.00	2.25	....	2.25	2.13	...	...	...	...	2.00	....	2.50	2 25	...	...	4 093
Phœnix, Ariz	1	...	....	...	...	...	...	2.00	....	...	....	...	....	...	...	...	...	...	...	2.38	....	...	...	...	...	300
†Plato	...	1 02	....	3.96	....	...	...	...	...	...	....	...	....	...	...	...	...	...	...	...	...	...	...	...	...	2,500
Pontiac, Mich	...	.25	.20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.15	....	.52½	.25	6,125
*Quincy, Mich	25	59.50	52.00	54.00	52.00	54 00	49.75	50.00	45.00	50 00	45 50	51.50	48.50	53.50	50 00	49.00	47.00	52.00	47.00	54.00	47.00	57.65	51 50	63.00	58.00	8 465
Rappahannock, Va	1	.19	.18	.18	.15	.18	.17	.22	.18	.23	.20	.23	.19	.23	.19	.22	.20	.21	.17	.18	.16	.23	.19	.20	.18	87,600
Ridge, Mich	25	.75	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1.25	....	1.75	1.00	4,675
Robinson, Colo	50	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.40	...	...	...	...	...	...	...	100
St. Louis, Mich	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	....	.62½	...	.75	...	500
St. Mary, Mich	...	.30	...	...	...	.25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	300
Security, Colo	10	3.87	3 50	11.75	4.75	7.25	5.75	6.25	4.87	7.50	6.50	7.87	7.00	...	...	...	...	2.00	1.00	2.00	1.00	1.75	1.50	1.50	.85	9,815
Sierra-Nevada, Nev	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6.25	...	...	...	25
*Silver King, Ariz	100	7.00	....	7 50	7.00	8.50	7.75	5.38	4.87	...	...	...	...	9 50	9 37	5.25	....	6.50	6.37	5.75	5.50	...	....	5.00	....	905
Simpson Gold, N. C	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.02	...	...	...	...	...	...	...	...	...	1,000
South Side, Mich	25	...	...	...	...	...	...	...	...	.15	....	...	...	.19	.15	.20	.15	17½	.15	.18	.15	.40	...	.50	.40	20,300
*Standard, Cal	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2.50	.25	2.98	....	200
Star, Mich	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.65	....	1,600
Stormont, Utah	1	.14	.11	12	.11	.13	.12	.12	.10	.11	.10	.11	.10	.10	...	.10	...	.08	.07	.08	.06	.07	.05	.06	....	29,615
Surinam D. G.	5	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3.25	....	...	...	...	...	...	...	160
Sutro Tunnel, Nev	10	...	...	.20½	.18	.28	.20	.28	...	.37	.27	.39	.31	.42	.30	.44	.34	.38	.28	.39	.34	.39	.24	.29	.11	57,300
Tamarack, Mich	25	95.00	85.00	99 00	94 00	95.00	93.00	90 00	..	90.00	88.00	92 00	85 00	1 08	90 00	100	9 .00	100	97.50	100	98.00	105	100	1 25	104.75	5,089
Taylor-Plumas, Cal	5	....	....	...	...	.09	....	.09	.07	...	...	...	...	.08	....	.08	...	.02	...	.02	...	.04	....	...	...	10,964
Washington, Mich	...	...	....	.05	...	.09	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.23	12½	.62½	.20	8,850
Winthrop, Mich	25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.10	....	.70	.08	2,100
†Ute, Colo	...	.89¼	.80¾	3.54	....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11,500

* These companies paid dividends in 1887. † These stocks have ceased to be called or dealt in. Total sales, 1,229,789.

FLUCTUATIONS OF PRICES OF MINING STOCKS IN ST. LOUIS DURING 1887.

NAME AND LOCATION OF COMPANY.	Par v	January.		February.		March.		April.		May		June.		July.		August.		September		October.		November.		December.	
		H.	L.	H	L.	H.	L.	H.	L.	H.	L.	H	L.	H.	L	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
*Adams, Colo	10	5.75	3.60	3.25	2.10	3.00	2.00	3.00	2.15	2.85	2.00	2.60	2.50	2.55	2.00	3.10	1.75	3.10	2.30	2.40	2.00	2.70	2.25	3.00	2.65
Badiraguato, Mex	..	2.25	1.70	2.25	1.95	1.60	1.15	1.15	.20	.25	....	...	...	.25	.10	.10	...	.10	....	.10	....	.10	....	.10	....
Black Oak, New Mex	...	...	...	...	...	...	...	...	...	...	...	...	...	.47	.45	.47	.45	.60	.45	.57	.50	.55	.47	.97	.50
Bremen, New Mex	...	...	...	1.50	1.10	1.55	1.20	1.20	.30	.25	.15	.20	.09	.20	.18	.20	...	.20	.15	.15	.10	.17	.10	.10	....
Cleveland, Colo	10	.35	.23	.30	.20	.33	.27	.29	.25	.30	.23	.27	.20	.20	.15	.20	.10	.17	.13	.12	.03	.03	....	.04	.03
Courtland, New Mex	10	.20	.15	.20	.15	.20	.15	.15	....	.15	....	.15	....	.20	.15	.25	.20	.25	.20	.25	....	.25	....	.25	....
Concepcion, Mex	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1.10	1.00	1.00	.75	.75	.70	.75	.70	.70	.45
Dinero, Colo	...	...	...	...	....	1.50	....	.65	.50	.55	.40	.40	.35	.40	.20	.47	.33	.35	.33	.55	.35	.60	.35	.58	.27
Golden Era, Mont	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.40	.27	.40	.30	.55	.30	1 20	.53
Grey Eagle, New Mex	...	...	...	...	...	...	...	...	...	...	...	...	...	1.00	.90	.95	.40	.95	.12	.27	.08	.27	.10	.30	.23
*Granite Mountain, Mont	25	65.50	54.00	67.50	55.0	66.00	61.00	65.00	58.00	61.50	55.50	56.50	50.00	56.00	53.00	58.00	56.00	59.00	58.00	59.00	51.00	59.00	57.50	59 00	58.00
*Hope, Mont	10	4.75	4.00	4.8	4.50	7.0	4.80	8.00	6.75	7.75	7.00	7.00	6.75	6.80	6.50	7.00	6.60	7.00	6.90	6.95	6.0	7.00	5.85	7.00	6.60
Ideal, Colo	10	.80	.40	.47	.30	.65	.40	.60	.37	.65	.40	.40	.02	.03	.02	.02	....	....	....	.01	....	.01	....	....	....
Iron Gold and Silver, Mex	...	.25	.10	.08	.04	.04	....	.04	.03	.03	....	.03	....	.03	....	.03	....	....	....	....	....	....	....	....	....
*Jumbo, Colo	10	...	...	...	...	...	...	1.10	..	1.10	..	1.30	1.25	1.30	....	1.30	....	1.30	1.25	1.25	1.00	.87	.70	.95	.70
Juniper, Ariz	1	1.45	1.35	1.30	1.25	1.20	.80	.60	.50	.90	.45	.95	.13	.30	.05	.30	.10	.35	.18	.23	.13	.13	....	.23	.13
Laclede, New Mex	10	.45	.07	.07	.03	.04	.03	.04	.03	.04	.03	.04	....	.04	....	.04	....	....	....	....	....	....	....	....	....
Lochiel, Mex	...	.45	.35	.45	.20	.37	.18	.18	.09	.13	.04	.07	.04	.04	.03	.03	.01	.03	.01	.01	....	.01	....	.01	....
Mexican Improvement, Mex	10	1.05	1.35	1.50	1.25	1.45	1.10	1.33	1.20	1.15	.45	.75	.35	.43	.15	.30	.20	.30	.23	.23	.08	.25	.07	.45	.23
Peacock, New Mex	10	2.75	1.50	1.85	.90	1.40	1.10	1.20	.95	.85	.50	.80	.30	.35	.10	.30	.15	.27	.13	.23	.10	.38	.09	.47	.18
Quincy, Colo	10	.10	.05	.05	.04	.05	....	.05	.02	.03	.02	.03	....	.03	.01	.01	....	....	....	....	....	....	....	....	....
St. Elmo, Colo	...	.40	....	.45	.40	.45	.40	.40	....	.40	....	.40	....	.40	....	.40	....	.40	....	.40	....	.40	....	.40	....
Sheridan, New Mex	10	1.25	.25	.40	.15	.50	.25	.45	.27	.50	.30	.47	.20	.28	.17	.25	.17	.35	.13	.37	.07	.10	.08	.15	.08
*Small Hopes, Colo	20	10.00	8.25	9.5	8.25	8.50	7.75	7.75	6.90	7.75	7.03	7.75	7.25	7.65	7.30	8.10	7.50	8.10	7.25	7.25	5.70	5.75	5.00	5.00	2.70
West Granite, Mont	10	.65	.50	1.00	.60	2.50	.90	1.25	1.07	1.10	.80	.85	.50	.50	.40	.80	.40	.65	.57	.57	.50	.63	.35	1.85	.50
Yavapai, Ariz	10	1.10	.85	.85	.80	.93	.75	1.00	.50	.65	.60	.65	.45	.40	.32	.63	.40	.65	.55	.53	.38	.60	.36	.20	.09

* These companies paid dividends in 1887.

be about time that it spoke in its own name and gave some of the long promised returns. That it will do so is generally believed on this side. Of the Last Chance scarcely any thing is heard. Mr. Cullins, we believe, is about to resign as agent of that mine and New Emma, but will give them both his general supervision. The New Consolidated—the old South Aurora—had a spurt in the spring, and the shares from being value-

FLUCTUATIONS OF PRICES OF STOCKS IN PITTSBURG DURING 1887.

NAME OF COMPANY.	Par val.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
		H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
Mining.																									
Consignee, N. Mex	10	....	....	....	....	1.00	.30	.60	.25	1.00	.10	1.00	.90	1.00	.50	1.00	.40	.60	.50	.60	....	.50	.35	....	....
Chartiers Block Coal Co	50	40.00	39.00	40.00	....	40.00	....	42.50	40.00	40.00	..	40.00	..	35.00	....	35.00	...	35.00	....	35.00	....	31.00	30 00	31.00	30.00
Gogebic Iron Synd., Mich.	25	....	....	....	....	5.50	4.00	5.50	3.50	4.00	3.00	....	....	4.00	....	....	....	....	....	....	....	1.00	.10	....	....
Hidalgo, Mex	10	....	....	....	....	....	....	....	....	.35	....	.25	....	....	....	....	....	....	....	....	....	....	....	....	....
Iron City	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3.75	3.50	....	....
La Noria, Mex	25	....	....	4.00	2.50	4.50	3.00	5.25	4.25	6.37	4.87	5.75	4.87	5.00	3 87½	4.50	3.50	4.25	3.50	4.50	3.87½	4.00	3.00	4 25	2.75
Mansfield Coal & Coke	50					20.00										40.00		40.00	....	35.00	30.00	30.00	27.50	29 00	27.00
*New York & Cleveland	50	48.00	47.50	48.50	47.00	46.50	46.00	47.00	....	46.00	43.00	45.00	40.00	41.50	40.00	41.00	40.00	45.00	....	45.00	40.00	44.00	40.00	3.00	40.00
Silverton, Col	10	3.00	....	2.50	....	3.50	1.75	2.50	1.50	2.50	1.50	1.75	....	....	....	3.00	1.75	2 37½	1.95	....	....	2.50	..	2.00	1.75
*Yankee Girl, Col	10	7.00	....	8.00	7.00	8.25	7.50	10.00	8.00	9.50	8.00	9.25	8.25	8.50	7.75	7.50	5.50	7.50	3 12½	6.75	5.00	6.50	5.50	5 50	5.00
Natural gas.																									
*Allegheny (Illuminating)	25	....	....	....	....	35.50	35.00	36.00	35.00	36.00	35.00	36.50	33.00	35.00	....	37.00	45.75	36.50	35.75	....	....	....	....	36.00	35.00
‡Baden Gas Co	100	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	40.00	....	....	....	....	....
*Bridgewater	100	120	115	120	115	120	115	120	111	114	107	107.50	101	106	100	105	95.00	100	96.00	100	98.00	100	95.00	99.00	97.00
*Chartiers Valley	100	100	94.00	91.00	89.00	93.00	88.50	92.50	88.50	89.50	84.00	87.00	84.00	85.00	80.00	85.00	75.00	85.00	82.00	87.00	80.00	90.00	80.00	80.00	74 00
Consolidated (Illumin.)	50	....	....	....	....	....	....	....	....	....	....	45.00	....	45.00	....	45.00	....	....	....	....	....	....	....	....	....
Manufacturers	50	....	....	....	....	46.00	38.00	41.00	35.00	45.00	....	....	....	....	....	40.50	39.00	40.00	35.00	32.50	25.00	15.00	....	25 00	20.00
Natural Gas Co. of W. Va.	100	97.00	....	125	95.00	100.50	99.00	100	95.00	100	95.00	100.00	92.50	100	95.00	100	93.00	100	95.00	108	101.00	45.00	....	100	98.00
*Ohio Valley	50	....	....	....	....	....	....	....	....	....	....	50.00	47.00	49.00	48.00	48.50	48.00	50.00	48.00	48.00	41.50	48.00	46.00	45.00	40.00
Pennsylvania	50	16.00	....	33.00	30.00	....	....	....	....	28.00	24.00	26.00	25.00	28.50	25.00	30.00	....	8.00	....	30.00	25.00	25.50	25.00	5.00	22.00
*People's	50	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	40.00	....	....	....
*Philadelphia	50	57.50	55.50	57.00	53.50	55.00	53.00	54.00	51.00	54.50	52.25	51.87	47.50	50.00	48.25	50.75	47.75	49.88	45.37	49.00	46 87½	49.25	46.62½	49 25	47.00
*Pine Run	100	....	....	....	....	99.00	....	100	99.00	100	....	100.00	....	100	....	....	....	....	....	....	....	49.75	47.75	48.00	47.00
*Pittsburg (Illuminating)	50	....	....	....	....	53.50	....	54.00	....	55.00	54.00	55.00	54.00	54.00	....	54.00	....	54.00	....	....	....	....	....	60.00	58.00
South Side (Illuminating)	25	....	....	....	....	28.50	27.50	27.50	....	27.50	27.00	27.50	....	28.50	7.50	....	....	....	....	....	....	25.00	....	25.00	24.00
Washington	100	....	....	....	....	100	..	98.00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Westmoreland & Cambria	50	....	....	....	....	....	....	....	....	50.00	47.50	50.00	47.50	47.50	47.00	51.00	47.50	....	....	51.00	50.00	....	....	48.00	47.00
*Wheeling	50	66.00	†48.00	47.00	41.00	48.00	43.00	43.00	39.50	41.75	38.00	38.50	37.00	36.75	33.50	34.00	25.00	28.50	24.00	29.00	25.00	29.00	26.50	25.50	24.00
Oil.																									
*Columbia	10	....	....	....	....	2.50	....	2.50	1.00	1.00	...	1.50	....	1.00	....	....	....	....	....	.25	....	....	....	3.00	2.00
*Forest	100	105	100	106	....	106	100	105	99.50	....	....	98.00	92.50	100	92.50	100	95.00	100	....	100	95.00	95.00	180.00	95.00	90 00
*Hazelwood	50	49.00	47.50	....	....	48.00	47.00	48.00	....	....	....	....	....	....	....	....	....	....	....	66.00	....	94.50	....	60 00	55.00
*Tuna	50	....	....	....	....	70.00	62.00	68.00	65.00	67.00	65.00	66.50	64.50	66.50	65.00	67.50	66.50	66.25	60.00	65.50	65.0	65.00	....	65.00	60.00
Machinery.																									
Westinghouse Air Brake	50	99.00	98.50	99.00	98.00	102	97.00	111	98.00	115	110	117.00	112	115	114	115	..	117	115	120	112.50	135	118.00	155	150
Westinghouse Brake, Ltd	50	....	....	....	....	50.00	..	56.00	50.00	55.00	53.00	53.00	50.00	....	....	....	....	53.50	50.00	65.00	50.00	60.00	54.00	60.00	57 00

*These companies paid dividends in 1887. † New stock. ‡ In the hands of a Receiver.

less became worth about 4s. Considerable chagrin was felt by Eberhardt shareholders at the cavalier treatment they experienced from Capt. Frank Drake, who left them to go and take charge of the Palmarejo without assigning any reason or even having the courtesy to inform the board that he was going. Such conduct will not be tolerated by the English public. The Eberhardt has been twice reconstructed, but the Monitor mine, its last purchase, has not yet borne the rich fruit that was said to be hanging to it. Talking of Palmarejo, the £1 shares advanced to 35 shillings, and bade fair to go higher when the directors issued a ridiculous circular announcing a still further purchase of land, whereupon they fell to 13 shillings, at about which price they remain. What possessed the directors to do this no one can tell, but the supposition is that the Palmarejo required more capital and that this was thought a good way of indirectly providing it. New California has recommenced making returns, but the public faith in it is not very strong, though a better impression is entertained as regards the Garfield, Consolidated Esmeralda, La Plata, Sierra Buttes, Plumas Eureka, Ruby, Denver and Charles Dickens. The latter company has just acquired the Custer property, mill and stores, for £48,000, and has been reconstructed to provide funds with which to pay for them. The North Carolina mines have been rather to the fore during the year. Russell Gold has disappointed every hope that was ever formed of it, and so also has Hoover Hill; but a good opinion is entertained of Stanly Freehold, the reports from which are most favorable, and also Gold Hill, which has now ample capital with which to continue the work of development.

There has been a large business in Garfield and Consolidated Esmeralda, and especially so in Alturas—the sponsor of which is Mr. Bickford Anthony. The returns from this mine are certainly remarkable, and the directors said at the recent meeting that they would be in a position to make the first distribution of profits in about two months. The quotations for American mines during the year were as follows:

FLUCTUATIONS IN PRICES OF MINING STOCKS AT LONDON IN 1887.

NAME AND LOCATION OF COMPANY.	Par value.	Opening, January, 1887.	Highest and lowest during year.		Closing, Dec. 24, 1887.
	£. s.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Alturas Gold, Idaho	1	5 2 6	5 2 6	8 9	28 9
Arizona Copper, Ariz	—	16 3	27	7 6	21 6
Birdseye Creek, Cal	4	15	15	6	7
Californian gold, Colo	—	5	11	4	8
Carlisle, N. Mexico	1	20	25	17 6	22 6
Centennial, Cal	1	..	20	10	17 6
Charles Dickens, Idaho	1	17 6	20	2 6	3 6
Colorado United, Col	19	1 17 6	1 17 6	15	17 6
Denver Gold, Colo	5	3	4	1	2 3
Eberhart, Nev	1	7	12	3 9	4 9
Empire, Mont	1	3 5	3 12 6	2 10	2 17 6
Flagstaff, Utah	1	4	11	3 6	6
Garfield, Nev	1	22 6	30	15	25
Gold Hill, N. C	1	4	4 3	1 6	3 6
Kohinoor, Colo	1	2 6	3 6	1 6	2
Montana Lt, Mont	1	9 5	*9 5	*2 5	2 7 6
New California, Colo	1	—	9 6	6 6	7
New Consolidated	1	—	3 6	1 6	3
New Emma, Utah	1	6 6	8 6	3 6	5 3
New Hoover Hill, N. C	10	2 6	4	1 6	2 6
New La Plata, Colo	1	4 6	6	1 9	3 6
Pittsburg Consolidated, Nev	1	31	42	30	41
Plumas Eureka, Cal	2	12 6	1 15	7 6	15
Richmond Consolidated, Nev	5	5 12 6	6 10	4	4 2 6
Ruby and Dunderberg, Nev	1	6	9	3 3	4 6
Russet Gold, N. C	1	6 6	11	2	4
Sierra Buttes, Cal	2	1 5	1 7 6	15	17 6
Stanly, N. C	1	—	2 12 6	17 6	1
Union Gold, Colo	—	2 12 6	1 7 6	4	5
U. S. Placer, Colo	1	1 2 6	22 6	15	17 6
Viola Limited, Idaho	1	1 15	2 10	15 9	36 3

*Number of shares increased.

NEW MINERAL RAILROADS IN THE SOUTH.

A NEW RAILROAD THROUGH THE JELLICO COAL-FIELD OF TENNESSEE AND KENTUCKY.

Consumers of coal in and near Louisville about five years ago began to recognize the merits of the Jellico coal, and at present many manufacturers prefer it to the Pittsburg article. A syndicate composed of Chicago, Ohio and Philadelphia gentlemen has now been formed to build an east and west line of railroad, twenty-six miles in length, through this entire belt, commencing at a point on the Cincinnati Southern and extending to a point on the East Tennessee, Virginia & Georgia, at Jellico. Such a line would pierce the very heart of the coal-field, and being for the most part a valley and creek line, would offer great facilities for mining from the nearly horizontal beds which lie above water level.

Mr. Edward F. Madden, of Louisville, Ky., the originator of the new line, claims for it the advantage of connecting the Cincinnati Southern and the East Tennessee, Virginia & Georgia systems of railroad and shortening the distance materially between Knoxville and Cincinnati and Louisville. There are now five mines in operation at Jellico, whose daily output is 3000 tons, and this quantity does not supply the demand.

THE CLINCH VALLEY EXTENSION OF THE N. & W. R. R.

The completion of the Clinch River Valley extension of the Norfolk & Western Railroad will bring into the markets of the country the products of a coal-field which promises to be a formidable rival to present sources of supply. The construction of the road is now being pushed rapidly, and starting from a point near Pocahontas on the New River Division, the line follows the valley of Clinch River down to Big Stone Gap, Va., where it will form a junction with the extension of the Louisville & Nashville from Jellico, Tenn., and also the South Atlantic & Ohio, the Eastern Kentucky and the Kentucky Union, all of which are now pushing rapidly to the latter point. A valuable professional report upon the coal and mineral deposits of the region through which this line passes has been made by Mr. Edward V. d'Invilliers, of Philadelphia.

A RAILROAD TO THE TELLICO RIVER, TENN.

The building of a new railroad from Athens, Tenn., on the E. T., V. & G. R.R., to a point on the Tellico River, twenty-two miles southeast, promises to bring into prominence once more one of the oldest iron-producing districts in the South. Early in the forties an English firm built a furnace in what is known as the Tellico Plains and Stars Mountain district, and from that date it was continuously operated until destroyed during the late war.

From that time the property has been in neglect, until about two years ago it passed into the hands of a company, of which Col. R. L. Bright, of Chattanooga, is President, who are now actively pushing its development. The line of road mentioned will add the needed rail facilities to the water transportation which the old property had. The building of this road has been progressing rapidly, and it will be completed by May 1st next.

In concluding a very interesting professional report upon the mineral resources of the region that this road will traverse, Prof. A. G. Wetherby, of Cincinnati, says: "It is no exaggeration to say that the surface indications, taken in connection with the evidence to be obtained at the openings already made, show that this is one of the most extensive deposits of iron ore in our country. The iron made here before the war was of a very tough and superior quality, as may be known from the application of the severest tests, which show it to be of the highest grade. I saw a bolt of this iron, made in the forge at Tellico, bent in the form of a letter S, and actually hammered together cold, without in any way cracking or

fracturing it. This bolt was one half inch in diameter. And speaking of the slate deposits he says: "There are inexhaustible deposits of fissile slates of decided brown, green and black colors. The brown and green slates are found on no other property in the South as yet, and for these colors the slate men have been compelled to send to the Vermont quarries for the purpose of mixing them with the black slate."

