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AMERICAN INSTITUTE OF MINING ENGINEERS.

The annual meeting of the Institute will be held in New York City, beginning on the third Tuesday (17th) of February, 1880.

Messrs. A. S. HEWITT, J. A. BURDEN, A. L. HOLLEY, R. W. RAYMOND, and CHARLES MACDONALD will act as a local committee of arrangements. A subsequent notice will give the place of meeting and other particulars.

Members are requested to give early notice to the Secretary of papers to be read at the meeting.

The annual dues to the Institute (ten dollars) are payable in advance at the February meeting.

THOMAS M. DROWN, Secretary.
 SECRETARY'S OFFICE, LAFAYETTE COLLEGE,
 EASTON, PA., Dec. 26, 1879.

WANTED, two experienced mining engineers to take charge of gold and silver mines and mills in the East.

WANTED, also, a mining engineer, having some practical experience and good literary attainments, as assistant editor on the ENGINEERING AND MINING JOURNAL.

It is announced that Dr. PERCY has resigned the lectureship of metallurgy at the Royal School of Mines. The office is in the appointment of the Committee of Council on Education.

THE total production of coal in the United States, in 1879, was about 61 million gross tons, of which 27,825,000 tons were anthracite, and 33,175,000 tons bituminous and post-carboniferous coal.

A GREAT paper like *The Engineer*, of London, would be greater still did it have the courtesy to acknowledge the fact that many of its notes are taken from the columns of the ENGINEERING AND MINING JOURNAL.

WE are in receipt of a pamphlet containing a communication to the Bullion Club on the condition and prospects of the Bodie (Cal.) District. It contains much valuable information as to the developments of the mines, capitalization, etc. Price, 50c.

THE Great Silver Sandstone Camp, Silver Reef, Utah, will shortly be illustrated in these pages, and its rich mines, well represented in this market by the Stormont Silver Mining Company, will be described in detail, with the yield of their ores and the profits in working them.

THE San Francisco Daily Stock Report has issued a sextuple edition,

containing a vast amount of valuable tables and information on the mining stock market of that city for a number of years past, and data concerning the mines of the Pacific Coast, all worthy of preservation. Bodie District is described by Mr. JOSEPH WASSON. Eureka, Lake, and other districts in California, Nevada, and Arizona, are also described.

EDISON appears to have solved the electric light question, at least, if we judge from the value of the stock of his electric light company, which has advanced from \$300, at which it stood some months ago, to \$5000 per share. Gas stocks have declined both in London and here, and other indications seem to confirm the substantial success of the new process.

The antiquated method of manufacturing illuminating gas will soon be among the things of the past; for whether EDISON has actually succeeded in making electric light much cheaper than gas, as he asserts, or not, it is certain that he has solved many of the difficulties which had heretofore been deemed by the gas magnates as insuperable, and any remaining difficulties will soon disappear.

We welcome the advent of electric light as we welcome the cheap production of water-gas for heating and metallurgical purposes. These two great inventions will create a revolution in industry, and bring honor and credit to our American inventors.

WE note with great satisfaction that Mr. W. WESTON, of Colorado, has been appointed Superintendent of the Wheel of Fortune mining property in the San Juan District. This group of mines has the reputation of being one of the most promising properties in the State. It includes Wheel of Fortune, Mark Twain, Silver Queen, Grand Trunk, and J. B. Smith's lodes. It is owned by gentlemen in Wilkes-Barre, Pa., including the Governor of Pennsylvania. It is always a matter for congratulation when gentlemen who embark in mining as a legitimate business are successful in their choice of property; but it is an additional source of satisfaction when good property is placed in the hands of competent and honest management; and this, we feel very certain, is the case with the Wheel of Fortune. Mr. WESTON has acquired great practical experience in the San Juan District, where he has worked his own claims for some years, and to this experience he has added the theoretical knowledge acquired in an eminent foreign school; while his efforts in behalf of legitimate mining, and the unblemished reputation he enjoys, give additional ground for the expectation that the mines will not only be managed with technical ability, but that the business will be conducted solely in the interest of the stockholders.

THE present number commences the twenty-ninth volume of the ENGINEERING AND MINING JOURNAL, and our thousands of warm friends will be pleased to learn that it grows stronger and more prosperous as each succeeding year goes by. Each year adds some new feature of interest to its columns, and the present one will be no exception. The aim of the proprietors of the JOURNAL has always been to publish a live, progressive, reliable, independent, and honest record of all that is of interest in mining and metallurgy, and in the industries which relate thereto. Our market and mining stock reports are the latest, fullest, and most reliable published, and this department of the JOURNAL will continue to be developed as the growing interest in mining investments and the importance of our markets deserve.

The JOURNAL will be, in the future, as it has been in the past, the steady friend and encourager of honest, legitimate mining, and the open enemy of wild-cats, gambling, and swindling, under whatever specious form they may be practiced.

It is a satisfaction to know that the JOURNAL is exercising a very powerful influence with capitalists and investors, and has been the means of securing capital for many excellent mining properties, and, at the same time, has prevented the floating of a vast number of disreputable schemes.

OUR GOLD AND SILVER PRODUCTION IN 1879.

The production of gold and silver in this country during the year just passed was less than in 1878. Mr. JOHN J. VALENTINE, Superintendent of the Wells-Fargo Express Co., who possesses exceptional facilities for ascertaining the actual production of gold and silver in our Western States and Territories, and who has devoted great care and intelligence to the collection of these statistics, has kindly sent us to-day, by telegraph, the following report:

"Total production for 1879—of gold, thirty-three millions; of silver, thirty-eight millions; total, \$71,000,000. Colorado increases eight millions, and Nevada falls off thirteen." It will be remembered that Mr. VALENTINE'S report for 1878 gave the yield of Colorado as \$6,232,747, so that the yield for 1879 would amount to over \$14,000,000.

A special telegram to the New York Times of this morning gives the production of Colorado by counties as follows:

"Lake County, \$11,477,046; Gilpin, \$2,608,055; Clear Creek, \$1,912,410;

Boulder, \$800,000; Custer, \$720,000; Park, \$434,749; Gunnison, \$300,000; Summit, \$295,717; Chaffee, \$71,240; San Juan country, \$483,500. Total, \$19,110,882. In 1878, it was \$9,820,743.12, showing an increase in one year of \$9,290,118.88. Lake County shows the enormous increase of \$8,759,665.99. Clear Creek and Park counties are the only ones which do not show an increase. While speaking of the Leadville yield, it may be stated that the total of ores treated by smelters for the year 1879 is 110,483 tons, realizing \$10,504,106, or a value in pure silver and metallic lead of \$95 per ton. This certainly is the largest average value of silver ores in bulk and the greatest production ever known in any camp of its age in the world's history of silver mining. The gold product of the Harrison smelters, amounting to \$12,940, has not been included in the above table. This increases the commercial value of the product to \$10,517,046. The 21,349 tons of bullion have, therefore, an average value per ton of \$492.62%. For the 365 days of the year, the daily consumption of ore by our smelting establishments has been 305 tons, producing over 58½ tons of bullion each 24 hours. The numerous producing mines have much ore on hand, and all the milling establishments carry stocks which by the most painstaking and conservative estimates are reckoned at 12,000 tons, at an average value of \$90 per ton. This must be added to the smelting product to show the gross mining outputs in ore and the value in dollars for 1879, reaching a grand total of 122,483 tons of ore mined out of the ground, and representing a value of \$11,477,046. The ore mined during the year has at no time exceeded 700 tons daily, and has occasionally fallen as low as 150 tons per day. The average for each of the 365 days of the year has been a little over 335½ tons, worth \$93.73 per ton.*

The above statement of the Colorado production, which amounts to an aggregate of \$19,110,882, includes lead, which probably amounted to from one and a half to two and a half million dollars; but, even with this allowance, Mr. VALENTINE would not be within three millions of this Colorado report. We know that Mr. VALENTINE is extremely painstaking, and, while we think it possible that some of our bullion production escapes him, we can scarcely suppose that in the total more than 3 or 4 millions could have done so. It is probable, therefore, that our total yield of gold and silver during the year of 1879 has not exceeded the sum of 74 millions, which would be from 5 to 6 millions of dollars less than in 1878, when we estimated the yield of gold and silver to amount to about 80 millions. Mr. VALENTINE'S statistics aggregating in 1878 for the Western States 78,276,167. The great decline in Nevada mentioned by Mr. VALENTINE is, of course, due to the exhaustion of the California-Consolidated Virginia Bonanza. The history of the Comstock for the past year has been any thing but satisfactory, though a few of the mines have declared dividends. The amount of assessments has been enormous, and the decline of stocks ruinous to their owners. Unfortunately, a considerable amount is held here in the East, though we have reason to believe that, had it not been for the advice of the JOURNAL, this amount would have been very much greater.

Leadville, Colo., is the phenomenal camp of the year. In its annual trade report for 1879, which appears to-day, the *Leadville Chronicle* it is stated that the bullion and ore product during the past year amounted to over twelve millions of dollars. The mercantile trade of the city amounted to 20 millions, and sales of mining property for sums of over \$500 to nearly 35½ millions. The dividends of the Leadville companies are not stated in the telegram which gives these particulars; but they probably amount, to date, to the sum of two millions of dollars—a wonderful record for so new a camp. Upon the receipt of fuller details, we shall again revert to this question. At the present time, we are able to give these statistics of production of precious metals in advance of any other paper in the East.

ON ORE-DEPOSITS.*

A work on ore-deposits, by the careful and conscientious Director of the Mining School at Clausthal, is certainly a production to be received with pleasure, and this is an opportune time for its appearance. Our system of investments, and the position of a large class of our mines in a comparatively undeveloped part of the country, give to scientific opinion a greater commercial value in America than it has in any other country. Experts are constantly employed, and the problem placed in their hands is most frequently the expression of a judicial opinion under circumstances where it is almost impossible to have any positive opinion. An outcrop is shown in a wild country, and the unfortunate man of science is asked to say just what that is worth now, whether it will warrant mining operations on the grand scale for many years to come, and what it will be worth when the country is settled! No wonder that the poor expert gasps out that it is a "true fissure-vein," when helikes the present look of things, and talks of "pockets" when he does not. *True fissure-vein* means a certain (or uncertain) thing which the employer thinks he understands. At all events, it has a definite value in the market, and is about the only thing that has impressed itself upon the public sense, unless we except that delightfully vague but now popular term, "deposit." The absurd condition of our canons of ore-deposition is well exhibited by the fact that lenticular masses are grouped with gash veins, chloride holes, and contact deposits as belonging to a worthless and unreliable class of ore-bodies, and this in spite of the fact that the world's mining is done in this despised class much more than it is in veins that can be proved to be filled-up fractures.

Dr. VON GRODDECK has gone about his work in a true German, painstaking way. He has endeavored to group the described ore-deposits of

* Die Lehre von den Lagerstätten der Erze. Ein Zweig der Geologie. Von Dr. Albrecht von Groddeck. With 119 illustrations.

the world, first in classes and then in types. Of classes he makes bedded and massive deposits, fracture and chamber fillings, metamorphic and fragmentary deposits. This special portion of the work is preceded by a careful and exhaustive definition of terms and description of the composition and conditions under which ore-deposits are found; and it is followed by a theoretical discussion of the origin of mineral depositions which is much less complete, but which is, we infer, to be followed by other publications in which this branch of the subject will be more thoroughly considered. The book is well worth our readers' consideration, as every honestly performed task of this kind would be in the presence of the immense interests this country has staked on the proper development of its mines; but with these words commendation will be dismissed; for the most decided impression made by the author's work is that it fails. Its failure is not due to insufficient ability or knowledge on its author's part (in which case it would not be interesting), but is caused by defects that are inherent in the plan of the work.

It is the special part of the book, the attempt to establish types under which the ore-deposits of the world may be grouped, that is radically defective. Such types can be established in a very general way, as fissure-veins, chamber deposits, and beds; but the attempt to divide up these broad classes into particular and restricted groups is not to be commended unless some more lucid and significant method is found than that of our author. He separates ore-deposits as *types* which have no other difference than the metal they bear. Lenticular masses of quartz, with pyrite and gold, in crystalline schists, differ sufficiently in Dr. VON GRODDECK'S eyes from lenticular masses of pyrite with quartz and copper, also in crystalline schists, to warrant the establishment of distinct types. And what is the difference between deposits of magnetite with local inclosures of specular iron and deposits of specular iron with local inclosures of magnetite, both being in crystalline schists? Such differences are no doubt of great interest to the owners; but the theorist will find grouping more fruitful of knowledge in such cases than separation. The defect which we criticise is exhibited in its height by the author's doubt whether the Comstock lode should be put in the Nagvag type (gold quartz with silver ores), or in the Schemnitz type (silver quartz with native gold), both these types referring to deposits in eruptive rocks!

There are, undoubtedly, broad and characteristic distinctions between the ore-deposits; but we do not believe they can be established on such trivial and accidental differences as these. When they are found, it is probable that they will add positiveness to the conclusions of experts instead of throwing new doubts upon a subject already covered with obscurity.

We have failed to find in this book any expression of the fact that ore masses as we see them probably do not represent the first condition of the openings in which they lie, but have attained their present dimensions by the solution and removal of the containing rocks. That this solution has taken place was recognized quite early in the study of veins, but it never was given its proper place as a principal phenomenon, and Dr. VON GRODDECK has not advanced beyond the time when this important, and perhaps all-controlling, phenomenon was regarded as a mere accident. Nor does he seem to comprehend the fact that true veins may be formed without fracture, and that we may with strong probability turn our eyes to the gentle shaping of the hills by slow and gradual action for the characteristic exhibition of the force which has supplied the dynamic cause of a large class of veins.

In short, while we welcome our author's work as a valuable contribution, we fear that it has very little to do with the theory of ore-deposits which will be accepted in the future. There is remarkably little progress in it; and when we consider the doleful state of knowledge upon mineral deposits, we are forced to confess that the hope of the miner is not in a conservative, but in a vigorous, handling of the subject. What is needed is precisely what never has been given yet—a clear and suggestive summary of what is really characteristic among the phenomena of ore-deposits. C.

REVIEW OF THE COAL TRADE OF THE UNITED STATES FOR 1879.

At the close of each of the past five years, we have reviewed the course of the coal trade during the preceding twelve months, pointing out the chief events which had characterized it, the remedies which had been proposed for its difficulties and tribulations, and the effect of the various nostrums administered to the much-suffering and enfeebled patient, and we annually predicted the course of the trade for the year ensuing.

The testimony of the best informed and most sagacious persons in the trade to the fidelity and impartiality of these reviews, and the remarkable accuracy with which the course of the trade, and the effects of combinations have been forecast, justify a reference to our reviews of the trade for 1875-6-7-8 as worthy of re-perusal and preservation, forming, as they do, charts whereon are laid down the shoals and rocks upon which the great companies controlling this industry were so nearly wrecked during the financial storms of the past five years.

The year 1879 has added another chapter to this interesting history. It has been a year in some respects the most important and full of lessons

which has ever passed over the trade, and as it records the lower turning-point between adversity and prosperity, its events are of more than usual interest and significance.

Twelve months ago, looking forward to the year which has now just past, we said :

"We have had an unpleasant duty to perform in recording the disastrous course of the coal trade during the past four years ; but we turn with greater hopefulness and satisfaction to the future. Not that we consider the trials of the coal companies at an end, nor that we anticipate in the year 1879 any very profitable trade, but there are many indications full of encouragement for the near future of this great industry, though there are also dangers still to be pointed out. The greatly improved business outlook, the reviving confidence of business men and capitalists, the rapidly increasing consumption of iron and steel, and the immense activity and productiveness of our gold and silver mines, as well as many other facts, point to a much better feeling in the coal trade during the current year."

MONTHLY TONNAGE OF EACH INTEREST AND TOTAL ANNUAL TONNAGE FOR SIX YEARS, 1873 TO 1878, INCLUSIVE (TONS OF 2240 LBS.)* 1873.

	Jan.	Feb.	March.	April.	May.	June.
Philadelphia & Reading RR...	213,293	237,369	447,000	502,239	537,944	538,650
Lehigh Valley RR	252,274	277,232	318,184	355,273	415,635	410,505
Central RR. of New Jersey...	191,446	169,316	209,290	275,580	265,118	215,948
Dela., Lacka. & Western RR...	195,000	224,345	283,457	297,561	286,022	285,003
Dela. & Hudson Canal Co.	96,811	89,232	128,590	199,983	343,843	310,064
Pennsylvania RR.	68,114	61,075	98,837	91,946	123,064	154,763
Pennsylvania Coal Company.	49,570	54,012	73,180	105,434	133,151	156,702
	1,066,008	1,113,181	1,557,613	1,188,076	2,110,777	2,091,725

* This table does not give the entire production of anthracite. Certain amounts consumed for steam generation at the mines, and coal sold to the employes, and that mined and used by the Lackawanna Coal and Iron Company and some other items, amounting perhaps to 10 per cent, are not taken into account.

	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Ph. & Read. RR...	545,440	600,058	638,481	603,375	556,357	368,642	5,868,848
Lehigh Valley RR.	388,430	428,061	445,365	375,356	210,239	193,862	4,170,569
Central RR. of N. J.	215,982	264,717	241,265	301,328	199,971	128,149	2,098,119
D. L. & W. RR.	231,247	257,581	244,444	243,383	202,791	201,758	2,355,773
D. & H. Canal Co.	298,734	128,275	339,865	309,491	210,773	96,935	2,732,536
Pennsylvania RR.	179,928	172,162	179,191	168,765	127,105	88,701	1,519,711
Penn. Coal Co.	130,103	121,972	134,611	130,231	102,151	167,321	1,297,604
	2,014,865	2,170,809	2,223,222	2,132,129	1,709,447	1,185,368	21,263,220

	Jan.	Feb.	March.	April.	May.	June.
Philadelphia & Reading RR...	144,780	205,217	418,157	561,645	596,489	545,293
Lehigh Valley RR.	308,917	231,214	310,551	367,084	397,580	381,367
Central RR. of New Jersey...	83,700	111,743	207,009	248,696	272,395	262,176
Dela., Lacka. & Western RR...	174,572	162,734	192,614	235,953	266,164	236,284
Dela. & Hudson Canal Co.	67,480	88,224	108,088	204,426	317,314	266,096
Pennsylvania RR.	87,943	89,834	96,537	132,291	166,171	167,490
Pennsylvania Coal Company.	91,046	84,396	85,333	114,448	131,820	123,258
	958,438	973,362	1,418,289	1,864,543	2,147,933	1,981,954

	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Ph. & Read. RR...	297,333	378,567	620,480	812,831	636,409	351,400	5,568,601
Lehigh Valley RR.	321,065	316,012	324,242	428,244	360,250	322,675	4,069,801
Central RR. of N. J.	131,265	245,128	307,889	331,443	277,521	247,042	2,706,007
D. L. & W. RR.	152,925	164,563	164,563	251,121	186,440	208,064	2,399,417
D. & H. Canal Co.	246,585	242,651	269,748	267,343	235,732	85,730	2,395,967
Pennsylvania RR.	162,874	156,297	170,270	190,696	134,237	87,834	1,642,474
Penn. Coal Co.	131,735	133,993	135,225	133,056	115,499	116,517	1,396,326
	1,444,382	1,637,211	1,992,417	2,414,734	1,926,088	1,419,262	20,178,613

	Jan.	Feb.	March.	April.	May.	June.
Philadelphia & Reading RR...	49,877	71,307	103,733	103,066	149,924	311,146
Lehigh Valley RR.	99,135	119,906	88,151	117,756	114,722	105,839
Central RR. of New Jersey...	30,445	43,116	72,447	46,870	76,369	110,892
Dela., Lacka. & Western RR...	133,997	155,584	230,698	314,918	345,897	319,516
Dela. & Hudson Canal Co.	101,082	126,302	145,182	236,812	475,398	448,113
Pennsylvania RR.	60,279	86,891	121,983	114,693	125,272	154,472
Pennsylvania Coal Company.	100,547	88,433	69,626	123,248	131,410	145,585
	575,372	691,539	831,820	1,057,363	1,418,912	1,595,563

	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Ph. & Read. RR...	746,175	741,271	749,610	769,527	663,098	323,577	4,782,311
Lehigh Valley RR.	399,091	482,229	506,438	509,622	459,007	351,738	3,353,634
Central RR. of N. J.	335,530	349,843	357,315	377,351	332,125	333,439	2,465,802
D. L. & W. RR.	284,079	254,210	230,362	185,671	230,094	184,865	2,870,711
D. & H. Canal Co.	349,535	298,076	277,877	211,155	254,264	130,021	3,053,817
Pennsylvania RR.	205,456	207,783	193,118	199,688	186,612	116,462	1,772,719
Penn. Coal Co.	131,988	136,107	125,333	143,673	119,109	111,318	1,426,377
	2,451,854	2,469,519	2,440,053	2,396,687	2,245,209	1,551,480	19,735,471

	Jan.	Feb.	March.	April.	May.	June.
Philadelphia & Reading RR...	152,104	107,491	157,523	550,255	565,406	328,895
Lehigh Valley RR.	277,613	112,415	203,794	407,791	283,339	342,125
Central RR. of New Jersey...	200,388	53,855	74,263	274,222	313,328	166,000
Dela., Lacka. & Western RR...	145,321	22,732	50,789	135,105	99,943	105,565
Dela. & Hudson Canal Co.	94,118	52,822	95,620	117,282	214,257	166,842
Pennsylvania RR.	73,989	60,430	86,769	143,567	164,038	153,284
Pennsylvania Coal Company.	109,002	71,467	31,897	69,330	85,082	98,722
	1,052,315	494,212	703,655	1,697,552	1,725,393	1,365,333

	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Ph. & Read. RR...	330,791	406,053	550,818	730,153	676,465	369,800	4,931,754
Lehigh Valley RR.	337,971	377,343	782,825	491,941	469,211	360,292	4,046,660
Central RR. of N. J.	178,105	293,538	306,930	320,878	313,016	275,893	2,778,096
D. L. & W. RR.	126,770	198,548	249,044	286,127	331,235	232,106	2,014,245
D. & H. Canal Co.	158,447	147,367	244,035	298,845	305,979	101,931	1,997,545
Pennsylvania RR.	147,162	145,137	172,963	199,035	173,573	101,388	1,633,335
Penn. Coal Co.	81,268	103,763	123,561	142,867	135,038	88,925	1,143,922
	1,360,474	1,671,749	2,036,173	2,469,846	2,434,517	1,530,335	18,535,557

	Jan.	Feb.	March.	April.	May.	June.
Philadelphia & Reading RR...	298,297	271,501	376,506	599,261	712,501	611,984
Lehigh Valley RR.	243,148	299,503	280,716	392,553	462,902	386,139
Central RR. of New Jersey...	141,716	168,771	243,657	312,819	317,762	279,720
Dela., Lacka. & Western RR...	159,325	151,951	159,753	160,000	278,000	262,868
Dela. & Hudson Canal Co.	115,687	81,832	100,351	162,217	271,543	251,071
Pennsylvania RR.	88,855	89,000	76,445	144,948	181,598	176,780
Pennsylvania Coal Company.	66,689	55,392	80,606	89,532	103,573	159,257
	1,113,717	1,118,040	1,377,034	1,861,330	2,327,879	2,127,919

	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Ph. & Read. RR...	545,541	730,349	767,878	745,686	605,546	577,051	6,842,105
Lehigh Valley RR.	337,719	306,643	453,394	521,571	418,773	409,270	4,511,331
Central RR. of N. J.	201,819	46,469	131,331	320,399	333,996	309,041	2,837,500
D. L. & W. RR.	217,325	12,090	8,041	213,280	318,059	148,734	2,089,523
D. & H. Canal Co.	224,662	138,967	62,152	96,610	206,785	206,740	1,918,617
Pennsylvania RR.	132,570	94,581	117,390	154,952	153,810	119,575	1,530,545
Penn. Coal Co.	104,857	62,267	19,922	107,221	127,953	131,743	1,118,011
	1,703,497	1,391,366	1,560,108	2,159,719	2,164,921	1,932,151	20,847,681

	Jan.	Feb.	March.	April.	May.	June.
Philadelphia & Reading RR...	180,980	126,208	190,679	372,668	474,451	691,746
Lehigh Valley RR.	306,013	147,198	190,786	234,345	260,633	341,566
Central RR. of New Jersey...	108,707	129,116	121,061	150,323	197,890	187,396
Dela., Lacka. & Western RR...	193,978	143,223	99,842	100,775	161,574	190,430
Dela. & Hudson Canal Co.	233,589	199,480	99,618	100,127	128,434	107,701
Pennsylvania RR.	91,517	50,025	59,469	102,605	121,143	138,853
Pennsylvania Coal Company.	64,137	49,824	45,184	69,865	84,290	102,586
	1,178,921	845,074	806,639	1,130,708	1,428,415	1,760,278

	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Ph. & Read. RR...	398,501	650,402	302,318	645,710	739,261	328,121	5,101,045
Lehigh Valley RR.	330,442	373,989	299,047	373,887	367,818	262,995	3,398,719
Central RR. of N. J.	230,751	235,765	143,278	246,725	260,418	242,870	2,263,300
D. L. & W. RR.	211,468	229,420	167,678	227,103	247,732	207,456	2,180,673
D. & H. Canal Co.	191,654	213,604	155,105	198,555	214,036	203,046	2,045,039
Pennsylvania RR.	124,559	120,607	123,291	155,507	165,174	109,924	1,362,674
Penn. Coal Co.	85,029	117,521	67,359	87,609	120,511	61,545	955,460
	1,581,404	1,941,398	1,168,076	1,935,096	2,114,950	1,415,951	17,306,910

From the very opening of the year, the revival in general business above alluded to was noticeable, and it developed a demand for coal which soon exceeded the most sanguine expectations of those best informed in the trade. The above is a statement of the monthly shipments of the several companies for six years. We had hoped to be able to add 1879, but had not received the figures up to the time of going to press, so we shall have to omit them until our next.