THE WESTERN IRON BELT OF TENNESSEE.

Written for the Engineering and Mining Journal by J. B. Killebrew.

The western iron belt, by far the most important in Tennessee, covers 5000 square miles, and occupies the western side of the highland rim which borders the limestone basin of Middle Tennessee. It includes the counties of Stewart, Montgomery, Houston, Humphries, Dickson, Perry, Hickman, Lewis, Wayne, and Lawrence on the eastern side of the Tennessee River, and Benton and Decatur on the western side.

Geologically it appertains to the Lower Carboniferous formation, and mainly to the siliceous group of that formation.

Topographically it presents generally a slight rolling plateau traversed by numerous streams which cut down through the strata of the Lower Carboniferous often to the Devonian and Upper Silurian, and in the Duck River Valley to the Cincinnati rocks of the Lower Silurian, presenting in places a deeply eroded surface. Its elevation above the sea varies from 400 to 1000 feet.

In this belt occur two classes of iron ore, namely, the brown hematite or hydrous oxide, and the red hematite, or anhydrous oxide. The last is limited in extent and is confined to two or three banks near Clifton, in Wayne County, about 100 miles southwest of Nashville. Rich specimens, however, are found associated with the hydrous oxides at other points. In all the counties named brown hematite of excellent quality is found in workable quantities. It usually occurs in banks imbedded in a matrix of clay, associated with more or less decomposed chert in angular masses, water worn pebbles, and sometimes, though rarely, with lumps of sandstone. These banks are very variable in extent, sometimes embracing an acre or two only, and then again covering many square miles. In thickness the beds are also quite variable, ranging from a foot or more to over a 100 feet. In the best banks probably four fifths of the material is good ore, but generally a bank is considered good when one half or one third the material is merchantable ore.

The ore occurs in the various well known forms.

Associated with these, and more especially with the pot ores is turgite, and for that reason it is often taken for a hydrous oxide, though really anhydrous. It often constitutes one of the interior concretionary layers that form the crust of the hollow ball-like mass; but it may be distinguished from the hydrous oxide by its superior hardness, its red streak, and by its decrepitation when heated. The line of demarcation between this and the hydrous oxide is very distinct, and the cohesion is very slight. The association of turgite with the hydrous oxides gives great richness to many of the banks in the western iron belt, and analyses of specimens show 63 per cent of metallic iron.

Still another valuable associate is goethite, called sometimes needle ironstone. It occurs in acicular crystals or slender prisms, often radiately grouped so as to resemble the form of a rose. This is a very beautiful and valuable ore, clear and pure, having about 90 per cent of the sesquioxide of iron and 10 per cent of water. It is intermediate between the brown hematite and the turgite.

The following are a few of the analyses of the ores as found in the various counties.

Two complete analyses by J. Blodget Britton from ores taken from Stewart County show:

Pure metallic iron	57·84	59·22
Oxygen with iron	24·37	24·88
Water	11·96	11·06
Insoluble siliceous matter	3·59	3·21
Soluble silica	0·78	0·13
Sulphur	none	none
Phosphoric acid	0·54	0·36
Alumina	0·13	0·49
Lime	0·05	0·17
Manganese	0·03	0·06
Manganese, undetermined matter and loss	0·71	0·42
	100.00	100.00
Phosphorus	0·24	0·16

A specimen from Mill Creek bank, in Hickman County (Britton's, analysis), shows: metallic iron, 49·23; siliceous matter, 17·59; sulphur, none; phosphorus, ·304.

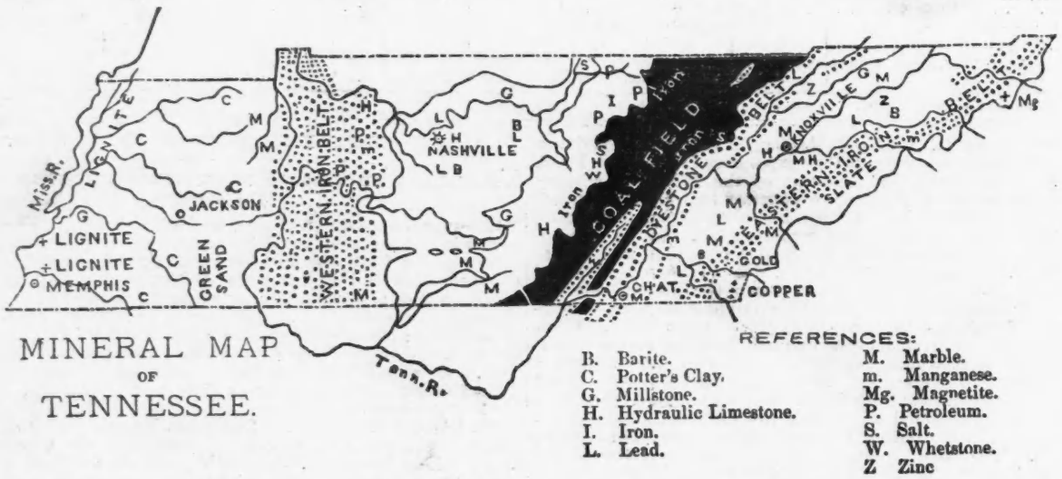
This shows far more than an average of siliceous matter. Out of eight analyses reported of ores from this belt in the United States census, six show the amount of silica to be between 5 and 7 per cent, the other two between 12 and 13 per cent. In the same group of analyses the metallic iron varies from 51 to nearly 56 per cent, and phosphorus from ·197 to ·522. The lowest amount of phosphorus which I have seen in any analysis was ·041, and this specimen was taken by myself from the Ætna bank in Hickman County. The same specimen contained 59·89 per cent of metallic iron, and 3·35 per cent of siliceous matter.

Probably the average of a hundred analyses of the ore from this region would give: Metallic iron, 52·00; siliceous matter, 9·00; sulphur, ·05; phosphorus, ·35.

The most noted deposits yet found in the western belt are those belonging to the Cumberland Iron Works, and to the La Grange furnace in Stewart County, and those of the Cumberland furnace in Dickson County; the Nunnelly banks, the Ætna banks, the Iron Hill banks, and the Hurricane banks in Hickman County, the Cedar Creek banks of Perry County, the Wayne furnace banks, covering many square miles in Wayne County, the Tucker, Wright, and Sharpe banks in Lawrence County, and the Napier furnace banks in Lewis. There are hundreds of other large deposits which have not been worked, but which promise the most gratifying results to their owners. Of these are the Allen Creek banks in Wayne County and the Rockdale banks in Lewis and the edge of Maury.

At present there are five furnaces in operation in this belt, with the following output: Wayne furnace, Hickman County, 1300 tons per month; Ætna, Hickman County, 1300 tons per month; Standard, Hickman County, 650 tons per month; La Grange, Stewart County, 1300 tons per month; Drouillard, Dickson County, 750 tons per month.

Bear Spring furnace, belonging to the Cumberland Iron-Works property, in Stewart County, has a capacity of 15 tons per day, but it is now in blast.



The fuel used in all these furnaces is charcoal; the average amount used to make a ton of iron is about 100 bushels.

All the furnaces make a standard grade of foundry iron, bringing in the market from $2 to $2.50 per ton more than is paid for iron made by coke. The Warner and Ætna also make largely of car wheel iron. The peculiar excellence of the iron made from the ores of this region consists in its softness and toughness. It is used largely in the Pullman shops, the Deering Agricultural Works, the McCormick Reaper Works, and the Chicago Car Wheel Works.

The five large furnaces now building in Sheffield, Ala., the two in Florence, Ala., and the two at Nashville, Tenn., will rely mainly upon this belt for ores.

The advantages possessed by the western iron belt for making iron may thus be summarized:

1. Ores easily mined, the cost of 50 per cent ores delivered at Sheffield being $1.90, and at Nashville $2.22½ per ton.
2. Abundant facilities for transportation both by river and rail, with every market in the Mississippi Valley easily accessible.
3. Available ores of great variety for the manufacture of any desired grade of iron.
4. Ample supplies of good wood for the manufacture of charcoal and supplies of coal from Tennessee, Alabama, Southeastern Virginia, and Eastern Kentucky for the manufacture of coke.
5. Abundance of good limestone for flux, costing only blasting and cartage.
6. Abundance of cheap labor.
7. Mildness of climate, the effect of which in the matter of cost of labor is very perceptible.
8. Fertility of soil, making food cheap.
9. Smaller investment of capital necessary to secure iron and coal property.
10. The whole region is threaded with perennial streams, furnishing any needed supply of water.

The future of this iron belt is very bright and promising. Every furnace which has been properly built has not only been able to run during periods of the greatest depression, but has constantly paid good dividends, besides meeting promptly the interest on its bonded indebtedness.

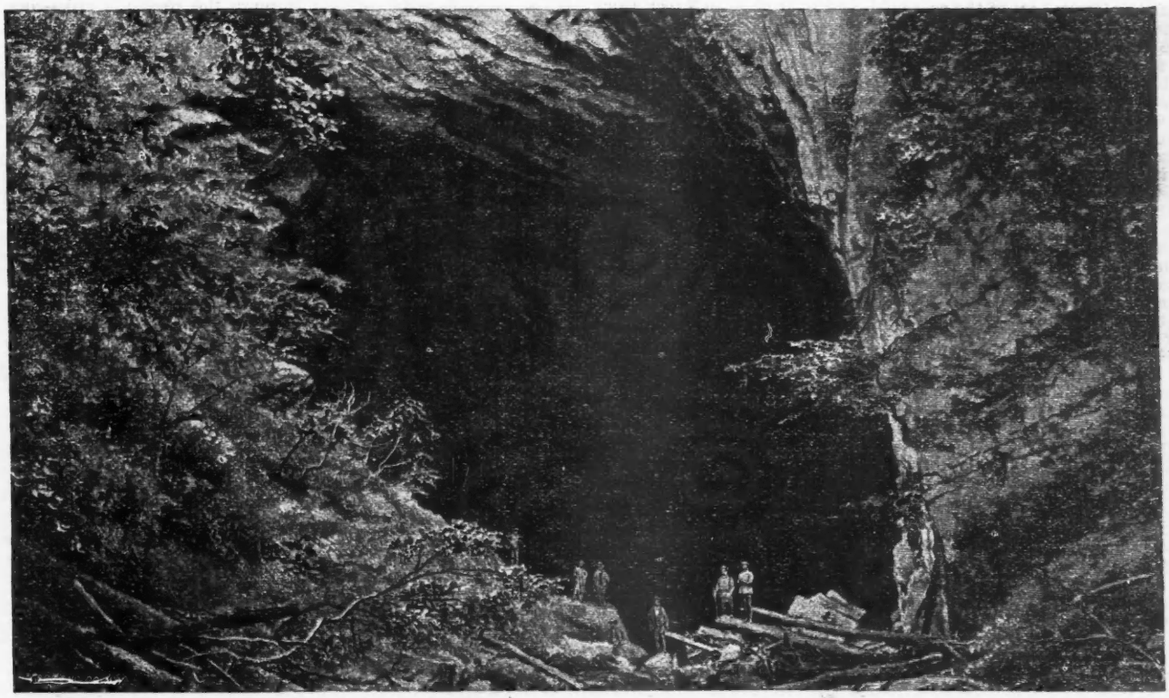
Lying in Kentucky, immediately north of the Western iron belt of Tennessee, is the peninsula formed by the Cumberland and Tennessee

rivers as they approach each other and empty into the Ohio at Smithland and Paducah respectively. The iron deposits described above extend throughout the full length of this territory, and the Kentucky State geological reports of both David Dale Owen, and Professor Shaler indicate that there are also, in the northern extremity of the peninsula, valuable deposits of galena, fluor-spar, and both fire and potter's clay. In close proximity to this iron ore region, to the northeast, are the coal-fields of Western and Central Kentucky, which are accessible by both the Chesapeake & Ohio and the Louisville & Nashville railroads; and in the way of water transportation, the peninsula enjoys the striking advantages of a practical junction of the Cumberland, Tennessee, and Ohio with the Mississippi River.

THE GREAT NATURAL TUNNEL ON THE SOUTH ATLANTIC & OHIO RAILROAD, VIRGINIA.

The remarkable Virginian cave, of which we illustrate one of the portals, is at once a mammoth cave, a great bridge, a natural tunnel for a railroad and a water way for a river through a lotty range ot mountains. It is indeed a wonderful natural curiosity, and is situated in the heart of the grandest and most picturesque portion of Appalachia. The celebrated Natural Bridge of Virginia, which, on account of its strangeness, attracts thousands of visitors yearly, when compared with this, dwindles into comparative insignificance.

This great bridge, which nature has builded, spans, for a length of 930 feet, a noble stream, with an arch which has a clear span in places of



THE GREAT NATURAL TUNNEL ON THE SOUTH ATLANTIC & OHIO RAILROAD, VIRGINIA.

more than 150 feet and a thickness over the crown of 400 feet of solid limestone beds.

About 200 feet in from the lower or southern portal is an almost perfectly formed circular dome, over 150 feet in circumference, rising, in the semi-darkness, to an immense height.

At the lower portal, the approach to the tunnel is through a semi-circular cañon, the walls of which are 520 feet in height, overhanging the water at the foot.

THE SEQUACHEE VALLEY OF TENNESSEE.

Written for the Engineering and Mining Journal by Wm. M. Bowron, M.E.

This ridge is underlaid by a seam of iron ore of an average thickness of four feet, whilst Cumberland Mountain across the valley contains coal in similar thicknes and manifold area.

The coal of Cumberland Mountain (numerous analyses over 70 miles length) gives: Fixed carbon, 63·00; volatile matter, 30·00; ash, 7·00; sulphur in ash, 0·30.

The ore, which is a stratified bed underlying Walden's Ridge (4 to 5 feet thick) gives the following analysis: Sesquioxide of iron, 42·00; silica at outcrop, 17 per cent inside. 6·00; carbonate of lime, 47·00; alumina, 5·00.

The minerals of this valley were reported on by me, and the report may be found in the Transactions of the American Institute of Mining Engineers. The ore works kindly in the furnace, making a soft iron that stands remelting unusually well.

The following furnace charge is given as a specimen of successful work. The soft ore was from Birmingham, Ala., but an immense supply is available by the Tennessee River from the Kingston, Tennessee, district: Cumberland Mountain coke, 4000 pounds; Sequachee Valley ore, 4200 pounds; soft ore, 3500 pounds; limestone, none, producing foundry iron.

There is only one manufacturing town in Sequachee Valley, and that is South Pittsburg, a city of some four thousand people. Here are located three furnaces of the Tennessee Coal, Iron and RR. Company, large machine shops and foundry, also belonging to the same company, together with numerous other manufactories of varied character.

My father, sent out by his associates from the Middleborough district of England specially to find the place where the best conditions for making iron at a commercial profit were obtainable, selected the Sequachee Valley after a careful examination of every iron-producing district in the United States. That established the furnaces here, and the town site naturally followed. It was personal investigation that induced the location of every manufactory in the valley, and it is the fact that iron for manufacturing purposes can be bought here for $2.75 per ton cheaper than in Cincinnati that gives the locality its promise for the future.

THE EXTENT AND VALUE OF EAST TENNESSEE'S MINERALS.

Written for the Engineering and Mining Journal by Geo. B. Cowlam.

The Cumberland table lands, lying in a northeast and southwest course across the State of Tennessee from Kentucky to Alabama, and containing an area of five thousand one hundred square miles, constitute the coal-field of Tennessee. Its limits are shown on the accompanying map.

The Tennessee coal-field, in its plateau character, differs from any other portion of the great chain of which it forms a part, and which, beginning in southern New York, extends through Pennsylvania, West Virginia, Kentucky, and Tennessee into Alabama, being cut through but by two rivers in its entire length, New River in West Virginia and Tennessee River in Alabama.

The length of this great Tennessee plateau, in a line parallel with its general direction, is nearly a hundred and fifty miles; its width from 30 to 60 miles.

The southeastern escarpment is an abrupt wall nearly a thousand feet above the great Valley of East Tennessee, but little indented, and makes very nearly a straight line. The northwestern line of the plateau is very irregular, large and numerous coves cutting into it along its entire length. The western brink, like the eastern, lies about a thousand feet above the lands at its base, but is approached by slopes and short benches. These slopes, as well as the coves from which they spring, are very heavily wooded. The general elevation of the plateau is about two thousand feet above sea level.

Aside from the irregularities of the western line from the encroachment of coves, the plateau is otherwise considerably cut up. The southern portion of it is cut in twain by a gorge, or sink, lying 800 to 1000 feet below the plateau level, about sixty miles long, with an average width of about five miles, and known as Sequatchie Valley, which makes up from the Alabama line. That arm of the plateau east of Sequatchie Valley, about ten miles wide by sixty long, is known as Walden's Ridge. Above Sequatchie Valley and in line with it, up to Emery River, is a chain of mountains known as the Crab Orchard range, and between these mountains and the eastern escarpment the general feature is an elevated shallow trough, rising at the outer edge. Still above the Crab Orchard range, along the eastern side, the plateau character is lessened, and in Anderson and Campbell county it is replaced by a wholly mountainous region of ranges and cross ranges rising two thousand feet and upward above the general level. The northwestern portion of the coal-field is plateau in character, but is

much cut by deep lying streams, tributaries of Cumberland River, flowing northward to the main stream.

THE COAL MEASURES.

These form the top of the Cumberland table land, resting upon the mountain limestone. This later strata shows high up the slopes along the entire western side of the plateau. It is about four hundred feet thick near the Kentucky line, and upwards of seven hundred as the Alabama line is neared on the western side of the coal-field. Its upper line slowly rises going southward. At Standing Stone, where the line of the Nashville & Charleston Railway reaches the western brink of the plateau, it is about 1400 feet above sea level At Sewanee, sixty miles southward, it is 1600 feet above sea level. Its elevation on the eastern side of the coal-field fifty miles east of Standing Stone is only about 800 feet above sea level, or below the level of the valley of East Tennessee, while due east of Sewanee it is 900 feet above sea level, and a little above the valley level at that point. The dip on lines crossing the coal-field in a southeasterly direction, or at right angles with its lines of length, are about the same, or twelve or fourteen feet per mile.

There are two coal measures, the lower measures, of varying thickness from a few feet to two or three hundred feet, and containing one, two or three coal seams, and lying between the mountain limestone and the main conglomerate, a strata of from fifty to seventy feet of sandstone mixed with small pebbles of white quartz, and the Sewanee, or main measure, from 200 to 300 feet in thickness, and lying between the main conglomerate and the "upper conglomerate," which forms the cap rock of the plateau. The Sewanee measure contains one main coal seam and two or three small unworkable seams. The Sewanee seam is the main seam of the plateau part of the coal-field, and is from 3 to 7 feet thick. In some places in Cumberland County it has a local thickness of 10 and even 12 feet, but its average thickness is probably 4½ to 5 feet.

The measures, as well as the character of coal, vary in different localities. In that part of the plateau lying west of Sequatchie Valley, of which Sewanee is near the center, the lower measure seams are thin and unreliable, and the Sewanee seam is the main dependence and the only seam worked. It is a good coking coal, but, because of its spurious and friable character, is not a good shipping coal. Farther north, along the western brink, in White and Putnam counties, the lower measure coal seams approach nearer to the coast and diminish in number, but the main seam of this measure becomes thicker and more persistent. In White County there is one good workable seam and sometimes two, and in Putnam County, on Whittaker's place, at Standing Stone, the outcrop of the main seam of the lower measures, lying within a few feet of the main conglomerate, which here forms a thin cap rock, is nine feet in thickness and is a hard, fine block coal. The upper or Sewanee measure is also thinner near this point, the upper conglomerate outcropping a mile or so east of Standing Stone. Within a mile of Whittaker's a seam of the Sewanee measure shows a thickness of seven feet. The thickness shown in both measures here may be local. In Overton, Fentress and the greater part of Morgan and Scott counties the cap rock is the lower conglomerate, leaving beneath it only the lower measures. But in Fentress County extensive borings have shown the lower measures to contain large areas of coal beds with thick seams, and yielding a hard, cubical, free burning coal, very valuable for shipping, and some of which is said to have been successfully worked raw in a blast-furnace.

THE HEART OF THE COAL-FIELD.

The heart of the coal-field, containing the largest area of unbroken plateau underlaid by both the lower and the Sewanee measures, and which permits a line of transportation to cross it, is comprised in the county of Cumberland, added to on the west by the plateau portions of White and Putnam, and on the east by the projecting southern corner of Morgan and a narrow strip comprising the plateau portion of Roane County. This would comprise over a thousand square miles of unbroken coal measures. A line of road ascending the plateau from the west, either by the gorge of Calf Killer Creek or by Cookeville and Standing Stone, and crossing the plateau via Crab Orchard Gap, descending to the valley of East Tennessee by the gorge of White's Creek, would cut through the middle of this region. This is, in fact, the line surveyed and now being located by the Nashville & Charleston Railway Company from Nashville, Tennessee, to Charleston, South Carolina. A short line, crossing their line at right angles at a point midway between Crab Orchard Mountain and the western escarpment of the plateau, would connect the large arm of the plateau west of Sequatchie Valley all underlaid with the Sewanee measures, and good coking coal, with the very large known basins of free burning block and splint coals, especially valuable for shipping, of Fentress County, thus concentrating at the point of intersection the coals of two thousand square miles of the most uniform coal measures for distribution east and west. This crossing line would be very cheaply built along the almost dead level surface of one of the undulations of the plateau that are parallel with its lines of length and at right angles with the crossing line. No other portion of the American coal-fields shows so large an area known to contain all the valuable kinds of coal, anthracite alone excepted, which can be developed by so small an amount of cheaply built railroad. The survey of the Nashville & Charleston has shown that, with moderate work, a sixty-foot compensated grade can be had up and down the plateau, on either side, by the line indicated. In the portion of this section lying east of Crab Orchard and between it and the eastern escarpment, three workable seams are found, two of them hard, lustrous and cubical, and valuable for shipping, and the third a coking coal similar to that mined at Rockwood, of the Sewanee seam, but probably purer than the coals now mined in the broken strata along the line of the Cincinnati Southern Railroad.

The market for the plateau coal, once it is connected with the railway system of the South, comprises the greater portion of the Southern States, and a large part of the country along the north side of the lower Ohio. One local field that will grow to be a large consumer at an early day is that very remarkable section comprising the counties of Stewart, Montgomery, Houston, Humphries, Dickson, Perry, Hickman, Lewis, Wayne, Lawrence, Benton and Decatur, known as the Western Iron Belt of Tennessee, crossing the State parallel with and 100 to 150 miles west of the plateau.

Turning attention to the country eastward from he coal-fieid we find an even more remarkable aggregation of ron ores whose development will rapidly grow out of a line of road connecting it with the coal of the plateau. And, aside from the iron, there are the most favorable conditions of other wealth—marble, cream, red and black fire clays, kaolin, brick clays, red sandstones roofing and paving slates, vast areas of magnificent timber, the best of agricultural lands and the finest conditions of climate, health, good water and abundant water power.

THE FOSSIL ORE BELT.

Immediately along the eastern base of the plateau is a belt of dyestone or fossiliferous hematite. The first vein of it is in a ridge that is persistent, and almost joins the plateau for a hundred and fifty miles north from Chattanooga. Between this ridge and the Tennessee River, which runs parallel with and within a few miles of the base of the plateau for eighty miles above Chattanooga, and crossing the river at many points, the fossil ore outcrops or spreads over ridges for several miles. The widest development of the fossil belt is a little to the north and east of the mouth of White's Creek, on the opposite side of the river, where it covers, from the first named ridge, a distance eastward of about twenty miles. The very small beginning of work now done on the ores of this belt constitute the main supply of the furnaces along the Cincinnati Southern road from Emory Gap to Chattanooga, and of the latter city. These ores range in yield of metallic iron from 40 to 53 per cent. This quantity is equal to any demand for generations to come. They work well in the furnace, and in spite of poor coke and other drawbacks a prosperous iron making business has been founded upon them, small at present, but capable of great expansion when any system of transportation shall open them up. As they lie between the Cincinnati Southern and the East Tennessee, Virginia & Georgia railroads, and have also a large navigable river running through the region, a cross-country railroad will give them large and immediate outlet.

THE LIMONITE ORE BELT

of East Tennessee lies along the western slope (and for some miles to the west of it) of the Chilhowee range, and in the valleys and coves between this and the main range. These ores range higher in metallic iron and much lower in phosphorus than the fossil ores, and in the counties of Monroe and Blount, east of the fossil ore section described, and on either side of Little Tennessee River where it cuts through the smoky and Chilhowee ranges and cross to the eastern half of the valley of East Tennessee, the width of the belt is about twenty miles, and the quantity of ore very great. The quantity of metallic iron ranges from 44 to 58 per cent, and phosphorus from 0·030 up to 1 per cent. In two or three large banks the phosphorus ratio is well inside of Bessemer steel making requirements, and in many of them very close to this limit.

SPECULAR AND MAGNETITE BESSEMER ORE.

The Little Tennessee River cuts through the Great Smoky Mountains by a pass of nearly fifteen miles length, whose walls rise on either side to a great hight, generally upward of 1000 and in places 1500 feet. Ascending the river, when this great gorge is passed the river is followed through the upland valley lying between the Great Smoky and Blue Ridge chains, rising, in a distance of 125 miles from the first pass in Chilhowee Mountains to the summit of the Blue Ridge in Robun Gap, Georgia, a distance inside of 1300 feet. The surveys of the Nashville & Charleston Railway show that the great wall of the Smoky chain can be passed through by grades, with compensation for curvature, much inside of 50 feet to the mile, and that the whole distance from the valley of East Tennessee through the Smokies and to the summit of the Blue Ridge, inside of one per cent. No other line in the entire length of the Appalachian chain can equal this in grades. Cross ranges from the Blue Ridge to the Smokies—the Balsam range on the north and the Nantahaleh Mountains on the south of this line—form an area, which, with like tributary areas between the smoky range and its outliers and the Blue Ridge and its outlying ranges, comprises fully 5000 square miles of mountain side and valley tributary to this line and its passes at Chilhowee Gap, in Tennessee, and Robun Gap, in Georgia.

Investigations carried on during the past year under the direction of the writer have disclosed five veins of magnetic iron in Macon County, North Carolina, crossing this line, one large vein in Swain County, and a large deposit of fine specular iron, and, besides, large amounts of very high grade limonites, so low in phosphorus as to be within, in some cases, and near in others, to the requirements of Bessemer steel making. Analyses of these magnetites, which are dense, black crystallized ores, show about 65 per cent of metallic iron with only 0·002 of phosphorus. Two veins of granular magnetite were found, very high in titanic acid, one specimen showing 12 and the other 15 per cent, but the crystallized magnetites are entirely free from titanium, their phosphorus runs down to a trace, and they are equally free from sulphur. In the region described they are generally associated with hornblende, instead of pyroxene as at the Cranberry bank.

It must be remembered that in this region, so remote from any connection with railroads, and where a pound of iron has never been made, there has been no incentive to search for iron ore, and local knowledge is pretty near zero. Such investigations as the writer has made have been carried on under great difficulty and much loss of time. These investigations are being continued steadily and vigorously, and with growing good results It should be remembered that what is the eastern, or Adirondack range, in New York, is the Smoky Mountain range in Tennessee, and what is the eastern side of the Alleghany range in Western Pennsylvania, is the Blue Ridge in North Carolina, these two great ranges coming together and crossing each other in Virginia, near Christianburg. As a rule, this is not understood, and this fact has led to much waste of time in prospecting. The Blue Ridge is the water-shed in the South, its streams flowing through the higher Smoky range to the west, just as it is on the west of the Blue Ridge in the North, the water-shed whose streams flow through the mountains to the east. It is evident that these parks between the Blue Ridge of the South and the Smokies, formed by cross ranges, were once great fresh water lakes, but the Smoeiy chain, forming the western bank, was cut through, and they became valleys. It is in the Smoky range, and not in the Blue Ridge, where the largest bodies of magnetite are found, and this field is now being thoroughly investigated. But investigations already made cover several million tons of magnetic ore above water level.

Here, then, along a line of less than one hundred and fifty miles, one

end of which rests upon the heart of the coal-fields, are fossil, limonite, specular and magnetic iron ores of the best quality and in large quantity. A road connecting them with each other and with the coal, would have, at present, Knoxville, Chattanooga and Birmingham as markets for these ores, and the future would probably develop a point for their concentration on a still shorter line than existing centers of production now give. The better and more abundant supply of both coke and iron which this development would give is now urgently needed at existing centers of iron production in the South, which are suffering from short supplies both of fuel and ore, not counting that the demand will be greatly increased by furnaces now being constructed.

The other mineral wealth of the mountain region along the line described is very great, consisting in part of marbles, white, black and red in color; slate, both roofing and paving; red sandstones, fire clay, kaolin, brick clays, asbestus, micas, corundum, talc, soapstone, graphite, granite, etc, and the topography of the country favors their economical collection and manufacture along the line of exchange. These resources are being looked up for development as rapidly as soon as outlet is afforded.

TIMBER.

The largest and most immediate source both of wealth and of traffic is in the unequaled timber which entirely covers this great mountain park. Poplar, white and red oak, chestnut oak, hickory, black birch, black walnut, cherry, ash, and others of the most valuable and largest of American forest trees reach their highest development on the mountain slopes south of the cross mountain known as the Balsam range, the heaviest trees growing up to the tops of the mountains in Blount and Monroe counties in Tennessee, and in Swain, Graham, and Macon counties, North Carolina. The Little Tennessee River has not afforded an outlet for this timber, attempts in this direction having generally resulted in failure. The water power of this region is remarkable both for its extent and its very advantageous distribution along the Little Tennessee itself, in its thousand foot fall divided over a hundred miles of length, and in the tributaries which fall into it from the high mountain sides, and the dry air of this elevated region is very favorable to lumber manufacture all the year round. With a railroad through it, forming, as is proposed, a belt line across the five existing north and south trunk lines between Nashville and the coast, this great timber region would be open to the markets of all parts of the country.

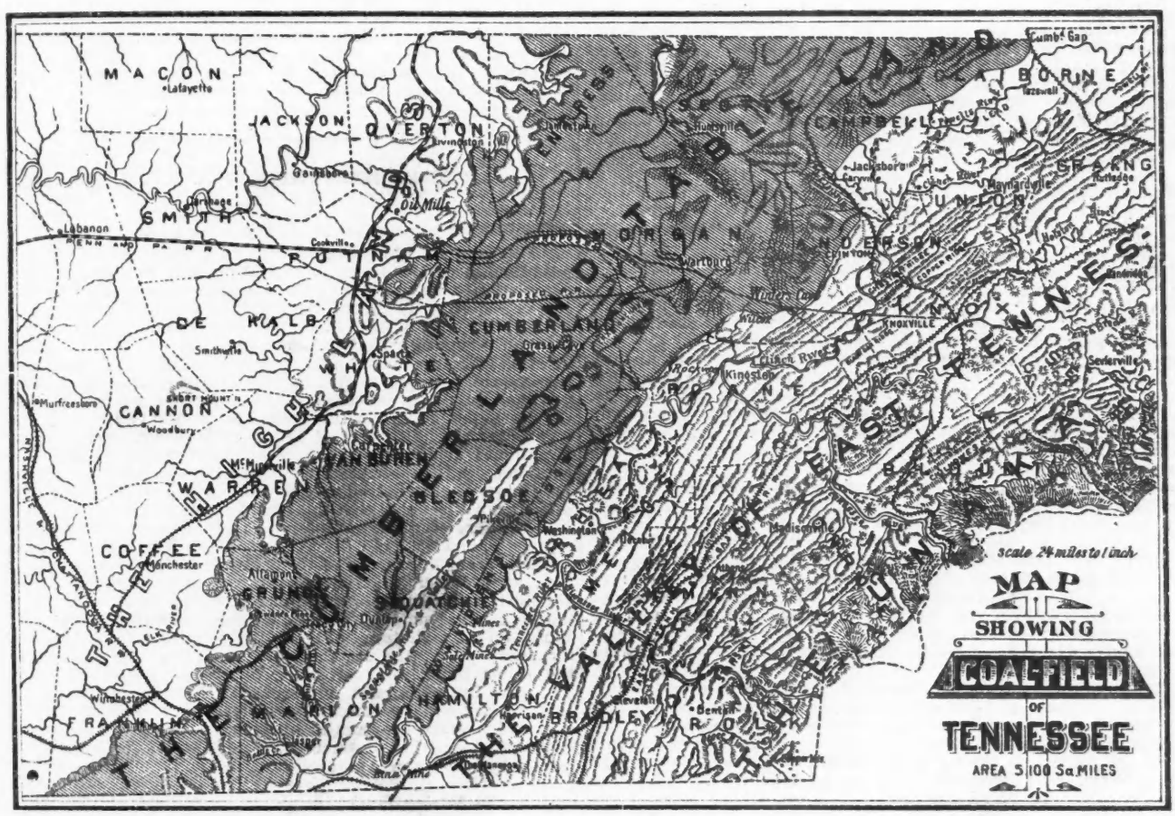
The great manufacturing advantages of both the plateau and the mountain country are apparent. They are enhanced by the fact that both the plateau and the mountain regions have advantages of health and comfortable climate unequaled elsewhere in the South and unexcelled in the world. The plateau country is at present covered with timber, much of which is large and all of which is valuable. Its soil and climate produce the finest fruits and vegetables grown in the South, and in great abundance. The mountain region is a fine fruit country, produces in many parts the finest grades of bright leaf tobacco, and is everywhere an unequaled grazing range. From its mountainous character but a small percentage of it is tillable, and it will always remain a great timber preserve and cattle range. But to compensate for this is the Piedmont and coast country on the east, with grain, and early fruits and vegetables, the great intervening valley of East Tennessee between the mountain and the plateau, and, to the west of the plateau, the rich lands of Middle Tennessee. Here are conditions of variety of products, and advantages for their profitable concentration, manufacture, and exchange, affording the largest and firmest foundation for compact, symmetrical growth. The plateau and the mountain region combined contain wealth enough to enrich the whole South, and their position and surroundings could not be bettered once they are connected by a railroad with each other and with the country, and their wealth opened up.

Such conditions for general prosperity must attract very rapid investment and settlement. Had existing railroads of the South reached and opened up these great sources of Southern wealth, the South would to-day have a very large trade with the Northwest, and a great seaport city in the Carolinas. The amount of wealth to be opened up by such a road is so inconceivably great that these results must rapidly follow the building of a railroad which shall seek, not shun, the greatest wealth of the South.

THE MINERAL RESOURCES OF TENNESSEE.

Written for the Engineering and Mining Journal by Prof. John R. Proctor, State Geologist of Kentucky.

In an article on the mineral resources of Kentucky, published in the ENGINEERING AND MINING JOURNAL, November 19th, 1877, I made reference to the very thick and reliable deposits of superior coking coal in Southeast Kentucky and Southwest Virginia, and its relation to the great deposits of iron ores so conveniently located in Southwest Virginia, East Tennessee, and Western North Carolina. I have been requested to give more explicit information about some of these iron ores.



It was my intention to give a geological cross section from the carboniferous rocks of Kentucky to the Laurentian rocks of North Carolina, showing the position of the various ores; but the time being too limited for the preparation of such a section, I will hope to supply it for publication in a future number of the JOURNAL. Such a section, having a length of less than one hundred miles, will show seven great ore horizons; will show the entire range of American ores, from the very pure magnetites of the lower rocks to the brown ores just below the coal measures.

Before discussing the ores it may be of interest to again make reference to the coking coals by which these ores are to be smelted. In Kentucky, this coal has been traced over a wide area by the Geological Survey, showing a maximum thickness of from six feet to eight feet in Pike, Letcher, and Harlan counties, but in several of the adjoining counties it is thick enough for profitable mining. Immediately beyond the State line the same coal, known as the Imboden seam, has a thickness of from six to eight feet in Wise County, Va. The following analyses, from averaged samples, show the great excellence of this coal over a wide area:

Average of—	Fixed carbon.	Vol. com. matter.	Ash.	Sulphur.
17 Bell County coals	62·63	37·13	3·83	·760
3 Harlan County coals	60·02	35·46	4·25	·940
6 Letcher County coals	61·09	35·00	3·19	·464
6 Pike County coals	63·86	31·67	2·88	·686
Connellsville coal, Penn.	60·39	31·38	7·24	1·090

The analyses from the Imboden seam correspond well with the above.

It will be seen that in chemical composition these coals more nearly resemble the celebrated Connellsville than do the coking coals of West Virginia, Tennessee, or Alabama.

Careful tests demonstrate that a superior coke can be made from these coals. The following analyses show that they possess three of the requisites of a good blast-furnace fuel—high carbon, with low sulphur and ash:

ANALYSES OF KENTUCKY COKES.

Average of—	Fixed carbon.	Ash.	Sulphur.
5 samples of Bell County cokes	93·68	5·84	·765
3 of Harlan County cokes	92·20	6·16	·662
4 or Letcher and Pike County cokes	94·27	5·09	·836

For purposes of comparison, analyses are given below of the principal cokes now in use in this country:

Average of—	Fixed Carbon.	Ash.	Sulphur.
3 samples Connellsville coke	89·962	9 741	·810
4 of Chattanooga, Tenn., coke	80 513	16 344	1·595
4 of Birmingham, Ala., coke	87·299	10·545	1·195
3 of Pocahontas, Va., coke	92·550	5·749	·597
8 of West Virginia	92 38	7·21	·552

In the discussion of the iron ores I will confine myself to a reference only to such ores as I have personally inspected, for I understand that the ores of the Knoxville, Chattanooga, and Western Tennessee district will be treated by others in this same number of the JOURNAL.

Recently it has been my good fortune to prove the existence of a large deposit of limonite, in the Oriskany of the Upper Silurian, extending parallel with the southeastern outcrop of the coal along the base of Cumberland and Stone Mountains, and along the southern slope of Walden's Ridge and a portion of Powell's Mountain, and again present at points on the southern base of the Clinch Mountain. This one is found for a distance of over 75 miles from a point west of Cumberland Gap to Big Stone Gap. Near the latter place by recent openings it has been proven to be a reliable and extensive deposit. The horizon of this one is also brought up through southeastern Kentucky by the great Pine Mountain fault, and I have recently seen a most promising outcrop of this Oriskany ore on the northern slope of that mountain near Pineville, and I have reason to believe that it will be found elsewhere along Pine Mountain.

Carefully averaged samples from a thick deposit in Wild Cat Valley, Wise County, Va., gave following analyses:

	Per cent.	Per cent.
Iron	52·004	52 550
Phosphorus	·165	·051
Sulphur	·08	·037
Insoluble	11·17	7·840

I believe that this ore can be relied on wherever found in the above referred to locations to yield from 50 per cent to 55 per cent of iron, with often less phosphorus than is shown in the above analyses.

Parallel with the above, and often only a few hundred feet distant, there is a stratified Clinton or "Red Fossil" ore, ranging from two to five feet in thickness, and averaging from 45 per cent to 54 per cent of iron. This extends, also, along parallel with the eastern base of Cumberland and Stone Mountains, in East Tennessee and Southwest Virginia, as far east as Wise County, and is again duplicated along the slope of Powell's Mountain and Walden's Ridge.

I have seen an excellent ore resting upon the Medina sandstone, and an altered carbonate in the Chemung shales, but have not had an opportunity to test the extent of the deposits.

North of Clinch Mountain brown ores are found both in the Trenton and Knox of the Cambro-Silurian, and also in the same formations of the great limestone valley beyond. In Sullivan County, Tennessee, near Bristol, are promising deposits of brown ore, found along well-defined horizons running northeast and southwest. Averaged sample from one of these mines gave: Iron, 57·63 per cent; phosphorus, ·018 per cent; and other analyses from same ore gave over 60 per cent of iron, with the phosphorus very low.

There is also in the same county, found in connection with some of the brown ore, a compact specular ore, somewhat magnetic, 56 per cent and upwards of iron, and ·038 per cent and less of phosphorus. The great and reliable deposits of brown ores in East Tennessee—excepting Oriskany—are found, so far as I have seen, in Unicoi, Carter, and Johnson counties. The Tennessee car wheel charcoal iron, made from these ores, has for years had a high reputation, but in the future these abundant deposits of high grade limonites will furnish cheap ores to the coal furnaces to be built. In Unicoi County there are several horizons of brown ores associated with the dolomites and shales of the lower Cambro-Silurian. In this county there are also large deposits of brown ores in the Potsdam formation. I append analyses by the U. S. Geological Survey from carefully averaged samples taken by myself from thick deposits:

	Per Cent.			
Iron	56·318	41·626	46·407	51·40
Manganese	trace	12 130	3·473	3·01
Phosphorus	1·432	1·237	·741	·761
Sulphur	·059	·057	·077	·092
Silica	3·32	3·85	5.063	6·26

In this county there are also large deposits of manganese. The following analyses are from averaged samples collected by the writer:

	Per cent.	
Manganese	39·37	44 94
Iron	2·04	2·70
Phosphorus	·116	·282
Sulphur	trace	none
Silica	18.10	3.14

In Carter and Johnson counties, in the waters of Stoney Creek, Little Doe Creek, and Roane Creek, are numerous deposits of brown ore, often very thick and most favorably located for cheap mining. These ores, from a number of analyses, range from 47 per cent to 63 per cent of iron, and from ·019 per cent to 1·595 per cent of phosphorus.

Along the banks of the Unaka Mountains in East Tennessee deposits of specular ores have been found, though but little search has been made; and when the country is well exploited, very extensive deposits will doubtless be brought to light. These specular ores have from 55 per cent to 65 per cent of iron, from ·003 per cent to ·044 per cent of phosphorus; in fact, I have not seen an analysis of specular ore from this region in which the phosphorus was not below the Bessemer requirements.

Extending through the counties of Ashe and Mitchell, in North Carolina, and in a portion of Carter County, Tenn., are found the largest and purest deposits of magnetic iron ores known in this country, excepting the Lake Superior magnetites, and these are the nearest Bessemer magnetites to coking coal in this country. These ores range from 45 to 66 per cent of iron, and are always, in the counties named above, very free from phosphorus and sulphur. The only large development yet attempted on this line of ores is at Cranberry, Mitchell County, N. C. A few years ago there were only a few surface pits here, the great mass of ore being hidden by quite a thickness of decomposed gneiss. Recently the face of the hill has been uncovered, showing an enormous mass of very pure magnetic ore, near 400 feet thick, to a height of 300 feet. The mining is now simply quarrying in open cut, and the ore is probably mined at less cost than any similar ore in this country. With the extension of some of the projected railways into this field other important mines will doubtless be developed on this remarkable ore. Recently a mine has been opened east of Cranberry, a few miles, at the base of the Potsdam. This is reported as over 50 feet thick of most excellent ore. Waterways cut gaps in the great Smoky Mountains on the one side, and the Carboniferous Mountains on the other, making easy passageway for railways connecting the coke with these great ores, and crossing all the ores I have mentioned above.

The mountains to the north are the highest of all the mountains in the Appalachian coal field, and the mountains of Western North Carolina tower above all the peaks of the entire Appalachian region, and the valleys between are so lifted up as to give the perfection of summer climate; yet nature has provided natural routes for cheap railway lines on low grades. It is a region of surpassing loveliness, the purest of waters in greatest abundance, a flora unexcelled in variety, a combination of mineral and agricultural wealth nowhere found in greater perfection. It only awaits the completion of the several railways now being pushed to completion to insure a development probably surpassing any thing yet seen in this, our country of marvelous progress.

MODERN AMERICAN METHODS OF COPPER SMELTING.

The London *Mining Journal* of December 3d says:

"This volume, which is made up of a series of papers which have been published at various times by the author, is without doubt the most complete treatise that has yet been produced upon this subject—namely, copper smelting in North America; for it may be remarked that the author, like most citizens of the United States, uses the term 'American' as meaning 'North American' only. With this limitation—no mention being made of Chilian copper smelting, for instance—it is all that might be expected from a metallurgist of such an established reputation as Dr. Peters possesses. And if further guarantee were needed of the high standard of this book, such would be found in the fact that it has had the advantage of being revised by, and is dedicated to Mr. James Douglas, Jr.; the compliment which is paid to the latter gentleman in the inscription we are pleased to have an opportunity of here indorsing, as indeed no one who has known Mr. Douglas can fail to do. It must be noted that this book has been written by a metallurgist for metallurgists; it is not intended to be a text-book of the subject in any sense, and readers will have to come to it, prepared with more than an elementary knowledge of the sciences, such as chemistry, mineralogy, etc., upon which that of metallurgy is based. This, however, is as it should be; text-books of metallurgy are sufficiently plentiful, we having notably among English ones, the very complete work of Dr. John Percy, on the metallurgy of copper, which is now, and is likely to remain for many years, the standard text-book on the subject, while, on the other hand, books treating of the practical side of this subject are by no means numerous. Of course, it may be caviled that no art can be taught by books, yet a book such as the present one, which gives the results of many years' accumulated experience of practical smelting, has a most decided value for even the practical man, when he aspires to any thing beyond mere rule of thumb in the practice of his art." After a very full, able, critical and complimentary review, the *Mining Journal* concludes as follows: "This work is essentially a practical one, and should, therefore, have a special value for British copper smelters, who have here an excellent opportunity of studying the processes that are being adopted by their North American competitors. It is to be hoped that their well-known exaggerated conservatism will not prevent their carefully weighing and examining the statements of methods and costs in this book, so that any improvements that may be suggested upon existing processes may receive due consideration and a fair trial in this country. There are but few points to which the author's attention needs to be directed. It is to be regretted that the scheme of the author's work did not embrace some account of the distinctively North American wet processes, more especially as Mr. Douglas's co-operation would have been most valuable in this branch of the subject, which he has so long been working out practically. It is to be hoped that Dr. Peters will complete his labors by producing a volume upon this portion of the Metallurgy of Copper at no distant date, as complete and as practical as the one that we have now before us."