To the amounts of these shipments must be added the coal consumed at the mines for steam generation, and such as is sold there to employes and others, that used by the Lackawanna Iron and Coal Company, and some other items, which would add about 6 per cent to the above figures, and make the total production for the year about 27,825,000 tons.

For convenience in comparison, we give herewith a concise table of the actual shipments and total production of each of the regions for each year since 1820.

at the close of the year was, perhaps, no larger. The apparent consumption was, therefore, the enormous amount of nearly 28,000,000 tons—an amount greatly exceeding the most sanguine predictions for the year's business. This remarkable and highly satisfactory result was due to a number of causes. The general revival in business which we had already noticed in our review of a year ago, advanced much more rapidly than was expected; yet it was due to none but natural causes, which can always be investigated in advance.

THE ANTHRACITE COAL PRODUCTION OF PENNSYLVANIA, IN TONS OF 2240 POUNDS.

BY RICHARD P. BOWELL.

YEARS.	THE WYOMING REGION, Luzerne and Sullivan Counties.		THE LEHIGH REGION, Carbon, Columbia, and Luzerne Counties.		THE SCHUYLKILL REGION, Schuylkill, Northumber- land, Columbia, Dauphin, and Lebanon Counties.		ALL THE REGIONS.
	Shipments.	Total Production.	Shipments	Total Production.	Shipments.	Total Production.	
Before							
1820		10,000		3,000		5,000	18,000
1820		800		665		500	1,965
1821		1,000		1,473		800	3,273
1822		1,200		2,240		1,000	4,940
1823		1,800		5,823		1,200	9,023
1824		1,700		9,541		1,500	13,041
1825		2,000		25,538		5,300	33,438
1826		2,700		31,280		16,835	49,315
1827		4,000		32,074		34,274	71,167
1828		6,200		30,233		33,233	91,914
1829		7,000		16,800		25,110	133,203
1830		42,000		58,200		41,750	209,634
1831		54,000		78,300		40,966	230,320
1832		84,500		121,700		75,000	448,171
1833		111,772		161,777		123,000	592,210
1834		43,700		53,008		106,244	456,859
1835		90,000		108,900		131,250	678,517
1836		103,861		123,861		148,211	825,729
1837		115,887		139,041		223,902	1,039,241
1838		78,207		94,083		213,615	873,013
1839		122,300		146,760		221,025	957,436
1840		148,470		177,867		225,318	1,008,220
1841		192,270		229,955		143,037	1,127,005
1842		252,599		301,856		272,546	1,286,995
1843		285,605		340,441		267,793	1,478,926
1844		365,911		435,434		377,002	1,899,690
1845		451,836		536,329		429,453	2,344,426
1846		518,389		614,291		517,116	2,707,321
1847		583,067		689,185		633,507	3,327,155
1848		685,196		808,531		670,321	3,572,695
1849		732,910		862,635		781,656	3,724,812
1850		827,823		972,692		890,456	3,863,365
1851		1,156,167		1,355,028		964,224	5,190,690
1852		1,284,506		1,502,865		1,072,136	5,725,143
1853		1,475,732		1,723,655		1,054,309	5,939,533
1854		1,608,478		1,868,052		1,207,186	6,846,556
1855		1,771,511		2,060,267		1,284,113	7,581,542
1856		1,972,581		2,288,194		1,351,970	7,999,767
1857		1,952,603		2,261,114		1,318,541	7,694,842
1858		2,186,094		2,527,125		1,380,030	7,864,230
1859		2,731,236		3,151,846		1,628,311	9,010,726
1860		2,941,817		3,388,973		1,821,674	9,807,118
1861		3,055,140		3,513,411		1,738,377	9,147,461
1862		3,145,770		3,608,198		1,351,054	9,095,031
1863		3,759,610		4,304,754		1,894,713	10,953,077
1864		3,950,846		4,525,635		2,054,669	11,631,400
1865		4,235,658		4,720,717		1,822,535	12,733,032
1866		4,736,616		5,413,958		2,128,867	14,092,837
1867		5,328,322		6,089,272		2,062,446	14,345,644
1868		5,990,813		6,846,699		2,507,582	15,101,466
1869		6,068,309		7,279,543		1,929,523	16,375,678
1870		7,564,909		8,814,024		2,990,878	17,819,700
1871		6,713,773		7,690,251		2,249,356	17,379,355
1872		9,191,171		10,750,050		3,610,674	22,084,083
1873		10,047,241		11,744,141		3,263,168	22,890,921
1874		9,513,042		10,241,032		3,868,749	21,667,386
1875		10,519,598		11,062,520		2,731,311	20,643,509
1876		8,160,000		8,530,000		3,800,000	19,000,000
1877		7,900,000		8,323,000		4,200,000	21,323,000
1878		7,500,000		8,250,000		3,245,000	18,000,000
1879		12,575,000		13,300,000		4,550,000	27,825,000
		153,863,795		172,944,369		71,580,696	427,987,532

* Includes the Loyalsock region in Sullivan County, opened in 1871. The production of this region has been as follows: 1871, 23,122 tons; 1872, 51,527 tons; 1873, 32,058 tons; 1874, 36,268 tons; 1875, 16,522 tons; 1876, 30,000 tons; 1877, 23,000 tons; 1878, 37,000 tons; 1879, 50,000 tons.

From the above table we learn that the total shipments of the several companies during the year amounted to no less than 26,250,000 tons, to which has to be added about 6 per cent, or say 1,600,000 tons, for coal consumed at and about the mines and not reported in the "shipments," making the total output for 1879 no less than 27,825,000 gross tons.

The hard times which have weighed upon this country since 1873—and of which the "panic" of that year was but one of the first effects, and not at all the cause—were the natural effect of a vast overproduction and accumulation of "stock" in every department of industry, induced by the abnormal stimulant of war prices and war profits. The revival in business came after a period of suspension of production, prolonged by the enforced economy of consumers; and when the accumulated stocks had gradually been absorbed and consumed, and the natural demand for consumption called for the production of a fresh supply, then, indeed, it was found that the ruinous prices which resulted from an overstocked market must be advanced to enable a sufficient number of producers—not all equally well situated—to enter the market and supply the demand. With the conviction quickly gained that the turning-point had been passed, and that prices generally would henceforward advance, consumers and speculators at once began to purchase largely and supply depleted stocks, and this, with our people, naturally so hopeful and intense in all their acts and transactions, would alone account for a revival of

industry more rapid than could be expected in the more staid and poorer populations of other countries. It was, however, still further stimulated by other causes. Our vast agricultural territory offered to the hundreds of thousands left without occupation during the suspension of active industry an inviting field to which many flocked, and at once became producers of breadstuffs. The abundant harvests with which this country has been blessed during the past three years, and the demand for our grain abroad; the wonderful productiveness of our mines; and the enormous balance of trade in our favor, due to greater economy in the cost of production of various articles, and to our own more modest wants, have filled the country with wealth. Probably, not less than one hundred and fifty million dollars have thus been added to our gold and silver during this year, and the increase in the value of securities and property has added in this brief time thousands of millions to the assets of our people. What wonder, then, that the revival in business has been unparalleled in the history of the world, and that there is serious danger to-day of another period of inflation in values such as was witnessed during and after the war?

Unquestionably one of the most important elements in starting again the wheels of industry that had so long been silent was the low price at which coal ruled during the year. Never before had anthracite been delivered at the seaboard at from \$1.95 to \$2.30 per gross ton. These figures were, it is true, unremunerative; yet never before was anthracite mined and transported at so small an actual cost—a fact due, beyond any question, to the free competition and low prices which brought about this enormous output. Prices of coal which, under the restricted output and market which the coal "combination" necessarily entailed, would have been ruinous, were possible; if not always profitable, under the larger business of a free market; and we believe the books of the several great companies engaged in this trade demonstrate again the often-taught lesson that trade combinations which have for their object the arbitrary exaction of prices beyond what the condition of collateral industries will warrant, and which seek to restrict the production per man employed, or, which is the same thing, require men to spend a large part of their time in idleness, are not only contrary to the very fundamental laws of trade, but disastrous to those who enter into them.

We have, in previous annual reviews, traced out the history of the anthracite coal combination, and of still older English efforts to "regulate" the coal trade by the arbitrary restriction of the output, and the equally arbitrary exaction of high prices for coal; and we have seen that in every case these combinations have been injurious to the individuals and companies forming them, to the industry itself, and to the general business of the country. The innumerable attempts at combination and plans to regulate the coal trade with us ended precisely as did all their predecessors. They increase the cost of mining without benefit, nay, with absolute injury to the workman; they augment the cost of transportation with no advantage to the railroad company; they advance the price of coal to the incalculable injury of consumers, manufacturers and industry generally, and with no profit to the mining companies; and they retard and restrict that development of the trade which alone can bring permanent prosperity to this industry, and secure a fair return on the enormous amount of capital now invested in coal lands and coal roads.

A year ago, reviewing this question, and referring to the then expiring combination of 1878, we said: "This last effort at regulating the trade seems now to be abandoned, and, of all the plans proposed, but two yet remain untried. One suggests limiting the production by allowing the mines of each region to work simultaneously a certain number of days each month, and all to stand idle the remaining days, without any limit on the amount to be produced in the time allowed for work. The other plan proposed, calls for pooling all the coal and selling it from one general office. Neither of these plans offers any advantage over those already tried, and both have obvious drawbacks. * * * There seems, in fact, nothing left but for each interest to take care of itself and seek the largest market its advantages can secure."

Each of the plans here referred to was proposed, but no agreement on any basis was effected between the companies, the several abortive efforts to form a combination serving only, as they always do, to intensify the competition between the rivals, and to depress still further the already unremunerative prices.

There was no "combination" among the coal companies during 1879, though fruitless efforts were made almost without ceasing during the entire year to patch up some kind of an agreement to advance prices or restrict production. It was, however, quite generally believed that these proposed agreements—which were widely advertised at the time, and believed in by many—were made more particularly with the object of affecting stock speculations, in which it is said the managers of more than one of the companies were largely interested. It is, indeed, said that some of these gentlemen have at times, during the past year, been large "bear" operators in the stocks of their own companies, and in these cases their interests were in depressing the price of coal, and diminishing the public belief in its value—a course directly opposed to the interests of

their own stockholders, whose trustees they are; while the rumor of a new combination circulated among those who have never taken the pains to investigate the actual outcome of such agreements, would suddenly increase the price of stocks, and the subsequent announcement of the failure of the efforts to agree would make a corresponding decline, in all of which fluctuations those behind the scenes could, of course, find profit. That even the suspicion, not to say the general belief, that officers of some of the companies have sometimes used their positions to depress the stocks of their own companies, is any thing but complimentary to the management of these great corporations, and suggests the application of some remedy, for a more dishonorable act it would be difficult to imagine.

MEASURES FOR THE BETTERMENT OF THE LABORING CLASSES.

The sudden expansion of the coal trade which has set in, and which promises to continue for some years to come, will bring prosperity to the companies and, in a measure, to the laboring classes engaged in the production of coal. It should, however, be borne in mind by those interested in the trade, that the permanent prosperity and great development in the trade must necessarily come from low prices of fuel, which will stimulate every branch of manufacturing industry. There is every probability that the supply of labor at the mines during the coming year will be insufficient, and that wages will advance correspondingly. The demands for advance in wages have already commenced, and, in many cases, have been accorded; but the future will bring still further demands, and, unless some system of arbitration be adopted, we are likely to see, before the close of the year, strikes and stoppages which will be as disastrous to the companies as to the men engaged in them. We urge, therefore, in the interest of every industry using coal, as well as in the interest of the stockholders of coal companies, and of the laborers employed in the mines, that such measures be taken in time as will effectually prevent strikes and lockouts in the future. It is much easier to make an arrangement of this kind before the strike has been engaged in, than while the men are out.

We would again call attention to the establishment of coöperative stores or some other system by which the poorest workman may get the benefit of wholesale prices, and where economy and comfort may both be advanced by the more intelligent use of the supplies he purchases. As we stated in our review of last and previous years, when we called attention to this subject, "no trades-union has ever agitated reform so urgently, or struck for an advance in wages or struck against a reduction half so important against the laboring classes as the tame domestic questions—What are the articles that are best suited to the means and the different classes of workmen? How can they procure these things at the minimum of cost? How can they utilize them with the greatest advantage and with the least waste?"

It is in the interest of employers quite as much as in that of the working-classes that we urge the establishment of schools, where the latter could receive instruction in their calling, both men and women; for by this means would the skill and, therefore, the efficiency of workmen, be increased, and their earnings would procure them far more of the necessities and comforts of life than they now do. In the end, it is the employers who pay for the want of knowledge and the waste occasioned thereby, and it is, therefore, to their interest to encourage, if not to initiate, practical measures, which have for their object the promotion of skill, and, generally, the betterment of the working classes.

THE COURSE OF THE TRADE.

January.—The year 1879 opened auspiciously, so far as the condition of the market was concerned. Stocks at the tide-water shipping ports were low, not above the average tons, and there was a fair business, with prices held quite firmly, though there was no general expectation of any combination being effected. The Philadelphia & Reading Company made arrangements at the very commencement of the year to ship coal over the Bound Brook road to Elizabethport, thus getting a New York outlet when Port Richmond is closed by ice.

In the Wyoming field, the outlook was overcast by the failure of the banking firm of Bennett, Phelps & Co., and the Riverside Coal Company (J. H. SWOYER & Co.), and by a reduction of 10 per cent in miners' wages. The weather during the month of January was severe, and the demand for domestic use was very brisk, while the output of the mines was somewhat restricted by the extreme cold freezing water-pipes, and occasioning the interruptions so familiar to colliery proprietors; and the movement of coal, both on the road and at the shipping ports, was somewhat interrupted by the frost and snow. The transportation charges from the Lehigh District were also so high as to prevent shipments in some cases. The Reading Company, on the other hand, reduced charges, and put them on a percentage basis, which enabled the individual operators to hold their own in the market. At the same time, Mr. GOWEN announced that miners' wages should not go lower than 20 per cent below the standard basis.

About the middle of the month, there were rumors on "the street" of "combination;" but at about the same time, the Delaware & Hudson

Canal Co. made contracts for future delivery up to March, and it was said that contracts for 58,000 tons were made at what were then considered low prices. We had already predicted a remarkable year as early as the middle of January, though there were already indications that there would be war between the companies, which would have a disastrous effect on prices. Toward the close of the month, while the demand was good, stocks small, and the market in an exceptionally favorable condition, there were indications that some of the companies were "bearing" the market. The Pennsylvania Coal Co. issued a circular with prices much below those then current, and it was noted that dealers in that coal were selling at rates even below this circular. The war-cloud was growing larger and darker.

On the 29th of January, the Scranton auction sale recorded an average decline of 22c. per ton from December prices, or 20c. per ton below the average of the whole of 1877, the year of open competition and low prices. This still further demoralized the market, and was quickly followed by a still further reduction in its circular prices. Other companies made corresponding reductions, and the Lehigh Valley Railroad reduced tolls, and yet stocks were small in both producers' and consumers' hands, and the market generally in an exceptionally favorable condition for a large business at remunerative rates.

February.—During February, the demand was active, particularly for domestic sizes, though the market was demoralized by the apparent effort of some of the companies to force others into a combination, or for other purposes. Buyers naturally expected lower prices, and though buying largely, it was merely for immediate requirements. The Scranton auction sale, of 114,500 tons, recorded an average price $4\frac{1}{4}$ cents per ton below that of January (see tabular statement elsewhere). It was reported that the Reading Company had made large contracts for coal to go West.

March.—Though the demand for coal still continued good, it was not so brisk as during the previous two months, and prices were greatly demoralized. The Delaware & Hudson Canal Company sold 50,000 tons at auction early in the month, and the prices obtained (which were generally believed to be "bolstered") averaged within 4 cents of the lowest auction sale ever known in this market, yet 10 cents a ton below these prices came to be the ruling rate by the 20th of the month, and the tendency was still downward, till, at the auction sale of Scranton coal, on the 26th of March, the average price obtained was \$2.35 per ton, a price which was met by the Lehigh Valley Coal Company.

The Reading and Lehigh Valley companies reduced tolls about the middle of the month, the former to 35 per cent of the selling price at Port Richmond. Much indignation was felt among the stockholders of some of the large companies at what appeared an effort on the part of some of their managers to depress the market for the purpose of serving private interests at the expense of the general stockholders and the entire trade; and there was some talk of calling indignation meetings to arouse attention to the manner in which these great interests were being sacrificed.

About the middle of March, the Delaware & Hudson Canal Company, and the Delaware, Lackawanna & Western Railroad Company, opened retail yards in Boston, to compete with the Reading Company, with the effect of reducing prices \$1.50 per ton. The trade was utterly demoralized, though it never possessed stronger elements for a good and profitable business. We advised those who could do so to lay in supplies at the prices ruling at the close of the month.

April.—Even the prices of the March Scranton sale were lowered under the pressure of war between the companies. The Delaware & Hudson Company sold 50,000 tons at auction on April 9th, at which Steamer and Broken Coal sold at \$2.03@2.06 per ton, and the average of all sizes was \$2.27 $\frac{1}{2}$ per ton, while even this average was secured only by "bolstering" some of the sizes.

Buyers, heeding our advice, began to purchase more freely, though prices showed no improvement, Broken Coal having been sold at less than \$2 per ton, f. o. b., at the New York shipping ports. The demand became very brisk toward the close of the month, and there became evident a disinclination on the part of the companies to contract for future delivery. The regular Scranton sale of 100,000 tons on April 30th, netted an average of only \$2.27 $\frac{1}{4}$ per ton, though the demand was very great. The Pennsylvania Coal Company's circular quoted coal at \$2.15 to \$2.40, according to size.

May.—This seemed to be the turning-point of the market, though some of the companies still seemed disinclined to allow prices to advance. The demand became so great that some of the companies were obliged to refuse orders, and before the middle of May freights advanced, owing to the scarcity of vessels. Prices remained unchanged, though more and more firmly held as the month advanced. There was still an effort being made to organize a new "combination," but it was abortive, though some of the companies agreed in an informal way, about the end of May, to advance prices 25c. per ton.

The Scranton sale of the 28th of May averaged \$2.23 $\frac{3}{4}$. This was, however, owing to the fact that a larger quantity of the cheaper sizes were sold in May than in April.

The turning-point was past.

June.—During the month of June, trade was somewhat quiet, owing to the disinclination on the part of consumers to believe that the advanced prices would be maintained, and the prospect of further trouble between the companies, owing to the failure of repeated efforts to secure a suspension of mining, if not an old-fashioned combination. Prices were shaded, and while the market was firmer, most of the sales were made in the early part of the month, at very nearly May figures.

The miners quickly appreciated the position of affairs, and there were several local strikes at the mines.

The Scranton sale, June 25th, brought an average of \$2.39 1/4 per ton, as against \$2.23 1/4 in May. The sale was considered "bolstered."

July.—This was a comparatively quiet month, though the business, as measured by the shipments from the mines, was large. The quantity of coal sent to market for the first six months was 4,636,401 tons greater than in the corresponding period of 1878. Prices had a downward tendency, though at the auction sale of the 30th of July they were made to record an average of \$2.56 per ton; this, however, was the result of strong "bolstering," and was not a fair measure of the condition of the market.

August.—The amount of coal produced was still enormously in excess of the previous year's shipments. And it was rapidly absorbed by the trade, though with no tendency to firmness in the market or toward advancing prices. On the contrary, the war between the companies seemed to make the utter demoralization of the market the object of some, and the public very willingly accepted every concession in price. The Delaware & Hudson Company sold 50,000 tons of coal at auction, and realized an average price of only \$2.19.3 per ton, the lowest average ever recorded in this city.

The outlook was at this time so discouraging that some of the individual collieries stopped work. The Delaware, Lackawanna & Western sold at auction 50,000 tons of coal, for an average price of only 47c. above those of the Delaware & Hudson sale, though the usual tactics were adopted to increase the nominal price obtained. That the price recorded did not represent the actual condition of the market was evident from the fact that coal offered at this average did not find buyers. Toward the close of the month, the Delaware & Hudson Canal Company commenced shipments of coal via the Lehigh Canal to Philadelphia, for competition with the Philadelphia & Reading. Some of the miners' strikes were ended by the men going in at the old rates.

September.—During the entire month of September, the question of combination was discussed in various forms, but without any practical result beyond helping stock speculations, and somewhat hastening purchases by consumers, who feared some arrangement might be made. Prices, however, were not affected, and the Delaware, Lackawanna & Western auction sale of 100,000 tons on September 30th recorded an average price of only \$2.19 1/2. The attendance was large and the demand good, and a large business was afterward done at the average prices of the sale. The demand had by this time become so great, both for Eastern city trade and for the great number of furnaces and mills starting up, that it was no longer possible to hold back prices. The reaction had set in and the trials of the coal trade were nearing an end. The price which had fluctuated for several months at from \$2.19 to \$2.25 per ton, was more firmly maintained by the close of September, and there were unmistakable signs of a healthy and permanent advance.

October.—The first week in October, some of the companies had already advanced prices, and before the 10th actual transactions ruled at about 15 cents per ton over September rates, while by the middle of the month the "boom" had fairly overtaken the coal trade, and sales were made at from 30 to 70 cents per ton above the lowest prices recorded.

The demand for coal was pressing, and prices advanced rapidly toward the close of the month, while freights rose suddenly to 60 and 65 cents per ton from Hoboken, Weehawken, etc., to alongside New York.

November.—Though harbor freights were lower in November, the demand for coal was very great and shipments large, while circular prices were advanced and obtained during the first ten days of the month. Toward the close of the month, orders became scarcer, though circular prices still continued to advance, and actual transactions were made by shading prices. Higher wages were paid the miners in the Schuylkill and Wyoming regions. Ineffectual efforts were made to secure a general stoppage of production.

December.—The trade during the last month of the year was not so good; and, while circular rates were nominally unchanged, actual prices were, in some cases, 75 cents below these, and even lower than in November. The close of navigation naturally closed a number of markets, and the want of cars for the Western business prevented the shipment of as much coal as would otherwise have been taken. The season has been exceptionally mild, and the demand for domestic use correspondingly reduced. Some of the companies stopped mining during a portion of December, and will do the same in January. Stocks are by no means large, so that the year closes with the market in a very favorable condition for a large and prosperous business in 1880.

CIRCULAR PRICES OF LACKAWANNA COAL IN 1879.

Table with 7 columns: Lump, Steamer, Grate, Egg, Stove, Chestnut. Rows for months January through December.

* Higher quotation at Weehawken and lower at Rondout.

DELAWARE, LACKAWANNA & WESTERN RR. CO. AUCTION SALES, 1879.

Table with 7 columns: Steamer, Broken, Egg, Stove, Chestnut, Total. Rows for months Jan through Dec, plus a Total row.

CIRCULAR PRICES OF PITTSBURGH COAL, 1879.

Table with 7 columns: Lump, Steamer, Grate, Egg, Stove, Chestnut. Rows for months January through December.

* Lower price at Weehawken and higher price at Newburg.

LEHIGH COALS AT AMBOY, PORT JOHNSTON, AND ELIZABETHPORT.

Table with 7 columns: Lump, Steamer, Grate, Egg, Stove, Chestnut. Rows for months January through December.

WILKES-BARRE COAL AT PORT JOHNSTON.

Table with 7 columns: Lump, Steamer, Grate, Egg, Stove, Chestnut. Rows for months January through December.

AREA AND CONTENTS OF OUR ANTHRACITE FIELDS.

We reproduce the following table, which gives the area and contents of our Pennsylvania anthracite basins, and the amount of coal still available in them, under the present system of mining. The enormous increase which the output has received during the past year, and the prospect of a still further increase in the near future, make it important that the actual supply of our anthracite should be well understood. The figures which we give herewith are based upon a very thorough examination of all the data attainable, and we have no hesitation in saying that they are by far the most accurate statements which have ever been made public.

They show that under the present disgracefully wasteful system of mining, the total supply of our anthracite obtainable now amounts to only 4400 millions of tons. We again call attention, as we have so

often done in the past, to the enormous waste which our present system of mining involves, and to the comparatively small amount of anthracite which we possess. We suggest, as a matter for the most earnest consideration of the owners of our coal lands, a thorough investigation of this subject, and a systematic series of experiments, with the view of determining whether it be not possible to mine anthracite here as in Europe with but a small part of the waste which characterizes our present system of mining.