The Value of American Mine Management.—In reviewing the mining industry of the province for the past year, the Halifax, Nova Scotia *Critic* says: "It must be admitted that the mines purchased with United States capital, and managed by American miners, have heretofore proved much more successful ventures than those owned and managed by Englishmen. This has been most unfortunate, as the gold mines of Nova Scotia have thus, most unjustly, been given a bad name in the English market, while the fault, in nearly all cases, has lain with extravagant and incompetent management. We say in nearly all cases, as the fact remains, and we are sorry to have to confess it, that in two or three cases English capitalists have been made the victims of most bare-faced swindles."

PERSONALS.

Mr. E. N. Riotte, Mining Engineer, of this city, has gone to Montana on professional business.

Dr H. Pirngruber has been engaged as chemist by the Piedmont Reduction Company, at Thomasville, N. C.

Mr. James Douglass, mining engineer, has returned to this city from Arizona, where he had been on professional business.

Mr. Richard F. Parker, mining engineer, has severed his connection with Messrs. Moore, Benjamin & Co., and is now in this city.

Mr. Fred G. Buckley, Superintendent of the Aspen Mining and Smelting Company, Aspen, Colo., has accepted the position of manager.

Mr. F. M. Taylor, of Taylor & Brunton, Mining Engineers, has returned from Leadville, Col., and has gone to England on professional business.

Mr. Charles L. Hill has assumed the management of the Colonel Sellers mine at Leadville, Colo. Mr. W. F. Patrick has become financial agent.

Mr. C. O. Ziegenfuss, who has been connected with Denver and Butte papers, has taken an interest in and assumed charge of the San Diego *Bee*, Cal.

Mr. William Barclay Parsons, vice-president of the Leflin & Rand Powder Company, died in this city on the 31st ult., after a protracted illness, aged 59 years.

Mr. E. C. Darley, of Pittsburg, Pa., who will superintend the construction of the new blast-furnace for the Oregon Iron and Steel Company at Oswego, Oregon, is now at that place.

Mr. Andrew Titzell, one of the best known mill managers in Pittsburg, died at his home in Kittanning, Pa., on the 29th ult., aged 65 years. During the past thirty years he had been superintendent of the Union Iron Works, South Side; the Elba Bolt and Iron Works, and the Fort Pitt Iron and Steel Works, of Pittsburg. At the time of and prior to his death he was connected with the Kittanning Iron Company.

The office of the Rocky Mountain Division of the United States Geological Survey at Denver, Colo., was closed on the 1st inst., and the headquarters will hereafter be in Washington. This division was established in 1879, while Clarence King was director of the survey. Mr. S. F. Emmons, then living in Cheyenne, was appointed geologist in charge, and for a time he established the headquarters of the division in that town. The following year it was moved to Denver.

The personnel of the division has changed but little since its organization. Mr. Emmons is still geologist in charge. Mr. E. Jacob, who aided greatly in the Leadville work, broke down and retired. Mr. W. F. Hillebrand, the chemist, was called to Washington three years ago, and the chemical work has since been done by Mr. L. G. Eakins. The force now consists of Messrs. Emmons, Whitman Cross, L. G. Eakins, W. B. Smith and G. H. Eldridge.

FURNACE, MILL, AND FACTORY.

It is stated that the copper-works at Bronxville, N. Y., which closed last September, are to open again next week.

The Otis Iron and Steel Company, of Cleveland, Ohio, is building two open-hearth furnaces on the general principles advocated by Frederick Siemens.

The Farrell Foundry and Machine Company, of Ansonia, Conn., is erecting a large factory, which, when completed, will nearly double the present capacity.

The Bellefonte Furnace Company's furnace, at Bellefonte, Pa., has been completed, and operations are about to begin. The iron will be made from the Center County brown hematite ore.

The Jeffrey Manufacturing Company, of Columbus, O., report that their sales for chain belting, elevating and conveying machinery in 1887 were much greater than any previous year, and the outlook for 1888 is very encouraging.

The Duquesne Tube Works, Duquesne, Pa., were to be put into full operation this week. A successful trial at the manufacture of pipe has been made, and the prospects are that when the works are started there will be no interruption.

A forty-ton hot blast smelter of F. L. Bartlett, of Portland, Me., together with crusher, blower and other machinery, is to be erected at Crittenden, Arizona, where Messrs. Morder, Luse & Co., of Chicago, own several mines.

Davidson Motor Company has been organized at Cincinnati, O, with a capital of $100,000, for the purpose of manufacturing the Davidson steam motor, recently patented. The plant will be at Nashville, Tenn., and will be erected at an early date.

From January 1st, the name of the company owning the Union Iron Mill, at Pittsburg, Pa., will be Carnegie, Phipps & Co., instead of Carnegie Brothers & Co. The former company, therefore, will then control the Homestead Steel-Works, the Union Rolling-Mill, and the two Lucy furnaces.

It is reported that the Italian Government is endeavoring through its Minister to this country to make arrangements with American manufacturers of steel for furnishing armor plates for Italian war vessels, the intention being to secure a source of steel supply outside of Europe in the event of a war on that continent.

The Julien Electric Traction Company has been organized with a capital of $3,000,000, and incorporators are William Bracklin and L. Willoughby, of Philadelphia, and Edward O. Coles, of East Orange. The new firm will manufacture electrical appliances, and build machinery for electrical railways. The plant will be centred in East Orange, N. J.

The Laclede Plate and Sheet Mill Company has been incorporated at St. Louis, Mo., with a capital stock of $50,000. The company has secured a lease of the Laclede Rolling-Mills in that city from the Chouteau, Harrison & Valle Iron Company. The new company will manufacture plate and sheet-iron, but will drop the manufacture of bar iron.

As a welcome proof of the favor which American mining machinery commands abroad, we may state that the Rand Drill Company, of this city, has reported the following export orders for 1887: To Mexico, one compressor, one drill tunnel plant, and four drill mine plants; for the Panama Canal, one steam drill plant; to the Argentine Republic, drill and compressor mining plant; to Honduras, drill and mining plant; to Canada, three different drill plants; to Russia, for copper mines in Siberia, thirty drill plants, and to Finland, one steam drill and one air compressor plant; to Australia, steam drilling plants of different sizes, amounting to 61 drills, and drill and air compressor plant, and to Japan one compressor and drill mine plant.

The Ingersoll Rock Drill Company of this city report that the year 1887 has marked a large increase in its business. This company, which began about fifteen years ago in the manufacture of rock drills, has gradually enlarged its field, until now it manufactures and tells complete plants of mining, tunneling and quarrying machinery.

Among the important tunnels equipped with Ingersoll machinery are the Wickes, Montana Central Railroad, at Wickes, Montana; the Galena Tunnel, Chicago & Northwestern, Galena, Ill., and the Kansas City Tunnel, Kansas City, Mo., besides numerous plants in small tunnels and railroad cuts, notably those on the Clinch Valley Extension of the Norfolk & Western Railroad, in Virginia, and the Canadian Pacific, in Northern Maine and Canada.

Complete equipments of quarrying plants, comprising stone channeling machines, gadders, quarry bars, drills, boilers, derricks, etc., were furnished to many of the large quarrying companies throughout the United States. The export trade of the company has been large, and mining plants, comprising air compressors, drills, etc., were shipped to Venezuela, United States of Colombia, Mexico, and other countries.

CONTRACTING NOTES.

Contracts Open will be found on page xix. New contracts this week: No. 699, Iron Bridge; No. 700, Two Pumping Engines; No. 701, Sewers; No. 702, Water-Works; No. 703, Water-Works; No. 704, Pumping Machinery; No. 705, Pumping Engines; No. 706, Electric Lighting; No. 707, Bridge Construction; No. 708, Sewers; No. 709, Sinking of Artesian Well.

Mr. J. W. Carlin, Superintendent Sheffield Manufacturing Company, Sheffield, Ala., wishes to correspond with manufacturers of dry kilns that use exhaust steam as a dryer.

LABOR AND WAGES.

A 20 per cent reduction in the wages of the employés of Fisher's Foundry, at Allentown, Pa., went into effect on the 2d inst.

The Edgar Thomson Steel-Works, in Pittsburg, Pa., now closed down, has offered the furnace men a reduction of ten per cent less than last year. The men were to hold a meeting this week for the purpose of asking for an increase of from four to six per cent. No scale has as yet been offered to the men in the converting department.

The North Chicago Rolling-Mill Company, at South Chicago, Ill., has made an agreement with all the men, with the exception of the rail straighteners. According to the agreement, the day laborers are required to accept a reduction of 10 per cent. There are about 250 men who are directly interested in this cut. The tonnage men will be paid the same as last year. The eight rail straighteners will probably be reduced about $50 per month each from the present rate of $245 per month. It is expected that the mill will start up about February 1st.

A State convention of the Ohio Miners' Association will be held at Columbus, Ohio, on the 17th inst. The topics for consideration are: The joint agreement between the Executive Boards of National District Assembly 135, Knights of Labor, and of the National Federation of Miners and Mine Laborers; the scale of prices and conditions for the incoming year; the establishment of a proper defense fund for State purposes; legislative matters affecting proposed amendments to the semi-monthly pay and break-through laws; election of officers.

The railroad coal operators at Pittsburg District, Pa., who posted notices on the 2d inst., ordering a reduction in wages of 5 cents per ton, have withdrawn the order for a few days for the purpose of giving the Knights of Labor more time to compel the operators not paying the Columbus scale to advance wages to the standard rate. A committee of miners left Pittsburg for Washington yesterday to see Congressman W. L. Scott, and prevail upon him, if possible, to pay the Columbus scale. If unsuccessful, the Knights of Labor, it is stated, will order a strike at all the mines where the Columbus scale is not in force.

The strike went into effect on the 3d inst. at all the Philadelphia & Reading Coal and Iron Company's collieries in the Shamokin district, with the exception of two, and it is reported that but five of the forty collieries operated by the company were working. The miners also went out at the collieries owned by the Union Coal Company, the Enterprise Coal Company, and the Garfield Coal Company. At the Neilson, Excelsior, Hickory Ridge, Hickory Swamp, and Lancaster collieries the proprietors agreed to pay the old rate of wages, and thus settle the strike there. At Ashland, on the 3d inst., but one of the Reading Company's collieries was working, and that one was short handed. Although members of the Knights of Labor in Reading have refused to strike, they have promised the Schuylkill miners the same financial support they are giving the men in the Lehigh region. A movement is on foot among the business men in Reading to hold a meeting and bring such a pressure to bear upon President Corbin as to cause him to consent to arbitration of the miners' strike, at least. The strike of the railroad employés continues.

GENERAL MINING NEWS.

ARIZONA.

COCHISE COUNTY.

TOMBSTONE MILL AND MINING COMPANY.—Official advices report that the production for 1887 amounted to 1109 ounces of gold, 227,216 ounces of silver and 300 tons of lead. The lead contains 161,000 ounces of silver and 605 ounces of gold. The company has produced nothing since September.

CALIFORNIA.

The estimated product of quicksilver for 1887 is 31,000 flasks, and the export 18,000 flasks.

SELBY SMELTING AND LEAD COMPANY.—Official advices show that the company for the eleven months of 1887 turned out 4649·270 tons of refined lead. The amount on hand and estimated for December was 400 tons, making a total of 5049·270 tons; of this amount, there was shipped to New York about 1600 tons, and the balance went into consumption on the Pacific coast. This lead is used in making shot, sheet lead, lead pipe, etc.

MONO COUNTY.

BODIE CONSOLIDATED MINING COMPANY.—The usual development work continues at the mine, and pump is kept in operation to keep the mine clear of water.

BULWER CONSOLIDATED MINING COMPANY.—The report for the week ended December 25th states that a north drift was started from the east cross-cut 100 feet south of Bulwer shaft, 200 foot level. It connected with the Standard Company's stopes raised from the 300 foot level, the ledge the Standard Company raised on. It pitched to the east and as they raised on it it came into Bulwer ground. Surveys were made and it was found that where the connection was made it was on the Bulwer east line, and that the vein belongs to the Bulwer Company. At this points assays taken so far are as follows: $65.19, $11.66, $27.02, $37.09, $38.68, $13.67. The Standard Company will have its side surveyed shortly.

CANADA.

The total amount of phosphates exported from Montreal amounte to 20,349 tons, against 19,298 in 1886, a gain of 1051 tons, though less than in some previous years. The Canadian *Mining Review* states that the low water in the Lievres River prevented the forwarding of a considerable quantity from the mines in Portland, and some further output was held over in hopes of a better market next year for the lower grades. In addition to the amount exported to Europe should be reckoned about 200 tons used in Canada and about 300 tons sent to the United States; so that the total deliveries of the year will approximate 21,000 tons.

CENTRAL AMERICA.

SALVADOR.

SAN SEBASTIAN GOLD MINING COMPANY.—The company has reported to us that the weekly expenses are $1,500, and that 30 tons of ore, assaying $28 per ton, are being worked daily.

COLORADO.

The production of the various smelters in this State during 1887 were as follows:

	Pounds of lead.	Ounces of silver	Ounces of gold.	Pounds copper.
Am.Mg.&S.Co.	16,936,533	1,054,202	3,457	.....
Ark.Valley Co.	15,602,000	1,222 419	4,419·274	.....
Bos. & Col. S. Co	.....	2.715,778	37·449	3.844,000
Col. Smel. Co.	17 336.000	1 1o2.381	5,602	.....
Haris'n Rd.W.	10 856 000	1,007,455	6,771	.....
Holden S. Co	19,485 577	2,181,633·2	12,820·2	10,035
La Plata M &S.	5.438.806	440 098·12	817·63	.....
Manville S.Co.	5,096,130	368,67?·34	2.8?4 32	.....
Pueblo S.& R.	11.589.306	1.701, 90	10.:88	73,930
R'lGorge S.Co.	1.400,000	105,000	304	.....

The Omaha & Grant Smelting and Refining Company have not published a report.

During 1887 there were shipped from Crested Butte, according to the *Pilot*, 48,214 tons of anthracite coal, 120,134 tons of bituminous coal and 59,366 tons of

coke. The above figures show an increase in the production of anthracite coal of 30,324 over that of last year. In bituminous coal an increase of 65,954 tons, and in coke an increase of 26,506 tons.

It is stated that the present breaker capacity is already taxed to its utmost. This year for the first time anthracite to the amount of 500 tons was shipped to San Francisco, 400 tons of which was contracted for the U. S. Mint.

PURDY SILVER MINING COMPANY.—A verdict for $28,455 was rendered by a jury before Judge Dyer in the Federal Court at Chicago last week in favor of the Purdy Silver Mining Company against John V. Farwell and Benjamin F. Jacobs.

The suit was for the failure of Mr. Farwell and Mr. Jacobs to fulfill a contract for the purchase of mines in Colorado. The purchase was to be made only on the approval of the property by Mine-Expert Bell. The plaintiff claims that the latter made a favorable report, while the defendants asserted that he did not. The jury found that he did, but the verdict is dependent upon a question of law as to whether the company executed a release of the defendants from the contest. This question will be considered by Judge Dyer in the future.

ARAPAHOE COUNTY.

Mr. H. C. Rudge, who is now erecting zinc smelting works at Denver, will shortly be ready to treat zinc ore. The capacity of the works will be 10 tons a day, and the spelter will be sold to the smelters for metallurgical use. Blend carrying 45 per cent of zinc will bring $5 per ton on the cars.

CUSTER COUNTY.

GEM.—This mine, located about fifteen miles northwest from Silver Cliff, on the divide between Grape Creek and Texas Creek, has a vein from one to four feet wide, the hanging-wall of which is granite, and the foot-wall a hornblendlike. One hundred pounds of the ore were recently sent to Swansea, Wales, and returned, it is stated, $10 over all expenses, including the cost of shipping and treatment. The mine is being worked exclusively for the nickel and cobalt in the ore. Some of it, however, contains a little silver.

EAGLE COUNTY.

IRON MASK.—The Pueblo Smelting and Refining company has bought the output of this mine, situated at Red Cliff.

LAKE COUNTY.

The total production of the Leadville District for 1887 is reported to have been $12,072,967, making a total from 1860 to 1887 of $132,890,939.

The Leadville *Herald-Democrat* reports the following:

CHRYSOLITE SILVER MINING COMPANY.—The report of the general manager, S. F. Parrish, just issued, shows that during the year ended October 3d, 1887, the company has shipped and sold 8347 tons of ore, dry weight, for which it received $66,972.27, or $8.02 per ton. Of this, 272 tons was mineral, which yielded $11,972.73, or $43.95 per ton; 6810 tons iron ore, which yielded $34,354.27, or $5 per ton; and 1205 tons concentrates, which yielded $20,645.27, or $17.14 per ton.

As will be seen above, the largest shipment has been of underground contract iron ore; there is still a large quantity of this iron which can be profitably mined so long as the iron market remains as at present. Of mineral there is none in sight, and the contractors have not extracted any ore other than iron since June last. There is, however, always a likelihood of their opening up more or less valuable pockets of mineral whilst mining the iron.

Sorting iron from the dumps and concentrating dump sands both by steam and hand jigs has been vigorously pushed during the season with fair results. One season more of work will about clean up the dumps.

All shipments yielded 123,236 ounces of silver, or 14·8 ounces per ton, and 195,840 pounds of lead, or 1·2 per cent. The total shipments of the company to date amount to 90,560 tons, dry weight, and have yielded 4,740,162 ounces of silver, or 52·35 ounces per ton, and 30,817,102 pounds of lead, or 17 per cent, for which the company has received $4,356,095.65.

The linear feet of excavation during the past year has been as follows, as reported by Mr. Howard Platt, surveyor: Drifts, linear feet, 591; winzes and raises, linear feet, 141; shafts, linear feet, 173. Number of cubic yards excavated from the underground workings: Cubic yards in drifts and stopes, 2273; cubic yards in snafts, 682.

The amalgamating mill has been shut down for the past year. It has been impossible to make contracts for ore in large enough quantity to insure a continuous run. There is a large amount of amalgamating ore in this district, which will eventually be invaluable for company's mill. At present, however, higher grades of ore are plentiful and occupy the miner.

The labor account shows the average of 40 men employed per month. Total day's labor, 10,883. Average wages, $3.33.

The new shaft started in July, 1886, located in D—29, to prospect for lower ore-bodies and take the place of the Roberts shaft as a main working shaft, has been sunk to a depth of 296 feet during the year. The flow of water at this depth was so strong that further sinking, without putting in an extensive pumping plant, became impracticable. Work was abandoned in February last and the shaft allowed to fill with about 100 feet of water. In May last a diamond drill-hole was started from the bottom of the shaft and sunk 193 feet, developing nothing to warrant continuing the shaft down at present. The total depth of shaft and drill is 489 feet. Total cost of shaft and drilling, $27,642.74.

The pump and column pipes have been withdrawn from the Roberts shaft, and it is now entirely abandoned, all hoisting being done through the new shaft.

During the year the company has been fortunate in recovering $2564.15 from the suspended Bank of Leadville.

CLEVELAND MINING COMPANY.—This company's property is now being worked under lease, operations by the company having been suspended some time ago. The lessees are shipping from 100 to 125 tons of ore monthly, and are doing fairly well.

DINERO MINING AND MILLING COMPANY.—The mine is said to be looking better than it has for some time. Shipments of first-class ore range from 100 to 125 tons monthly. The ore averages 75 ounces in silver, and a small amount of gold. All the concentrating ore for the mill, for a short time past, has been hoisted from the mine. Preparations are now being made to run the mill by steam-power. In the summer, when the flow of water in Lake Creek is sufficient, the mill can be run by water power, as originally designed.

ST. KEVIN MINING COMPANY.—The work of sinking the shaft deeper has been commenced. Prospects in the mine continue to improve. The mill is running and doing satisfactory work. It is now dressing about 25 tons of ore per day, and produces from 4 to 6 tons of concentrates, which are of a good grade.

ULSTER-NEWTON.—Preparations are being made for putting a pumping plant in the shaft in order to resume work again. This shaft was drowned a short time ago, when in the course of sinking, a large flow of water was encountered. For the present, a Knowles pump of 150 gallons a minute capacity, will be used, and some time later, if necessary, a larger and more complete pumping plant will be purchased, the steam and water lines now being placed in the shaft being made of sufficient size, with this object in view. The mine is now worked by a co-partnership of St. Louis people, who have a lease and bond on the property.

VENTURE.—This mine, at Sugar Loaf, has been making the largest shipments of any mine in that district during the past three months. The ore has been of very fair grade. The management will begin a more extensive plan of development work this year, proposing to sink the shaft 100 feet deeper, and drive alternate drifts several hundred feet further north. The most development, so far, having been on the hanging wall of the vein, a series of cross-cuts to the foot-wall will be made.

DAKOTA.

During 1887 thirty-one applications for patents on mining claims were made in the United States Land Office at Deadwood, against twenty-four for the year 1886. Forty-one mineral entries were made, and the same number of receipts issued during this year, or seventeen more than in 1886.

BIG BEND HYDRAULIC MINING COMPANY.—The lessee, Wilbur S. Ward, who leased this company's property in March, 1886, and agreed to pay $80,000 annually, has not paid the rent for the months of September, October, November, and December, 1887. The amount due amounts to $26,666 66. The company gave notice on the 3d inst. that unless this amount is paid within ten days the lease is to be null and void and its privileges are to cease.

CASS COUNTY.

ITALIAN MARBLE AND STONE COMPANY.—The company has stopped work for the winter. During the past season the quarries have been worked and marble shipped to Joliet and Chicago. The company intend to erect a large steam plant for the purpose of running its steam drills, channelers, derricks, saws, etc., and is going to push the work to completion.

LAWRENCE COUNTY.

IRON HILL MINING COMPANY.—The statement just issued by the company shows that the profits in the six months operations of the smelter, from June 14th to December 15th, 1887, are as follows:

Dividends	$43,750.00
Treasurer's overdraft	4,649.03
One half taxes paid	2,215.50
" " insurance	750.00
Permanent improvements	22,716.08
May pay-roll	11,279.25
Total	$85,359.86

This is at the rate of a profit of $14,226.64 per month, or $170,717 per year, and 68·3 cents interest per annum on the stock at $1 per share, or over 22 per cent with the market value of the stock at $3 per share.

On the 15th inst. the company had on hand of charcoal, wood and coke, that had been paid for, and over and above the same supplies on hand at the 14th of June last, fully $10,000 value of these supplies.

The total product of the mine since it first began mining the ores for reduction has been as follows:

The mill	$305,725.32
" old smelter	64,985.62
" new "	224,045.61
Total	$594,756.55

Of these the total paid in dividends has been $156,250, leaving for the other expenses in the purchase of the property, material and labor, the machinery and buildings, $438,506.55.