THE AREA AND CONTENTS IN COAL OF THE ANTHRACITE BASINS OF PENNSYLVANIA.

By Richard P. Rothwell.

FIELD.	AREA.		Av. thick. coal, ft.	QUANTITY OF COAL.		P. c.
	Square miles.	Acres.		Per acre. Tons.	Total quantity. Tons.	
Wyoming.....	185	118,500	19	34,580	4,097,730,000	98
Lehigh.....	43 1/2	28,000	20 1/2	36,855	1,030,120,000	9
Schuylkill.....	215	137,500	25	45,500	6,256,250,000	55
Total.....	373 1/2	284,000	22	40,084	11,384,100,000	100

FIELD.	Amount marketed to end of 1877. Tons.	Amount exhausted, including waste. Tons.	Amount yet remaining. Tons.	P. c.	Amount yet obtainable, allowing for waste. Tons.	P. c.
Wyoming.....	151,475,872	60 p. c. waste. 378,689,680	3,719,040,320	36	50 p. c. waste. 1,859,520,160	41
Lehigh.....	72,422,227	65 p. c. waste. 206,910,302	823,209,698	08	60 p. c. waste. 323,283,879.2	07
Schuylkill.....	157,776,236	85 p. c. waste. 450,766,703	5,805,483,297	56	60 p. c. waste. 2,322,193,318.8	52
Total.....	381,674,335	1,036,366,685	10,347,733,315	100	4,510,997,358	100

TONNAGE, EXPENSES, AND AVERAGE COST PER TON FOR COAL AT COLLIERIES WORKED BY THE PHILADELPHIA AND READING COAL AND IRON COMPANY FOR THE YEARS 1873, 1874, 1875, 1876, 1877, and 1878. TONS, 2240 POUNDS.

MONTHS.	For year 1873.			For year 1874.		
	Tons.	Expenses.	Cost per ton.	Tons.	Expenses.	Cost per ton.
December..	92,524 03	\$249,352 40	\$2 71.3	80,212 05	\$217,527 71	\$2 71.2
January....	11,353 11	82,202 45	7 31	10,915 04	91,068 26	8 34.3
February...	29,388 03	151,482 00	5 15.4	50,816 07	176,760 49	3 47.9
March.....	92,689 01	257,187 54	2 77.4	110,748 12	312,285 86	2 81.9
April.....	128,505 18	325,924 74	2 53.6	129,323 10	309,952 99	2 39.6
May.....	123,492 10	316,948 91	2 57	142,777 00	321,971 28	2 25
June.....	127,206 09	318,772 52	2 50.5	145,759 15	319,998 19	2 12.6
July.....	126,793 12	312,730 94	2 46.6	64,415 19	211,997 15	3 29
August.....	140,481 18	328,826 46	2 34	88,309 17	236,610 80	2 67.9
September..	160,957 06	349,221 18	2 17.6	158,228 05	352,044 78	2 21.9
October....	167,249 03	362,041 23	2 16.3	226,267 16	450,200 70	1 98.9
November..	148,196 14	330,469 31	2 23	167,016 06	364,472 16	2 18.9
Total....	1,348,838 08	\$3,385,149 68	\$2 51	1,374,790 16	\$3,364,908 37	\$2 44.8

MONTHS.	For year 1875.			For 11 months, 1876.		
	Tons.	Expenses.	Cost per ton.	Tons.	Expenses.	Cost per ton.
December..	82,893 15	\$155,419 39	\$1 87.4	.....	.....	.....
January....	5,907 14	41,840 96	7 08.2	42,274 19	\$132,015 09	\$3 12.2
February...	5,411 09	50,347 84	9 30.4	26,882 10	133,765 29	4 97.6
March.....	6,413 17	67,937 75	10 59.2	49,097 08	183,750 29	3 74.4
April.....	5,790 09	72,597 08	12 53.8	208,686 07	309,703 93	1 48.4
May.....	9,256 09	82,596 61	9 03.1	206,103 00	276,358 30	1 34
June.....	92,974 13	215,645 03	2 31.9	117,746 16	173,274 47	1 47.1
July.....	280,312 04	424,431 33	1 63	122,469 01	169,276 49	1 38.2
August.....	258,546 12	441,424 95	1 72	177,767 02	229,404 88	1 29
September..	268,150 19	452,129 67	1 59.7	264,637 19	270,664 27	1 02.3
October....	290,019 06	447,989 68	1 54.4	316,974 14	316,696 11	99.9
November..	228,895 04	368,249 32	1 60.8	320,724 05	314,574 12	98
Total....	1,510,572 11	\$2,821,609 51	\$1 86.7	1,853,364 01	\$2,509,483 24	\$1 35.4

MONTHS.	For year 1877.			For year 1878.		
	Tons.	Expenses.	Cost per ton.	Tons.	Expenses.	Cost per ton.
December..	198,411 14	\$219,449 94	\$1 10.6	361,829 06	\$344,038 73	\$0 95.1
January....	146,082 05	198,733 45	1 36	96,935 03	230,859 77	2 38.1
February...	133,114 00	229,705 34	1 72.6	65,680 18	205,538 31	3 12.9
March.....	205,713 04	310,245 07	1 50.8	89,324 06	193,271 47	2 16.4
April.....	324,382 06	353,458 40	1 08.9	189,983 03	240,832 14	1 26.7
May.....	380,714 12	386,974 63	1 01.7	240,057 06	273,676 01	1 14
June.....	375,710 10	349,610 54	93	333,193 06	358,308 69	1 07.5
July.....	378,249 12	335,370 90	89.1	191,880 03	262,363 97	1 36.7
August.....	420,398 09	418,407 56	99.5	341,129 03	377,853 02	1 10.8
September..	419,602 06	404,810 39	96.5	139,736 11	208,911 29	1 49.5
October....	441,902 05	419,780 08	95	299,268 02	330,792 24	1 10.5
November..	372,247 13	315,925 41	84.9	378,590 14	347,558 08	91.8
Total....	3,794,528 16	\$3,942,561 71	\$1 03.9	2,727,608 01	\$3,374,003 72	\$1 23.7

THE BITUMINOUS COAL TRADE REVIEW.

The production of the Bituminous Coal throughout the United States during the year 1879 was 15 to 20 per cent greater than in 1878, and, in all probability, amounted to quite thirty-three millions of tons. This increasing production came chiefly from the West, the low price of anthracite having restricted the output of the Cumberland and Clearfield regions. Prices, during the latter part of the year, were quite satisfactory in the West, but the Eastern market was greatly depressed by the strong competition and low prices of anthracite. But few of the Cumberland companies were willing to make engagements for the season at prices delivered, so that even in the early part of the year the trade attracted but little attention, and seemed rather unimportant. Most of the companies, however, did a fair business, covered by small contracts, scattered throughout the year. The output of the Cumberland mines in 1879, which is given herewith, differed but little from that of 1878, and is still much behind the production in 1876.

We look for a great revival in this district during the coming year, when the new outlet to the canal and connections with the Pennsylvania Railroad will place the Cumberland mines in a position to command that large proportion of the trade which the exceptional facilities for mining and the excellent quality of their coal entitle them to, and which, now that they will be relieved of the oppression of the Baltimore & Ohio policy, they will certainly attain.

The Clearfield region, under the more enlightened policy of the Pennsylvania Railroad, has been enabled to make a more successful competition with the Cumberland in the tide-water markets than it probably will in future; but this same enlightened policy has built up a market for the coal upon a line of the Pennsylvania road, which will more than compensate it for such of its tide-water trade as it may lose, and we look for a considerable increase in the output of this district during the coming year.

It was not till the middle of March that the business in bituminous coal began to assume any briskness, and even then it was done at exceedingly low prices. Cumberland was sold toward the end of March, in Boston, at \$4.07 per ton; Chesapeake & Ohio coal, at \$4; Clearfield coal, f. o. b., Philadelphia, at \$2.65—figures which gave rise to the report of secret drawbacks allowed by the Pennsylvania road to some of the Clearfield collieries. The old story was repeated, of negotiations between the Baltimore & Ohio and the Pennsylvania Railroad Co., in which, as usual, the latter had the advantage; the Clearfield operators having received advantages which enabled them to take a large part of the Eastern trade, at the very commencement of the season.

Bituminous coal continued to decline in price during the early part of the year, and about the middle of April was sold, delivered at India Point and Boston below bridges, at \$3.63 per ton; as freights increased beyond the point upon which this price was based, the contract made at it must have proved very unprofitable. The competition of anthracite was felt at every point throughout the year, while the scarcity of vessels and the higher freight ruling made the early contracts for season delivery unprofitable to those who took them. It was rumored early in July that the Baltimore & Ohio was making special concessions to some of the Cumberland shippers; but even this could scarcely have prevented a loss upon the prices mentioned in the contracts. The increase in our general import trade made a better demand for steamer use, since ocean steamships found it more advantageous to buy coal here at the low prices ruling than to bring over a supply for both trips, as they had formerly done. Toward the latter part of August, coal sold as low as \$2.35 per ton, f. o. b. Georgetown; but the trade was brisk and the indications encouraging—facts which the miners quickly appreciated and went on strike early in September for 50 cents per ton, an advance of 10 cents per ton.

This strike lasted for more than a month—in fact, till after the middle of October—and it produced a brisk demand for Clearfield coal, which advanced 25c. a ton before the close of September. Early in October, the New Central Company granted the miners their demand of 10c. per ton advance, and the other companies followed this example a little later. The Pennsylvania Railroad advanced tolls 25c. a ton on Clearfield coal about the middle of October; and from that on to the close of the year, the demand was fully equal to the ability to deliver.

A scarcity of cars and of vessels limiting the business of the Clearfield District, and a want of vessels restricting the shipment from Georgetown and Baltimore, prices, both during November and December, were very irregular, and the demand still ahead of the supply to the close of the year.

Every thing promises an enormous increase in the business of both of these regions during the coming year, and in our next annual review we confidently expect to be able to record a degree of prosperity to which these districts, and particularly the Cumberland, has long been a stranger.

Our latest report from the Cumberland District is for the week ending December 20th, at which time the production amounted to 1,645,109. The production for the whole year will probably amount to about 1,700,000, or an increase of about 50,000 tons this year as compared with

1873, and of about 150,000 tons as compared with 1877, and a decrease of 100,000 tons as compared with 1876. The following is a comparison of total shipments of the region and the several companies :

NAME OF COMPANY.	1876.	1877.	1878.	1879.*
	Tons. cwt.	Tons. cwt.	Tons. cwt.	Tons. cwt.
Borden.....	143,147 07	97,866 02	120,047 09	151,663 00
Consolidation.....	342,198 11	334,107 05	390,097 18	449,600 15
Blaen Avon.....	43,228 00	33,701 00	28,304 02	40,795 18
Hampshire & Baltimore.....	92,945 09	90,777 03	17,878 07	102,599 01
George's Creek Coal and I. Co.....	197,063 19	121,302 15	87,110 03	121,605 02
New Central.....	240,269 04	345,542 06	351,677 14	323,567 15
Maryland.....	70,237 03	119,000 01	119,400 16	66,467 03
American.....	127,758 18	117,655 08	105,468 18	96,938 08
Atlantic & George's Creek C. Co.....	149,097 08	92,482 08	79,377 19	65,898 00
Piedmont.....	35,983 19	35,284 15	23,312 03	15,098 06
Potomac.....	66,862 15	48,800 00	37,335 00	39,913 00
George's Creek Mining Company.....	58,120 10	63,229 05	55,956 00	73,077 00
Franklin.....	61,884 00	1,724 11	.....	.....
George's Creek Valley M. Co.....	64,011 13	45,215 12	134,480 19	97,569 00
Canton Mine.....	1,039 03	1,124 08	46 00	.....
Union Mining Company.....	.....	1,212 08	10 00	489 06
New Reading.....	1,605 10	1,003 03	128 04	27 06
Virginia.....	102,371 06	.....	.....	.....
Total.....	1,800,725 04	1,550,028 10	1,650,631 12	1,645,109 00

* To December 2. th.

Our report of the production of the Clearfield District is only up to December 21st, when it was 1,561,476 tons, as against 1,246,813 tons for the like period of 1878. We estimate that the Clearfield production for the whole year will aggregate about 1,600,000 tons, as against 1,270,262 tons for 1878, showing an increase in 1879 of about 330,000 tons.

The coal trade of the different cities and large markets throughout the country is so fully and ably recorded in our special correspondence given herewith, that we need do no more than refer our readers to these letters. They all tell the same story—a great increase in business, growing rapidly in volume and value toward the close of the year; light stocks on hand nearly everywhere, and the prospect of a business year during the coming twelve months far exceeding that of any previous year in our history.

EXPORTS AND IMPORTS OF COAL.

The accompanying table shows the quantity and value of coal exported from this country and imported during the first ten months of 1879. As might have been expected, under the low prices of anthracite, we have been able to ship more of that coal than during 1878. The greater part of this went to Canada, notwithstanding the heavy tariff which the Canadians recently imposed upon imports. This, no doubt, caused a considerable decline in the quantity of bituminous coal we were able to sell them. Had it not been for that, our exports would have been much greater than in 1878. Our imports of coal declined more than 100,000 tons in 1879, as compared with 1878, owing to the low price at which our own coals were selling. Nearly all the imports were made during the early part of the year, when foreign freights were low, and coal came in as ballast.

Should a reciprocity treaty be negotiated with Canada, our exports of coal there will largely increase in the future. The importance of this market should be considered by those who have the interest of the trade in charge.

	EXPORTS.				IMPORTS.			
	Quantities—tons of 2000 lbs.		Values.		Quantities.		Values.	
	10 months ending October 31st.		10 months ending October 31st.		10 months ending October 31st.		10 months ending October 31st.	
	1878.	1879.	1878.	1879.	1878.	1879.	1878.	1879.
	Tons.	Tons.	Values.	Values.	Tons.	Tons.	Values.	Values.
Anthracite.....	283,792	359,153	\$1,137,981	\$1,091,920	.....	.....	.....	.....
Bituminous.....	279,105	196,102	890,357	589,688	491,798	373,622	\$1,686,873	\$1,304,973
Total.....	562,897	555,255	\$2,028,338	\$1,681,608	491,798	373,622	\$1,686,873	\$1,305,973

Our correspondents present, respectively, the following summaries of the history of the coal trade for 1879 :

“BALTIMORE, Dec. 31, 1879.

“The trade in anthracite for the year 1879 has been, in some respects, without precedent. As to whether it has been lucrative, the final balance-sheet only will show. The presumption is, however, that dealers who have carried good stocks will find it to have been a good year.

“The winter and spring of 1878-1879 was cold in the beginning, but not above the average, however, after the first of the year. Trade was good, and the prices obtained during the winter were very fair. The stocks were entirely cleaned up, and the dealers started the new year on the first of April with empty yards and low prices. Bottom was supposed to be reached then, but was not touched till the first of May, when \$2.55 and \$2.85 were the figures at which white-ash settled, for cargoes afloat alongside. These prices were made jointly by the Reading C. and I. Co., the Susquehanna Coal Co., and the Mineral RR. and M. Co., and the Sum-

mit Branch RR. Co. They are the lowest figures ever known in this market, the lowest *ante-bellum* prices being about \$3.25 for same or a lower grade of coal.

“The active season by retail commenced with us early in April, and so sharp was the competition that some dealers took orders at \$3.25@3.50 for 2240 pounds delivered, and on public contracts at much lower rates.

“These prices did not pay, for a good clean ton of coal, full weight, etc., can not be furnished at these figures without a loss to the dealer. Early in June, under cover of an advance of 25 cents wholesale, the retail prices were advanced fifty (50) cents per ton.

“Prices were again advanced wholesale 25c. in July and 25c. in August, but declined 40@50c. on September 1st. On 1st October, November, and December, the rates were again advanced 25c. each month.

“The advance retail over the lowest price in April has been \$2 per ton, the advance wholesale not being quite so great. Trade during the summer months was good, but fell off in September. In October and November, under the stimulus of higher prices or the general better feeling, there was a reaction, and an improvement was felt.

“December with us has been unusually mild, and the dealers generally report ‘the lightest December’ they ever knew.

“The usual monthly combination meeting was held in Philadelphia yesterday, at which it was decided to advance prices ten (10) cents along the line of the N. C. Railway, but the rates to the city to remain the same. We quote December prices, then, for January.

“It had been determined to advance 25c. for this market; but the mild weather probably has led to a decision to make no change, which decision, under the circumstances, is generally indorsed.

“It will be seen we have had the lowest prices ever known here and a heavy trade in consequence, and a greater advance during the season than for several years.

“Stocks are fair, and prices remunerative. All we ask for is cold weather, for a good winter's business.

“We do not quote water prices, as freights from Philadelphia are too high to compete with our rail prices.

ANTHROS.”

“BUFFALO, Dec. 30, 1879.

“We send you corrected price list for coke and bituminous coal. Business is very quiet, attributable to the mild weather and the holiday season. Great difficulty is experienced by anthracite shippers in getting a sufficient supply of box-cars to fill their present limited orders for coal. The volume of business in 1879 was very much larger than in 1878.

“LEE & LOOMIS.”

“CHICAGO, Dec. 29, 1879.

“In the summer of 1879, the prices of anthracite coal reached the lowest point ever known in this market, namely, in large lots, notably that to the City Water-Works, understood to be \$3.60, extending to May, 1880, and to some other large consumers at from \$3.85 to \$4, for the year; later in the season, at \$4.25, \$4.50, \$5.50, and now \$6.50, and for chestnut the price nominally is \$7. We think very few tons of anthracite are now being sold at the so-called present prices—the stocks on hand being any thing but light. No change in prices.

“Erie and Briar Hill coal is selling at from \$7 to \$8 retail; stock, said to be rather smaller than usual at this season of the year, but sales are smaller, also, in consequence of the high price.

“The cheaper grades of bituminous coal from Indiana and Illinois meet ready sales, and the demand is larger than the supply.

“Receipts of soft coal for the month of November are reported as follows :

“By rail, 111,636 tons; by lake, 37,602 tons; by canal, 300 tons; total, 149,538 tons.

“Receipts of hard coal for the month of November are reported as follows :

“By rail and lake, 36,970 tons.

“Total receipts of all kinds of coal, from January 1st, 1879, to December 1st, 1879, 2,156,752 tons; same time in 1878, 1,670,415 tons; increase in 1879, 486,337 tons. Total shipments to December 1st, 1879, by lake, canal, and rail, 432,367 tons; same time in 1878, 266,218 tons; increase in 1879, 166,149 tons.

RENO & LITTLE.”

“CINCINNATI, Dec. 29, 1879.

“The market for bituminous coal since the first of September has passed through a season of higher pressure than has been felt for many years. The Ohio River failed to furnish a way of transportation, and we were compelled to fall back upon the railroads. The railroads were already taxed beyond their capacity with general freight business, and could not at once respond to the demand made upon them. The result was a rapid advance in the price from 9 or 10 cts. per bushel, delivered to consumers, to 26@28 cts. per bushel. The first rise in the river brought the price down to 15@16 cts. for Pittsburg coal, and 12@14 cts. for Camden and Ohio River. These prices have been maintained ever since, and, with a good supply now on hand, are likely to be the ruling figures for the winter.

“Kanawha River coal is now being produced in much larger quantities

than ever before, and the superior quality of the coal for domestic uses is going to command for it a very important position in this market. The Consolidated Coal and Mining Company, of Cincinnati, has recently leased a mine of large capacity at Coalmont, W. Va., and has already commenced a heavy production. The Coalmont coal is in what has been known as the Coalburg vein, and is esteemed the most valuable coal in the Kanawha region.

"The low prices for anthracite coal, in the Eastern markets through the summer, forced large quantities of that coal into the West. The railroad companies made rates to correspond with the prices of the coal at the mines, and Cincinnati, with all other Western cities, got anthracite coal at lower prices than were ever known before.

"Wilkes-Barre coal here, from May until September, could be bought on cars at \$3.75@4 per ton. Large contracts were made for the coal at these prices, and much of it is still in the hands of the dealers; and although prices have advanced about \$1.40 per ton, the market is dull and shippers find difficulty in getting their circular prices.

"CONSOLIDATED COAL AND MINING COMPANY."

"CLEVELAND, O., Dec. 29, 1879.

"There is nothing notable about Ohio coal just now. The strikes continue. The Valley Railway just completed (route—Cleveland to Canton) refuses to go into any combination arrangement to fix joint rates on coal freightage with other lines trending in this direction. The Connotton Valley Railway, leading to promising coal-beds, will connect with Canton in a month. It is owned by Boston capitalists. JAMES CARROTHERS."

"HAMILTON, ONT., Jan. 1, 1880.

"Altogether, the coal trade in Hamilton is in a much more satisfactory condition than it has been for several years past. The low prices that prevailed during the summer season enabled dealers to put in supplies that are now realizing good profits; a much steadier winter trade is being done, and it is likely that all the coal now in stock will be disposed of considerably in advance of the opening of navigation, thereby necessitating a considerable influx of coal by rail to meet the requirements of the market. The great increase in manufacturing in this city since the introduction of the new tariff has created a large demand for coal for manufacturing purposes, and the consumption of coal this year is likely to be greatly in excess of any previous year. One feature worthy of notice is, that a great deal of anthracite for domestic use is finding its way into the homes of the farmers in the surrounding country; and this is attributable, not to any scarcity of fire-wood, but rather to the low price of coal, the farmer evidently preferring to sell his wood, or dispose of it for other purposes, in favor of the greater comforts to be derived from an anthracite coal-fire. I infer, therefore, that, so long as the prices of coal are kept at a figure within the means of those who have little money to spend, increase of consumption will be induced; but increase of price means a check upon consumption, and consequently a fluctuating and uncertain trade. It is more desirable to have a large tonnage at a fairly remunerative profit, than a contracted tonnage at a larger profit. The demand for coal will increase every year in Canada; but the rapidity with which that increase goes on will depend greatly upon those who are seeking a market in Canada for their coals; then, again, Nova Scotia coal is finding its way westward, and is being supplied by all-rail route at Toronto and intermediate points, and it remains to be seen to what dimensions this trade will attain.

"On a future occasion, I hope to be able to lay before your readers statistics showing the quantity of coal imported into the Dominion of Canada, and the quantities received by each province, for the year ending the 15th of March, 1879. Meantime, I append a return showing the quantity and value of coal and coke entered at the port of Hamilton, from the 15th of March to the 30th of June, 1879, and from the 15th of March to the 30th of November, 1879:

	—From March 15 to June 30, 1879.—		—From March 15 to Nov. 30, 1879.—	
	Tons.	Value.	Tons.	Value.
Anthracite coal....	14,477	\$38,854	34,025	\$89,769
Bituminous coal....	1,269	3,638	14,733	41,512
Coke.....	179	835	330	1,425

"H. BARNARD."

"MILWAUKEE, Dec. 23, 1879.

"In reply to yours of the 18th, we would say, that we have no change to make in prices of coals at this point, further than that Lackawana coals are selling at \$7 per ton at retail, for all sizes.

"The trade for the year has been one of great diversity of prices, the season starting up at the low price of \$4.50 per ton, delivered to consumers in the city. This price continued throughout the summer months, gradually strengthening with the approach of colder weather and high rates of freights. The supply of all sizes has been equal to the demand, except on chestnut size. General stocks, particularly of bituminous coals, are light, and, in consequence, higher prices may prevail. In regard to receipts at this port, we have to state a constant increase, from year to year, both for city and interior trade, our railroad system extending far into the interior of the Western States and territories. One condition of the coal trade exists with us in a manner never known before, which is seen in the fact that the bituminous coals of Ohio and

Pennsylvania bring a larger price here and in the Western Lake ports than do the anthracite coals. This fact can be explained in the large demand by the iron interests in the immediate locality of the mines. The result has been to bring about a large demand for the western coals of this grade at advanced prices; consequently, the coal trade here assumes somewhat a new feature, owing, we believe, to the existence of the prevailing increase in the iron interests of the country.

"R. P. ELMORE & Co."

"MONTREAL, Dec. 27, 1879.

"In reply to your favor of the 18th inst., we are sorry we are unable to give you statistics of our coal imports at present, and will not be able to do so till after the new year has opened.

"The importation is quite sufficient for the demand, and is thought to be about 30,000 tons in excess of last year.

"Prices, we may say, are unchanged. The coals in barges now frozen in the canal are being brought in by cars per rail. This will be also required to fill the demand, but will be ample.

"The demand for bituminous coals is light, consumers being pretty well supplied. The Grand Trunk Railway Company will most likely advertise for tenders for supplies of this article in January.

"ROBERT C. ADAMS & Co."]

"RICHMOND, VA., Dec. 31, 1879.

"During the year 1879, there were about 40,000 tons of anthracite coal brought to this city from Philadelphia and New York, and about 2500 tons of Cumberland coal from Georgetown and Alexandria.

"The Chesapeake & Ohio Railway, which road runs through the heart of the mining districts of West Virginia, has largely increased the coal trade from that section the past year. But for the scarcity of cars, the trade would have been much greater. The Chesapeake & Ohio Railway Company brings to this market, for use here and for outward shipment, splint, cannel, and bituminous coal. During the year 1879, this road has brought to this city, for local sales and shipments to cities within the State of Virginia, about 50,000 tons of coal, and for shipment to Northern ports about 120,000 tons.