Mr. McPherson says: "All these extraordinary expenditures are now at an end, and nothing but the ordinary operating expenses of the mines and works will have to be provided for." These "extraordinary expenditures" that that he refers to in the past six months amounted to $44,676.36. Again he says: "Late improvements made in our furnace by our efficient superintendent, Mr. Terhune, have increased its capacity nearly 25 per cent., besides causing a great saving in fuel."

The statement of the receipts and disbursements of this company from June 1st, 1887, to December 15th, 1887, is as follows: The period named covers exactly six months operation of the new smelting plant, which was blown in June 14th, 1887. The exhibit includes however the disbursements for May pay rolls and supplies, which amounted to $11,279.25, thus showing in reality the disbursements for seven months.

The total product of the smelter was 1,983,136 pounds of bullion, worth $224,045.61, less cost of transportation, $12,500.44, netting $211,545.17. It will be observed that a large part of the expenditures have been on account of the deficit that existed on June 1st, taxes, insurance and permanent improvements, amounting in the aggregate to $33,397.11, which with the disbursements for May are not properly chargeable to the operating expenses for the period covered by the exhibit.

[Our own advices are that the mine is not looking well in the bottom.—Ed. ENGINEERING AND MINING JOURNAL.]

IDAHO.

ALTURAS COUNTY.

Work is again to be resumed in the Minnie Moore and Queen of the Hill mines, the companies having obtained a considerable reduction in freights, sampling charges, etc. The rate of wages, it is also stated, will be $3 per day.

OWYHEE COUNTY.

PROUSTITE MINING COMPANY.—This company has a capital stock of $250,000; shares, $1 each, unassessable. It was organized under the laws of the State of Maine, in June, 1886, and owns four claims known as the Henrietta group, which consists of the Comstock, Henrietta, Saint John and Maggie, situated on Henrietta Mountain, in Wagontown, Carson mining district, forty-five miles from Kema, on the Oregon Short Line Railroad, the nearest railroad point. A new railroad, projected from Winnemucca, on the Central Pacific Railroad, will pass up the Jordan Valley in close proximity to the works. The report issued by the company shows that it has no debts. The property has been reported upon by W. Kraft, mining engineer. Prof. W. P. Blake has been secured as consulting engineer, and will from time to time visit the company's property.

INDIANA.

EVANSVILLE, TERRE HAUTE & INDIANAPOLIS COAL ROAD.—This company has been projected from Indianapolis to Sullivan, tapping the coal-fields in Clay, Owen, Green and Sullivan counties. The capital stock is $1,000,000. The directors are D. J. Mackey, W. D. Ewing, G. J. Grammer, J. L. Mackey, W. J. Lewis, E. B. Morgan and Ed. Taylor.

IOWA.

POLK COUNTY.

Press dispatches report that about eleven acres of the leading coal mine at Altoona is flooded with four feet of water. Last week the miners in the west entry came to a fault in the coal vein and drove the entry twelve feet through sand and strata, in which was found driftwood. Suddenly water began to pour through an opening, and has been filling in ever since at the rate of 10,000 gallons per hour. The superintendent thinks the old shaft will be abandoned and work begun on a new one.

MEXICO.

We take the following from the Mexican *Financier:* By a contract entered into between the Department of Public Works and Gaspar Salas, the latter is authorized personally, or by means of a company which he may organize, to explore and work all mines of any kind in the Mineral de Hidalgo de Parral, State of Chihuahua, within the perimeter of quadrilateral of ten kilometers long by the same in breadth. The terms of the concession are as usual.

CORRIZO GOLD PLACERS.—The affairs of this concern are being investigated. We learn that sellers of shares are being requested by purchasers to refund the price paid, but that sellers maintain that they acted in good faith in selling.

CUSIHUIRIACHIC MINING COMPANY.—The company is said to be earning a little more than expenses. The reorganization of the company is going on yet. It is said that old stockholders will receive as favorable terms in the new make up as will the bondholders.

SANTA ANA.—St. Louis and Chicago people have bought this silver mine in Sonora. The official records are said to show that $60,000,000 were taken out of this mine, or rather out of a small part of it. The property, being flooded, was abandoned in 1812. Since that time efforts have been made to pump out the water, but all operations were abandoned on account of the presence of hostile Indians. The new owners have sunk a shaft and expect soon to reach a point directly underneath where the richest ore was taken out in ancient times. If a rich deposit is struck the mine will be thoroughly pumped out.

MICHIGAN.

COPPER MINES.

A correspondent writes us that the Mikado, Pilgrim, Commercial and Puritan companies, situated in the Gogebic District, are owned principally by residents of the copper country. Explorations continue to be pushed vigoriously, and that all of these properties are rapidly passing the exploring stage. The Mikado shaft is down 180 feet, the last 40 of which is in clean shipping ore assaying 64·23 iron, 2·02 silica, ·053

phosphorus. Preparation is now being made to cross-cut north and south, or across the formation, to ascertain the width of the deposit. At the Pilgrim the shaft is 210 feet deep. This shaft is in the "hanging" or north side of the so-called south vein, and for the last 20 feet shows ore coming in from the south, the bottom showing 5 feet of ore, perfectly clean. The management believes that they have been going down alongside the deposit for some time. Some delay has been caused by the immense quantities of water coming into the shaft when this ore was struck, but the prompt supplying of the necessary additional steam-power and pumps have obviated this, and the owners are preparing to cross-cut into the deposit at once. At the Commercial, they struck the ore in a cross-cut driven from the shaft which is in the hanging-wall; they cut seven feet of clean ore, when (as in the case at Pilgrim) the water came with a rush and drowned them out. Additional boiler and pumps have been furnished, and the mine is being rapidly "forked." The Puritan is still in the mixed ore, with their shaft about 40 feet deep, though improving every foot sunk.

CALUMET & HECLA MINING COMPANY.—Press dispatches report that the fire is out. The surface indications continue favorable, no smoke issuing from the crevices, and the temperature continuing lower than heretofore. No steam or gas has been sent down the shaft for over a week.

HURON COPPER MINING COMPANY.—Reports from the mine, under date of December 29th, state that the sixteenth level north of No. 6 shaft is opening up very good ground for stamp copper. The company has just started a stope in this back which is giving a large amount of good paying rock. The lode in the drift of the fifteenth level, north of this shaft, is showing well in all grades of mineral. No. 8 shaft is down to within a few feet of the 17th level. The lode is large and showing copper in a winze sinking below the 14th level south. The lode is large and quite rich in stamp copper.

MONTANA.

BEAVERHEAD COUNTY.

HECLA CONSOLIDATED MINING COMPANY.—Official advices to us show that the production for 1887 amounted to 457,712·29 ounces of silver, 401,531 ounces of gold, 132,886 pounds of copper, and 4,545,379 pounds of lead.

CHOTEAU COUNTY.

It is rumored that the Montana Central Railroad has a smelter scheme as well as the Northern Pacific Railroad, referred to below. The former road, it is said, will locate its plant at Great Falls, in order to be near the source of fuel.

DEER LODGE COUNTY.

BI-METALLIC MINING COMPANY.—A strike of a two-foot pay-streak of high-grade ruby silver ore is reported.

HIDDEN TREASURE GOLD MINING COMPANY.—This company, which owns the Hidden Treasure mine in Elliston District, has been carrying on operations for some time. They have proved so satisfactory that it has been decided to erect a twenty-stamp mill.

JEFFERSON COUNTY.

MURRAY PLACER MINING COMPANY.—This company has been organized with a capital stock of $1,000,000, shares $5 each, to operate mines situated on Indian Creek. The incorporators are S. T. Hauser, A. M. Holter and H. D. Hauser, of Helena, and John Murray, of Jefferson County.

LEWIS & CLARKE COUNTY.

Gov. Hauser is reported to have said when being interviewed in reference to the erection of smelting works at or near Helena, "that Mr. Henry Villard and other capitalists interested in the Northern Pacific Railroad and himself have had the matter in view for some time and now have come to an understanding upon it. We intend to put up smelting works at or in the immediate vicinity of Helena, large enough to handle all the ore that we can get. The preliminaries are settled and it only remains to agree upon the details."

MONTANA COMPANY, LIMITED.—The company has just published the following report, dated December 24th: The directors, having ascertained from the resident director at Marysville that the "monthly run" for December will be about the same as that for last month, have the pleasure to inform the shareholders that the profits for the current half year admit of their declaring a further interim dividend of one shilling per share, making a total distribution for the year ending the 31st instant 27½ per cent, against 21¼ per cent for the year 1886. The dividend of one shilling per share, free of income tax, will be payable on January 14th, 1888. A cablegram received December 20th from the mines states that the workings are more encouraging all round.

SILVER BOW COUNTY.

The shipment of silver bars from Butte by the Pacific Express Company for the year 1887, up to Christmas, as stated by local papers, amounted to 3751 bars, valued at $5,943,608.

BOSTON & MONTANA CONSOLIDATED SILVER AND COPPER MINING COMPANY.—It is reported that this company is about to buy W. A. Clark's smelting works and copper mines adjoining the Boston & Montana Company's properties. This will increase the smelting capacity of the company at once to two and a half million pounds fine copper per month.

PARROT SILVER AND COPPER COMPANY.—Arrangements are being made to commence sinking the shaft in the Parrot mine to the 700-foot level.

NEVADA.

James P. Kimball, Director of the Mint, in his annual report for 1887, recommends the final closing of the Branch Mint at Carson on the following grounds:

The convenience afforded to a few local depositors the past twelve months was at a cost of 18 per cent of the value of deposits.

The producer of Nevada bullion, for whose supposed benefit the Branch Mint was established, has as a rule found it for his own interest to deposit his bullion in San Francisco.

While the cost of coinage is five times that of the same kind at other mints, the net cost has proved not less than 18 per cent of the spot value of deposits, a cost, as held by the Bureau as prohibitory. And he concludes saying that under the circumstances above set forth he recommends that the Mint at Carson be finally closed, that its machinery and other equipment be distributed among the several mints and assay offices, and the building applied to some other public purpose.

LANDER COUNTY.

MANHATTAN SILVER MINING COMPANY.—The property of this company, located at Austin, has been sold at sheriff's sale. The mill and hoist plant, and mines valued at $300,000, were bid in by the lienholders for $41,000. The purchasers will resume the extraction of ore immediately, with the prospect that a sufficient quantity of bullion to pay their claims can be realized therefrom before the six months expires in which the original owners are allowed to redeem the property.

STOREY COUNTY—COMSTOCK LODE.

We condense the following from the Virginia City *Chronicle:*

CONSOLIDATED CALIFORNIA & VIRGINIA MINING COMPANY.—During the week ended December 24th, 1085 tons of ore were shipped to the Morgan mill and 849 tons to the Eureka mill, and 1300 tons to the California mill. The average assay value of all the ore worked at the above mills during the week, according to battery samples, was $32.87. Bullion valued at $73,720.77 was shipped to San Francisco.

HALE & NORCROSS MINING COMPANY.—The 400 level west drift broke through the east clay of the vein, 800 feet west of the shaft, and is in ore—supposed to be the upward continuation of that developed in the upraise above the 700 level. The stopes above the 700 level are now up six timber setts (36 feet), and 17 setts (102 feet) north and south, with high grade ore showing at both extremities. During the week ended December 23d, 673 tons of ore were extracted and 450 tons shipped to the mill. Bullion valued at $25,000 was then on hand.

OCCIDENTAL CONSOLIDATED MINING COMPANY.—There was shipped during the week ended December 24th, to San Francisco, bullion valued at $2,763.93. The ore resources of the mine will admit of a large increase in the present ore product when crushing power is available.

OPHIR MINING COMPANY.—At the annual meeting recently held in San Francisco the report presented contained the following information in relation to the ore development recently made in the winze below the 1300 level. This winze is situated about 80 feet north of the Consolidated California & Virginia north line, and was started near the face of the north drift, diverging from the northeast drift. It has been sunk to the 1465-foot level, and has been connected by a drift with the main south drift on that level. From this winze, at a point 50 feet below the 1300-foot level, a west drift was run for a distance of 125 feet, following a good streak of ore, which narrowed and finally pinched out. Beginning at a point 118 feet down, the winze passed through seven feet of good ore, dipping to the west.

After the winze had reached the 1465-foot level, opening out the ground to the south and west of the winze was commenced at a point 35 feet above the level, and there were extracted therefrom 105 tons of fair-grade milling ore. Prior to this time, in the course of sinking the winze and running the west drift from the winze, 143 tons of ore of fair quality had been extracted, making a total of 248 tons. In sinking the winze old stope timbers were encountered at several points, always on the east and south sides. In working west no timbers were found, it being apparently virgin ground in that direction. The following officers were elected: The Bank of Nevada, Treasurer; E. B. Holmes, Secretary; and D. B. Lyman, Superintendent.

SAVAGE MINING COMPANY.—The 600 level south drift is being advanced to the Hale & Norcross north line, from which the face is now distant but 40 feet. During the week ended December 23d, 707 tons of ore were extracted from the stopes between the 500 and 900 levels of the usual grade, of which 692 tons were sent to the mill. Bullion valued at $25,000 on hand in the local office.

NEW JERSEY.

MORRIS COUNTY.

GLENDON IRON COMPANY.—A disastrous cave-in in the Glendon mine, at Hibernia, has stopped work for an indefinite period. The mountain in which are the extensive mines of three different companies is tunneled. On December 31st the roof of the tunnel for a long distance caved in, and the weight of the solid rocks and earth caused also the caving in of the tunnel bottom with its railroad track, and now the Glendon mines under the tunnel are filled with thousands of tons of débris. Every inlet to the mines by way of the tunnel is blocked, and no ore can be taken out.

NEW MEXICO.

SOCORRO COUNTY.

RIO GRANDE SMELTING COMPANY.—During 1887 there were produced at these works 5,170·042 tons of lead.

PENNSYLVANIA.

COAL.

Coal is reported to have been discovered in the Blue Mountains in a district where none of the mineral was supposed to exist. A vein of semi-bituminous, eight feet thick, has been uncovered in the Cove Mountan, at Hartmann's Mills, Rye Township, Perry County. Prospecting parties are now at work all along the ridges.

ENTERPRISE COAL COMPANY.—This company's engine, at Shamokin, was burned on the 2d inst., and the engine ruined. It is said that the mines are threatened with destruction. The colliery was to have been stopped by a strike on the 3d inst.

PACKER No. 4.—The fire at this colliery at Shenandoah has been conquered. An exploring party went all through the mine and found no further fire burning. The slope has fallen in at various points, but not so seriously as feared. Repair work will begin at once, but it will take months to put the mine in working order.

NATURAL GAS.

The consolidation of the Philadelphia and Chartiers Natural Gas Company has been consummated. Under the terms of the agreement the Philadelphia company will receive seventy per cent of the net earnings and the Chartiers company thirty per cent. The combined capital of the corporations will be $11,500,000, of which the Philadelphia company has $7,500,000, and the Chartiers company $4,000,000.

OIL.

Exports of refined, crude, and naphtha from the following ports, from January 1st to December 31st:

	1887. Gallons.	1886. Gallons.
From Boston	4,207,158	5,572,082
Philadelphia	162,149,742	152,641,044
Baltimore	9,232,082	15,880,612
Perth Amboy	16,825,695	6,082,050
New York	377,127,943	395,123,788
Total exports	569,542,620	575,299,576

The report for December shows that only 103 wells were completed during the month, which added 1317 barrels to the production. There were 87 dry wells finished and 39 rigs are now building. A comparison of figures shows a reduction of 7 in the new rigs, and 43 fewer drilling wells. There were 1827 fewer wells finished in 1887 than in 1886. The production of the Saxonburg pool is down to 1000 barrels a day. It is estimated the stocks will be reduced 1,500,000 barrels during the month.

GLOBE REFINING COMPANY.—The extensive oil works, now being erected by this company at Pittsburg, are nearing completion. Ten 600-barrel stills are completed and six more of the same capacity will be built. There is a 2000-barrel agitator and complete barrel works. The company is backed up by independent pipe lines and is in direct opposition to the Standard.

SOUTH AMERICA.

UNITED STATES OF COLOMBIA.

EL TALENTO GOLD MINING COMPANY.—At the annual meeting of the stockholders of this company, held at No. 16 Exchange place, New York, January 5th, 1888, the previous board of trustees was unanimously re-elected, consisting of Wm. H. Ritter, Joseph Roura, J. V. V. Olcott, Alfred R. Kimball, and Wm. Allen Smith.

SOUTH CAROLINA.

The Brotherhood Company, one of the largest river companies, has discharged all its hands, locked up its machinery and tied up its fleet of dredges, flats, etc. This company carries on operations in Battery Creek, Beaufort County. It is probable that other large mining companies will follow suit, the object being to reduce the supply of rock till prices get better. It is also rumored that the land companies will curtail their production.

TENNESSEE.

Mr. A. A. Arthur, of the American Association, London, Eng., writes us from Knoxville, under date of the 3d inst.: "We have discovered, beginning within one mile of Knoxville and extending for ten miles northeast, a remarkable lead of specular iron ore, several samples averaging over 64 per cent of metallic iron and ·023 of phosphorus. We are following this lead just now with explorations, and hope to find a large quantity of ore."

TENNESSEE COAL, IRON AND RAILROAD COMPANY.—Official reports to us show that from the Tracy City division only there were received during December directly from the mines 14,448 tons of coal and 15,711 tons of coke, and a total of 162,961 tons of coal and 156,240 tons of coke during 1887.

HAMILTON COUNTY.

DAISY.—Mr. J. T. Williams and others have leased the Daisy mines for five years, with privilege of buying at the expiration of one year at a stipulated price. It is the intention to double the capacity of the mines at once.

UTAH.

The mineral product of Utah for 1887 compiled by Wells, Fargo & Co.:

	Lbs. of copper.	Lbs. lead.	Ozs. silver in bullion and ores.	Ozs. gold in bullion and ores.
Germania	302,800	9,715,616	530,882	2,793
Hanauer		12,064,000	843,437	2,050
Mingo		5,215,310	278,265	993
Daly		1,565,600	1,005,759	782
Ontario		4,029,200	1,968,688	927
Silver Reef			†221,728	
Other mines			11,116	167
Bars and base bullion	302,800	30,089,726	4,859,855	7,712
Contents ore shipped*		13,941,950	1,091,596	3,079
Contents ore and matte shipped*	2,188,520	1,647,285	210,286	596
Total	2,491,320	45,678,961	6,161,737	11,387

* 2,491,320 lbs. copper, at 5 cents per lb.	$124,566.00
2,500,000 lbs. refined lead, at 4 47-100 cents per lb.	111,750.00
45,678,961 lbs. unrefined lead, at $52.40 per ton	1,196,788.77
6,161,737 ozs. fine silver, at $0.97 per ounce	5,976,884.89
11,387 ozs. fine gold, at $20 per ounce	227,740.00
Total export value	$7,637,729.66

Computing the gold and silver at their Mint valuation, and other metals at their value at the seaboard, it would increase the value of the product to $10,604,631.

BEAVER COUUNTY.

HORN-SILVER MINING COMPANY.—The company has refined no bullion in 1887. All the ore has been sold in open market in Salt Lake City. The production amounted to about 1350 tons of lead and 100,000 ounces of silver.

WEST VIRGINIA.

M'DOWELL COUNTY.

TURKEY GAP COAL AND COKE COMPANY.—This company has been organized for the purpose of mining and manufacturing coke and doing a general mercantile business. Principal office to be at Mayberg. The sum of $50,000 has been subscribed to the capital stock and $5000 paid in, with privilege of increasing capital to $75,000. The following gentlemen are interested in the enterprise: W. H. McQuail and James McCormic, of Pottsville; F. P. Harmon, Little River; J. McQuail, New Philadelphia; and Robert Allison, Port Carbon.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Jan. 6.

Statistics.

Production Anthracite Coal for week ended December 31st, and year from January 1st:

TONS OF 2240 LBS.	1887. Week.	1887. Year.	1886. Year.
P. & Read. RR. Co.	47,572	7,532,288	11,677,980
Cent. R. R. of N. J.	82,294	4,838,426	*
L. V. RR. Co.	‡130,000	6,074,456	6,313,784
D., L. & W. RR. Co.	129,985	6,178,098	5,115,492
D. & H. Canal Co.	90,013	4,082,270	3,607,155
Penna. RR.	74,528	3,624,113	3,345,210
Penna. Coal Co.	‡34,000	1,612,071	1,469,905
Penna. Canal Co.		480,251	470,951
N. Y., L. E. & W. RR.		†695,487	†661,250
Total	588,392	35,117,159	32,661,727
Increase	51,455	2,455,422	
Decrease			

* Included in tonnage of Philadelphia & Reading RR.
† Tonnage to December 1st.
‡ Estimated.

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.

Production for corresponding period:

1882	29,316,387	1884	31,481,783
1883	31,237,154	1885	31,470,172

Production Bituminous Coal for week ended December 31st, and year from January 1st:
Tons of 2000 pounds, unless otherwise designated.

EASTERN AND NORTHERN SHIPMENTS.

	1887. Week.	1887. Year.	1886. Year.
Phila. & Erie RR.	‡616	22,775	21,940
*Cumberland, Md.	50,000	3,292,667	2,551,122
Barclay, Pa.		‡165,950	179,708
Broad Top, Pa.			
H. & Broad Top. RR.	7,505	357,437	385,765
Clearfield Region, Pa.			
Snow Shoe	2,793	164,015	112,920
Karthaus (Keating)	4,443	196 950	150 402
Tyrone & Clearfield	64,646	3,268,969	2,260,768
Tipton	10,582	25,914	
Alleghany Region, Pa.			
Gallitzin & Mountain	13,462	927,629	672,070
Pocahontas Flat Top Coal.			
Norf'k & West. RR.	16,490	1,160,010	862,328
Kanawha Region, W. Va.			
Ches. & Ohio RR.	‡35,571	†1,569,438	1,345,179
Total	206,098	11,151,763	8,482,202

* Tons of 2240 lbs. † Week ending December 14th. ‡ Tonnage to December 1st.

WESTERN SHIPMENTS.

Pittsburg Region, Pa.			
West Penn RR.	8,027	314,267	320,247
Southwest Penn. RR.	1,639	118,670	157,281
Pennsylvania RR.	13,482	213,323	277,980
Westmoreland Region, Pa.			
Pennsylvania RR.	40,079	1,631,164	1,308,463
Monongahela Region, Pa.			
Pennsylvania RR.	8,554	427,309	405,700
Total	71,781	2,704,733	2,469,671
Grand total	277,879	13,856 496	10,951,873

Production of Coke on line of Pennsylvania RR. for week ended December 31st, and year from January 1st.

Tons of 2000 pounds.	1887. Week.	1887. Year.	1886. Year.
Tyrone & Clearfield		1,762	
Allegheny Region	5,863	258,467	207,088
West Penn. RR.	2,178	110,167	109,180
Southwest Penn. RR.	69,951	2,905,798	2,753,122
Penn. & W. Region	9,208	384,978	334,373
Monongahela	2,426	126,856	150,560
Pittsburg Region		30	120
Snow-Shoe	1,819	59,747	28,734
Total	91,445	3,847,745	3,583,177

Anthracite.