"From mines on line of James River & Kanawha Canal, there were 3820 tons of bituminous coal and natural coke brought to this city during the year 1879.

"The product of the Bright Hope mines during the past year was 26,365 tons. This includes shipments to this city and other ports. These mines are situated 31 miles from this city and 21 miles from Osborne's Landing, on James River. The coal yields 4½ feet of 15½ candle gas per pound, analyzing 51.48% per cent fixed carbon, 34.92% volatile matter.

"During the early part of the season, trade was very flat and dispiriting, but the recent 'boom' has helped matters very much.

"S. H. HAWES."

"SANDUSKY, O., Dec. 31, 1879.

"We herewith hand you a statement of the coal trade of Sandusky from January 1st to December 31st, 1879:

	Bituminous. Net tons.	Anthracite. Net tons.
Received via the		
L. S. & M. S. RR.....	20,200	7,255
C. S. & C. RR.....	17,650	.....
B. & O. RR.....	8,900	.....
Vessels.....	.....	3,595
Total receipts.....	46,750	10,850
Distributed as follows:		
Railroad company's own use.....	18,600	.....
Steamers and shops.....	17,150	200
Local, domestic use.....	10,250	5,225
Shipped out of city.....	500	3,000
Stocks on hand December 31st.....	250	2,425
	46,750	10,850

"We estimate the increase in local trade this year to be 20 per cent over last year. Yours, BLACK & CLARKE."

"TOLEDO, O., Dec. 29, 1879.

"Reviewing the past year's business, we are pleased to note a large increase in the consumption of anthracite, especially throughout the country, which in many localities has more than doubled. The difficulty in procuring transportation, of late, has greatly held back this trade. As to what the actual increase has been, or in what ratio, it would be hard to say, as most of the shipments are made from the mines or re-consigned at Buffalo. Locally, the increase is not so great, yet we can see a gradual improvement each year; this year's consumption will amount to over 25,000, and may reach 30,000 tons.

"The stocks are light for this season of the year.

"In bituminous coal, Toledo has made a decided improvement, especially in lake shipments, although the recent troubles at the mines have largely retarded them; we think, that they will aggregate at least 40,000 tons. The miners in the Massillon District are still out.

GOSLINE & BARBOUR."

PACIFIC COAST COAL TRADE.

The imports of coal at San Francisco for the first 11 months of this year, as compared with the corresponding period of 1878 and 1877, show a very large decline, amounting to about thirty-four per cent of the imports in 1878. The reduction affected every kind of coal brought to

San Francisco, except Coos Bay, and even that increased but very little. This unsatisfactory state of the coal trade shows the depression in business which was on the Pacific coast in 1879, and which is by no means ended at the present writing. Prices in San Francisco were low during the entire year, yet even that could not stimulate the trade to any briskness.

The imports of coal at San Francisco, from January 1st to November 30th, in 1877, 1878, and 1879 were as follows:

	1877. Tons.	1878. Tons.	1879. Tons.
Anthracite.....	19,691	23,564	13,110
Australian.....	80,406	128,150	49,952
Coos Bay.....	27,581	29,718	34,553
Carmel Bay.....	.....	.....	425
Cumberland.....	10,608	8,044	1,187
Bellingham Bay.....	10,475	3,750	.....
Vancouver Island.....	94,501	119,185	118,526
Seattle.....	94,491	104,430	101,911
English.....	89,302	43,058	23,544
Mt. Diablo.....	87,755	89,320	.....
Rocky Mountain.....	123	371	.....
Ione.....	3,068	665	.....
Carbondale.....	177	3,125	746
Ounalaska.....	.....	450	.....
Carmen Island.....	.....	100	.....
Chili.....	8,145	.....	.....
Saghalien.....	190	.....	.....
Tacoma.....	.....	.....	845
Total.....	526,573	553,930	344,790

THE MAGNESIAN LIMESTONES OF PENNSYLVANIA.

Letter from Professor Lesley.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Thanking you for your favorable review of report of progress, MM, in your last issue, I will explain my meaning in using the expression "equally mechanical sediments." Setting aside the well-known views of Bischoff that *chemical* limestone sediments of oceanic size are impossible, and the high authority to be assigned to the views of such a man, and leaving the task of discussing them to Dr. Hunt, and other chemists, I might have written "equally mechanical or equally chemical sediments." But the contrast I was drawing was not between mechanical and chemical *sediments*, but between *sedimentation* and *metasomatism*, due to percolation. My argument is that, if the limestone layers be original sediments (chemical or mechanical), then the alternate magnesian layers must be in the same sense original sediments.

Yours, respectfully, J. P. LESLEY.

"PROBABLE ERRORS IN HUMBER'S BOOK ON STRAINS."

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I find, from your issue of December 27th, that Mr. Crandall substantially answers my two questions of October 18th in the affirmative; in other words, that Humber is incorrect in both cases, if we assume that he means what he says. Mr. Crandall, however, thinks I am mistaken in supposing that the difference between the reaction at *d* and the load between *d* and *c* can differ from that at *b* and the load between *b* and *c*. "These two differences," he says, "must always be equal." In fact, they must always be equal *when the load reaches to one abutment*, as in the case under discussion, as well as in many others; but in the case of *concentrated* loads, they may differ to any extent. But the method which I used embraces *all* these cases, and it was with reference to its universality of application that I adopted it, although it would probably have been neater and more appropriate to the matter in hand, not to have done so, but to have adopted Mr. Crandall's view. X.

URANIUM IN COLORADO.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: In connection with an item on page 438 of the ENGINEERING AND MINING JOURNAL, permit me to state that the discovery referred to was not the first made of uranium in this country. Uranium (pitch-blende) was first discovered in Colorado, some years since, by Mr. Richard Pearce, the able metallurgist of the Boston & Colorado Smelting Company. The mineral, considered worthless, was found by Mr. Pearce in a mine in Gilpin County, near where the writer was working, and recognized as the rare and valuable uranium. Mr. Pearce worked out the pocket, and shipped the ore to England, where it brought a high price.

ERIE, PA., Dec. 20.

R. F. GAGGIN.

THE ORE KNOB COPPER COMPANY.

The Ore Knob Copper Company's mines are in Ashe County, N. C. The vein is said to be a true fissure, vertical in dip, and cutting through the rocks of the country. The ore-body is from 14 to 25 feet wide, and has been proved by eleven shafts for a linear distance of over 3000 feet. Upon the south portion of the lode, a very large and productive body of ore has recently been discovered, upon which the company has now commenced to work, and which will largely add to their profits during the coming year. They have ten blast-furnaces, one refining furnace, and six engines in operation, and produce about 5000 lbs. refined copper daily. As the fuel used is charcoal, the copper is very pure, and commands a ready sale, being the only charcoal-refined copper made in this country. During 1879, 6½ per cent dividends were declared upon the capital stock, and nearly \$50,000 have been added to the cash assets, which now aggregate nearly \$275,000. The advance in the price of copper in the past ninety days is equal to an additional profit of \$6000 to \$7000 a month; and every thing indicates a profitable and prosperous future for this enterprise. The company is entirely free of debt; the stock is largely owned by prominent Baltimoreans and some few New York parties, and is mostly held as an investment. The management of the property is good and economical.

MONTANA MINING NOTES.

Special Correspondence of the Engineering and Mining Journal.

The New York Copper Company, with works at Butte, is making very energetic efforts to commence the reduction of its copper ore at the earliest possible moment. Much of the work of construction has already been completed, and considerable material, including a forty horse-power engine and boiler, and Blake crusher, is on the ground. The castings for the water-jacket furnace, 5000 fire-brick, and other material, are at the terminus, from which point it is now very doubtful whether they can be removed until spring, owing to the heavy snow-storms that have stopped freighting for the winter. The smelter will have a capacity of between twenty and thirty-five tons of ore daily, and, if necessary, a much larger amount can be produced daily from the company's mines. Mr. Wartenweiler is metallurgist for the company, and he is a gentleman who is reported to have had large experience in the treatment of ores in Utah. Mr. Meader is superintendent, and is confident that he will make a successful run from the start.

The amount of gold and silver, in the shape of retort, bars, and dust handled at the United States Assay Office, Helena, during the month of November, 1879, is as follows:

	Ounces.	Value.
Gold.....	2,509.96	\$43,912.15
Silver.....	5,903.00	4,156.35
Total.....		\$48,068.50

During the month of November, 1879, there was purchased at the United States Assay Office \$43,792.22 worth of gold bullion for coinage on government account.

Mr. Charles Hallbeck has disposed of his three-fifths interest in the A. M. Holter lode, in the Elkhorn District, near Radersburg, to Chicago parties for \$80,000. This price also includes a ten-stamp mill, complete and in running order, of which he was the sole owner. Mr. Hallbeck is lying at his home seriously ill, with little hopes of recovery. The mill was erected this fall, and began running on the ore from the A. M. Holter lode about a month ago, with five stamps in position, and has been busily engaged ever since in turning out silver bullion. The five additional stamps are rapidly getting into position, and will soon be producing their quota of bullion.

The Comet mine, near Wickes, has been sold by the parties owning to the Alta Montana Company; and the Mantle lode, Boulder District, to S. T. Hauser, President of the First National Bank, Helena, and others. Particulars later.

Three new mills will be erected in Butte in the spring. At this rate, it will soon rival Deadwood or Colorado towns in the number of stamps.

Recent reports concerning the sale of the Hecla Company's property, Glendale, are of such a nature as to leave no doubt as to the consummation of the sale. The terms of sale are payment of \$1,600,000, the parties disposing of the property to take some stock in the new company. The bullion on hand, and the ore on the dumps and at the smelter, to the value of \$500,000, to be retained by the present owners of the property.

The readers of the JOURNAL will no doubt be much interested in reading an account of a Montana mine which, for richness and extent of the deposit, has few if any parallels, and which has attracted of late such marked attention, not only in Montana but also in the papers and mining circles of the Eastern States. Reference was made, in a previous letter written some months ago, to the discovery of a remarkably rich "prospect," near Montana City, eight miles from Helena, which the fortunate owners had named the Bonanza Chief. The subsequent developments of this prospect-hole have made the name of the Bonanza Chief famous at home and abroad, and placed the mine in the front rank of valuable gold-producing mines. A little of the history connected with the discovery and handling of this mine will not come amiss. It was discovered on the 8th day of April, 1879, by Messrs. Boyd, Fisk, and Rader, prospectors, who had been seeking for quartz in that neighborhood for some time. The mine is located within a mile of Montana City, and on the other side of the Prickly Pear, which flows by the town. Montana Bar, which lies in front of the town, was one of the richest placer-diggings in this remarkably rich territory, and the immense piles of tailing and *débris* with the ruins of old cabins bear witness to the life and activity that once prevailed in this camp, and stand as silent monuments to the countless thousands of dollars in shining gold that once lay buried underneath. To these rich placers the Bonanza Chief contributed, no doubt, in the ages past, its full quota of the precious metal. The discoverers were all poor men; but being fully convinced that they had at last overtaken the phantom which they had so vainly pursued in the years past, refused all offers to buy, and at once started to work developing the mine. To men without means this is at best slow, very slow, work; but they worked industriously during the summer, and every spadeful of ore or dirt removed gave additional value to the mine.

During this time, they had three lots of ore worked at Captain Guyer's mill. The first lot of 26 tons averaged \$58 in gold to the ton, and from the three lots some \$2500 were realized. These returns at once established the value of the ore and attracted the attention of capitalists, among whom was Mr. Cole Saunders, a gentleman widely known here in mining circles, who, after thoroughly examining the property, was so well satisfied as to its future value that he at once entered into negotiations with a view to purchase, and succeeded in securing the mine for the sum of \$30,000. He also purchased the Courtwright mill of five stamps, which had been erected near the mine to crush the ore, and which was at the time of purchase about completed. Mr. Saunders at once took steps looking toward the working of this magnificent property by a company; and after interesting Mr. William W. Wickes, President of the Alta Montana Company, with him, the necessary papers were filed with the Secretary of State for the organization of the Bonanza Chief Gold Mining Company; capital stock, \$1,000,000. At an election held at Wickes's for officers of the company, the following gentlemen were elected: William W. Wickes, President; M. Snow, Vice-President; Secretary and Treasurer, Robert F. Brooke; Directors: William W. Wickes, M. Snow, Cole Saunders, Russell B. Harrison, Charles E. Stevens, Alanson Trask, and Henry Sanger. Operations for working the property, and the erection of a 20 or 40 stamp mill, will be begun as soon as another meeting of the directors is held, and the plans fully determined upon. Mr. Ernest

Grenier, a mining engineer and expert of wide experience, who has made a thorough and exhaustive examination and report upon the property, besides many assays of the ore, says of it :

"The mine is now worked as a quarry, and is opened by an open drift of about 60 feet in length, exposing ore all the way, and by a face cross-cut, 30 feet long and 20 feet deep, cutting the end of the drift at right angles. These workings are in ore, and no hanging-wall has yet been encountered. These figures speak for themselves, and show the ore-deposit to be enormous.

"As to the average value of the rock in the mine, average samples carefully taken by myself, by cutting trenches across the vein, so as not to leave one single spot without representation, and regardless of quality, gave to the assay the following results : Average value of rock in present workings, \$24.79.

"These figures show what an immense amount of ore must be in that mine, if such shallow workings as shaft and cross-cut 20 feet in depth at the deepest part can produce :

Ore milled.....	\$1,689.60
Ore in block, ready to be quarried out.....	27,160.31
Ore on dump.....	20,979.00
Total.....	\$49,828.91

"We may form an idea of the immense wealth which must be brought to light by future developments. In fact, the Bonanza Chief is the biggest prospect of this kind ever found in Montana, and we have to look to the world-famed Black Hills to find a parallel or an equal."

TUBEROSE.

MINERAL STATISTICS OF PRUSSIA FOR 1878.

The Prussian Ministry of Public Works has just published its usual full and detailed statistical tables of the production of the mines and metallurgical works during the year 1878, from which we take the following data : Four hundred collieries mined 35,500,167 metric tons of coal, of which 2,578,214 tons were used at the mines, while 32,921,953 tons were placed on the market. They employed 116,878 men below ground, and 26,180 men and 2264 women above ground. Lignite was hoisted from 489 mines, which turned out 8,841,366 tons. Of this amount, 783,744 tons were used at the mines. The number of workmen employed was 10,316 below ground, and 7763 men and 223 women above ground. Four rock-salt mines, the principal one of which is Stassfurt, are credited with a total production of 110,758 tons of salt, to which 307,950 tons of alkali salts must be added, the whole being produced with 1392 men. In Prussia, there were at work, during the year 1878, 549 iron mines, employing 21,991 hands, and producing 2,955,872 tons of iron ore. All the mines of coal, salt, iron, and metals taken together gave work to 167,377 miners, and to 53,687 men and 6701 women working above ground, a total of what might be called the mining population of 227,765. The figures relating to the manufacture of iron are very detailed, and show some features of interest. From them we gather that there are in Prussia 44 charcoal blast-furnaces, 33 of which were in blast during the year, giving employment to 1751 men, using 74,013 tons of iron ore from Prussian and 1370 tons from foreign mines, and producing 14,192 tons of pig, of which 9951 tons were used for foundry purposes, 814 tons for the manufacture of steel, and 3477 tons for puddling. A large portion—9782 tons—of the charcoal iron made is used for castings direct from the blast-furnace. The whole production does not go beyond 27,482 tons. The great bulk of the pig-iron production naturally comes from coke and coal blast-furnaces, and of these 128 out of a total number of 184 were in blast. Together, they smelted 3,350,836 tons of Prussian, 296,768 tons of foreign ore, and 274,228 tons of cinder, the number of workmen employed being 11,213. The product was 1,534,830 tons of pig, of which 54,983 tons were foundry pig, 426,816 tons were Bessemer pig, open-hearth pig, and spiegeleisen, and 1,040,830 tons were mill pig. A small amount—9635 tons—was cast directly from the blast-furnace, the greater bulk being used for gas and water pipe. Besides these, two furnaces ran on mixed fuel, making the total production of pig for Prussia, 1,568,061 tons, smelted in 163 furnaces out of a total of 230, the entire force of men employed in the industry being 12,992. It is much to be regretted that the tables do not in any way afford an opportunity to ascertain the amount of spiegeleisen and ferromanganese produced. Prussia has 571 foundries, which gave employment in 1878 to 19,415 workmen. The plant consists of 1109 cupolas, of which 802 were at work, while out of a total of 90 reverberatory furnaces, 62 were in operation. We are unable to reproduce the details of the work done, and may add only that while the German foundries used 71,296 tons of native pig, they melted 153,736 tons of foreign metal. Wrought-iron is manufactured in 264 establishments, employing 36,540 men, and possessing 172 refining-furnaces, 1987 puddling-furnaces, 967 welding-furnaces, 376 reheating-furnaces, of which 123, 1318, 661, and 300 respectively, were in operation during the year under consideration. The total production was 1,123,171 tons of wrought-iron and puddled steel, of which 15,481 tons were rails, 11,512 tons of fish plates, etc. While this trade has therefore been reduced to a very small volume, that of wrought-iron sleepers has risen to 56,212 tons. The amount of merchant bar manufactured was 261,147 tons, and 83,272 tons of fine bars, and 63,299 tons of bridge and ship angles, tees, etc., were made. The production of plates was 74,017 tons; that of sheet, 30,318 tons, while the output of very thin sheet-iron was 32,769 tons. Tin plates are in the list with 7955 tons, and wire with 168,787 tons. There are in Prussia no less than 50 Bessemer converters, of which 25 only were in operation during the year 1878; 42 open-hearth furnaces, of which 17 were idle; and 25 crucible furnaces for the manufacture of steel, of which 8 only were at work. The latter furnaces must not be confounded with crucibles for the melting of steel, there being no less than 282 in the kingdom, of which only 74 were producing. The total production of Bessemer steel was 452,399 tons, that of open-hearth steel 51,731 tons, and that of other furnaces 568 tons. It will be seen, therefore, that the average production of a Bessemer converter was about 18,000 tons per annum. The materials used for all the steel were 366,021 tons of German pig, 100,309 tons of foreign pig, 36,592 tons of spiegeleisen, 2011 tons of German and 534 tons of foreign ferromanganese, and 64,829 tons old wrought-iron and scrap, the whole aggregating 600,808 tons. The production of steel rails was 357,953 tons, that of axles, 9303 tons; wheels, 21,323 tons; tires, 20,228 tons; guns, 10,051 tons; and

ingots, 34,010 tons. The whole number of workmen employed in the steel industry of Prussia was 13,978. The following table gives the production of metals during the year 1878 :

Zinc.....	Metric tons. 94,637	Silver.....	Metric tons. 128,786
Lead.....	75,001	Gold.....	0232
Litharge.....	3,359	Nickel.....	75
Copper.....	9,073		

The total number of workmen employed in the smelting works of Prussia was 11,208.—*Colliery Guardian*.

PETROLEUM NOTES.

PETROLEUM IN COLORADO.—The *Pueblo Chieftain* says :

"A visit to the works of the Pioneer Oil Company, in South Pueblo, disclosed the fact that the company has its drill down something over seven hundred and sixty feet. The superintendent says that the drill is now over twelve hundred feet below the coal measures, and every indication was as good as the most sanguine of the company expected. He thinks they will have to go thirteen hundred feet, or perhaps more, before they strike a flowing supply. The company has ample capital and will go two thousand feet, if necessary, to strike it. The formation gone through so far is almost identical with the formation of the Pennsylvania oil regions."

A special dispatch to the *Silver Cliff Miner* dated Pueblo, December 18th, says :

"The steam drill that has been boring for oil in South Pueblo struck an artesian reservoir of water yesterday, and it is flowing a three-inch stream of water strongly impregnated with oil, which burns readily when skimmed off the water. Great rejoicing here."

THE PETROLEUM SHALES OF UTAH.—A recent number of the *Salt Lake Tribune* contains a contribution regarding the manufacture of petroleum from bituminous shales, from which we make the following extracts :

"In Juab County, an official survey and careful examinations have led me to the conclusion that there are upward of 5,000,000 tons of bituminous shales exposed on both sides of the Champion Gulch, so that it can be easily mined or rather quarried.

"Competent and responsible contractors who accompanied me offered to excavate and deliver the shales to the reduction works at \$1 per ton. Careful investigations made show that the oil-bearing rock gives a yield of some 80 gallons to the ton.

"It is found, by experience, that the equivalent of one man's labor, aided by machinery, in the manufacture of oils, is 4 tons per diem :

Four tons mined and delivered.....	\$4.00
Labor.....	3.00
Fuel, refuse shales, etc.....	2.00
Machinery, wear and tear, superintendent, etc.....	2.00
Four tons reduced to oil, 320 gals., cost.....	\$11.00

"Or 3¼ cents per gallon crude oil.

"The crude oil thus obtained is a purer article than the crude petroleum; for, as before mentioned, the greater portion of the comparatively valueless and explosive compounds are passed off in the escaping gases, so that of the eighty gallons from each ton 80 per cent can be made commercially valuable by refining. In all the experimental tests made, we have never lost less than 11,000 cubic feet of gas to the ton; this gas being of singular purity and richness. The process of refining to produce kerosene, lubricating oils, etc., being almost identical with that of refining petroleum, any description of it is unnecessary here. That the cost of such refining will be less here than anywhere East, I think can be conclusively demonstrated, being due to the fact that labor is nearly as cheap, fuel about 20 per cent, and sulphur and soda less than one half Eastern cost."

PETROLEUM AND COAL DISCOVERIES IN THE BLACK HILLS.—The *News* of December 8th says :

"The *Rapid City Journal* contains an account of a coal discovery in that neighborhood. For several weeks, excellent specimens of bright, solid anthracite have been brought into town, and Wednesday we sent a special reporter to the new mines. He found a continuous tunnel running 175 feet through a vein of fair merchantable coal, without a break in the seam, and the general formation regular and unbroken. The size of the vein is easily measured from the shale formation above the seam, turning rapidly to coal as the tunnel is driven in. All is turning to coal, and the seam will have a width of not less than twenty feet. At the mouth of the tunnel was lying one huge specimen, about three feet long and a foot thick, every ounce of which could be used in a forge or in the furnace, which had been taken from the rear end of the tunnel. A great deal of brilliant, flinty coal is now being taken out, which will not discolor a white handkerchief rubbed upon it. The seam is dipping slightly, has a regular dip from the striking of the first pick, and every indication is that the main bank is near at hand."

We are glad to chronicle all such discoveries, and when we consider that large bodies of coal are found in the extreme northwestern portion of our hills and are again found in the extreme southeastern as well as in the intermediate parts; and that petroleum is found east of the Hills (many indications are found of oil by the greasy appearance of many of our little rivulets), we feel convinced that in the near future a vast river of petroleum will be found, for it surely underlies the slate formation of the Black Hills."

PETROLEUM IN CALIFORNIA.—The *San José Mercury* says : "After many discouragements and disappointments, sufficient to have caused most people to have abandoned the undertaking, the oil-borers in the Moody Gulch, in this county, in the Santa Cruz Mountains, have met with grand success. A large number of wells have been bored in this and San Mateo counties, but in none of them had petroleum been found in paying quantities, until, on Friday last, the Dull brothers, employed by the Santa Clara Petroleum Company, at a depth of 600 feet, while boring through a stratum in which they least expected to find oil, struck a vein which spurted petroleum to a height of over 100 feet above the top of the well. Being unprepared for such a surprise, it is estimated that more than 100 barrels of oil ran to waste. After a time, the flow subsided, to be resumed at regular intervals ever since. All the available help in the vicinity of

the well was immediately put to work, and the second flow was prepared for and all saved. The excitement in the oil region is intense. The petroleum is of a superior quality."

A recent number of the Santa Cruz *Courier* says the business of prospecting for oil in the Santa Cruz Mountains has received a great impetus since the strike near Lexington. A well is being bored on the summit, on the lands of Mr. Taylor, and another is going down in the vicinity of the Hotel de Redwoods. The Lexington well now yields about 90 barrels of oil per day, all of which is saved and shipped to the refinery at Ventura.

The oil-wells of California are now producing over 700 barrels per day.

PROGRESS IN SCIENCE AND THE ARTS.

Technology.

The Electric Light.—The interest of the public is again aroused in the subject of the electric light by the declaration, through the daily press, that Mr. Edison's long course of experiment has at last been crowned with success. As was the case on several previous occasions, Mr. Edison's injudicious admirers have already committed the extravagance of pronouncing the new (?) light a wonderful success; and the holders of gas stock, in some instances, none the wiser by reason of former lessons, have again permitted their fears to control their judgment. In his latest departure, Mr. Edison, it seems, has abandoned the use of platinum, and employs instead, as the source of light, a cylinder (or horseshoe) of carbonized paper placed within a glass globe *in vacuo*.