The anthracite trade has not shown any marked change during the past week. The strike of the Reading miners, taking place on Tuesday and becoming known on Wednesday, while it may have influenced to a certain extent the demand for coal, has not done so in any marked degree; nor can we say that it has had any serious effect upon the product of anthracite coal thus far. If continued, of course it will seriously diminish the output. During the past week the receipts at tide-water seem to be fully up to the usual average which is customary during the first week in January, and approximates very closely to the actual wants of the community at the present time. There seems to be little doubt but that the mines now in operation, and likely to continue so, can produce and send to market about as much as the quantity mined during the month of January last year. We think therefore that there is no occasion for apprehension of a dearth of coal at tide-water or in the tide-water market.

The anxiety as to a short supply of coal on the Reading lines for furnaces, etc., had some solid base, but the Pennsylvania Railroad and Coke companies will probably fill even such demand.

The production of anthracite during 1887, exclusive of what was used and sold at the mines, was 34,400,000 gross tons, as courteously estimated for us by Mr. John H. Jones, the official statistician.

The local buyers have not shown any special alarm; all have some coal, but no tonnage of importance. No one higgles about price. All shipping points are fairly prompt in deliveries.

Freights are not so firm. Vessels are in fair supply.

The older heads in this and Philadelphia trade conclude the Reading have a long and bitter fight on hand. There is no evidence of resumption in the Lehigh.

Prices for coal continue without change and are firmer than a week ago. For free burning coals we quote *net* prices f.o.b.: Broken, $3.85@$4, Egg, $4.10@$4.25; Stove and Chestnut, $4.75; Lehigh coal sells at $4.50 for Broken and Egg; $5 for Stove and Chestnut; $2.85@2.90 Buckwheat.

Bituminous.

There is no change to report. Prices: $3.50@$3.70 alongside; cars a little more plenty.

Boston. Jan. 5.

[From our Special Correspondent.]

The market for anthracite coal is almost at a standstill as far as new business is concerned, and for very natural causes. Jobbers and agents here do not care to take orders at a price when there are chances that the condition of the market may be violently changed for a time. Of course, the Reading and the Lehigh Valley people can not take orders, and the others will not; that is about the size of it. Most of the coal on old orders has come along and there is but little doing. The best that an anxious buyer can do is to get his order filled without specification as to terms of delivery or price; naturally but little is done. There would be a very fair movement at this port for January provided the wholesale market was in normal condition.

There is no suffering here, and Boston can stand the strain for some little time without getting excited. The general belief is that the Knights of Labor will shortly be defeated, whether they make this their supreme effort or not. With the market in such shape, quotations are little better than nominal, the tendency being, however, to higher prices.

It happens at this time that good observers of the bituminous coal market discern, or at least think they see, a little easier state of things. This may be due to the lack of pressing orders, which is purely temporary, or may be due to the fact that consumers are not comfortably supplied. That there is less crowding is apparent from the fact that shipments from the mines are not so difficult to obtain on new business as a few weeks since. It is generally believed that f.o.b. prices for bituminous may stiffen up later in the month. They are nominally $2.60@$2.70.

There is a very firm feeling in freight and high rates are maintained. The rate at Philadelphia is almost purely nominal. We quote, exclusive of discharging: New York, $1.40@$1.50; Philadelphia, $1.75; Baltimore, $2.00@$2.15; Hampton Roads, $1.90@$2.00.

There is a good retail movement and prices are well maintained. We quote delivered prices: Stove, $7.25; Egg, $7; Broken, $6.75; Chestnut, $7.25; Franklin, $8.50. Lehigh, Broken, $7; Egg, $7.25. Wharf prices are 50 cents less.

Pittsburg. Jan. 5.

[From our Special Correspondent.]

Coal.—The break-up was somewhat disastrous. A large amount of coal was prevented from going out on account of the wickets at the Davis Island dam not being let down before the ice became too formidable, preventing at least 8,000,000 bushels of coal from getting out. As near as can be ascertained at this time the run will reach 4,000,000 bushels. The balance will have to remain until we have another rise.

PRICE OF COAL PER 100 BUSHELS.

First pool	$4.75	Fourth pool	$3.25
Second pool	4.25	Railroad coal	$5.00@5.25
Third pool	3.75		

Connellsville Coke.—The situation is about the same. One day we hear of a new syndicate, the next day the report is just the contrary. The rates have been lowered to the following, f.o.b. on cars at ovens: Furnace, $1.75; to dealers, $1.85; Foundry, $2; Crushed, $2.50.

Buffalo. Jan. 5.

[From our Special Correspondent.]

In the absence of any news of moment relative to supply, demand and prices of coal, the following synopsis of the opinions of one of the largest shippers of anthracite coal may be of interest to the readers of the ENGINEERING AND MINING JOURNAL: The Inter-State Commerce law in the coal business involves a very simple question. The enforcement of the law has been salutary and beneficial throughout, and the railroads have exacted their strict tariff on anthracite coal from every body—in fact, there has not been any discrimination, and shippers do not question the matter at all. This condition of affairs has been beneficial to the mining and shipping interests, and made the price of coal more stable than has been the case for years. The consumer has paid at least 25 cents per ton more for his fuel in consequence. * * * It is understood, however, that the bituminous trade situation has been different. Certain shippers had traffic contracts which have not yet expired, enabling them to sell at much lower prices than their less favored competitors; but this wrong will be righted very soon. Before the Inter-State Commerce law was in force it was cut and slash all the time, now this one on the top, then the other: now all are equal. The law is being rigidly enforced and gives stability to the trade. "We were scared to death at first, for we thought it was going to ruin us and matters did come to a standstill for about two months; but it's all right now."

The future of the coal trade depends *upon the labor question in a great measure.* The situation is, without doubt, at a very interesting point, and the developments of the present form fruitful topics for conversation and surmises and speculations as to what the end may be.

The price of Connellsville foundry coke during January will be $2 per net ton free on board cars at ovens; shipments subject to supply of cars, strikes and unavoidable accidents, and settlements on the 15th of each month for shipments of the preceding month. Such are, in brief, the latest circular terms. Some operators, including several outside the Connellsville district, have reduced the price to $1.75 per net ton.

The annual election of our local coal exchange was held Monday last. The result was as follows: President, Thomas Hodgson; Vice-Presidents, E'les Webster, James Ash; Secretary, Millard S. Burns; Treasurer, C. M. Underhall; Directors, J. J. W. Williams, C. D. R. Stowitz, T. Guilford Smith, Adam Schnell, J. H. Horton, R. E. W. Williams, Robt. H. Williams.

The Buffalo, Rochester & Pittsburg Railroad have decided to market their own coal in Buffalo, their five years' contract with Messrs. Bell, Lewis & Yates having expired. Mr. J. M. Drill, for some time coal freight agent for the New York, Lake Erie & Western Railroad in New York City, has been appointed salesman, and will have an office in the White building. The railroad company owns 16,000 acres of bituminous coal lands in the Reynoldsville region, and claims to be able to mine 1,000,000 tons annually, exclusive of their coke trade, which employs over 1250 ovens. Advertisements have appeared asking for bids for 600 coal cars, which looks like business.

Here are a few Duluth items: The receipts, etc., of coal at Duluth, Minn., by lakes for the year 1887 were 1,026,000 tons; 400,000 tons were landed on the Wisconsin side of the bay, and 626,000 tons at Duluth wharves.

The tonnage of vessels passing through the Sault Ste. Marie Canal in 1887 was 5,494,649 tons.

The new association called the Duluth Land

FREIGHTS.

The latest actual charters to January 5th, per ton of 2240 pounds:

From Baltimore to:—Bangor, 1.75; Bath, 1.75; Boston, 1.75; Bristol, 1.60; Bridgeport, Conn., 1.60; Charleston, 1.90; Fall River, 1.60; Galveston, 3.00; Newark, 1.30@1.40; New Bedford, 1.60; New Haven, 1.60; Newburyport, 2.00; New London, 1.60; New York, 1.30@1.40; Portland, 1.75; Portsmouth, N. H., 1.85; Providence, 1.60; Savannah, 1.60@1.65; Somerset, 1.60@1.70; Williamsburg, N. Y., 1.30@1.40.

From Philadelphia:—No shipments on account of the Philadelphia & Reading Coal and Iron Company's strike.

From New York to:—Bath, Me., 1.50*; Beverly 1.50*; Boston, 1.50*; Bridgeport, Conn., .75; Cambridge, Mass., 1.50*3c.; Cambridgeport Mass., 1.50*3c.; Chelsea, 1.50*; Com. Pt., Mass., 1.50*; E. Boston, 1.50*; Fall River, 1.75; New Bedford, 1.05; Newburyport, 1.65*; New Haven, .75*; New London, 90.; Norwich, 1.00; Norwalk, Conn., .65@.70; Portsmouth, N. H., 1.60*; Providence, 75; Salem, 1.00*.

* And discharging. † And discharging and towing. 3c. per bridge extra. § Alongside. ‖ And towing up and down. ¶ And towing. †† Pilotage. ** Below bridge * Old B. L.

and Warehouse Company have purchased frontage and 43 acres of land on the harbor side of Rouse's Point, and will go into the coal business as well. It is their intention to construct coal docks 300 to 400 feet wide and from 600 to 800 feet long by the 1st of June next.

MARKETS.

NEW YORK, Friday Evening, Jan. 6.

Prices of Silver per ounce troy.

Dec.	Sterling exchange	Lond'n Pence.	N. Y. Cents	Jan	Sterling exchange	Lond'n Pence.	N. Y. Cts.
31	4.85¾	44 9-16	96¾	4	4.86	44 9-16	96¾
Jan. 2	....	....	....	5	4.86	44 7-16	96⅝
3	4.85¾	44 9-16	96¾	6	4.86	44 5-16	96⅜

After the late speculative rise of all other metals, silver has lapsed into dullness, and the tendency is to slightly lower prices.

Foreign Bank Statements.—The governors of the Bank of England at their weekly meeting made no change in its rate for discount, and it remains at 4 per cent. During the week, the bank gained £245,000 but the proportion of its reserve to its liabilities was reduced from 43·11 to 38·09 per cent, against a reduction from 35⅜ to 30⅞ per cent in the same week of last year. The weekly statement of the Bank of France shows a decrease of 14,450,000 francs gold and a loss of 7,350,000 francs silver.

Copper.—The advent of the new year did not realize the anticipations of sanguine operators who were unable to dispose of their holdings before the old year expired. After the publication of our last report the market became very flat, and the official closing quotations on Saturday, the 31st December, was 16·90 for spot, but after the closing of the Exchange a very large amount of business took place at prices ranging from 16·90 down to 16·75. at which price from one to one and a half million pounds. changed hands. During the earlier part of the present week this downward movement continued, and the lowest point was reached on Wednesday, spot Lake being 16.25, whilst every day heavy transactions have taken place; but these transactions were, as a rule, not officially reported. A turn for the better was observed on Thursday, when some export orders were received, and by that time most of the weak holders had also been cleaned out. Several export orders assisted the better feeling, and the market closes very strong at 16·50@ 16·60 spot and January, 16·75 February, 16·85 March, 16·95@17 April.

Outside brands, which were for the last few weeks very cheap in comparison with Lake, gave way only slightly, but again little business was done. The quotations are 15@15¼, according to brand.

The exports of copper during the week were as follows:

	Copper.	Lbs.	
To Bordeaux—			
By S.S. Chateau Leoville—Casks..	27	33,000	$3,531
To Havre—			
By S.S. La Champagne—Casks....	228	281,000	46,492
" Elbe—Bars.....	340	89,972	13,500
To Antwerp—			
By S.S. Hermann—Bars.....	99	38,032	3,960
To Liverpool—	Matte.		
By S.S. City of Chicago—Bags...	3,485	334,750	15,000
" " " " —Bbls....	170	211,616	12,500
" Britannic—Sacks.....	4,204	503,070	26,000
" Wisconsin.....	1,979	240,430	13,000
" Halley.....	2,721	331,000	17,000

Tin.—According to private cable received the tin statistics for the second half of December show an increase of 2500 tons; but notwithstanding this London quotations remain very strong at £167@£168 for spot, and about £150 for 3 months forward. In our own market also, the little business which has been transacted has been done at the highest quotations, and we now quote spot, 37@37¼c.; Jan., 36¾@37c.; Feb., 35¾@36c.; March, 34¼@35c. On the whole, however, the business done has been exceedingly limited.

Lead has been comparatively neglected and quotations for the past week are somewhat nominal, but show little change on the whole. A few transactions were reported at 4.90, but nothing could be purchased at this price during the last few days. In spite of the advance of the winter season manufacturers of pipes and sheets appear to be remarkably well occupied. We quote: Spot, 4.90@5; February, 5.05; March, 5.10. The English market has also been comparatively steady, but quotations have given way a trifle.. We quote soft Spanish £15 10 s., English, £15 15 s.

Messrs. John Wahl & Co., of St. Louis, telegraph to-day as follows: In sympathy with other markets, an increasing dullness has characterized the lead market. Demand is extremely light and prices are almost nominal. Our buyers here are very bearish and do not want lead at asking price, which is 4·90 for argentiferous and 4·80 for common.

Messrs. Everett & Post, of Chicago, telegraph us to-day as follows: The market remains about the same, if any thing, a shade weaker. Absence of buyers is effecting a decline. Offerings are only moderate and it is hard to give figures. Nominal quotations, 4.90c.

Spelter has been firm with very little offering. In domestic spelter business has been done at from 5·70 to 5·80, while a good demand has been shown for foreign, checked only by the high prices demanded, which we quote 6·35@6·50.

Antimony continues very firm, with a good demand from consumers. Cookson's is held for 15½ to 16c., while Hallet's is still obtainable at 12½@12c.

Nickel remains in a satisfactory position, with quotations unaltered at 65c.

Chemicals. –The chemical market for the past week has been very dull, and dealers look for little improvement till after the 15th of the month. The strike of the flint glass makers has somewhat affected the alkali market for 48 per cent goods, and no sales are reported. Nominal quotations are from 1.20@ 1.22½.

Newcastle soda ash continues in demand. Spot lots are scarce. Quoted prices to arrive are from 1.20@ 1.22½.

Caustic soda is dull and we note no change in our quotations of last week.

English sal soda is rather firmer, owing to the loss of the Newcastle City with large consignments on board. This forces buyers to purchase for immediate consumption from spot lots. Prices are from 95c.@ $1.05.

Bleach is firm but dull, quoted prices being from 1·95c.@2c.

There is no change in the fertilizing chemical market since our last. Sulphate of ammonia is dull at from $3@$3 50 per cwt.

Muriate of potash is quoted at 1.80 for spot lots and 1.73@1.77 to arrive.

Kainit is scarce and in demand at $8@$8.50 per ton. Nitrate of soda is quiet—sales ex vessel in port at 2·05c. As no further arrivals are likely, we look for an advance in spot prices. Brimstone is in good demand; we hear of a sale of 200 tons on the spot at $24 per ton.

To arrive, due about the 15th, $22 per ton; due about the last of the month, $21.50; 3ds may be quoted at $19@$21 per ton.

There is no more brimstone on the spot.

Acetic acid is in little demand, and prices are rather unsteady, due to competition between manufacturers. We quote from 2¼@2½c. per pound, according to quality.

Sulphuric acid is in fair demand, prices remaining unchanged since our last.

In quicksilver there is no change to report. Quoted prices from 68@70c. per pound.

During the past week we received a letter from a subscriber, stating that our quotations on caustic soda must be wrong. He says:

"You quote caustic soda, 60 per cent, $2.60@$2.75 per cwt.; 70 per cent, $2.35; 74 per cent, $2.30 per cwt. How can the price decrease with the improved quality of the article?"

For the benefit of the uninitiated among our readers we beg to make the following explanation. The basis of valuation of caustic sodia is a 60 per cent article, which is taken as the unit. When a 70 per cent caustic is under consideration the actual cost price to the purchaser will be our quoted price ($2.35) for that grade, plus ⅛, as it exceeds the unit (60 per cent) by 10 per cent, making an actual cost of $2.74 per cwt. A reference to our printed price list will show that the purer the article the cheaper the price, when reduced to a 60 per cent basis. The reason of this is that the duty on caustic soda is specific, not ad valorem; the higher grades, therefore, pay less duty in proportion to purity than the lower grades. Moreover, the freight is the same whether the caustic be 60 per cent. or 70 per cent. In the latter case, of course, there is less "dead matter" to carry and the freight is proportionally cheaper. For these reasons the importer can afford to sell the 70 per cent caustic at a proportionally lower price the 60 per cent.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Jan. 6.

The market this week has presented few new features of interest. Very little new business is recorded. The first week of the year is proverbially a dull one, being occupied with taking stock, making up accounts, etc.

The strike of the coal miners has now extended through the Reading and Schuylkill regions, and fully 45,000 men are now idle, including those in the Lehigh region. This strike, if continued, will soon largely affect the production of pig-iron throughout Eastern Pennsylvania, and several furnaces, which have not a good supply of coal, will be obliged to shut down.

The result of the strikes is watched with great interest by iron men. The Thomas Iron Co. announce that they will not name prices for this year until the question of coal supply is settled. Should the strikes continue, there will soon be an increased scarcity of good brands of pig-iron, and a possible stiffening of prices, which at present are unchanged at previous quotations. A few new sales of Southern irons are reported. No new business is reported in Scotch pig, Bessemer, spiegel or steel materials, except in steel plates, in which it is said that foreign plates have been extensively sold under the current quotations.

Old rails remain uncertain and decidedly "mixed." A lot of Tees was offered at $20.50, but could not be found by parties who were ready to buy. A sale of 2000 tons Tees under $22 is reported, and of a lot of bridges at a higher figure. On the other hand, well-stocked makers will not offer over $21 for Tees, at which price they can not be imported.

Louisville. Jan. 2

[Reported by GEO. H. HULL & CO.]

The range of prices in the Louisville market for the past week has varied so much that a very peculiar condition of affairs is presented. It is understood that some 20,000 tons of Southern coke irons have been sold on private terms, which are undrestood to be considerably below quotations. But at the same time choice coke brands have been sold readily at full prices and the prices of charcoal irons have been rather above than below quotations. The differences in prices are caused by the variance of the views held by furnace men. Some furnaces making favorite brands have steadily declined for the last month to quote for 1888 deliveries, they considering that the market would necessarily stiffen after the first of the year. Other furnaces seem to have considered that the closing weeks of 1887 were a favorable time to sell for extended deliveries in 1888, and they have reduced prices sufficiently to secure large orders similar to those which furnaces holding a contrary view have declined to book. Quotations will be found in the weekly register of prices.

Philadelphia. Jan. 6.

[From our Special Correspondent.]

A few days more will probably develop something in regard to the effect of the coal strike upon furnaces and mills. The strike was unexpected to manufacturing interests, and no special preparation had been made for it. Supplies are light in several localities and continued activity will be impossible unless a settlement is reached. There are no immediate prospects of this. None of the leading companies are able to fill orders. The anticipation is that the miners will break. A good many furnaces along the Lehigh have been supplied by Wyoming coal and partly from Schulkill coal. There will be some banking up done in a very few days and some intimate a blowing out is not far off of several furnaces. The furnace supply in the Schuylkill Valley ranges from one to three weeks. Coke will hold out to some extent, but that source of supply is uncertain. Eight or ten furnaces are now almost out. The price of coke at Eastern furnaces is from $4.50 to $5, against $3.50 for anthacrite. Considering the efficiency of the two fuels the difference in cost is very little; but even this little difference will prevent its general use. Several other small concerns are likely to fall in at the advance. The miners are stronger than the public is aware of, and the strike will last longer than is at present anticipated. Several influences have contributed within forty-eight hours to stimulate the demand for crude iron. Among them are the fact that stocks in consumers' hands are low, that standard and special brands of foundry and forge are scarce, that bottom producing and selling prices have certainly been reached, that the coal strike may last long and compel the blowing out of a good many furnaces, and to complete the list of influences, the demand for finished products is improving and buyers are anxious to secure themselves while it is yet day. As a consequence of this, standard irons are held more firmly to-day than they have been for three weeks. There has been no advance heard of, but an advance will be the next thing to take place, especially if the strike should assume more pronounced shape. There is also an improvement in the outlook for charcoal blooms and muck bars, but no change in prices. Quite a number of inquiries have been received and consumers appear to be low in stocks. The bar mills have nearly all resumed, a number of them single turn instead of double, but it is given out to-day that those who started single will be on double next week. There is a general improvement in inquiry, and if the fuel question, which enters into every department of the iron trade just now, should take an ugly look there will be a refusal on the part of manufactures to book large orders except at prices current at date of delivery. The outlook is particularly good for bar iron and the prospects for plate are a little better. Several inquiries have been received since Monday for large supplies of plate and tank, both iron and steel, and the manufacturers are in better hope now than they have been for a month or so. It transpires that there are a good many heavy plate and tank iron requirements to be filled. Skelp is weakening and there has been none selling since last writing. The wrought iron pipe mills expect to run full-time. A number of good cast iron-orders have been just placed throughout Pennsylvania. Advices from the interior of the State show that there is a general anxiety to buy iron and steel. Steel rails are dull. Rumors are plenty. A good many buyers are waiting to see just which way the Pennsylvania Company acts. The Baltimore & Ohio will want several small lots. Makers say $32 is their bottom figure, and there is nothing to do but to come to it. A good deal of projecting of roads is heard of and in a general way the feeling is a little stronger in regard to railroad construction this year. No orders have been placed for foreign material as freights are a little too high. Sellers of old rails are gaining a little fresh courage but are not selling much stock. The $23 limit is being asked occasionally. All kinds of scrap are rather scarce. A number of small sales have been made during the holidays and deliveries are now being made on them. The structural iron makers have nothing to add and there is no change in prices.

Pittsburg. Jan. 5.

[From our Special Correspondent.]

The condition of the pig-iron market for some time has been any thing but satisfactory to the sellers, as the inquiries noticed in our previous reports have not been continued, and sales were confined exclusively to limited amounts required to keep up mixtures. It is true that several parties have expressed a willingness to buy even round lots if a low price enough is made, but the difference in views between buyers and sellers prevents transactions.

All parties agree that unless there is an improved demand very soon and better prices prevail there can be nothing to induce furnace men whose furnaces are now out of blast to start up. There is an utter lack of tone or vim in trade generally, which tends to

WEEKLY REGISTER OF

CURRENT QUOTATIONS.

This list is the result of careful compilation and is destined to meet the demands of all classes of subscribers. The prices quoted are those actually ruling in our own and foreign markets. Manufacturers and importers will please give notice of all modifications not later than Friday noon each week.

CHEMICALS.