While not wishing to discourage Mr. Edison or his friends, nor to undervalue the service he is doing to the ultimate demonstration of the practicability of the electric light, we are of opinion that it will be as well to suspend judgment for the present, until at least the latest plan of Mr. Edison has had a few days' trial in practice. The issuing of periodical pronouncements from Menlo Park may possibly record substantial scientific triumphs; but there is a growing disposition in many quarters to look upon them in much the same light as Mr. Keely's periodical promises to give a public demonstration of his once famous, but now almost forgotten, motor. As an offset to the highly enthusiastic accounts of the public press, Prof. Morton's severe criticisms of Edison's latest, make interesting reading by contrast. While thoroughly appreciating the patience and labor which Mr. Edison has bestowed upon the subject of electric lighting, he protests against heralding as a wonderful success "what every one acquainted with the subject will recognize as a conspicuous failure." He affirms also that Edison's experiments show an enormous loss in the division of the light, which is one of the standing difficulties in the way of the practical application of such a system as Mr. Edison is working upon. The professor is doubtful, also, of the desirability of the Edison lamp, on which point he says: "Lamps, in all essential respects identical with those described by Mr. Edison, have been in constant experimental use for several years past, with one invariable result, namely, that while the carbon would operate successfully for periods varying from a few hours to several days, it has been found utterly impossible to render them reliably permanent." All attempts to make an electrical lamp that should be at once reliable, simple, and inexpensive, have, up to the time of this last delivery of Mr. Edison, been acknowledged failures; and the critic does not see in this any novelty such as would authorize the belief that it will meet with better success than its predecessors.

A New Storage Battery.—Profs. Houston and Thomson describe, in the current issue of the *Journal of the Franklin Institute*, a new system of electrical storage, which seems to be very promising of practical value. They employ a saturated solution of zinc sulphate contained in a suitable vessel, at the bottom of which is a plate of copper provided with an insulated conducting wire. Near the surface of this solution (and immersed in it) is placed a second copper plate (or plate of hard carbon), provided also with a conducting wire. To charge this battery, the current of a dynamo-electric machine is passed through it from the lower to the upper plate. This effects the decomposition of the zinc solution, causing the formation of a dense solution of copper sulphate in the neighborhood of the lower plate, and the deposition of metallic zinc on the upper plate. This action continues so long as the current continues to flow, and is only limited by the amount of zinc sulphate present and the thickness of the lower copper plate. The cell thus charged will now continue a source of electrical current until all the copper sulphate is again reconverted into zinc sulphate, metallic copper being deposited on the lower plate and the zinc removed from the upper one in its operation. Thus the cell returns to its original condition, but may be recharged either before or after it has become inactive. It may be sealed or covered to prevent evaporation and as it contains within itself all the materials necessary for its regeneration by a current from without, no addition of new material is required, and its restoration to activity may be effected at any time. The number of these cells may be multiplied indefinitely, as may be required; and, when connected in series, a number may be charging, while the remainder are being used as the source of active current.

The authors suggest the application of their storage battery for furnishing a constant and lasting current, in place of the ordinary telegraphic batteries, the dynamo-electric machine being used at suitable intervals to charge the storage battery; and for this use, they believe their arrangement will be vastly more economical and convenient than the ordinary battery. A number of other uses are likewise suggested. For further details and an illustration of this ingenious apparatus, we refer our readers to the original communication.

Technical Brevities.—The redetermination of the *fusing-points* of a number of the more refractory metals has given M. Violle the following figures: For silver, 1749° Fahr.; gold, 1863°; copper, 1890°; platinum, 3195°; iridium, 3510°. The last-named is the most difficultly fusible of all the metals.—A method of *preserving wood* against decay, by immersing the same in quicklime for a week or so, until thoroughly impregnated, is asserted to be widely practiced in France.—In case there be no delay in the forthcoming of the necessary funds, the *East River Bridge*, it is declared, will be finished about the middle of the year 1881.—*Ericine* is the name given to a new coloring matter, obtained by boiling the wood

of various kinds of poplar with alum. The ericine extract is claimed to have all the qualities possessed by the yellow extracts ordinarily found in commerce, but surpasses most of them in brightness.—The *Annales du Génie Civil* notices that Herr Krupp, after a long series of experiments, has finally placed his *flüss-eisen* upon the market as a substitute for malleable iron.—In a letter to the *Ironmonger*, Mr. Jacob Reese, of Pittsburg, claims that he first made public declaration of the advantages of lime-lining, basic-bath, movable bottom, blowing air in the open hearth, blowing oxide of iron, lime, and other agents into the converter and open-hearth by means of the blast, dephosphorizing by these agencies as well as by the after-blow.—Sir Joseph Whitworth has been granted five years' extension of his patent for the manufacture of *fluid compressed steel*.—The recession of Niagara Falls, since 1842, is shown by a survey map prepared in that year to have been a little over 100 feet.—The *Scientific American* is of opinion that what the 18th and 19th centuries have done for America, the 20th is likely to do for Africa. "Civilization is attacking her ancient fastnesses from all sides, and Europe is alive to the enormous capacities of the continent for trade."—The same authority states that a considerable deposit of uranium ores has been found in the Sacramento mining district of California, but is in error in the statement which follows, that "this mineral has never before been discovered in this country."—A novel device for breaking vicious or unruly horses by electricity was lately described by a French inventor before the *Société d'Encouragement*. The device consists of a small magneto-electric machine, placed conveniently near to the driver, from which, by turning the crank, a current can be instantly sent to the mouth of the animal by means of a metallic wire placed within the reins and connecting with the bit.

Ransome's Slag Cement.—London *Engineering* speaks in terms of highest commendation of the results attained by Mr. Ransome in producing a cement of great hydraulic power for blast-furnace slag and chalk or limestone, to which we lately referred. It publishes a table of "comparative tests of strength between Portland cement and Ransome's New Hydraulic Cement," which are highly favorable to the latter, although the Portland was of exceptionally good quality. Our contemporary concludes that "Mr. Ransome appears to have produced a very valuable addition to our constructive materials."

Creosoted Timber.—In a paper lately read before the Engineers' Club of Philadelphia, on the Preservation of Timber, Mr. Billin, after alluding to the very general indifference manifested on this subject by the majority of American road-masters, was of opinion that the ignorance of this class of officials concerning the beneficial effects to be derived from the use of such preservatives was responsible for the fact that more decided steps had not been taken in this country toward economizing our timber supply, by prolonging its life in service. He estimated that for the one item of railroad ties alone, no less than seven millions of acres of timber are annually consumed. He cited, in support of the value of properly-applied preservative agents in prolonging the life of timber, instances of English creosoted ties that had been in use for 20 and 22 years, and that were in as good a state of preservation as when put in the track. Creosoted piles, driven at Portsmouth, England, forty-two years ago, he affirmed, were found, after that long period of service, "to be as good above as below water-line, and to have outlived sixteen and seventeen sets of piles cut from the same timber, and driven in the same work, but which were not creosoted."

Production of Iron and Steel in 1879.—Through the courtesy of Mr. James M. Swank, Secretary of the American Iron and Steel Association, we have received in advance of the publication of his official statistics, which will not appear until some time after the close of the year, his estimates of probable production of some of the more important items. These estimates must be regarded, of course, as being only approximately correct, namely:

	Gross tons.
Probable quantity of pig-iron made in 1879.....	2,800,000
" " " steel rails made in 1879.....	650,000
" " " iron rails made in 1879.....	450,000
" " " Bessemer steel ingots made in 1879.....	750,000

Of our production of other forms of iron and steel in 1879, it is impossible, says Mr. Swank, to make an approximate estimate at this time. It is safe to say, however, that it has been in excess of that of 1878.

Engineering.

The Isthmian Canal.—Civil Engineer Menocal, whose name is identified with that of Admiral Ammen as one of the most prominent advocates of the Nicaraguan route for the passage of the isthmus took occasion to present his views on the subject in general at one of the late meetings of the American Society of Civil Engineers. His conclusions, after a discussion of the merits of the several routes, are given in the following summary:

1. However desirable a sea-level canal may be, its execution, either with or without a tunnel, presents so many difficulties and doubtful elements as to place its probable cost out of the range of a successful commercial enterprise.
2. A canal with locks can be so constructed as to satisfy all the requirements of ocean navigation at a cost within the possibility of a private undertaking, with reasonable expectations of liberal returns and without overtaxing the commerce of the world intended to be benefited thereby.
3. While a canal with locks seems to be practicable via both Panama and Nicaragua, the latter route possesses greater facilities for the execution of the work at a reduced estimate of cost based on reliable information; and finally,
4. The geographical position of Nicaragua is more favorable to the United States, whose commerce will contribute more than that of any other nation to the business of the canal, while it will afford to foreign nations commercial advantages fully as great as any of the more southerly routes.

Railroad Construction in the United States in 1879.—The *Railroad Gazette*, in its review of the year just past, reports, under the above heading, a much greater degree of activity than during any year since 1873. In its current issue, it announces the laying of 3643 miles of new road in 1879, against 2263 for the same period of 1878, an increase of 61 per cent. When the returns are all in, the *Gazette* believes that we shall have to re-

port something like 4000 miles completed during the year, which would be an addition of 5 per cent to the mileage of the country. A very large proportion of this new road has been built in Western Minnesota, Iowa, Dakota, Nebraska, and Kansas, to which settlers have been flocking for the past two or three years in great numbers.

A PRIMITIVE NATION.—The new Mexican interoceanic railway across the Tehuantepec Isthmus is marked out to pass through the State of Chiapas, which probably contains the only population in the world which possesses no iron, nor any thing in the shape of an iron industry, even of the crudest form. For the distance of eighty miles around Palenque, the capital, not a single blacksmith can be found, and the only articles in the shape of iron are axes and machetes, imported from the United States. Nails are unknown, all the wood-work being held together by cord or the tendrils of the vines, and even the tortilla is prepared by grinding the maize between stones. The new railway which will run through this territory has clearly a well-defined educational as well as commercial development to undertake.

EXPLOSION OF A DIAMOND.—At a recent meeting of the Academy of Sciences of Philadelphia, Professor Leidy exhibited a black agate sleeve-button, which had set in it centrally, raised in a gold setting, a rose diamond, about 7 mm. broad. It had been submitted to him by Mr. Kretzmar, a jeweler, who informed him that the person who wore it was recently leaning with his head upon his hand on a window-ledge in the sun, when the diamond exploded audibly, and with sufficient force to drive a fragment into his hand and another into his forehead. On examining the diamond, the fractured surface, following a cleavage plane, exhibited apparently the remains of a thin cavity such as is sometimes to be seen in quartz crystals. The fracture also exposed a conspicuous particle of coal. Professor Leidy thought that the explosion had been due to the sudden expansion of some volatile liquid contained in the cavity, as frequently occurs in cavities in many minerals. Mr. Goldsmith thought it possible that the liquid was carbonic acid, as he was impressed with the idea that diamonds originated from this material in the liquid condition.

RAILWAY CONSTRUCTION IN 1879.

The past year has been an extraordinary one in respect to the revival of railway building, more miles of track having been laid than in any year since 1873, and probably more than in that year. The returns, of course, are not yet all in, but from various sources of information we have compiled the following table, showing the total mileage constructed in each State so far as we are able to learn, reserving the opportunity to give a detailed statement with additions:

	Broad gauge.	Narrow gauge.	Total.		Broad gauge.	Narrow gauge.	Total.
Arizona.....	153	.....	153	Nebraska.....	125	.....	125
Arkansas.....	.....	9	9	Nevada.....	.....	35	35
Colorado.....	7	60	67	New Jersey.....	4	.....	4
Dakota.....	220	.....	220	New Mexico.....	125	.....	125
Georgia.....	10	25	35	North Carolina.....	25	.....	25
Illinois.....	90	.....	90	New York.....	67½	6	73½
Indiana.....	74	40½	114½	N. Hampshire.....	.....	9½	9½
Iowa.....	325	46	371	Ohio.....	105	108½	213½
Idaho.....	.....	90	90	Oregon.....	30	.....	30
Kansas.....	498	.....	498	Pennsylvania.....	14	5	19
Kentucky.....	65	.....	65	South Carolina.....	.....	2	2
Louisiana.....	65	.....	65	Tennessee.....	119	57	176
Maine.....	.....	18	18	Texas.....	120	67½	187½
Maryland.....	18	.....	18	Utah.....	83	46	129
Massachusetts.....	11	.....	11	Virginia.....	29½	.....	29½
Michigan.....	12	41½	53½	West Virginia.....	.....	20	20
Minnesota.....	394	.....	394	Wisconsin.....	60	15	75
Missouri.....	161	27	188				
				Total.....	3,010	728½	3,738½

It will be noted that the greatest amount of track-laying has been done in Kansas, which shows nearly 500 miles of new roads, while Minnesota follows with 394, Iowa with 371, young Dakota with 220, and old Ohio with 213½, and so on.

It is also notable that nearly one quarter of the total mileage—at least, 728 miles—is of narrow gauge, showing that the narrow-gauge “delusion,” as some call it, has not yet run its course.—*Railway Age.*

GENERAL MINING NEWS.

ARIZONA.

THE LAGONDA SYNDICATE MINING COMPANY.—A correspondent writing to the *American Exchange* of this city says: “This company has a capital of \$100,000, divided into 50 shares. The capital stock is all paid up, and is non-assessable, and none of it is for sale. The necessary machinery for operating the mines has all been paid for. The superintendent is supplied with ample funds to commence washing out gold, and the mill will be ready for the reduction of the ore as soon as it is mined.”

“The property of the company is located about twenty-five miles southeast from Prescott, the capital of Arizona, and consists of 15 gold and silver mines, called the Lagonda, the Golden Queen, the Homestake, the Sinalva, the Chicago, the Ohio Boy, the Uncle Sam, the Beatrice, the Adda, the Ella, the Hidden Treasure, the Elton, the Rama, the Franklin, and the Bell Miner; also seven placer claims of twenty acres each, as follows: The Spanish Gulch, the San Xavier, the Gold King, the Mida, the Hidden Treasure, the Golden Cloud, and the Orient claims. The company also owns three mill sites—the Orient, the Homestake, and the Gold Queen—which are located on Big Bug Creek; and also two timber tracts of 160 acres each. Quite a lively mining camp is already in existence; two stamp-mills are on the ground, and a saw-mill is in operation.

“Machinery was sent forward about four weeks ago. It consists of a 30 horse-power steam-boiler, a steam-pump and hose, to be used in raising water from the creek and washing down the placer earth which the ‘horn-spoon’ and rude methods of washing have shown to contain gold in largely paying quantities.”

THE SILVER KING MINE.—A correspondent writing from Florence to the *San Francisco Stock Report*, under date of December 15th, says: “The Silver King mine is located in this county, and about thirty-five miles north of Florence. In the management of this property much credit is due for the manner in which they have opened it up during the past year. They have, without any expense to the stockholders, sunk a fine timbered shaft 350 feet deep, cutting the vein proper at 300 feet. At a depth of 250 feet, a cut was made through 18 feet of granite to the hanging-wall where the vein was tapped and crossed for 78 feet, all solid ore, much of it assaying in the thousands, half of it high in the hun-

dreds and the rest of it will work to a profit. The same rich ore was exposed where the shaft passes into the vein, and no change is visible all the way to the bottom. The value of this mass of reserves can not well be properly estimated, but it assures to those interested the possession, beyond a doubt, of great wealth that will outlast this generation. The ten-stamp mill of the company has steadily run without intermission the entire year, on pay ore taken from the old workings on the foot-wall side. No dividends have been declared since last October, but the property has been and is being opened, and the show of ore now made more than compensates for the delay. Surveys and plans are now being made for a first-class thirty-stamp mill at the mine, with reduction works complete, to turn out the bullion there. Until this new mill is ready and in running order, the present ten-stamp mill at Picket Post will be kept running as at present, when the concentration process will be changed to that of amalgamating and the 25,000 tons of tailings converted into bullion. Every thing at the mine and mill indicates a thoroughly defined policy of economy and practical material result. No company on this slope can show a better record in this respect. Any doubts that prevailed heretofore regarding the Silver King being a true fissure-vein of great magnitude are now ended, as both walls are fully exposed. They are of syenitic granite, and the vein matter is quartz and porphyry. Much of the ore is most beautiful ruby and native silver. This property has a fair reputation, but not near what the showing made entitles it to.”

THE ARIVACA AND ORO BLANCO DISTRICTS.—The *Tucson Citizen* of the 13th of December says:

“Latest reports say that the Derre and Townsend mill, at Arivaca, is progressing very rapidly, and will be running by January 18th, if lumber necessary can be obtained. Four pans and settlers are now *en route* from San Francisco, and the superintendent goes to-day to San Francisco to bring amalgamators and necessary chemicals for starting up on ore from the Austerlitz and Rob Roy mines in Oro Blanco. The monthly pay-roll of the miners in this district amounts to \$7000, and miners are said to be in demand.

“Large contracts for sinking, building, hauling ore, etc., have been let lately by the superintendent. The Derre Company now employs about forty men, all told, and will employ a larger force as soon as the mines are sufficiently opened to warrant it. Over two hundred miners are employed by other companies now opening up mines in the above districts.

“The Babaquivari country is looming up, several large ledges having been recently discovered, the ore of which is very high grade, assaying from \$80 to \$400 per ton.

“The Papago country is also very promising. Some excellent ore has been found near the border of Sonora. The surrounding country bears strong indications of coal.”

THE SILVER CLOUD MINE.—The *Nugget* of December 18th says: “Since our last report on the Silver Cloud mine, situated in the Dragoon Mountains, the work has progressed steadily, the lime capping taken off revealing an ore-body, the ledge showing seven feet in width, pitching into the hill. Specimens of horn-silver from the mine we have seen this week, which will assay \$3000 to the ton, and some selected rock going very high.”

WASHINGTON CAMP.—“This district is situated about seven miles from the Sonora line, and six miles from the Santa Cruz River; about sixty miles from Tucson, and fifty from Tombstone. Information from persons who have been there leads us to believe that it is soon to be a camp equal to any in the county. Its prominent mines are the Belmont and San Antone (patented); Holland (just sold); the pool of thirteen claims bonded by Eastern parties for \$205,000; the Davis, Charley Ross, Knickerbocker, Mississippi, Governor Fremont, and about twenty others, each of which has an equally good showing. Carbonate ore, mostly smelting, predominates, and the ledges range in width from 1 to 150 feet, yielding by assay an average of about \$50.”

THE CONTENTION MINE.—The *Silver Belt* says of this mine:

“A seemingly well-authenticated report was current in San Francisco, at last dates, that the Contention mine, Tombstone District, had been sold in New York for \$4,000,000. Scheffin Brothers and Richard Gird located it about one year ago, and sunk upon it a shaft nine feet, and, we are informed, sold it for \$9000. It is claimed that there is now upon the dump \$2,500,000 worth of ore. A letter from San Francisco, to a gentleman of this place, states that shares in this mine are worth \$30.”

CALIFORNIA.

THE BODIE DISTRICT.

From the *Standard* of December 20th, 1879, we condense as under:

“Work is progressing favorably in all directions, and with most encouraging results, and several mines which have been temporarily shut down have recommenced operations on a more extensive scale. The outlook is all that could be desired, and all have high hopes of and the utmost confidence in the extent, permanency, and richness of the Bodie mines.

THE SPRING VALLEY HYDRAULIC MINING COMPANY.—“This company is a consolidation of the Cherokee Flat, Blue Gravel, and the Spring Valley companies. The property of the company is located north of the Oroville, in Butte County, Cal., and consists of 1215 acres of deep gold-bearing gravel. A report on the mines was made in October last, in which it is stated that about 100 acres of the property have been worked from twenty-five to thirty years, during which time \$5,439,161, gold, have been produced, or a yield of \$54,491 per acre. It is estimated that the property now contains \$68,500,000.

“For the five years and nine months ending October 1st, 1878, the Spring Valley property produced \$2,064,347, of which \$1,320,082 were profits, and out of which \$465,000 dividends were paid. The average yearly production was \$359,016, and the average profit \$229,579. The smallness of the dividends, in comparison with the profits, is accounted for by the fact that the company paid out \$500,000 in purchasing new lands, and \$407,084 for mining claims, besides paying \$423,000 for the construction of water-works, nearly all of their expenditures being taken out of the mine. The bullion yield of the mine for 1879 up to October 23d, amounted to \$188,154.

“The engineer reports that the title to the property is perfect, and estimates that, after the completion of Cherokee Flat Blue Gravel deep tunnel, which can be done in less than one year, the income from the property will amount to from \$600,000 to \$800,000 per year. The production of the mine for the past seventy days is estimated at \$86,900, yielding a profit of about \$900 per day. The consolidation of the two properties named above, and the completion of the Cherokee tunnel, are considered as most desirable, and will greatly enhance the value of the property and increase the profits of the company. The Cherokee Flat property is not being worked at present, and the figures of production given above refer entirely to the Spring Valley property.”

THE SOUTH HITE MINE.—The superintendent of this mine telegraphs under date of December 24th the following: “The Georgia Point shaft has been continued ten feet, in excellent ore, which has widened to three feet. The west drift has been advanced fourteen feet, the face showing splendid quartz.”

THE GREEN MOUNTAIN MINE.—A dispatch from the Superintendent of the Green Mountain Gold Mining Company to the President, dated December 23d, says: “The lower tunnel is going ahead satisfactorily. The ore is averaging good in the upper tunnel. The mills are running regularly, and producing about \$400 per day.”

THE LONE STAR MINE.—The *Calaveras Chronicle* says: “A bonanza of surpassing magnitude and richness has lately been discovered in the Lone Star Mine at West Point. Twenty-three tons of ore, crushed in Carlton’s Mill, yielded 230 ounces of gold, worth \$17.50 per ounce. That is an aggregate of over \$4000—a yield of about \$174 per ton. It is very rich rock that produces like that, and what makes it more remarkable is the fact that the ledge is said to be fully 7 feet in width.”

BUTTE HYDRAULIC MINING COMPANY.—A suit has been begun in the Twelfth District Court of San Francisco to prevent the directors of this company from collecting an assessment of \$10 per share on the capital stock, and also to compel them to render an account of their actions in the purchase of a dredging-machine from the American Dredging Company for \$20,000, which machine is claimed to be utterly worthless. The plaintiff charges that the directors of the Butte Company were personally interested in the contract for the dredger, and in the purchase of it have defrauded the company.

IDAHO GOLD MINING COMPANY (ANNUAL REPORT).—We are indebted to the *Foothill Tidings* of December 20th for the following extracts, which we make from the annual report covering this company's operations for the year ending December 1st, 1879. The superintendent says:

"During the year, we have crushed 32,370 tons of quartz. Of this 1125 tons came from the 700 level, 8937 from the 800 level, 6718 from the 900 level, 10,302 from the 1000 level, and 5151 from the 1100 level. This gave a total yield of

27,160 1/4 ounces of bullion, valued at	\$477,450.38
Sold 132 tons of tailings, sulphurets, and slime.....	4,330.66
Estimated cost working same	2,640.00
Tailings worked on shares.....	7,747.96
Worked 25 tons of bundle sulphurets.....	1,508.50
Sold 71 tons of bundle sulphurets.....	4,254.81
Estimated cost working same.....	1,420.00
Sale of specimens.....	29.00

Total yield from quartz.....\$499,579.61

"Averaging \$12.42 1/2 per ton; average cost of mining and milling, per ton, \$8.96 1/4.

"The receipts of this company from all sources for various years were as under:

1869.....	\$306,038.75	1875.....	\$509,430.72
1870.....	183,450.23	1876.....	573,928.31
1871.....	407,301.16	1877.....	535,435.18
1872.....	404,036.52	1878.....	608,449.18
1873.....	1,010,612.20	1879.....	501,038.15
1874.....	669,023.03		
Total receipts for eleven years.....			\$5,609,742.43

"There have been paid dividends to the stockholders as follows:

Year	Div.	P. c.	Amount.	Year	Div.	P. c.	Amount.
1869.....	11	55	\$170,500	1875.....	11	55 1/2	\$172,050
1870.....	7	12	31,200	1876.....	12	8 1/2	255,750
1871.....	12	75	232,500	1877.....	12	7 1/2	240,250
1872.....	11	5 1/2	162,750	1878.....	12	85	263,500
1873.....	12	220	682,500	1879.....	12	54 1/2	168,950
1874.....	12	10 1/2	317,750				

"Being, for eleven years, 124 dividends, aggregating 872 per cent on the capital stock, and amounting to \$2,703,300."

DAKOTA.

THE BLACK HILLS.—We are indebted to the *Pioneer* of the 20th of December for the following:

"The battery-blocks are being put in at the Highland mill. The Homestake and Homestake No. 2 mills cleaned up yesterday. The Homestake Company received several wagon-loads of rails yesterday for the railroad track from the mine to the mill. The hoisting-works for the Giant and Old Abe mines are nearly completed. Mr. Davids, the contractor, says that he will probably finish to-day. The Deadwood 60-stamp mill cleaned up yesterday. The Golden Terry 60-stamp and 20-stamp mills cleaned up yesterday. The rock-breakers and other machinery at the Caledonia mill are being put inside, preparatory to being put into position."

"The Caledonia mill made a clean-up on December 17th that was very satisfactory, over \$7000 being the result. The Champion mill cleaned up yesterday from a short run on ore from the Champion mine in Spruce Gulch. The amount of the clean-up was not made public, but it was satisfactory beyond expectation. The New York Company at work on the Oro Cache mine, in Spruce Gulch, has struck a big body of ore that assays from \$19 to \$51 per ton. Two shifts are at work developing the mine."

"A report comes to us that the Centennial mill has been running several days, and that the ore pays \$60 per ton."

"Ore is being hauled to the Union mill preparatory to starting up, which they expect to do to-day or to-morrow. Good ore has been struck in the Great Eastern mine."

A special telegram to the *Inter-Ocean*, under date of Sioux City, Iowa, December 26th, says: "Chief Engineer Kimball, of the Milwaukee Railway, and John Lawler, have gone to American Creek, twenty miles above Brule City, to determine the point of a railroad crossing of the Missouri. They will be joined soon by Major Pollock, Inspector of Indian Agencies, and negotiations will at once be made with Spotted Tail, Chief of the Sioux Indians, for rail right of way through the reservation from the Missouri to the Black Hills."

IDAHO.

THE MINES IN SHAW'S MOUNTAIN.—The *Idaho Statesman* of December 20th says: "The shaft of the Paymaster mine is down sixty feet on the ledge, which shows a vein of good ore six feet in width. The company is now busy getting out ore to be crushed. A good force is also at work on the Sunrise mine. The North Star mine and others are also very promising, and all will soon be extensively worked. Mr. Plowman will soon remove his ten-stamp mill from its present site in the Boise Basin to the mouth of Robie's Gulch near these mines, and where the Sunrise arrastra is now located. The mill will soon be in place and ready to start up on ore furnished from the neighboring mines."

THE BANNER MINES.—The Elmira Company ran the Banner Mill three months the past summer, and milled one thousand tons of rock, which yielded ninety-eight thousand dollars. The ore was taken from two mines, the Crown Point and Wolverine, and the mines are looking much better now than they ever did before, and are about eight feet in width, yielding rock without assorting, that averages \$100 to the ton. The company worked 13 men in the mine and 23 men at the mill while running, when they ought to have worked four men in the mine to one in the mill; but this was owing to the bad construction of the mill. The mill will be overhauled before they commence running another season, and put in good shape for about \$10,000. The company is working only six men in the mines this winter, and have another small force at work on the mill. It is said that the Gold Hill Company had made the largest clean-up on the last 60 days' run that the mine ever made. The Sub Rosa mine is also paying considerably over expenses."

There are nearly forty men at work at the Black Jack and Florida Hill mines, and soon there will be a considerable quantity of ore ready for shipment. The roads are blockaded, and it was impossible for teams to get through to the mine on Thursday.

The Owyhee mine has been sold to parties representing Eastern capitalists. The price to be paid for the property is \$60,000.

NEVADA.

THE ELKO CONSOLIDATED MINING COMPANY.—We are in receipt of the superintendent's letter of this company, from Bullion, Nev., bearing date December 6th, from which we extract as follows:

"Work is now going forward in the lower tunnel, and it is anticipated it will

soon strike the shaft of the Last Chance, which, as soon as it is accomplished, will open up the mine to a depth of 447 feet. This will be important, as it will further test the character of the vein, and give good ventilation to the Last Chance shaft, and the lower and upper tunnels, where a fine body of ore is exposed. A telegram to the president of the company, under date of the 22d instant, says: 'Have reached good ore in our lower tunnels.' The copper mines in this district are looking very well. Eastern parties are working the properties with a promise of profitable returns, and it is anticipated that when the spring opens a great deal of activity will be developed. The Tripoli mine, situated on the northern slope of Bunker Hill, is now being worked by California parties, and promises well."

UTAH.

EAST PARK SILVER MINING COMPANY.—The *Tribune* says: "The properties of this company, consisting of eight claims each 1500 feet long by 200 feet in width, lying nearly in a compact body, are among the most valuable and promising prospects at the Park; the main vein is five feet in width, and is already prospected by two shafts, or inclines, and to the depth of fifty feet these works contain satisfactory evidences of rich silver deposits. Assays and ores shipped warrant the conclusion that rich deposits exist here. The company is now preparing for active operations, and soon we shall hear the hum of mining industry on the east end of the Ontario."

THE OMAHA MINE.—"This mine is situated in Carr Fork, Bingham Cañon, and is a very desirable property. A vast amount of labor and money has been expended on the same. Splendid tunnels, easy of access, intersected with shafts and cross-cuts, displaying rich deposits and free milling ore. Hundreds of tons of gold ore lie on the dump. The whole mountain on which this property is situated is a vast deposit of gold, silver, and galena."

THE STOCKTON DISTRICT.—The *Herald* says: "Considerable steady work is being done at Stockton and vicinity, as the bullion shipments from that direction will partially indicate. The Great Basin mine is being most extensively worked, and furnishes steady employment to a great number of men. The production of the mine is reported as being quite heavy. The National and May Belle mines are also doing considerable work on them being prosecuted without interruption. Besides these, there are many others, on which some work is being done, and are being developed. The rise in lead has had its effect in this locality, though it is not very marked. Many claims are being developed, and all properties in which mineral in paying quantities was known to exist are being worked. Several changes in ownership are contemplated, and, in the event that they are consummated, it is expected that additional work will be done with the opening of spring."

NEW PATENTS.

The following is a list of the new inventions relating to Iron, Coal, Mining Machinery, Chemical Apparatus, and the treating of Precious Metals, etc., from *The Official Gazette of the United States Patent Office*, for the week ending December 23d, 1879:

No. of Patent.	Title of Invention.	Name of Inventor.	Residence.
222,770	Hose.....	Cornelius Callahan (a)	Chelsea, Mass.
222,815	Machinery for Separating Granular Materials.....	Gurdon Conkling.....	Cleveland, O.
222,881	Magneto-Electric Machine.....	Thomas A. Edison.....	Menlo Park, N. J.
222,946	Governor for Steam-Engines.....	George F. Pottle.....	Boston, Mass.
222,950	Pneumatic Motor.....	George H. Reynolds.....	New York, N. Y.
222,965	Telephone Circuit.....	Theodore N. Vail.....	Boston, Mass.
222,969	Annealing Apparatus.....	Edwin J. Watson.....	Worcester, Mass.
222,971	Boiler.....	Le Roy S. White (b)	Waterbury, Conn.
222,973	Rolling-Mill.....	Samuel R. Wilmot (c)	Bridgeport, Conn.

- (a) Assignor of two thirds of his right to Edwin E. Sibley, same place.
- (b) Assignor to Brown & Brothers, same place.
- (c) Assignor to the American Belt-Tin and Tube Company, same place.

RE-ISSUE.

9,000—Method of Printing from Plates of Gelatine.....Ernest Edwards(a).....Boston, Mass.

- (a) Assignor to James R. Osgood, same place.

PROPOSALS.

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

Street Improvements for Constructing and Repairing all the Brick, Plank, and Flagstone Sidewalks; Board of City Commissioners, Cincinnati, O.....	Jan. 5, 1880.
Iron and Brass Work for Lock-Gates of St. Mary's Falls Canal; indorsed, "Proposals for Iron and Brass Work for Lock-Gates of St. Mary's Falls Canal," U. S. E. Office, No. 26 Washington avenue, Detroit, Mich.....	" 5, "
Joiners' Work, Marble Work, etc., for United States Custom House, at Chicago, Ill.; office of the Supervising Architect, Treasury Department, Washington, D. C.....	" 5, "
Chandeliers and Gas-Fixtures for the U. S. Appraisers' Stores, at San Francisco, Cal.; Jas. Hill, Supervising Architect, Treasury Department, Washington, D. C.....	" 5, "
Tiles required for the U. S. Court-House, etc., at Atlanta, Ga.; Jas. G. Hill, Supervising Architect, Treasury Department, Washington, D. C.....	" 5, "
Pipes for Water Supply, etc., Kurrachee (Scinde, India); plans at F. P. Baker & Co.'s, 4 Bond Court, Walbrook, E. C.; tenders to the President of the Municipality, Kurrachee, Scinde, India.....	" 7, "
Grading, Masonry, etc., etc., for Owensboro & Nashville RR.; E. F. Falconnett, Chief Engineer, Nashville, Tenn.....	" 9, "
For Masonry of Cumberland River Bridge, and delivery of Cross-ties from Section 15 to Nashville; E. F. Falconnett, Chief Engineer, Nashville, Tenn.....	" 9, "
Removing Ledges from Channel of the Detroit River; G. Weitzel, Major of Engineers, U. S. A., 26 Washington avenue, Detroit, Mich.....	" 10, "
Improving Harbor of Brunswick, Georgia; S. F. Fremont, Assistant Engineer, Savannah, Ga.....	" 12, "
Southern Yellow Pine and White Oak; W. A. Roebing, 21 Water street, Brooklyn.....	" 12, "
For Furnishing Labor and Material for Repairs of the North and East Buildings inside Fort Columbus, at Governor's Island; Alex. J. Perry, Dep. Q. M. Gen., U. S. A., Governor's Island.....	" 19, "
Ice Harbor; Furnishing Stone for construction of a Lock in the Muskingum River; amount of stone 13,200 cubic yards; Wm. E. Merrill, U. S. E. office, 82 W. Third street, Cincinnati, O.....	" 23, "
Dredging—100,000 cubic yards, from the Channel through Maumee Bay; John M. Wilson, U. S. E. office, Cleveland, O.....	" 27, "
Railroad Cars, for the Nicaragua Government; A. J. Cothrel, Consul General of Nicaragua, 62 W. Thirty-sixth street, New York City.....	
Alterations and Additions to State House; C. E. Kemble and A. Peebles, Joint Architects, Charlestown, Kanawha Co., W. Va.....	March 1, "
Tenders for Construction of a Railway in the Island of Ceylon, 41 1/2 miles; tenders, sealed and indorsed, "Tender for Nanu-oya RR.;" Penrose G. Julian, Crown Agent for the Colonies, Downing street, London, Eng.....	" 3 "

FINANCIAL.

Gold and Silver Stocks.

NEW YORK, Friday Evening, Jan. 2.

Considering the time of the year and the neglect of business that usually occurs at this season, there has been a very fair business. Prices have a rising tendency in San Francisco, and this market has acted in sympathy. To-day has been the best of the week under review, and gives great encouragement to the belief that the long-looked-for "boom" in mining stocks is not far off.

The Bodie stocks have had a very fair business and have been well maintained or advanced in price. Bodie records 1145 shares at \$8½@9¼. Standard has been a little neglected, although showing a larger business than in some previous weeks. The sales aggregate 1186 shares at \$28½@28. Bechtel has been quite active and strong. The sales aggregate 2450 shares at \$1.35@1.75. On Wednesday 300 shares of Belvidere sold at \$1. Bulwer has been fairly active and very steady. The sales amount to 2195 shares at \$9@9¼. Consolidated Pacific only records 100 shares at \$4. Goodshaw sold at 31c. on Saturday, and at 46c. to-day. The sales for the week amount to 600 shares. May Belle has been quite active and fairly steady; the sales aggregate 3700 shares at 14@16c. North Standard has been quite within the usual range, \$1.90 @2. The sales amount to 600 shares. On Tuesday, 400 shares of Tioga sold at \$2.25.

The Comstock mines are commanding more attention. Although but few believe in the value of any particular mine on this lode, yet the general impression is that something will be "shown up," and that those stocks are a "good purchase" now. Many who have previously expressed their disgust with these stocks are likely to take a "flyer," although they "know there is nothing in the mines, but believe there will be a movement." The sales of California amount to 2495 shares at \$3.65@4.05.

Consolidated Virginia shows a business of 4675 shares at \$3.80@4.15. The sales of Sierra Nevada have been greater this week than at any previous time, amounting to 390 shares at \$22@19@21.

Consolidated Imperial has been active, the sales amounting to 7250 shares at 41@45c., assessment unpaid, and 75@58c., assessment paid. The sales of Leviathan have amounted to but 100 shares at 30c.

The Tuscarora stocks have had a fair business without attracting particular attention. Belle Isle records sales of 2170 shares at \$1.50@1.35. On Monday, 100 shares of Grand Prize sold at \$1. The sales of Independence aggregate 820 shares at 95c.@\$1. Martin White sold on Monday at 40@45c., though on Wednesday sales at 97c.@\$1 were reported, while on the same day the San Francisco market showed no advance. The sales for the week amount to 600 shares. Navajo has been quiet, and weak, with sales of 850 shares at 50@35c. Tuscarora has been exceedingly quiet, the sales amounting to but 200 shares at 22@21c.

The miscellaneous San Francisco stocks have been somewhat quiet. Eureka only shows sales of 75 shares at \$16@17. Caledonia (B. H.) records 750 shares at \$3.25@2.75@3. Tip Top has ranged between \$1.60 and \$1.90, with sales of 310 shares.

Upon the average, the stocks of the regular lists of the New York Stock Exchange and the Mining Exchange have been fairly steady, with as much business as could reasonably be expected at this season of the year. Caribou records 1191 shares at \$5½@5¾. Excelsior has been steady at \$25, with sales of 350 shares. Findley has been quiet and weak, declining from 68 to 60c. under sales of 1900 shares. Great Eastern has been very active and strong. The sales amount to 67,500 shares at 30@43c. Green Mountain has been quite active and inclined to strength. The sales amount to 6735 shares, at \$2.05@2.20. Homestake sold at \$39¼ to the extent of 50 shares. Hukill has been quite active and strong, selling from \$3.80 on Monday, up to \$4.45 to-day, the transactions amounting to 7625 shares. La Plata, with straggling sales at \$5½@5. shows a business of 900 shares. Leadville has had but a moderate business, the sales amounting to but 3745 shares, at \$4@4.25. Little Pittsburg has been but indifferently maintained in price on a small business. The sales amount to 1281 shares, at \$28½@29½. Moose has been neglected

at \$3.05@2.90, with sales of 2900 shares. With sales of 700 shares, New York & Colorado has ranged between \$2.20 and \$2.35. Plumas has been very quiet, the sales amounting to but 300 shares at \$2.45 @2.50.

The Mariposa stocks have been very quiet, the sales of Common amounting to but 20 shares at \$2.25, and of Preferred, 100 at \$2.75.

The Quicksilver stocks have been quiet but strong. Preferred records 1300 shares at \$60@62, and Common, 800 at \$20@20½. Shamrock has been steady under an active business. The sales aggregate 3420 shares at \$1.35@1.40.

South Hite has been quite active, but somewhat weak. The sales amount to 9220 shares at \$3.40@3. Sutro Tunnel has had a liberal business, with improving prices. The sales amount to 12,630 shares at \$3½@4¼. Rappahannock has been quite active and stronger. The sales amount to 44,300 shares at 36@42c.

The "fancies" have had a liberal business at generally stronger prices. The sales have been as follows: American Flag, 2600 at 52@55c.; Buckeye, 40,800 at 52@59c.; Dahlonga, 22,700 at 19@22c.; Gold Placer, 11,500 at 31@27c.; Granville, 15,700 at 44 @48c.; Lacrosse, 44,100 at 40@51c.; Lucerne, 8500 at 17@20c.

The Richmond Consolidated Mining Company (limited), in a report just issued, states that during the first six months of the current year 20,053 tons of Richmond and 4855 tons of purchased ore were smelted, producing 4844 tons of lead, 554,288 oz. of silver and 14,499 oz. of gold. The net profit for the half-year was estimated at about £70,000.

The sales of Climax have been 2400 shares at \$3½@ \$3¾. This stock has been admitted to the list of the New York Stock Exchange. The capital is \$2,000,000, par value, \$10 per share. The stock is unassessable and the whole amount was paid for the mine and developments thereon. The company was incorporated on September 23d, 1879, under the laws of the State of New York; the property is located on Fryer Hill, Lake County, Colo. There have been expended on surface improvements \$25,000, and on underground improvements \$20,000. One dividend of 1 per cent was paid on October 15th, 1879. The officers of the company are as follows: President, the Hon. David A. Wells; Vice-President, Mr. Samuel A. Strang; Treasurer, Mr. William Bond; Secretary, Mr. W. B. Allen. Following are the Trustees: Messrs. David A. Wells, William Bond, William H. Hays, Theodore Bedell, Samuel A. Strang, Nathaniel Witherell, and George A. Thorne. The recommendation of the committee on mining securities in regard to the Climax stock is as follows: "The committee in recommending that the above stock be placed upon the list do not wish to be understood as expressing any opinion as to the capitalization thereof, or as to the market price at which the stock may be quoted. This recommendation is based upon the following, namely, (1) A belief, after a careful examination by the counsel, of the committee, in the soundness of the title of the company. (2) That it has been regularly incorporated, all the provisions of the laws of the States under which its property is located having been complied with. (3) That it is a legitimate mining enterprise, inasmuch as its development has been carried to such a point as to give reasonable assurance of its continuance."

A new effort appears to be making to boom the Maryland Consolidated stock, and the agents of the company here are advertising it liberally. Among other statements made both by the agents and the president is one that the company owes no money to any one; but we learn from the Bodie News, which till very recently was the chief bubble-blower of the district, that the Maryland Company has not paid its men, and that they have attached the mines for their wages. Mr. Wasson, in his pamphlet on the Bodie District, states that the Maryland Consolidated has produced from 272 feet of a shaft and 200 feet of drifts 50 tons of ore! Certainly a magnificent return to justify such unlimited puffing. We have so many times shown that the official statements of this concern are totally unreliable that it is not likely that any one will be deceived by the interested statements now going the rounds. Nothing short of a report by some such Western authority as Ashburner or Janin, or by one of our well-

known Eastern experts, would merit the confidence of stockholders, and the prospects of the concern are too well understood by those in charge to afford much hope that any such data will be furnished. At the same time, we have no doubt but that there are a great many mines in Bodie that are not a whit better, and not a few that are worse, than the Maryland Con.

The new Mining Exchange, which was the subject of discussion recently, appears to be reviving again, as will be seen by the following circular:

"As part of a movement to enable dealers in mining stocks to borrow money upon the same with like facility as upon railway and other securities, a new mining exchange is being organized under authority of a special charter granted by the State of New York.

"It is designed that this shall not conflict with, but shall act in entire harmony with all other stock exchanges, the promotion of sound mining interests being the principal object of the movement.

"The new mining stock board offers every facility to its members and dealers to operate in mining stocks and bonds, and similar rules and regulations to those which now govern the stock exchanges of London, Paris, New York, and San Francisco, will govern this, and be promulgated from time to time by the committee on management.

"Until further notice, seats are offered for \$1000 each, from the sale of which it is proposed to create, out of the principal, a fund to be invested in United States government stocks, and held under a special trust. Each seat will have, therefore, a United States government bond against it, and may be registered at the pleasure of the member holding the same. Seats may be sold or assigned subject to the rules of the Exchange, the trust created securing the principal of each seat at all times, and remaining intact.

"Annual dues of \$80 must be paid in advance at the time of making application for seat, together with 10 per cent of the cost of seat (100), all of which will be returned to the applicant if his name is not accepted by the committee on examination.

"No liability for the expenses of the management of the new Mining Board are incurred, each seat being simply a license, affording the member all the advantages an exchange can afford.

"The mining interests of the United States are so rapidly growing that it has been found absolutely necessary to establish this new Mining Stock Exchange, where only the very best mines will be dealt in, and it is believed that in a very short time seats now offered will command a handsome premium.

Committee on Organization:

Harry C. Logan, Stephen B. Elkins,
John P. Jones, Senator, U. S., A. P. K. Safford,
William F. Shaffer, Ex-Governor of Arizona,
Alex. McDonald, ex-U. S. Sen., George D. Roberts,
Henry Havemeyer, George Chapman,
Rufus W. Leavitt, Director 3d Nat. Bank.

New York, Dec. 26, 1879.

This board looks as though it might prove to be an offshoot of the San Francisco exchanges, and is not likely to command either the confidence or patronage that the New York Stock Exchange would. The latter institution has been discussing for some time the policy of encouraging the mining business, but so far has failed to do so. The rapid growth and the favorable prospects of this business make it well worthy of attention, and we think it unwise on the part of the New York Stock Exchange to ignore it at the present time, while the probabilities are that it will have to be recognized at a later day. Capital is steadily going, and will continue to go, into mining to a large extent.

REVIEW OF THE SAN FRANCISCO MARKET.

The business in mining shares on the San Francisco market has been very much restricted since our last, the operations being confined to four days. Enough has been done, however, to plainly show that a Comstock reaction has set in. How far it will extend, or how long it will continue, is beyond calculation. As far as actual developments upon the "Great Lode" itself are concerned, we do not observe the slightest change from the difficult conditions existing for a long time past, and we surmise that "kindly conditions" in this instance find their origin in California street; nevertheless, we do not believe, by any means, that mining on the Comstock will cease. Notwithstanding the irrepressible tendency of the 'Frisco prospectors and operators, to make and unmake prices irrespective of values, yet large and paying bodies of ore still exist in the Comstock, and the vital question is, how to reach them profitably? The following, taken from one of the San Francisco papers, looks to us like a very sensible beginning toward solving this problem, it is quite evident that the money for Comstock development will not be forthcoming so freely in the future as in the past.

"A meeting of the Trustees of Crown Point, Belcher, Alpha, Bullion, Exchequer, Confidence, Imperial and Challenge Mining Companies, will be held on December 27th, at 1 o'clock, in Room No. 11, 208 Bush street, to take into consideration the proposition made by the Yellow Jacket Company, to work the above-named mines through the Yellow Jacket shaft."

The Stock Report of December 22d, sums up the situation as follows:

"According to the accounts of the Comstock papers there has never been a time since the settlement of that section, when there has been so much destitution and so

GENERAL MINING STOCKS.

Dividend Paying Mines.

Table with columns: NAME AND LOCATION OF COMPANY, Feet on Vein, Capital Stock, SHARES (No., Par Val), ASSESSMENTS (Total levied to date, Date and amount per share of last), DIVIDENDS (Total paid to date, Last Dividend), HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE (Dec 27, Dec 29, Dec 30, Dec 31, Jan 1, Jan 2), and SALES.

Non-Dividend Mines.

Table with columns: NAME AND LOCATION OF COMPANY, Feet on Vein, Capital Stock, SHARES (No., Par Val), ASSESSMENTS (Total levied to date, Date and amount per share of last), DIVIDENDS (Total paid to date, Last Dividend), HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE (Dec 27, Dec 29, Dec 30, Dec 31, Jan 1, Jan 2), and SALES.

Total Assessments levied to date..... \$59,811,760 Total Dividends paid to date..... Total Shares sold during the week.....

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

Table with columns: NAME OF COMPANY, CLOSING QUOTATIONS (Dec. 26, 27, 29, 30, 31, Jan. 1), and Opening Jan. 2. Lists various mining companies like Alpha, Alta, Argenta, etc.

* Ex-Dividend.

many men out of employment as at the present. The prosperity and adversity of the Comstock run in the periods. When times are good there, it is a prosperity that approaches the riotous, when bad, it is almost the blackness of despair.

A San Francisco contemporary, in referring to the retirement of J. C. Flood from active operations in the Stock Board, says that with his retirement ends the much-carped-at one-man power, and a diversity of interests now assumes the responsibility for the future mining operations of the Comstock.

The Leadville Chronicle says that it is stated that Mr. W. H. Stevens is now negotiating with Flood, Mackay & Co., the Pacific coast bonanza kings, for the sale of his half interest in the Iron mine, Mr. Stevens' price being \$880,000 cash.

The Nevada Bank, of San Francisco, has established the following as the basis of loans upon

the mining stocks named: Ophir, \$10 per share; Sierra Nevada, \$10; Union Consolidated, \$20; Mexican, \$8.

Argenta, on the 31st, closed at \$1.50 per share, which is quite an advance on previous prices. The shaft in this mine is down 43 ft. below the 400 level, and good ore is being taken from the west stope. This company is extracting ore, and storing the same at the Grand Prize mill, preparatory to crushing.

Bulwer maintains that same steady feeling we have noted for a long time past. The last price we have of the stock from the San Francisco market was on the 30th ultimo when the quotations showed a slight advance over the prices prevailing in our last.

Consolidated Virginia opens to-day at a little advance on the prices of its neighbor. The output from this mine is about the same as that of the California. Active work is being done on both of these properties.

Chollar opens at \$5 1/2, against \$5 1/4 a week ago. Hale & Norcross shows an advance of 75c. per share for the week. Julia has been very irregular during the week; to-day's quotation, however, shows quite an advance.

slight advance upon the prices prevailing in our last. The Mexican and Union winze from the 2000 level is now down 247 feet. Ophir opens at \$19 1/2, against \$16 1/4 a week ago. This stock shows the most marked advance of any upon our list.

The Commercial Herald says of the market:

"The decline in mining shares has not yet been arrested, the past week showing a very marked recession from the previously considered low prices, and the end seems not yet. The continued low rates have, of course, made all those who hold paid-up stocks—we mean those not held on a margin, and, in fact, there can be but little margin left on any of them—to a great degree timid; and so, we fear, they will go still lower; they also press the market in order to realize.

Company Meetings.—The following companies will hold meetings on the dates set opposite their names: Consolidated Mill and Mining Co., New York. January 5th.