Acid—Acetic ..... 2⅜@2½
Muriatic, 18°, per 100 lbs 1.20
Muriatic, 20°, per 100 lbs..... 1.35@1.50
Nitric, 36°, per 100 lbs ..... 4.50@5.00
Nitric, 42°, per 100 lbs..... 6.00
Oxalic ..... 8 @8½
Sulphuric, 60°, per 100 lbs..... 90
Sulphuric, 66°, per 100 lbs 1.10
Alkali—36 p. c ..... 1⅛@1 1-10
Refined, 58° 1.15
Alum—Lump, per lb..... 1¾
Ground, per lb..... 2
Lump per ton, Liverpool £5
Sulphate of Alumina £4 12 0
Aluminum—(Metallic), per lb...12.00
Aqua Ammonia—18°, ℔ lb..... 4
20°, ℔ lb..... 5
22°, ℔ lb..... 6¾
26°, ℔ lb..... 9¾
Ammonia—Sul., per 100 lbs. 3.00@3 50
Carb , per lb..... 7¾
Muriate, per lb..... 7
Antimony—Hallet's, per lb..... 8¼
Cookson's, per lb 9¼
Arsenic—Metallic, per lb..... 3·2
White, powdered, per lb..... 2¾
White, glass..... .
Red. per lb..... 6½
White, at Plymouth, per ton. .£21 0 0
Asbestos—American, p. ton..... 20 00
Italian, p. ton, c. i. f. L'pool ...£18 0 0
Asphaltum—P. ton 13.00
Prime Cuban, ℔ lb ..... 5@6c.
Hard, ℔ ton..... $28.00
Trinidad, refined, ℔ ton $30.00
Barium—(Metallic), per lb..... 975.00
Barytes—Sulph., Am. prime white 16.00
Sulph., foreign, floated, p. ton.... 19.00
Sulph., off color, p. ton 12.50
Carb., lump, f.o.b. L'pool, ton ...£6 0 0
No. 1, casks, Runcorn " "£4 10 10
No 2, bags, Runcorn " " 3 15 0
Bismuth—(Metallic), per lb..... 2.40
Bleach—Over 35 p.c., ℔ lb.1.87½@1.95
Borax—Per lb 6¼
Refined at Liverpool, per ton..£26 10 0
Bricks—Pale, per 1,000 ..... 5.00
Jerseys, per 1,000 ..... 7.50
Haverstraw, per 1,000..... 8.50
Front bricks, per 1,000, from.....10.00
Brimstone—*See Sulphur.*
Bromine—Per lb..... 36
Building Stone—Amherst free-stone, per cu. ft., from..... 75
Brownstone, per cu. ft., from..... 1.00
Granite, rough, per cu. ft., from.. 45
Cadmium—(Metallic), per lb..... 1.45
Calcium—(Metallic), per oz.....150.00
Cæsium—(Metallic) .....
Cerium—(Metallic) per oz..... 168
Cement—Rosendale, per bbl..... 1 00
Portland, American, per bbl..... 2.00
Portland, foreign, per bbl..... 2 25
Chalk—Per ton..... 3.00
Precipitated, per lb..... 4
China Clay—English, per ton....18.50
Southern, per ton..... 13.50
Chrome Yellow—Per lb 8
Chromium—(Metallic), per lb...200 00
Cobalt—(Metallic), per lb..... 7.00
Cobalt—Oxide, per lb..... 2.15
Copper—Sulph. English Wks.,ton£13 10 0
Precip., English Works, unit fluctuating
Copperas—Common, per 100 lbs.$ 70
Best, per 100 lbs..... 1.20
Liverpool, per ton, in casks, £2.... 1.20
Cream of Tartar—Am. 99%....33¼@34
Powdered, 99 p c..... 35
Didymium—(Metallic), per oz...160.00
Emery—Grain, per lb 3½
Flour, per lb 2½
Erbium—(Metallic), per oz.... ...140.00
Feldspar—Ground, per ton.....14.00
Fuller's Earth—Lump, per bbl. 95
Powdered, per lb..... 2
Gallium—(Metallic), per oz 3250.00
Glucinum—(Metallic) .....
Green—Emerald, per lb..... 25
Brunswick .....
Gypsum—Calcined, per bbl.... 1.25
Indium—(Metallic), per oz..... 158.00
Iodine—Resublimed..... 3.50
Iridium—(Metallic), per lb.....700.00
Kainit—Per ton..... 8.50
Kaolin—*See China Clay.*
Lanthanum—(Metallic), per oz.175.00
Lead—Red, per lb..... 6
White, American, in oil, per lb.... 6½
White, English, per lb 7½
Acetate, or sugar of 12
Litharge—Powdered, per lb..... 6@6¼
English flake, per lb..... 9
Lithium—(Metallic), per oz.....160.00
Magnesite—Syrian, per ton.....15.00
Magnesium—Per lb..... 4.00
Manganese—lump, c. i. f. Liverpool, per ton..... £3 ? 6
Per unit, up or down..... £0 1 3
Ground..... £6 0 0
Metallic, per lb 1.10
Mercury—*See Quicksilver.*
Mercuric-Chloride—(*Corrosive Sublimate*) per lb..... 55
Mineral Wool—Per lb 2
Mica—
In sheets according to size, 1st quality, ℔ lb..... 25@$6.00
Molybdenum—(Metallic) per lb. 6.00
Nickel—(Metallic), per lb..... .65
Niobium—(Metallic), per oz.....128.00
Osmium—(Metallic), per lb 640.00
Palladium—(Metallic), per lb...512.00
Platinum—(Metallic), per lb. ..148.00
Phosphate Rock—S. Carolina, per ton f. o. b. Charleston..... 5.80
Ground, per ton f. o. b. New York.10.00
Canadian Apatite, lump, f. o. b. at shipping port, per unit..... 24
Phosphorus—Per lb..... 70
Plumbago—Ceylon, per lb... . 4
American, per lb..... 7
London, per cwt..... £0 15 0
Potassium—Metallic, per oz... 2.00
Cyanide, per lb..... .39@41
Bromide, per lb..... 37
Chlorate, per lb..... 15@15½
Carb. per lb..... 5
Caustic, per lb..... 7¼
Iodide..... 2.70@2.75
Muriate, per 100 lbs..... 1.75@1.80
Nitrate, refined, per lb..... 6
Bichromate, per lb..... 10½
Sulphate, per 100 lbs..... 1.10
Yellow Prussiate, per lb..... 19
Red Prussiate, per lb..... 42
Pumice Stone—Select lumps, per lb..... 2½
Original cks., per lb..... 1½
Powdered, pure, per lb..... 1¾
Pyrites—Non-cupreous, p. unit, s. 10
Quartz—Ground, per ton 18.00
Quicksilver—Per lb.. ..... .68@70c.
London, per flask of 75 ....£10 10s.
Rotten Stone—Powdered, per lb. 8½
Lump, per lb..... 5
Eng., powdered, per ton £4
Lump, per ton..... £5
Rhodium—(Metallic), per lb....512.00
Ruthenium—(Metallic), per oz. 112.00
Rubidium—(Metallic), per oz...200.00
Salt—Liverpool, ground per bbl. 70
Turk's Island, per bbl 25
Salt Cake—Per 100 lbs 55
Saltpeter—Crude, per lb..... 4½
Refined, per lb..... 6
Silenium—(Metallic ....
Slate—Purple and green roofing, per 100 ft..... 6 00
Red roofing, per 100 sq. ft..... 15.00
Black, roofing, per 100 sq. ft. 5 00
Soda Ash—Carb.,48 % 100 ℔...1.22½@1.25
Caustic, 48 %..... 1.21¼@1.35
High test..... 1.12½@1.15
Soda Caustic, 60%..... 2.60@2.75
" " 70%..... 2.35
" " 74-5%..... 2.30
Sal, English, per 100 lbs..... 95
Sal, American, per 100 lbs.... 1.15
Nitrate, per 100 lbs..... 2.05
Sodium—(Metallic) per lb..... 4.50
Spelter—See Zinc.
Strontium—(Metallic), per oz..138.00
Nitrate, per lb..... 10½
Sulphur—Roll, per lb..... 1½
Flour, per lb 1¾
Crude Brimstone, 2s., per ton...$24@23
Crude Brimstone, thirds, per ton..$20@23
Talc—Ground French, per lb.. .... 1¼
Domestic, per lb..... 6
Domestic, per ton..... 15 00
C.i. f. Liverpool, per ton..... £4 5 0
Taunin—Pure, per lb. .....
Tantalum—(Metallic) per oz... 144.00
Telurium—(Metallic) per oz.... 9 00
Thallium—(Metallic) per oz..... 3.00
Titanium—(Metallic) per oz....32.00
Thorium—(Metallic) per oz....272.00
Tungsten—(Metallic) per oz..... 4.00
Vanadium—(Metallic), per oz..320.00
Vermillion—American, per lb... 50
English, per lb. 65
Vitriol—(Blue), Ordinary, per lb.. 5
Extra, per lb..... 5½
Yttrium—(Metallic), per oz 144.00
Zinc oxide—Am., Dry, per lb.... 4½
Antwerp, Red Seal, per lo.....6½@6½
Paris, Red Seal, per lb..... 6¾
Zirconium—(Metallic), per oz..240.00

IRON AND STEEL.

New York Prices.

American Pig-Iron.
No. 1 X.... $20.50@$21.50 at tidewater
No. 2 X..... $18 50@$19.50 " "
Forge..... $17@ . " "
Scotch Pig—Coltness... $22.00@$22.25
Clyde..... 20.50@ 21.00
Dalmellington..... 21.00@ 20.50
Summerlee..... 21.50@ 21.75
Gartsherrie..... 21 50@ .....
Shotts..... 21.75@ 22.00
By Cable to-day to the Metal Exchange :
Scotch Warrants..... 42s. 9d.
Coltness, at Glasgow ..... .53s.
Langloan, at Glasgow..... 51s. 6d.
Summerlee, at Glasgow..... 51s. 6d.
Gartsherrie, at Glasgow..... 48s. 6d.
Glengarnock, at Aidrossan..... 48s. 6d.
Dalmellington, at Ardrossan..... 45s.
Eglinton, at Ardrossan ..... 44s. 3d.
Bessemer Pig—
Foreign, nominally..... $20.25@$20.50
Domestic..... $19 at furnace
Spiegeleisen—
German, 20 per cent.... $26.00@$26.25
English, 20 " " ..... 26.50@ 27.00
" 30 " " ..... 31.00@ 31.50
Ferro Manganese..... 54.00
Steel Blooms..... 30.00@ 30.50
Steel Billets..... 30.00@ 30.50
Steel Nail Slabs..... 30 50@ 31.00
Steel Wire Rods.. ..... 41.00@ 41.25
Steel Rails—
Heavy sections, at mill....$32.00@ 33.00
Light " " ..... 33.50@ 38.50
Structural Iron and Steel—
Bridge Plate, at mill..... 2·20@2¼c.
Angles, at mill ..... 2·3@2·4c.
Tees, at mill..... 2 6@2·8c.
Steel Angles, at mill..... 2·6@2·75c.
Beams and Channels, on wharf, 3·3c. base.
Steel Plates—
Tank and Ship, on wharf..... 2·7@2·8c.
Boiler Shell, on wharf... ....3 @3·15c.
" Flange, " ..... 3¼@3·4c.
" Fire-Box, on wharf.... 4 @4·15c.
Iron Plates—
Common tank, on wharf....2¼@2 3-10c.
Refined tank, on wharf.....2 4-10@2¼c.
Boiler shell, " ....2¼@2 6-10c.
Boiler flange, " ....3⅛@3 7-10c.
Extra flange, " .....4 @4¼c.
Bar Iron—
Refined..... .....2@2·1c. base.
Common..... 1·9@2c. "
Merchant Steel—
American tool ..... 8½@10c.
Special grades..... 13 @20c.
Crucible machinery..... 5 @6c
" spring..... ... 4½c.
Bessemer machinery..... 2·2@2·5c.
" spring. . ..... 2·2@2·5c.
Cast-Iron Pipe—
According to size..... $27.00@$34.00
Wrought Iron Pipe—
Butt-Welded, Plain and Tarred, 47½ per cent disc.; Galv., 37½ per cent disc.
Lap-Welded, Plain and Tarred, 60 per cent disc ; Galv., 45 per cent disc.
Boiler Tubes—52½ per cent disc.; Casing, 50 per cent disc.
Rail Fastenings—
Spikes..... 2·3 @2·4c.delv'd
Angle Fish-bars..... 2·10@2·15c.
Bolts and Sq. Nuts..... 2·9 @ 3c.
" " Hex. " ..... 3·1 @3·2c.
Wrought Scrap—
Foreign *ex ship*..... $20.00@$20.50
No. 1 Yard ..... 20.50@ 21.00
Cast Scrap ..... 15.00@ 16.00
Old Car Wheels..... 19.00@ 19.50
Old Rails—Tees ..... 21 50@ 22.00
—Doubles ..... 22.00@ 22 50
Nails—In car-load lots. .. 1.90@ 2.00
—From store ..... 2.00@ 2.05

Louisville Prices.

Pig-Iron—
So. Coke, No. 1 Foundry..$19.00@$20.50
" " No. 2 " .. 18.00@ 19.50
" " No. 2½ " .. 17.00@ 19.00
Hg. Rock Coke, No. 1 F'dry 19.50@ 20.50
" " Charcoal, No. 1 Foundry ..... 22.50@ 24.00
So. Charcoal, No. 1 F'dry .. 20.50@ 21.50
Silver Gray, different gr'des 17.00@ 19.00
So. Coke, No. 1 Mill, Neutral 17.00@ 18.00
" " No. 2 " " 16.00@ 17.00
" " No. 1 Mill, Cold Short..... 16.00@ 17.00
So. Charcoal, No. 1 Mill..... .....
White&Mottled, diff't gr'ds. 15.00@ 16.00
So. Car-Wheel, St'rd Br'nds 24.00@ 25.00
" " Other " 22.00@ 23.00
Hanging Rock, Cold-Blast.. 24.00@ 25.00
" " Warm-Blast 20.00@ 21.00

Philadelphia Prices.

Foundry No. 1..... ... $21.00@21.50
Foundry No. 2..... 18.50@19 00
Gray Forge..... 17.00@16.00
Bessemer Pig..... 20.25@. ...
Steel Rail Blooms..... 29.50@nom.
Foreign Bessemer..... 20.00@20.50
Spiegeleisen..... 26.50@27.50
Scrap, Selected..... 22.00@. ...
No. 1..... 21.00@20.00
Cargo Scrap..... 21.00@20.50
Muck-Bars..... 30.50@. ...
Merchant Iron..... 1.90@@2.10c.
Plate Iron..... 2.10@ 2.30
Tank Iron..... 2.40@ 2.50
Skelp Iron..... 2.00@ 1.90
Angles..... 2.30@. .
Beams and Channels..... .. 3.30@. ...
Nails ..... 1.90@ 2.00
Steel Rails..... 32.50@33.50
Old Rails..... 22.00@22.50

Pittsburg Prices.

Coke or Bituminous Pig—
Foundry No. 1..... ..$18.60@19.00
Foundry No. 2..... 17.60@18.00
Gray Foundry No. 3..... 16.75@17.00
" " No. 4... ... 16.25@16.50
White ..... 16.00@16.25
Mottled..... 16.00@16.25
Silvery ..... 18.50@19.00
Bessemer..... 18.50@19.00
Charcoal Pig—
Foundry No. 1..... .. 25.00@25.75
Foundry No. 2..... 24.00@24.75
Cold-Blast..... 26.00@30.00
Warm-Blast..... 25.00@27.00
20 p. c. Spiegel..... 28.00@28.50
Muck-Bar..... 29.25@29.50
Steel Blooms..... 29.00@29 25
Steel Slabs ..... 29.00@29 50
Steel Crop Ends..... .... 19.00@20.00
Steel Bloom Ends..... 19.00@19.25
Steel Billets..... 29.00@29.50
Old Iron Rails..... 24 00@25.00
Old Steel Rails..... 21.75@22.50
No. 1 W. Scrap..... 20 00@20.25
No. 2 W. Scrap..... 18.00@
Steel Rails..... 33.00@
" light sections.. ..... 33.00@37.00
Bar Iron.. nominal..... 1.90@ 2.00
Nails $1.90@$2 net car lots.
Steel Nails $1.90@$2 net car lots. Two per cent off for cash.

All descriptions of iron are nominal. Steel rail men report no demand, prices being uncertain.

ALUMINUM.

Bronze (10 %), ℔ lb..... 40c.

COPPER.

Lake Ingot, ℔ lb..... ...17@18c.
Electrolytic, ℔ lb..... ..... 17c.
Casting Brands, ℔ lb .... 15c.
Arizona Black .....
Matte, ℔ unit of Copper .....
Chili Bars, London, ℔ ton.....£84 5s.
Am. Matte, Liverpool, ℔ unit....
Sheet Copper (according to size), ℔ lb..... .....20 @40c.

Lead—
Domestic, Common..... 5@5.05c.
Domestic, Refined..... ....
Foreign ....5.40@5½c.
Sheet, ℔ lb..... ..... 6 @ 7c.
Pipe, ℔ lb..... .. .. @ 7c.
Tin lined Pipe, ℔ lb..... 15c.
Shot, ℔ lb..... 6 @ 7c.

Tin—
Tin Plates..... .. ..15s. 3d.
Tin Spot..... ....£166
Banca pigs, ℔ lb..... ..... 37@37½
English, pigs, ℔ lb.....
Straits, pigs, ℔ lb.....
Straits in bars, ℔ lb.....
Ch., bright I. C., ℔ box.....
Coke, bright, ℔ box.....
Coke, Ternes, ℔ box..... ....

Zinc—
Domestic spelter, ℔ lb..... 5⅜@5⅝
Foreign spelter, ℔ lb... ... 6.10@6.30
Silesian, London, ℔ ton..... £21
Sheet, American, ℔ lb .. ..
Sheet, foreign, ℔ lb.....

STOCK MARKET QUOTATIONS

Baltimore Stock Quotations.

COMPANY.	Bid.	Asked.
Atlantic Coal	$1.40	...
Balt. & N. C.	....	....
Big Vein Coal..	....	....
Conrad Hill	.12	$0.16@.20
Diamond Tunnel	.50	...
George's Crk. C.	98.00	100.25@101.00
Lake Chrome..	....	.13
N. State, Balto..	.20@.30	.40@.45
Ore Knob	.10	.12@.15
Silver Valley...	1.50	1.65

Highest and lowest prices bid and asked during the week ending January 5th.

Pittsburg Stock Quotations.

COMPANY	H.	L.	Closing.
Allegheny Gas ..	36.00	36 00	36.00
Bridgewater Gas ..	98.00	97.00	98.00
Chartiers Val. Gas.	85.00	75.00	83 00
Columbia Oil.....	3.00	3.00	3.00
Forest Oil	90.00	90.00	90.00
Hazlewood Oil...	40.00	40.00	40.00
La Noria Mining ..	4.12½	3.12½	3.88
M'f'turers' Gas....	26.00	24.00	26.00
N. Y. & C. Gas Coal	41.00	40.00	40.00
Ohio Valley Gas...	41 00	41.00	41.00
Philadelphia Gas..	50.63	48.37½	51.13
Pittsburg Gas Co..	60.00	60.00	60.00
Nat. Gas Co. of W. Va.....	90.00	90.00	90.00
Silverton Mining..	1.75	1.63	1.63
Tuna Oil Co.....	65.00	50 00	65.00
W't'h'se Air-Brake.	160.00	160.00	160.00
W't'ghouse Brake.	60.00	60.00	60.00
Westmoreland & Cambria Gas..	45.25	45.25	45.25
Wheeling Nat. Gas.	25.00	24.00	25.25
Yankee Girl Mining	....	....	.....

Highest and lowest prices bid and asked during the week ending January 5th.

St. Louis Mining Stocks.

	Bid.	Asked.
Adams, Colo.	$2.50	$2.75
Black Oak, N. Mex	.70	.72½
Bremen, N. Mex	...	...
Cariboo, N. Mex	52½	.55
Cleveland, Colo	....	....
Courtland	...	...
Dinero, Colo	.25	.30
Granite Mountain, Mont.	58.25	60.00
Gray Eagle, N. Mex	22½	.25
Golden Era, Mont	1.00	1 05
Hope, Mont.	6.80	7.00
Ideal, Colo	...	...
Jumbo, Colo	.82½	.85
Juniper, Ariz	.17½	.25
Laclede, N. Mex	...	...
Peacock, N. Mex	.17	.20
Pat Murphy, Colo	1.25	1.30
Quincy, Colo	...	...
Sheridan, N. Mex	.15	.16½
Small Hopes Cons., Colo..	4.75	5.00
St. Lu. & Mex. Imp., Mex.	.20	.35
San Louis & San F., Mex.	...	...
St. Louis & Yavapai, Ariz.	.11½	.15
West Granite, Mont...	.85	.90

London Quotations.

COMPANY.	Highest.	Lowest.
Alturas Gold, Idaho...	30s.	27s. 6d.
Arizona Copper, Ariz..	21s. 6d.	21s. 3d.
Birdseye Creek, Cal....	8s.	7s.
California Gold, Colo..	8s. 6d.	7s. 6d.
Carlisle, N. Mex	£1¼	£1
Centennial, Cal.	£1	£¾
Charles Dickens, Id....	4s.	3s.
Colorado United, Colo..	20s	15s.
Denver Gold, Colo.....	2s. 6d.	2s.
Eberhardt, Nev.	5s	4s. 6d.
Empire, Mont	£2¾	£2¼
Flagstaff, Utah.....	6s. 6d.	5s. 6d.
Garfield, Nev.	£1 5-16	£1 3-16
Gold Hill, N. C.....	3s. 9d.	3s. 3d.
Kohinoor, Colo.....	2s. 6d.	1s. 6d
Montana Lt., Mont	£2½	£2¼
New California, Colo...	7s. 6d.	6s. 6d.
New Consolidated	3s. 6d.	2s. 6d.
New Emma, S., Utah..	5s. 6d.	5s.
New Hoover Hill, N. C.	3s.	2s.
New La Plata, Colo....	4s.	3s.
Pittsburg Cons., Nev...	42s.	40s.
Plumas Eureka, Cal....	£⅞	£⅝
Richmond Con., Nev...	£4¼	£4
Ruby&Dunderberg, Nev	5s.	4s.
Russell Gold, N. C.....	4s. 6d.	3s. 6d.
Sierra Buttes, Cal.....	£¾	£⅛
Stanly, N. C.....	£1⅛	£⅞
Union Gold, Colo.....	6s.	4s.
U. S. Placer, Colo.....	£1	£¾
Viola Lt., Idaho	37s. 6d.	35s.

Highest and lowest prices December 24th.