ASSESSMENTS, with dates when delinquent: May Belle Con., 15c. January 13th; Utah, \$2, January 18th; Alta, 50c. January 18th; Andes, 25c. January 18th; Belvidere, 25c. January 18th; Cal. B. H., 50c. January 18th; Monte Christo, 10c. January 26th; Golden Fleece, \$40, January 20th; So. Utah, 10c. January 24th; Lady Washington, 20c. January 26th; Black Rock (El Dorado Co.), 3c. January 20th; Big Flat (Del Norte Co.), 5c. January 24th.

True Blue has postponed the delinquency of its assessment to January 14th, and Sheba its delinquent sale day to February 17th.

The Father de Smet Mining Company of the Black Hills has declared its first dividend of 30c. per share, payable on the 22d.

Copper and Silver Stocks.

Reported by C. H. Smith, Commission Stock Broker, No. 15 Congress street, Room 3. Boston, Jan. 1, 1880.

There has been a fair business in copper stocks the past week, especially in the producing mines, which show a marked advance from our last report, and give promise of greater activity in the near future.

Calumet & Hecla, as usual, takes the lead, and has advanced from 27 1/2 to 29 1/2. On the action of the company at the special meeting, held on the 30th ult. (for particulars see below), the closing bid at the board yesterday (there being no board to-day) was 29 1/2, 29 3/4 asked. Subsequently 29 1/2 was bid and no stock offered.

In Central, nothing doing, only one sale of 10 shares at 39. Franklin has been in good demand at 28 1/4 at 28 3/4, closing 28 bid, 29 asked.

Osceola, very firm at 34@34 1/2. In Quincy there has been a good deal of activity. The week opened with sales at 28, an advance of 2c per share over last sale, followed by a still further advance to 29 1/2, which was the culminating price, and a reaction to 29 was not surprising.

The stock closed firm at 29 bid; sales aggregate about 1850 shares. On the street to-day there were rumors of a fire at the mine, which had a depressing effect, and operators were very cautious, the best bid being 26.

Pewabic advanced from 33 to 37 1/2, on sales of about 500 shares, and 38 1/2 was bid to-day, without bringing out any stock. Much higher prices for this stock are predicted during the present year.

Ridge steady at 6 1/2@7 1/2, closing 7@7 1/4. National dull at 4 1/2@5. Mesnard, 3@3 1/2. Atlantic dull at 1 3/4. Blue Hill very steady at 7 1/4@7 1/2. Hungarian sold at 8 1/2@8 1/2. Dana sold at 75c. Washington sold at 75c.

There is more inquiry for the low-priced copper stocks, and we look for another "boom" in them very soon. A regular meeting of the Calumet & Hecla Mining Company was held at the new office at No. 19 Pemberton Square yesterday forenoon. There were 74,991 shares represented out of a total of 80,000. It was voted to increase the capital stock of the company to \$2,500,000, or 100,000 shares, being an increase of 20,000 shares. It was also voted that these 20,000 shares be issued to stockholders of record at the close of the business

ness year, December 31st, 1879, in proportion to the number of shares held by each stockholder at that date; no certificates of fractions of a share to be issued, and the proportion of dividend belonging to such fractions shall be paid only to stockholders in whose names such fractions stand upon the books of the company December 31st, 1879; that fractions of shares not converted into whole shares on or before February 16th next, be advertised and sold by auction in accordance with the laws of Michigan; that certificates of the new stock be ready for delivery February 16th next; that certificates of the old stock be sent to the treasurer to be stamped, and that no dividend be paid stockholders till their old certificates have been so stamped. These old certificates can be sent to the Boston office to be stamped on and after January 2d, 1880. At a meeting of the directors held subsequently, it was voted to pay a dividend of \$5 per share on the full capital stock of 100,000 shares on February 16th next.

Orford Nickel and Copper Company, of Quebec, Canada, which was put on the board last week, has a capital of \$1,000,000, in 50,000 shares at \$20 each, unassessable. Sales at 8 1/2 @ 8 3/4. This is a dividend-paying mine.

SILVER STOCKS.

Sullivan, of Maine, has been active, with an advance from 12 1/4 to 13 1/4, on sales of about 650 shares.

Silver Islet declined from 23 to 21 1/2, at which it was offered.

Duncan Silver sold at 5 @ 5 1/2, assessment of 50 cents paid.

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in at New York, Philadelphia, and Baltimore, for the week ending the 31st ult. are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

STOCKS.	Par Value.	High'st	Lowest	Closing	Sales: Shares.
St. L. M. & S. R. Co.	100	49 1/2	44 1/2	49 1/2	17,800
* Cambria Iron Co.	50				
* Penn. Salt Mfg. Co.	50				
* Schuyl. Nav. Co. pf	50	10 1/2	10		900
* N. Central R.W.	50	32 1/2	30	32 1/2	1,594
* H. & B. T. Mt. RR. pf	50				
" com.		8 1/2	7 1/2	8 1/2	130
Northern Penn. RR.	50	51			203
† B. & O. RR. Co. 1st pf	100				
† B. & O. RR. Co. 2d pf	100				
" com	90				

BONDS.	Princ'l. When Due.	Int. est. When Due.	Hig'st.	Lowest	Amount.
D. L. & W. 7s. conv	1882 J. & D.				
" 2d 7s.	1907 M. & S.				
M. & E. 1st con. 7s	1915 J. & D.	107	105 1/2		\$113,000
" 2d 7s.	1891 F. & A.				
" 7s. 1871.	1901 A. & O.				
N. J. C. 1st mtg. new	1890 F. & A.		104 1/2		
" 1st mtg. con	1890 F. & A.		104 1/2		23,000
" conv. 7s.	1902 M. & N.	105	104		23,000
" Admt. bds.	1902 M. & N.	105 1/2			1,000
" Income.	1908 M. & N.				
L. & W. B. con.	1900 Q.	93	92 1/2		240,000
" Income	1888 M. & N.				
Am. Dock & Imp. 7s	1886 J. & J.	105 1/2	105		8,000
St. L. M. & S. 1st mt	1892		114	113 3/4	5,000
" pf. inc.				78 7/8	11,000
" 2d. 7s	1897 F. & A.	97	96 3/8		16,000
" pf. inc.				65	53,000
St. L. & L. M. C. & F. 1st 7s	1891 M. & N.	104 1/2	104		19,000
St. L. & L. M. atro.					
A. & T. 1st 7s.	1897 J. & J.				
Ches. & O. 1st 5 rs b	1908 J. & D.	63 1/2	62		184,000
" 6s. cr. int. df	1918 M. & N.	36	35 1/2		5,000
D & H C Co. 1st mt. rg	1884 J. & J.	106 1/2			5,000
" " "	1891 J. & J.	108			1,000
" " m. loan cp	1894 A. & O.	109			5,000
" " rg.	1894 A. & O.				
" new mge.					
" 1st Pa. div.	1917 J. & D.				
" 7s. coup.					
" 1st Pa. div.	1917 M. & N.				
L. V. R. 1st m. 6s. cp	1898 M. & S.				
" 7s. rg.	1898 J. & D.				
" 2d m. 7s. rg.	1910 J. & J.	124	123 1/2		5,000
" con. m. 6s. rg.	1823 M. & S.	110			7,000
" 6s. cp.	1923 J. & D.				
* Pa. RR. 1st m. 6s. cp	1880 J. & D.	104 1/2			1,000
" g. m. 6s. cp.	1910 J. & J.	116 3/4			8,000
" 6s. rg.	1910 J. & J.				
" con. m. 6s. rg.	1905 A. & O.				
" 6s. cp.	1905 Q.	112			3,000
" new loan. 5s					
* P. & R. R. 1st m. 6s.	1880 J. & J.				
" R. C. 43-44					
* P. & R. R. 1st m. 6s.	1880 J. & J.				
" R. C. 48-49	1908 J. & J.				
* P. & R. R. genl. 6s. C	1882 J. & J.	92	89 1/2		4,375
" scrip.	1893				
" leh. ex. cp.	1911 J. & D.	112 3/4			5,000
" " 7s. rg.	1911 J. & D.				
" " cvt. 7s. exc	1893 J. & J.	67 1/2	66		61,300
* L. Nav. Co. 6s. rg. m.	1884 J. & J.	105 1/2			2,200
" RR. rg. m.	1897 F. & A.				
" cvt. Gold R.	1894 M. & S.	104	103 1/2		5,000
" " m. Gold R. C.	1897 J. & D.				
" con. m. 7s. rg.	1911 J. & D.	101 1/2	101		9,000
* Pa. N. Y. C. 7s. R. C.	1896 J. & D.	118			2,000
" Pa Canal. 6s.	1910 J. & J.	83	82 1/2		5,000
* Schuyl. Nav., 6s.	1882		82		2,000
* Sus. Can. 6s. ex. cp	1918				
* Sus. Coal. 6s. c.	1911 J. & J.				
† Balt. & O. RR., 6s.	1880 J. & J.				
" " " 6s.	1885 A. & O.				

† Assented.

Gas Stocks.

NEW YORK, Friday Evening, Jan. 2.

During the past week, gas stocks have continued to decline, notably in the case of the New York Municipal, whose stock shows a falling off of 20 per cent,

COAL STOCKS.

NAME OF COMPANY.	Capital Stock.	SHARES.			Last Dividend.	Rate per Ann.	Quotations of New York stocks are based on the equivalent of \$100. Philadelphia prices are quoted, so much per share.												SALES.		
		No.	Par Val.	Mo.			Y.	R't.	Dec. 27.		Dec. 29.		Dec. 30.		Dec. 31.		Jan. 1.			Jan. 2.	
									H.	L.	H.	L.	H.	L.	H.	L.	H.	L.		H.	L.
Am. Coal Co.	\$ 1,500,000	60,000	\$ 25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Buck Mt. Coal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ches. & O. RR	15,000,000	150,000	100	Jan. 77	2 1/2	18	18 1/2	17 1/4	19	18 1/2	19	18 1/2	19	18 1/2	19	18 1/2	19	19	3,905		
Consol. Coal	10,250,000	102,500	100	Jan. 77	2 1/2	...	...	...	...	...	...	...	...	...	...	...	...	...	31
Cumb. C. & L.	500,000	5,000	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	33
Del. & D. C.	23,000,000	230,000	100	Aug. 75	4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	5,971		
D. L. & W. RR	26,000,000	260,000	100	July 75	2 1/2	5	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	76,545		
Lehigh C. & N	10,148,550	208,971	50	Nov. 75	1 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	8,006		
Leh. V. V. R.	27,228,855	540,858	50	Jan. 76	1	4	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	3,267		
Mary'd Coal	4,400,000	44,000	100	Jan. 76	1 1/2	...	...	...	...	...	...	...	...	...	...	...	...	...	30
Morris & Est. Co.	15,000,000	300,000	50	July 75	3 1/2	7	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	2,477		
New Cen. C	5,000,000	50,000	100	Jan. 79	2	34	35	35	34 1/2	34 1/2	34	34	34	34	34	34	34	34	850		
N. J. C. R. R.	20,600,000	206,000	100	Apr. 76	2 1/2	80 1/2	80	81 1/2	80 1/2	81 1/2	80 1/2	81 1/2	80 1/2	81 1/2	80 1/2	81 1/2	80 1/2	81 1/2	36,900		
Penn. Coal.	5,000,000	100,000	50	Oct. 79	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Penn. E. R.	68,370,200	1,367,404	50	Nov. 79	2 1/2	10	60 1/2	50 1/2	50 1/2	50 1/2	51	50 1/2	51	50 1/2	51	50 1/2	51	50 1/2	29,274		
Ph. & R. R.	34,378,175	687,553	50	Jan. 76	2 1/2	10	68	67 1/2	71 1/2	69	71 1/2	70	71 1/2	70 1/2	72 1/2	71 1/2	71 1/2	71 1/2	8,716		
S. Clara Mfg.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Spring Mt. C	1,500,000	30,000	50	Dec. 79	3 1/2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Spruce H. C	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

*Of the sales of this stock, 57,911 shares were sold at the Philadelphia Stock Exchange, and 24,805 at the New York Stock Exchange.

Total Sales..... 250,429.

BOSTON MINING STOCKS.

NAME OF COMPANY.	Dec. 26.	Dec. 27.	Dec. 29.	Dec. 30.	Dec. 31.	Jan. 1.	SALES.								
								H.		L.		H.		L.	
								H.	L.	H.	L.	H.	L.	H.	L.
Allouez, c.	Mich.						5								
Atlantic, c.	Mich.		12 3/4												
Blue Hill, c.	Me.		7 1/4				1,275								
Calumet & Hecla, c.	Mich.	276	275	280	279	282 1/4	281	291	295	293		90			
Central, c.	Mich.					39						10			
Copper Falls, c.	Mich.														
Copper Harbor, c.	Mich.														
Dana, c.	Mich.					75							25		
Douglas, c.	Me.														
Duncan, s.	Ont.					5							325		
Eagle River, c.	Mich.														
Franklin, c.	Mich.			28 1/4	28	28 1/4	28 1/4	28 1/4					535		
Hanover, c.	Mich.														
Humboldt, c.	Mich.					87 1/2							100		
Hungarian, c.	Mich.														
International, s.	Ont.														
Manhattan, c.	Mich.														
Mesnard, c.	Mich.			3 1/2	3					3 1-16			300		
Minnesota, c.	Mich.														
National, c.	Mich.														
Orford		8 1/2		8 1/2		8 1/2		8 1/2	4 1/2	5			575		
Osceola, c.	Mich.					8 1/2									
Pewabic, c.	Mich.	34	33	35		35		34 1/2	34 1/2	34			92		

to 8066 shares at 36% @ 28 1/2, and in Lehigh Valley to 3267 shares at 51 1/2 @ 53.

Monongahela Navigation Co.—The annual meeting of the stockholders of this company will be held in Pittsburgh on the 8th inst.

Glendon Iron Co., will pay a dividend of 5 per cent.
Globe Mill Co.—Quarterly 3 per cent.
National Tube Works.—Quarterly dividend of 3 per cent.
National Car Co.—Quarterly dividend of 2 1/2 per cent.
The Orford Nickel and Copper Co. has declared a monthly dividend of 10 cents per share.

THE BULLION MARKET.

NEW YORK, Friday Evening, Jan. 2.

The holidays abroad have made a quiet silver market, and we have nothing important to note. The market has a firm look, and gives safe promise of better rates later on in the winter.

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

DATE.	London	N. Y.	DATE.	London	N. Y.
	Pence.	Cents.		Pence.	Cents.
Dec. 27.	52 3/4	113 3/4	Dec. 31	52 7-16	113 3/4
Dec. 29.	52 3/4	113 3/4	Jan. 1	52 7-16	113 3/4
Dec. 30.	52 7-16	113 3/4	Jan. 2	52 7-16	113 3/4

BULLION SHIPMENTS.

We give below a statement showing the latest published bullion shipments, in addition to those announced in our issue of December 27th:

Dec.	20	20-27	20-27	20-27	20-26	20-26	20-26
	California	Con. Virginia	Union Con.	Kinner	Ontario	German, Telegraph	caso
	Nev.	Nev.	Nev.	Utah	Utah	Utah	Utah
	\$85,722.00	92,849.00	75,000.00	4,099.78	40,684.72	69,590.00	14,330.89
	Bellmont	Alexander	Bodie Con.	Horn-Silver	Eureka Con.	Stormont Silver Reef	Christy
	Utah	Nev.	Cal.	Utah	Nev.	Utah	Utah
	17,984.28	1,807.40	38,291.00	22,500.00	156,320.00	17,984.28	1,807.40
	McMillan	Eureka Passing	First National Bank	Tybo Consolidated	Northern Belle	Central City	Belle Isle
	Ariz.	Nev.	Colo.	Nev.	Nev.	Colo.	Nev.
	4,948.00	9,358.00	8,200.00	5,024.50	13,321.50	4,400.00	10,616.00
	Argenta	Tuscarora	Silver King	Richmond	Wells, Fargo & Co.	Gold Hill	Belmont
	Nev.	Nev.	Ariz.	Nev.	Nev.	Idaho	Nev.
	85,798.52	10,616.00	10,100.00	12,738.15	20,947.47	33,288.00	4,393.00
	Navajo						
	Nev.						
	6,752.61						

The November Output.—We take from the Bulletin, adding thereto some corrections of our own, the following statement, showing the production of such mines as have sent in their statements for the month of November, 1879:

It appears to be the policy of the Bodie folks to conceal the real yield of their mine. The Secretary of the Caledonia says no returns for November have been received. The Homestake and Silver King are known to have produced about the amounts credited to them, but failed to return. The Secretary of the Idaho mine returned the blank, but inadvertently omitted to state the amount of bullion produced in November. Other gold mines were addressed, including the Father De Smet, Original Amador, Plumas Eureka, Sierra Buttes, Stewart (Utah), Murchie, Florida Hill, and Black Jack (Idaho), but no response has been received. If those most interested in these mines do not care to have their bullion reported, we can stand the omission. The November product of fourteen gold mines (including four estimated) is as follows:

GOLD MINES.	
Bodie Consolidated—estimated	\$75,000
Black Bear Quartz	14,900
Caledonia (Dakota)—estimated	5,000
Excelsior Gravel	62,000
Golden Terra (Dakota)	27,000
Homestake (Dakota)—estimated	60,000
Idaho (Nevada County)—estimated	20,000
Mammoth (Mono County)—\$1400 in silver	8,400
Milton Gravel	71,000
North Bloomfield	15,900
Onida	7,300
Pittsburg	4,400
Syndicate (Mono County)	12,300
Standard Consolidated—\$10,100 in silver	133,800

Total fourteen gold mines.....\$517,000
 The Excelsior Gravel bullion was received December 5th, and is the only report from that mine for November. The Syndicate bullion consists of a single shipment, and is the first made. The mill was stopped on Syndicate ore and leased to the Standard Company, upon the accident to their mill a few weeks ago. Want of sufficient mill facilities has been a great drawback to the production of the mines at Bodie. The Bulwer mill will soon be ready, and materially assist in increasing the bullion product of the mines in that section. The yield of seventeen silver mines for November is as follows:

SILVER MINES.	
Alexander	\$27,200
Belle Isle (Elko County)—\$5,400 in gold	64,700
Christy (Utah)	20,100
Day—net proceeds of ore sold	4,300
Extra—\$3500 in gold	14,700
Hillside	72,430
Manhattan	155,500
Northern Belle	92,600
Navajo	7,800
Ontario (Utah)	120,250
Paradise Valley	24,300
Raymond & Ely—for October	11,600
Silver King (Arizona)—estimated	25,000
Star	25,800
Stonewall Jackson (Arizona)	44,000
Tip Top (Arizona)	31,700
Vulcan (Mono County)	14,200

Total, seventeen silver mines.....\$765,130

The value of the ore sold by the Day Company to the Hillside Company, in November, was \$17,400, but the Day people realized only \$1200 out of the total. This month, the Day ore is going to the Raymond & Ely mill. The October report of the Raymond & Ely did not come in until after our statement for that month had been published, and as the November report is not in, we give the figures for October. Several of the silver mines usually reporting to us did not produce any bullion in November. Included in this list are the Belmont, Endowment, Independence, Indian Queen, Grand Prize, Leopard, Leeds, Martin White, Highbridge, Modock Consolidated, and Tybo Consolidated. The Vulcan mill is the successor of the Comanche, and after producing \$14,200, it was shut down for the winter. The mixed metal mines make the following report for November:

	Gold.	Silver.	Total.
California	\$69,500	\$56,300	\$125,800
Consolidated Virginia	108,000	90,400	198,400
Eureka Consolidated	40,200	\$161,500	201,700
Ophir	41,200	61,700	102,900
Totals	\$258,900	\$369,900	\$628,800

* Including a value of \$55,300 for lead.

These four mines did a little better than for October. It is remarkable that all of them paid dividends this month, the Ophir for the first time in fifteen years. Consolidating the above reports, and comparing them with those received for the corresponding month last year, we have the following result:

	1878.	1879.
Gold	\$895,700	\$773,300
Silver	\$975,000	1,024,200
Lead	20,800	55,300
Totals	\$1,891,500	\$1,852,800

Last year the total was made up from the report of 14 gold mines, 20 silver mines and 4 mixed metal mines. The product of mines reporting to the Bulletin during the eleven months of the year compares as follows:

	1878.		1879.	
	Mines.	Product.	Mines.	Product.
January	28	\$4,849,800	35	\$1,900,000
February	28	4,580,900	32	1,811,000
March	30	4,928,400	35	2,564,300
April	25	4,161,400	39	2,437,300
May	40	3,285,300	36	1,884,000
June	36	2,550,200	36	1,780,500
July	33	2,131,000	50	2,198,000
August	39	2,608,400	33	1,714,500
September	43	2,259,000	33	1,833,400
October	36	2,350,000	33	1,624,000
November	38	1,892,500	35	1,895,070
Totals		\$35,738,600		\$21,705,070

The above figures probably represent one third of the entire product of the States and Territories west of the Missouri River in each year.

The Eureka Consolidated mine produced in gold, silver, and lead, for the eleven months ended November 30th, \$2,608,200; and the Richmond, its neighbor, \$1,425,000. The product of the camp for the year aggregated \$5,859,272.

Bodie Product.—For the eleven months ending November 30th, 1879, the Standard produced \$1,283,998 and the Bodie \$693,398 in gold.

The Excelsior W. and Gravel Mining Co. produced for the eleven months of 1879, ending November 30th, \$327,400, and the Idaho, of Grass Valley, \$421,900 in gold.

The Raymond & Ely Mining Company has sold to certain Salt Lake capitalists 50,000 tons of concentrations, which will be shipped to the Frisco (Utah) District for concentration.

The Leadville Output for 1880.—The Leadville Herald of December 24th, 1879, publishes the following prediction regarding the production of the Carbonate Camp during the present year:

"The Herald feels safe in predicting that from January, 1880, to January, 1881, there will be shipped from Leadville alone \$50,000,000 worth of bullion. The present output alone justifies these figures, without considering the hundred or more mines that will, in the spring, commence adding their quota to the production of the district. The smelters of Leadville are capable of turning out that amount, and no one familiar with the daily output of ore from the mines can doubt that they will be supplied with all the ore they can handle."

From the Eagle River District comes the information that a number of mines are now ready to ship pay mineral.

From French Gulch, across the range, come reports of one of the most promising districts yet prospected. Carbonates have been found of precisely the same character as those found in the vicinity of Leadville.

"The Mosquito Pass District will certainly boom in the spring. Sand carbonates have been found on the east side of the range in paying quantities, and many of the mines are already shipping ore."

"All of the above districts are directly tributary to Leadville, and it therefore becomes a mere matter of mathematical calculation as to what the results of next year's business will be. If the single district of Leadville and its immediate vicinity drew hitherward a population of thirty thousand, what will be the result when half a dozen districts equal in size commence contributing to the success and prosperity of the camp? Is it extravagant to expect that Leadville, at the next census, will contain a population of fifty thousand working men, with, in many cases, their families?"

"Besides this, there is the Gunnison country, which will undoubtedly develop much richer than is thought of now."

A telegram received in Denver on December 26th announced the suspension of Raymond, McKay & Co., smelters, of Leadville. The assets of the concern are \$6500, and the liabilities \$25,000. The Bank of Leadville is preferred as a creditor.

A recent run made at Randolph Mill, in Black Hawk, from ore taken from the Williams mine, in Lake District, Colo., property of the Gilpin County Mining Company, gave a return of 9 1/2 ounces gold per cord. This is more than an average return of mill ore from this mine since attaining the present depth.

The first bullion shipment from the Monumental mine, Eastern Oregon, arrived in Portland on December 1st.

The Leadville Output.—The Herald of the 23d of December publishes the following: "The shipments of bullion for the past week has been the largest ever sent out from Leadville. The blockade in the shipment of bullion, that has existed for the past week, by which it has been accumulating, suddenly changed, and teamsters have been plenty inquiring for freight at the smelters. The cause of this has been the change of the freighters

from returning by the Weston pass, nearly all of them going around by Trout Creek, and consequently would as soon carry some back freight."

From Grant's works, twenty-two car-loads were sent out, although the production from these works has been remarkably small. Several of the furnaces have been blown out and refilled during the week, and a quantity of bullion is used to re-charge them. In addition to the shipments of bullion, Eddy & James have shipped to the Omaha smelter, ore to the amount of \$43,320.

"The supply of coke has been greatly increased since last week's report, and no further difficulty is expected from that source, unless a snow blockade should occur. All the smelters are well supplied with ore, and a busy season is looked for in the next few weeks. The smelters do not have to look for a supply of ore, but are beset by miners to treat the ore. There are five new furnaces being built in Leadville at the present time, as follows:

At the Elgin works, the Ohio and Missouri Smelter, Gage, Hagaman & Co., Raymond, Sherman & McKays, and the large, new, fifty-ton furnace just completed but not yet started, at the La Plata Mining and Smelting Co. When these are in operation, it will add a capacity of about one hundred and seventy-five tons of ore per day to the camp. In addition to this, Cumming's & Finn have just completed a new furnace. Several other smelters that are running only part of their works, are making preparations to run their full capacity. The Harrison Reduction Works have been running but one furnace for a month past, although fifteen hundred tons of ore are on hand at the works awaiting treatment. This has been because of the lack of coke, but both furnaces will be set running in a few days."