NEW YORK MINING STOCK QUOTATIONS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	Dec. 31.		Jan. 2.		Jan. 3.		Jan. 4.		Jan. 5.		Jan. 6.		SALES.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Alice, Mon													
Ida							2.75						300
Belcher							6.75		7.50	6.50			400
Belle Isle, Nev													
Bodie Cons., Cal							2.85	2.75			2.65		1,400
Breece, Colo													
Bulwer, Cal							.90				.85		900
Calumet & Hecla													
Caledonia					1.75		1.75						500
Challar							7.25		6 13				720
Chrysolite, Colo							.45						200
Colorado Cent'l, Colo.													
Cons. Cal. & Va., Nev.							24.00	23 00	23.25	23.00	22.25	21.87	2,230
Crown Point, Nev							11.25		8.50				350
Deadwood, Dak											1.90		200
Dunkin, Colo													
Eclipse, Colo													
Eureka Cons., Nev							6.50				6.25		450
Father de Smet, Dak													
Freeland, Colo													
Gold Stripe, Cal													
Gould & Curry, Nev							5.50		5.13				500
Green Mountain, Cal					.05						07	.05	1,200
Hale & Norcross, Nev							12.25		12.75		13.37		600
Helena, Mont					1.00								100
Holyoke, Idaho													
Homestake, Dak							12.50		11.00				120
Horn-Silver, Ut					.80		80		.75		.88		550
Independence, Nev							60						400
Iron Hill, Dak													
Iron Silver, Colo					3.05								200
Leadville C., Colo							.25						100
Little Chief, Colo											.26		600
Little Pittsburg, Colo.											.25		100
Martin White, Nev													
Mono, Cal							1.85		1.60		1.60		800
Mount Diablo, Nev													
Navajo, Nev							90				.90		1,000
North Belle Isle, Nev					8.00		9.00				8.25		600
Ontario, Ut													
Ophir, Nev							11.00		10.00		10.25		700
Plymouth, Cal					20.25		20.50	19.38			19.75		185
Quicksilver Pref., Cal							34.00	33.50	36.00	34.00	37.50	35.87	4,650
" Com., Cal									10.25	9.88	11.75	10.50	3,245
Quincy													
Robinson Cons., Colo													
Savage, Nev									9.00		8.37	8.12	740
Sierra Nevada, Nev							4.80	4.40	5.13	5.00	5.13	5.00	1,320
Silver King, Ariz							5.00		4 75				400
Standard, Cal							2.50	2.25	2.25				920
Stormont, Ut													
Yellow Jacket, Nev							6.13		6.50	5.50	6.25		825

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	Dec. 31.		Jan. 2.		Jan 3.		Jan. 4.		Jan. 5.		Jan. 6.		SALES.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Allouez													
Amador, Cal					1.70	1.65	1.65	1 60	1.60		1.60		4,000
American Flag													
Barcelona, Nev											.45		100
Bechtel Con., Nev													
Best & Belcher, Nev.							7.13		6.76		6.50		750
Brunswick					1.65	1.60	1 65	1.60	1.65		1.65	1.60	4,300
Bullion							2,00						160
Carupano													
Cashier					.15	.14	.13	.10	.11	.05	.08	.07	4,500
Castle Creek, Id													
Central, Ariz													
Commonwealth													
Con. Imperial											3.12		300
Con. Pacific													
Decatur													
El Cristo, U. S. Col.							2 55	2.15	2.05	1 90			2,000
Exchequer									1.60				100
Found Treasure							2,00		2.00		2.00		750
Hector													
Julia, Nev									.75				200
Kossuth									.11				200
Lacrosse, Colo							.12	.11			.11		3,500
Mexican, Nev							5.50		5.25		5.25		880
Middle Bar, Cal							.30		.30		31	.28	6,300
Montor									.10				500
New Pittsb'g, Colo.													
North Stand'd, Cal.													
N. Horn-Silv'r, Ut.													
Oneida Chief													
Pri'nt'l & Mil'r, Nev.													
Phœnix of Arkan's													
Potosi							6.63		6.63				4,300
Proustite					2.25	1.95	2 25	2.15	2.20	2.15	2.50	2.15	32,400
Rappanann'k, Va.					.18		.18		.19		.18		1,400
Red Elephant, Colo.													
Renfrew, N. S													
Saint Kevin, Colo													
San Sebastian					3.25		3.25		3.20		3.25		400
Santiago, U. S. Col.													
Security, Colo											1.00	.92	600
Silver Cliff, Colo													
Silver Hill													
Silver Queen, Ariz.													
Stanislaus, Cal													
State L'e, Ida., Nev.													
" Nos. 2 & 3, Nev.													
Sutro Tunnel, Nev.					.12	.10	.11	.10	.11	.10	.11		32,400
Taylor Plumas, Cal.													
Tornado							1.00		1 00				600
Union Cons., Nev.							4.90		4.80	4.50	4.75		715
Utah													

†Assessment unpaid. *Dealt in at the New York Stock Exchange. Unlisted Securities.

BOSTON MINING STOCK QUOTATIONS.

NAME OF COMPANY.	Dec. 30.	Dec. 31.	Jan. 2.	Jan. 3.	Jan. 4.	Jan. 5.	SALES.
Atlantic, Mich	13.25				13.13	13 00	13.00		440
Bodie, Cal									
Bonanza D	1.50	1.55		1.04	1.63	1.63		1.94	1.50	5,385
Boston & Mont., Mont										
Breece, Colo								.35		400
Calumet & Hecla, Mich	191			193	190	190				127
Catalpa, Colo										
Central										
Dunkin, Colo	.92½					1.00	.92½	.95		1,825
Enterprise										
Eureka, Nev										
Franklin, Mich	15.00			15.25	15.00	15.00	14.75	14.50		289
Freeland, Colo										
Hale & Norcross								12.63		50
Ironton Iron Co., Mich										
Little Chief										
Napa, Cal	1.50							1.50		450
Osceola, Mich				22 50	22.00	22.25				510
Pewabic, Mich										
Quincy, Mich	60.00			61.00				60.00		25
Reace										
Ridge, Mich										
Robinson, Colo										
Sierra, Nev										
Silver King										
Standard										

NAME OF COMPANY.	Dec. 30.	Dec. 31.	Jan 2.	Jan. 3.	Jan. 4.	Jan. 5.	SALES.
Allouez, Mich	1.33			1.88		1.75		1 63		650
Arnold, Mich	.60					.60				200
Aztec						25				200
Bowman Silv'r, Nev										
Brunswick	1.60					1 65		1.65	1.60	1,300
Crescent, Colo				1 63		.17½				500
Cusi, N. Mex	.13			.13						1,200
Gogebic				8.00						100
Humboldt										
Hungarian	.30			.30	.25	.30				750
Huron, Mich				5.00						100
Kearsarge	6.13			6 00				6.00	5.88	350
Kossuth				17½						300
Mesnard	.40					.45				300
National, Mich				2.50		2.50	2.00			400
Native										
Oriental & M., Nev										
Pontiac	.40									300
Rappahannock, Va				.18		.18		.18		300
Security, Colo	.90			.90						200
South Side	.50			.45		.40		.50		700
St. Louis										
St. Mary								.35		100
Sutro Tunnel, Nev.	.11			.08				.10		1,000
Tamarack	125	124		124				124	123½	400
Washington				.50		.50		50		88
Winthrop	.30							.45		400

New York: Dividend shares sold, 27,505. Non-dividend shares sold, 101,295 Total New York, 128,800.
Boston: Dividend shares sold, 9,501. Non-dividend shares sold, 10,338. Total Boston, 19,839.

COAL STOCKS.

NAME OF COMPANY.	Par value of shares.	Dec. 31.		Jan. 2.		Jan. 3.		Jan. 4.		Jan. 5.		Jan. 6.		Sales.
		H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Cameron Coal	100													
Ches. & O. RR	100													
*Chic. & Ind. Coal RR	100													
Do. pref	100													
Col. & Hocking Coal	100					27⅜		27		26½		28	27	1,455
Col., C. & I	100					36		35		35⅝	35¾	35		620
Consol. Coal	100													
Cumb. C. & I	100													
Del. & H. C	100					103⅞		104⅛	103½	104⅞	104	106⅛	104⅛	8,062
D., L. & W. RR	50					130	129⅜	130¾	129¼	129⅛	128½	130	129⅜	64,780
Elk Lick Coal Co														
Hocking Valley	100							24¼	23	24⅜	24¼	24		1,110
Lehigh C. & N.†	50					47⅛		48	47⅞	48				678
Lehigh Valley RR.†	50					55¼		55½		55				293
L. & W. C. & I. Co														
Marshall Con. Coal	100											7		100
Maryland Coal	100													
Montauk Coal	100													
Morris & Essex	50					136	135							300
New Central Coal	100													
N. J. C. RR	100					75½	75	76½	75¼	76⅛	76	76⅜	76¼	5,400
N. Y. & S. Coal	50													
N. Y., Susq. & Western	100							8¾				9⅝	9	650
Do. pref	100									30⅜	29½	31¾	30½	2,320
N. Y. & Perry C. & I	100													
Norfolk & Western R.R.	100					16				16¼				150
Do. pref	100					43¼	42⅞	42¾	42⅝	43⅛	43	43	42⅞	1,036
Penn. Coal	50													
Penn. RR.†	50					54⅜	54¼	54¼	54⅛	54½	54¼			2,010
Ph. & R. RR.**	50					65¾	64¾	65¼	64¼	65⅞	64½	65¾	65¼	372,745
Spring Mountain	50													
Tennessee C. & I. Co	100					29¼	28½	28	27¼	29	28¼	29½		1,700
Westmoreland Coal†	100													
Whitebreast Fuel Co						88⅝		88¾	88½			89		700

**Of the sales of this stock, 40,335 were in Philadelphia, and 332,410 in New York.
† The quotations for these stock are not percentage, but actual price.
Dealt in at the New York Stocks Exchange Unlisted Securities.

Total sales, 464,109.

San Francisco Mining Stock Quotations.

COMPANY.	CLOSING QUOTATIONS. 1887. Dec. 30.	1887. Dec. 31.	1888. Jan. 2*.	1888. Jan. 3.	1888. Jan. 4.	1888. Jan. 5
Alpha						
Alta	1.80	2.05			2.25	2.10
Belcher						
Belle Isle	.40				.50	
Best & Bel	6.25	6 62½			6.50	6.25
Bodie	2 85	2.80			2.75	2.70
Bulwer	.85				.80	
Challar	6.12½	6			6.50	7.37½
Com'nwealth	3 20				3.50	3.60
Con. C. & V	21.25	22			21.50	21.50
Con. Pac						
Crown Pt	6.75	6.87½			7.37½	7
Eureka C.	6	6			5.87½	
Gould & C	4 80	4.80			5	5
Hale & N	10.25	10			12.37½	13
M. White						
Mexican	5	5.12½			5	5
Mono	1.55	1.50			1.50	
Mt. Diablo						
Navajo						.85
Nev. Queen	2.20	2.20				2.30
N. Belle I	7.37½	7.50			7.87½	7.75
Ophir	9.25	9.62½			9.75	9.37½
Potosi	5	6			6.62½	6.50
Savage	7.12½	7.25			8	8.12½
Scorpion						
Sierra Nev	4.50	4.50			4.50	4.60
Sutro Tun						
Tip Top						
Union Con	4.45	4.50			4.70	4.50
Utah	1.50	1.55			1.65	1.65
Yellow Jkt	5.25	5.50			5.87½	5.62½

* New Year's Day.

induce feelings of distrust and doubt without, perhaps, any substantial reason for it. Again, some parties look for a continued depression, with a tendency to lower prices, while others think the price will remain about the same as at present, if it does not advance, and this latter view seems reasonable when we consider the fact that metal for any less than current rates can not be replaced at same cost. As expected, there has been very little business transacted since our last. Besides several influences of an unsettling character there has been more disposition to take account of stock than to engage in new enterprises, prices being so uncertain, that on the whole no one feels uneasy at the absence of demand, as it is believed to be largely due to the condition above referred to. At the same time it is difficult to say what the outcome will be, although the general idea is that cost of production will have to be reduced, while all kinds of iron and steel are lower to-day than they were a year ago, and the cost of production higher. The scale question is still a bone of contention: no settlement has yet been made. Furnaces are going out of blast and being banked at various points. Report says others will follow. Prices will be found in our weekly register of prices.

SALES REPORTED SINCE OUR LAST.

Coal and Coke Smelted Lake Ore.

500 Tons Gray Forge, January	16.50 cash.
500 Tons Gray Forge January	16 50 cash.
500 Tons Neutral Mill	16 75 cash.
100 Tons White and Mottled	16.00 cash.
100 Tons No. 1 Foundry, All Ore	18 85 cash.
100 Tons Bessemer	18.50 cash.

Coke, Native Ore.

100 Tons Gray Forge, extra	17.00 cash
50 Tons Gray Forge	16.50 cash.
50 Tons No. 2 Foundry	19.00 4 mo.
50 Tons Silvery	18.50 4 mo.

Charcoal.

80 Tons No. 2 Cold Blast	25.00 cash.
50 Tons No. 2 Foundry	25.50 4 mo.

Steel Billets.

500 Tons Billets	29.00 cash.

Steel Slabs.

500 Tons Slabs	29.00 cash.

Muck Bar.

350 Tons Good Neutral	29.50 cash.

Steel Rail Ends.

400 Tons Rail Ends	19.75 cash.

St. Louis. Dec. 31.

[Reported by ROGERS, BROWN & CO.]

Quite a spurt of business has engaged the attention of furnace agents and dealers at the close of the old year and negotiations on considerable lots have run over into the new year. This is a natural reaction after the extreme dullness of the past month.

There will be a large consumption of iron in this district during the coming year, and less than the usual provision has been made by buyers to cover it. It is now believed that a more or less active buying season will begin early in the year, and that a good business may be expected, unless political causes have greater effect than is now deemed probable. Quotations are as follows:

Charcoal Foundry—Missouri, $20@$21; Southern, $20@$21. Coal and Coke Foundry—Southern, $20@$21; Ohio Softeners, $21@$24. Mill Irons—Southern, $17@$18. Car-Wheel and Malleable Irons—Southern, $20@$24; Lake Superior, $22@$23; Connellsville Coke (East St. Louis), $6.15.

FINANCIAL.

NEW YORK, Friday Evening, Jan. 6.

Mining Stocks.

The result of operations for the first week of the New Year, while not remarkable, is satisfactory. The general opinion was that the market was to witness no improvement, but towards the close of the week the trading was much more active, and the same activity which has always been the precursor of substantial movements was again apparent. With the exception of a few shares the market generally showed a fair degree of strength, and the distribution of transactions over the general list, instead of being confined to only a few of the favorite shares, was another gratifying feature.

There are no new developments to report in respect to thereorganization scheme, or the new issue of bonds of the Sutro Tunnel Company, and though the limit for subscription expired at the beginning of the year, there has been no rush to sell stock as was anticipated, and prices have been well maintained, considering the prophesied annihilation of the stock. The price has been firm at from 10c. to 11c., with sales of 32,400 shares. Consolidated California & Virginia declined from $24 to $21.87. There are rumors that the manipulators are preparing for a boom in the stock.

Sierra Nevada was active, and advanced from $4.40 to $5.13. Savage declined from $9.00 to $8.12; Ophir from $11 to 10.25. Hale & Norcross has been active and went from $12.25 to $13.37. Crown Point has levied an assessment, and in consequence the stock declined from $11.25 to $8.50. Chollar was quiet and also shows a lower movement, going from $7.25 to $6.13; Best & Belcher from $7.13 to $6.50.

Nothing is doing in Eureka, the price of which is quoted at from $6.50 to $6.25.

Navajo was dealt in to the extent of 1000 shares, at 90c. per share. North Belle Isle sold at from $8 to $8.50, Found Treasure at $2 and Tornado at $1.

Proustite shows continued strength, and the prices bid shows that there is considerable interest taken in the stock. The transactions have amounted to 32,400 shares, the same amount as Sutro Tunnel, and prices have ranged from $1.95 to $2.50.

The principal feature of the week has been the decline in Cashier, which on Thursday sold from 11@5c. with no apparent effort on the part of holders to prevent a break. The stock has been active throughout the week and to-day shows a partial recovery, but less demand, selling at from 7@8c. Security has been exceedingly dull, and the only sales during the week were made to-day at prices ranging from 92c.@$1. Monitor shows one quotation at 10c. Lacrosse a few at 11@12c. Iron Silver shows one sale at $3.05. Chrysolite one at 45c.

San Sebastian is quiet and attracts but little attention. The price is firm at $3.25.

Rappahannock is neglected. A few sales were made at 18 and 19c.

Horn Silver shows a few sales at from 75 to 88c.

Brunswick continues to hold its own, at from $1.60 to $1.65. Plymouth Consolidated declined from $20.50 to $19.75. Quicksilver had another little boom of its own. Preferred advanced from $33.50 to $37.50, and Common from $9.88 to $11.75.

Bodie Consolidated was quiet, and declined from $2.85 to $2.65. Standard was firm, at from $2.25 to $2.50. Mono declined from $1.85 to $1.60.

A few sales of Middle Bar were made at from 28 to 31c. Amador declined from $1.70 to $1.60.

Assessments.

COMPANY.	No.	When levied.	D'l'nq't in office.	Day of sale.	Am'nt per share.
Alta, Nev	36	Nov. 29	Jan. 3	Jan. 23	.50
Anchor, Utah	..	Dec. 13	Jan. 13	Feb. 13	.20
Bellevue-Idaho, Id	..	Nov. 15	Dec. 21	Jan. 10	.25
Belle Isle, Nev	11	Dec. 14	Jan. 17	Feb. 7	.15
Best & Belcher, Nev	39	Jan. 4			.50
Cedar Rapics, Dak	4	Dec. 17	Dec. 12	Feb. 14	.10
Chicago M. & M. Co.	..	Nov. 9	Jan. 26	Jan. 10	.10
Chollar, Nev	24	Dec. 5	Dec. 11	Jan. 31	.50
Crown Pt., Nev	..	Jan. 4			.50
Eldorado, Dak	2	Dec. 14	Jan. 14	Jan. 31	.01
Emerson, Utah	..	Dec. 10	Jan. 20	Feb. 9	.01
Far West, Dak	13	Dec. 13	Jan. 14	Feb. 4	.01
Felice, Ariz	1	Nov. 11	Dec. 17	Jan. 9	.20
Fisher, Ariz	1	Nov. 11	Dec. 17	Jan. 9	.20
Galena S. & R., Dak	1	Nov. 16	Dec. 30	Jan. 20	.10
Gray Eagle, Cal	4	Nov. 17	Dec. 22	Jan. 12	.01
Hot Spur, Dak	4	Dec. 10	Jan. 16	Feb. 4	.002
Dows, Nev	18	Dec. 21	Jan. 24	Feb. 11	.25
Kossuth, Nev	9	Nov. 25	Jan. 5	Feb. 6	.10
Manhattan, Nev	7	Dec. 9	Jan. 12	Jan. 31	1.00
May flower, Cal	39	Nov. 23	Dec. 30	Jan. 18	.25
Mono, Cal	25	Dec. 20	Jan. 24	Feb. 28	.50
Morgan, Cal	12	Nov 26	Dec. 31	Jan. 24	.15
Nevada Queen, Nev	3	Dec. 16	Jan. 24	Feb. 16	.50
North Banner, Cal	20	Nov. 18	Dec. 20	Jan. 7	.01
Occidental Con., Nev	1	Dec. 12	Jan. 16	Feb. 8	.25
Pilgrim, Mich	2	Dec. 10	Jan. 5		.15
Potosi, Nev	29	Nov. 30	Jan. 5	Jan. 26	.50
Ruby Bell, Dak	4	Dec. 13	Jan. 14	Jan. 31	.002½
Rubicon, Dak	2	Nov. 23	Dec. 27	Jan. 20	.002
Sierra Nevada, Nev	90	Dec. 7	Jan. 11	Jan. 30	.25
Utah Cons., Nev	3	Dec. 13	Jan. 17	Feb. 3	.25
Vulcan, Dak	1	Dec. 14	Jan. 17	Feb. 17	.001

* The delinquent day and the day of sale were postponed to dates given above.

Meetings.

Annual and special meetings of the following companies will be held at the dates given:

Cashier, Champion, and Columbus mining companies, and the New York & Colorado Mining Syndicate and Company, all at No. 280 Broadway, Stewart Building, New York City, January 11th, at twelve o'clock, noon.

Columbia Oil Company, No. 514 Market street, Pittsburg, Pa., January 12th, at eleven o'clock A.M.

Philadelphia Company, No. 935 Pennsylvania avenue, Pittsburg, Pa., January 9th, at 10 o'clock A.M. Special meeting.

South Side Mining Company, No. 70 Devonshire street, Boston, Mass., January 21st, at one o'clock P.M. Special meeting for the purpose of acting on the matter of increasing the capital stock of the company to one million dollars.

Dividends.

Allegheny County Light Company, of Pittsburg, has declared a semi-annual dividend of three per cent, payable January 5th, at Pittsburg.

Bridgewater Gas Company has declared a dividend, No. 22, of one per cent, payable December 31st.

Granite Mountain Mining Company, of Montana, has declared dividend No. 37, of fifty cents per share, or $200,000, payable January 10th, at St. Louis.

Hazelwood Oil Company has declared a dividend, No. 32, of seventy-five cents per share, or $6000, payable January 3d.

Little Schuykill Navigation Railroad and Coal Company has declared a dividend of three and one half per cent, payable January 13th, at No. 410 Walnut street, Philadelphia, Pa.

Montana Company, Limited, of Montana, has declared a dividend of one shilling (25 cents) per share, or $165,000, payable January 10th, at London.

Parrott Silver and Copper Company, Montana, paid a dividend of ten cents per share, or $18,000, January 1st, at Butte, Montana.

Standard Consolidated Mining Company, of California, has declared a dividend, No. 69, of ten cents per share, or $10,000, payable January 12th, at the Farmers' Loan and Trust Company, No. 22 William street, New York City.

Tuna Oil Company has declared a quarterly dividend of two dollars per share, or $4400, payable January 3d, at No. 67 Fourth avenue, Pittsburg, Pa.

Pipe Line Certificates.

The following table gives the quotations and sales at the Consolidated Stock and Petroleum Exchange:

	Opening.	Highest.	Lowest.	Closing.	Sales.
Dec. 31	87¾c.	90c.	87¾c.	89½c.	2,341,000
Jan. 2	....	....	....	....	....
3	90⅛	95⅛	90⅛	95⅛	8,340,000
4	96	97	92⅛	92¾	6,578,000
5	92½	94⅞	92½	94	3,476,000
6	94	94¼	92¾	93	2,438,000
Total sales in barrels					23,073,000

Boston Mining Stocks. Jan. 5.

[From our Special Correspondent.]

Business has been interrupted this week by the occurrence of two holidays, and so far the new year has not given any great promise of the vigor and activity which it was hoped would come along with it. At the same time there is a quiet picking up of the copper stocks for future profits, and operators are confident that it is only a matter of time ere they will be in active demand at greatly increased prices.

Calumet & Hecla has been weak, and declined from $194 to $190, with rather more desire to sell than usual, but the market is narrow and but little can be sold except at reduced rates.

Tamarack has been fairly steady, only declining one point from the highest of last year. Sales at $124. Franklin has been a little heavy, although sales have been in small lots; for larger amounts higher prices could doubtless be obtained. Sales at $15¼ to $14½.

Osceola sold ex-dividend of $1 per share at $22½@$22, an advance of $1 over last week. Quincy sold at $60@$61 in a small way.

Atlantic steady at $13@$13½. Kearsarge declined from $6⅜ to $5⅝, closing at $6.

Huron sold at $5; Allouez, $1⅝@$1⅛; National, $2@$2½.

Hungarian, 30c. Balance of the list rather quiet.

Bonanza has been in good demand, and advanced from $1⅝ to $1¾. Dunkin sold at 92½c.@$1, Napa Quicksilver at $1½. Gogebic sold at $8.