The summary of the week's shipments is as follows:

	Shipments.	Bullion on hand.
Grant's Works	\$132,336	600
La Plata Works	40,700	480
American	20,497	128
Billing & Eilers	66,211	778
California Smelting Works	9,206	620
J. B. Steen & Co.	11,989	50
Dickson & Co.	20,960	75
Little Chief	34,488	645
Ohio & Missouri	14,848	80
Cummings & Finn	35,691	125
Raymond, Sherman & McKay	37,445	23
Elgin Mining and Smelting Co.	32,737	525
Harrison Reduction Works	32,365	124
Eddy & James	43,320	
Total	\$543,975	4,083

This is believed to be the largest amount of bullion ever sent out from the camp in a single week, and the statement of bullion on hand will be found much smaller than that of last week.

Last week there were 13,992 bars of bullion on hand, and this week but 4083, showing an amount of 9309 bars more shipped than was produced.

Silver City (New Mexico) Shipments.—The following figures show the shipments from Silver City, alone, for one year ending November, 1879:

Silver shipped	\$364,000
Copper shipped	1,600,000 pounds

Three hundred tons of ore will be shipped from the K K to the Richmond next week.

The Grand Prize Production.—Following is the published official statement of the Grand Prize bullion product since December 2d, 1878:

December	\$139,886	June	\$2,554
January	80,508	July	7,137
February	57,130	August	17,718
March	47,064	September	47,497
April	31,138	October	13,087
May	13,516		
In eleven months			\$458,249

The average monthly shipment was \$42,650. Two assessments were levied, aggregating \$125,000.

The Colorado No. 2 Mine, located in Alpine County, Cal., produced during the months of October and November, 1879, 6276 51 ounces of bullion.

Net value in gold	\$4,356.72
Net value in silver	6,431.55
Total net value in gold and silver	\$10,788.27

Argenta Bullion for 1879.—Since January, 1879, the Argenta Mining Company has shipped bullion valued at \$85,798.52. This shipment is the result of less than two months' milling. A dividend of \$20,000 has been paid during the year, and no assessments have been levied upon the stock. About the first of January, the company will take charge of the Grand Prize twenty-stamp mill, and will probably run it on ore from the mine during the winter.

The Gold Hill mine (Idaho) shipped bullion to San Francisco, on December 17th, valued at \$33,388.

Eureka District, according to the books of Wells, Fargo & Co., at Eureka, the aggregate product for 1879 has been \$5,859,272.57.

Production of the Silver Reef (Utah) District.—The Miner of December 20th, publishes the following statement showing the output of the Silver Reef District from February, 1877, to date:

Month.	1877.	1878.	1879.
January		\$63,450	\$80,021
February	\$21,191	65,292	108,113
March	35,758	99,992	110,467
April	26,530	88,411	114,923
May	23,854	94,540	102,919
June	37,300	93,344	97,157
July	32,450	82,111	87,780
August	39,969	83,985	80,200
September	55,989	77,185	76,540
October	65,533	91,594	81,793
November	52,738	77,657	89,781
December	36,193	99,092	*85,000
Total	\$427,543	\$1,016,568	\$1,115,677
Grand total			2,559,779

* Estimated.

It will be seen from the statement here introduced that the bullion output of Silver Reef for the year 1877 was \$427,543; for the following (last) year, \$1,016,568; for the present year, \$1,115,677. The burning of the Barbee mill, six months ago, was the cause of a decrease in our monthly bullion yield of \$30,000. But for this, the grand total would have been swelled \$180,000, making the total product \$2,739,779. This is the record of Silver Reef for the past three years.

Independence Bullion for 1879.—Following is the official statement of the bullion yield of this mine during 1879:

Month	Bars.	Value.
February	9	\$17,971.73
March	15	31,549.31
April	12	23,935.35
May	13	25,613.21
June	30	59,768.50
July	29	53,897.34
August	10	20,939.03
September	8	15,426.38
October	2	4,150.30

In nine months.....128 \$253,251.15
Average monthly yield, \$28,150.12; dividends paid, 8; aggregating \$200,000; assessments levied, 1; aggregating \$25,000.

Forty thousand pounds of ore were shipped from the Bull Domingo mine, Colorado, on December 23d.

In November, the Day mine which owns neither mill nor furnace, sold its ore to the Hillside Company for \$4200. The ore yielded \$16,447, and the Day authorities were thus allowed 70 per cent. of the assay value of the ore, and were charged \$23 per ton for reduction. The December ore, which contains only a little lead, is being sent to the Raymond & Ely Mill.

Twenty-four tons of ore shipped from the Forest Queen mine in the Gunnison (Colo.) county, during October and November, gave return of over \$19,000. The *Tribune* says: "The Last Chance, Lead Chief, Bullion King, and Ruby Chief in the Gunnison District are yielding large quantities of shipping ore. The average value of ore being taken out is estimated at over 300 ounces silver per ton. Contracts have been let on the Last Chance mine for working it, by tunneling in on the vein, and taking out ore all winter. This is one of the most promising mines in the camp, the ore averaging over 400 ounces per ton, and the vein between walls being five feet wide, the pay ore being in places over a foot wide."

The Carbonate Hill (Yankee Doodle), of Leadville, as now worked, it is said, is yielding from \$600 to \$800 daily.

The Duquesne Smelting Works.—The Fair Play *Flume* says: "These works are nearly completed. Twenty men are now employed putting the finishing touches on them, and the company has contracted for 1000 tons of ore."

The Mosquito Gulch Smelter.—The *Chronicle* of December 30th says: "This new smelter has been fired up, and is running in fine shape. There are seven mines in the district which are now shipping ore to this smelter. The Jessie May mine was located in Mosquito Gulch as far back as 1862, and a large amount of ore taken out and piled on the dump, there being then no facilities for milling it, and the ore being then considered of too low a grade to pay for working. The ore is now being hauled to the smelter on the gulch, and worked with good profit. It is free-milling ore."

The Boulder *Banner* announces that the Silver *W* Consolidated Caribou Mining Company, at Nederland, has resumed work, and is producing bullion in large quantities.

The Salt Lake Ore Market.—The *Inter-Ocean's* correspondent, under date of Salt Lake City, Utah, December 15th, says:

"The shipments of lead and bullion for the week ending December 13th are as follows: 10 cars bullion to Pittsburgh, 4 cars bullion to Omaha, 9 cars bullion to Chicago, 4 cars lead to San Francisco; bullion, 486,149 pounds; lead, 87,768 pounds; total, 573,917 pounds.

"It has stormed for ten days past in the mountains, and the roads are blocked up in consequence, making every thing dull in way of business.

"From the south the most encouraging news is received." **Monetary Conference.**—The *Stock Report* of December 22d predicts that an international monetary conference will occur some time in 1880, which will result in the return of Germany to the double standard.

Statement of business at the United States Assay Office at New York for the month ending December 31st, 1879:

Deposits of gold	\$4,210,000
Deposits of silver	433,000
Total deposits	\$4,643,000
Gold bars stamped	\$811,926
Silver bars stamped	402,418
	\$1,214,344

The Specie Flood in 1879.—The *Commercial Bulletin* says: "The specie importations at this port for the week ending December 23th foot up \$10,814, of which \$32,996 was gold and \$7,818 silver. The total from January 1st to date is \$83,851,128, including \$74,215,215 gold and \$9,638,913 silver. From August 1st to December 26th the importations reach \$77,600,019, consisting of \$74,857,731 gold and \$2,742,488 silver, as follows: \$39,183,056 foreign gold coin, \$20,830,011 gold bullion, \$14,980,148 American gold coin, \$112,358 gold dust, \$1,302,856 American silver (including trade dollars), \$1,185,635 foreign silver coin, and \$35,469 silver bullion. Of the total since August 1st, \$45,874,354 was received from the Continent, \$25,963,981 from Great Britain, and \$5,761,504 from the West Indies and South America."

METALS.

NEW YORK, Friday Evening, Jan. 2.

The week under review has been a very quiet one, there being no disposition to do business until after the new year fairly opens.

Copper has been very quiet, and is quoted at 21½@21¼c. on spot, and 22@22½c. for futures, according to delivery. Chili bars are quoted in London at £67.

The actual stocks of copper in Europe were reduced about 600 tons from November 30th to December 15th, while stocks "afloat and chartered" were reduced 1500 tons.

Tin.—Straits in London is quoted at £92, and in Singapore at \$27.60. The sales here amount to about 100 tons, to arrive, at 21@21¼c., and on spot 50 tons at 20½@20¼c. The shipments from the Straits during the last half of December were 225 tons by steam, and 100 tons by sail. The shipments to Great Britain during the same period amounted to 150 tons. The total deliveries in England and Holland during De-

cember was 1500 tons. We quote Straits and L. and F. at 20½@21c., and Refined nominal at 21c.

Tin Plates.—There has been a very active business in these and prices are higher. We quote per box as follows: Charcoal tins, ¼ X, Melyn grade, at \$9@ \$9.25; Allaway, \$8.75@ \$9; charcoal ternes, Allaway grade, \$7.50@ \$7.75; coke tins, B. V. grade, \$7.75, and ternes, \$7.

Messrs. Robert Crooks & Co., of Liverpool, under date of December 18th, say of tin and ternes plates:

"Makers have at length recognized that, with material booming and their order-books in no immediate need of reinforcement, there is no reason why they should press sales. At the first indication of this change of front buyers began to come in, have filled up the cheaper sellers, and at date lowest practicable figure for any grade is quite 6d. above the lowest point of last week, and orders are being placed at the advance."

Lead.—There has been no business worthy of notice. The asking price is 5¼c., strong.

The San Francisco *Commercial Herald* of December 25th says:

"The Colima, hence for Panama, carried, en route to New York, of base bullion 350 bars; also, to Hamburg, 78 bars silver bullion, and to New York, 1,197,768 lbs. pig-lead."

Spelter and Zinc.—We note sales of 50 tons of spelter at 6¼c., and quote at 6¼@6¼c. Sheet zinc is quiet and quoted at 8c.

Antimony.—Without business we quote as follows: Johnson & Mathys', 16@16¼c.; Hallett's, 17@17¼c., and Cookson's, 19¼@20c.

Quicksilver.—The San Francisco *Commercial Herald*, of December 25th says: "The market continues in a quiet state, the nominal price 38c., with a light stock and a restricted export requirement."

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Jan. 2.

American Pig.—There has been a lull in both the demand and business done in pig-iron. One cause for this is, that less attention was given to business during the holiday period, and another a belief that prices had been advanced too rapidly and would recede again. Although there has not been much business done, yet there has been a large inquiry, and as makers are very comfortably situated as regards orders, prices are quite firm still. The general belief is, that the prices are not at their highest, although some think a slight reaction may take place before the "boom" is resumed. We note sales of 3000 tons of Chestnut Hill Forge at \$31, and £000 Thomas Forge at \$30. In addition to this, there have been sales of 1000 to 2000 tons of other brands and numbers. We quote No. 1 Foundry at \$35; No. 2 \$33@ \$34; and Forge, \$31@ \$32.

Scotch Pig.—The sales have amounted to about 1500 tons. Stocks here and on the way are said to be larger than for twenty years. We quote Coltness at \$32; Gartsherrie, \$23.50; Glengarnock, \$29.50@ \$30; and Eglinton, \$28@ \$28.50. A business of about 10,000 tons of Middlesbrough iron is reported for the week. According to Messrs. John E. Swann & Bros., of Glasgow, the number of furnaces in blast on the 19th ult., was 100, against 92 a year ago. The stock of iron in Connal & Co.'s stores was 410,147 tons, having increased 7135 tons during the week. The shipments for the week ended December 13th showed a falling off of 621 tons, as compared with the corresponding week of 1878, while the imports of Middlesbrough pig-iron showed an increase of 1872 tons in the same comparison.

Rails.—A sale of 500 tons of steel rails is reported to have been made at \$78.50 at Pittsburgh. In addition to this, from 15,000 to 20,000 tons are reported without particulars; 5000 tons of these were English rails. From 10,000 to 12,000 tons of iron rails, mostly English, are reported. Steel rails are quoted at \$72.50@ \$77 at mill, and iron rails at \$58@ \$62. English rails can be laid down here at \$56@ \$57.

Messrs. John H. Austin & Co., of London, under date of December 15th, say:

"Steel rails are in increased demand, and many makers are declining to give any quotations until the opening of the new year. Iron rails are freely inquired after for spring shipments; but makers, as a rule, name our maximum quotations. Old rails in strong demand, both for home and export. Old wrought scrap offering rather more freely, and buyers holding off a little. We quote iron rails at shipping, ports at £6 10s. @ £6 15s., and steel rails at £7 5s. @ £8.

Old Rails.—Sales of about 20,000 tons are reported for the week. We quote at \$38@ \$39 for shipment during the year.

Wrought Scrap.—Sales of 2000 to 3000 tons are reported for this week. We quote at \$36 for foreign ex ship, and \$39@ \$40 from yard.

PRICES OF IRON.

Louisville.

Dec. 31.

[Specially reported by Messrs. GEORGE H. HULL & Co.] The market has been very active, and shows an advance of from \$3 to \$5 per ton during the last ten days. We revise quotations accordingly.

FOUNDRY IRONS.

	No. 1.	No. 2.
Hanging Rock Charcoal	\$39.00@ \$40.00	\$37.00@ \$38.00
Southern Charcoal	38.00@ 39.00	36.00@ 37.00
H'g Rock Stc'l & Coke	37.00@ 38.00	36.00@ 37.00
Southern Stonecoal & Coke	38.00@ 39.00	36.00@ 37.00

"Amer. Scotch" \$34.00@ \$36 | Silver Gray \$32.00@ \$34.00

MILL IRONS.

No. 1 Charcoal, Cold-short & Neutral	.. \$35.00@ \$36.00
No. 1 Stc'l & Coke, Cold-short & Neutral	.. 34.00@ 35.00
No. 2 Stc'l & Coke, Cold-short & Neutral	.. 33.00@ 34.00
No. 1 Missouri and Indiana, Red-short	.. 36.00@ 38.00
White & Mottled, Cold-short & Neutral	.. 29.00@ 30.00

CAR-WHEEL AND MALLEABLE IRONS.

Hanging Rock, Cold Blast	.. \$50.00@ \$55.00
Alabama and Georgia, Cold Blast	.. 45.00@ 50.00
Kentucky, Cold Blast	.. 45.00@ 50.00

Richmond.

Dec. 31.

[Specially reported by ASA SNYDER.]

The feverish condition of this market makes quotations well-nigh impracticable; the following is the basis of to-day:

Scotch pig-iron	.. \$31.00@ \$35.00
Amer. Scotch Pig-Iron	.. 33.00@ 37.00
Anthracite " " No. 1	.. 35.00@ 37.00
" " " No. 2	.. 34.00@ 36.00
" " " No. 3	.. 33.00@ 35.00
" " " Mottled	.. 29.00@ 32.00
Va. Cold Blast Charcoal Pig-Iron, neutral	.. 40.00@ 45.00
" Warm "	.. 36.00@ 41.00
Old Rails	.. 34.00@ 36.00
Wrought Scrap No. 1	.. 30.00@ 32.00
Machinery No. 1	.. 27.00@ 29.00
Richmond Refined Bar Iron	.. 0.03½@ ..
Horse shoes (Tredegar)	.. 4.50@ ..
Mule shoes	.. 5.50@ ..
Old Dominion nails (standard size)	.. 4.50@ ..
Freights to New York	.. \$1.85 for 2240 lbs. by sail.

St. Louis.

Dec. 27.

[Specially reported by CARD & HOFFER.]

The market during the week past has shown great strength, notwithstanding the intervening holiday, and business has been unusually active. Consumers are no longer bears to the same extent, and are recognizing the situation quite freely. Makers are firm in their views, and anticipate still better prices. Iron is in short supply, and we mark prices up a point or two.

CHARCOAL HOT BLAST.

Missouri	.. \$38.00@ \$43.00
Southern	.. 38.00@ 40.00
Hanging Rock	.. None offering.

COKE AND COAL.

Missouri	.. None offering.
Southern, No. 1	.. 36.00@ 38.00
Ohio River, No. 1	.. 36.00@ 38.00
Jackson County, No. 1	.. 35.00@ 37.00
Hocking Valley, No. 1	.. 35.00@ 37.00
Mill irons and No. 2	.. \$1 to \$2 less, and very light offerings.

COLD BLAST.

Missouri	.. 40.00@ 42.00
Southern	.. 45.00@ 47.00
Ohio	.. 50.00@ ..

IRON ORE.

Iron Mountain	.. None offering.
Southwest	.. \$7.50@ 8.00
Ore for flux	.. 12.00@ ..

OLD RAILS AND CAR WHEELS.

Rails	.. @ ..
Wheels	.. @ ..

THE COAL TRADE REVIEW.

NEW YORK, Friday Evening, Jan. 2.

Anthracite.

As is usual at the holiday season, business has been very quiet; but, owing to previous overproduction, prices have been considerably demoralized. The remedy of curtailment is being applied now, and, to a certain extent, must have a beneficial effect. It may be that the decrease of the output will only act as a check to the downward tendency of prices, and not advance them, as is hoped by producers. This can only be determined when the demand which usually follows the adjustment of accounts sets in. There is still a very active inland demand at satisfactory prices, while the demoralization is in the surplus coal forced upon this market.

Our Annual Review of the Coal Trade, published in this number, gives our views of the prospects, etc.

The Philadelphia & Reading Coal and Iron Company has issued a circular containing the following prices for white-ash coal at Schuylkill Haven: Lump, steamer, broken, egg, and No. 1 chestnut, \$2.65 per ton; stove, \$2.90; No. 2 chestnut, \$2.40; No. 1 pea, \$1.55; No. 2 pea, \$1.40. The price for furnace coal is \$2.25 per ton at Schuylkill Haven.

Bituminous.

The business in this coal is of a nature to attract but little attention. Prices are well maintained, from the fact that the supply is light and less than the demand.

PRICES OF COAL.

New York.

Wholesale Prices of Anthracite Coal Delivery f. o. b. at Tide Water Shipping Ports, per ton of 2240 lbs.

Table listing coal prices for various regions including Wyoming, Lehigh, Schuylkill, and Lykens Valley. Columns include Lump, Steamer, Grate, Egg, Stove, and Chestnut prices.

* Fifty cents per ton additional for delivery at New York. † On coal delivered f. o. b. at shipping wharf at Williamsburg, the current rate of harbor freight will be allowed from above prices.

Wholesale Prices of Bituminous Coal.

DOMESTIC GAS COALS.

Table listing domestic gas coal prices for Westmoreland and Pennsylvania, including prices at various shipping ports and locations like Philadelphia and Amboy.

FOREIGN GAS COALS.

Table listing foreign gas coal prices for Newcastle, Liv. House Orrel, Ince Hall, Scotch Gas, and Bl'k House, among others.

Retail Prices.

Table listing retail prices for anthracite coal, including Pitston coal and Lack coal delivered below 59th St.

Baltimore.

[Specially reported.] Wholesale Prices per ton of 2240 lbs. In cars at Depot N. C. R. R.

Table listing coal prices for Hard White Ash, Free-Burning White Ash, Shamokin, etc., including Lump and Steamboat prices.

LYKENS VALLEY RED ASH.

Table listing prices for Broken, Egg, Stove, and Chestnut coal in the Lykens Valley Red Ash region.

From yard or wharf to trade, 50 cents additional.

Buffalo.

[Specially reported by Messrs. LEE & LOOMIS.] ANTHRACITE.

Table listing coal prices for Lackawanna and Shamokin, including Grate, Egg, Stove, Chestnut and No. 4, and Lehigh Lump.

Connellsville coke, gas, steam, and Cannel coals are of-

ferred, for the present, at the following prices per ton of 2000 lbs., delivered:

Table listing coal prices for Connellsville coke, Brookfield Coal, Brier Hill, Youghiogheny, Monterey, Catfish, Stoneboro', and Sterling Cannel.

Terms, equal to cash in New York city funds.

Chicago.

[Specially reported by Messrs. RENO & LITTLE.] Dec. 1. The following are the current prices for coal, retail delivered:

Table listing coal prices for Lackawanna stove, chestnut, egg, Erie & Brier Hill, Indiana Block, Wilmington & Ill., and Blossburg.

Hamilton, Ont.

[Specially reported by H. BARNARD, Esq.] Retail prices delivered per ton of 2000 lbs. Pennsylvania Coal Co.'s Pittston Coal.

Table listing coal prices for Grate, Egg, Stove, Chestnut, and Pea, including specific grades like No. 1 Brier Hill and Reynoldsville steam.

25 cents per ton less in cars at Great Western Railway Depot. Terms: Strict cash with order, or C. O. D.

Indianapolis.

[Specially reported by Messrs. COBB & BRANHAM.] WHOLESALE BITUMINOUS.

Table listing wholesale bituminous coal prices on board cars for White River, Brazil Plock, Highland Grate, and Indiana Cannel.

RETAIL BITUMINOUS.

Table listing retail bituminous coal prices delivered per bushel for White River, Brazil Block, Highland Grate, Block Nut, Highland Nut, and Sand Creek.

GAS COKE.

Table listing gas coke prices per bushel, including retail crushed and lump grades.

ANTHRACITE.

Per ton of 2000 lbs. Wholesale on Cars. Retail delivered.

Table listing anthracite coal prices for Wilkes-Barre, Lackawanna, and Lehigh, including all sizes and specific grades.

Milwaukee.

[Specially reported by Messrs. R. P. ELMORE & Co.] Retail price per ton of 2000 lbs.

Table listing coal prices for Lehigh prepared chippings, Lackawanna prepared (all sizes), Brier Hill (screened), Cannel coal, and Steam coals.

Montreal.

[Specially reported by Messrs. ROBERT C. ADAMS & Co.] Anthracite at retail, per 2000 lbs., delivered.

Table listing coal prices for Stove, Chestnut, and Egg.

Bituminous, per 2240 lbs., ex yard.

Table listing bituminous coal prices for Scotch steam, Pictou, and Cape Breton steam.

New Orleans.

[Specially reported by Messrs. C. A. MILTENBERGER & Co.] The coal market has been completely demoralized the past ten days on receipt of the news of the coal fleets having left Pittsburg for this port, and prices are rapidly on the downward grade.

The stock en route will more than supply all demands until the usual spring run of coal, and the anxiety to sell on arrival makes a very weak market. We quote:

PITTSBURG COAL.

Table listing coal prices for At wholesale (by boat-load), To steamboats, manufacturers, families, and In hogsheads.

ANTHRACITE COAL.

Table listing anthracite coal prices for At wholesale and retail.

ALABAMA COAL.

Table listing Alabama coal prices for At wholesale and retail.

ST. BERNARD (KY.) COAL.

Table listing St. Bernard coal prices for At wholesale and retail.

VIRGINIA CANNEL COAL.

Table listing Virginia Cannel coal prices for To families.

Richmond. Dec. 31. [Specially reported by S. H. DAWES, Dealer in Coal.]

Table listing coal prices for Kanawha Cannel, Coalburg Splint, Lewiston, and Kanawha Gas Coal.

Sandusky. Dec. 31. [Specially reported by Messrs. BLACK & CLARKE.] Per ton of 2000 lbs.

ANTHRACITE. On cars. Retail delivered.

Table listing anthracite coal prices for Grate and Egg, Stove, Chestnut, Massillon, Straitsville, Shawnee, and Piedmont.

Toledo. Dec. 30. [Specially reported by Messrs. GOSLINE & BARBOUR.] Ton of 2000 lbs.

Table listing coal prices for On cars and Retail delivered.

BITUMINOUS—WHOLESALE ON CARS AT TOLEDO. Ton of 2000 lbs.

Table listing bituminous coal prices for Straitsville lump, Hocking Valley lump, Card & Upson Coal Co.'s Coal, Fall Brook or Morris Run Blossburg Coals, and Cumberland and Blossburg.

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative statement for the week ending Dec. 27th, and years from January 1st:

Large table comparing coal production statistics for 1879 and 1878, categorized by region (Wyoming, Lehigh, Schuylkill, Sullivan) and specific mines.

* Canal closed. † These reports were not received this week.

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.

Receipts and shipments of coal at Chicago, Ill., for the week ending Dec. 27th, and year from January 1st:

Table listing receipts and shipments of coal at Chicago, Ill., for the week ending Dec. 27th.

The Production of Bituminous Coal for the week ending Dec. 27th was as follows:

Table listing the production of bituminous coal for the week ending Dec. 27th, categorized by region and specific mines.

* For the week ending Dec. 21st. † This report was not received this week.

The Production of Coke for the week ending Dec. 21st:

Table listing the production of coke for the week ending Dec. 21st, categorized by region and specific mines.

DIVIDENDS.

OFFICE OF THE LEADVILLE MINING COMPANY, No. 57 Broadway, New York, Dec. 23, 1879. DIVIDEND NO. 7. The Board of Directors has this day declared dividend No. 7—of one and one half per cent (15 cents per share)—on the capital stock (\$2,000,000) of this company—out of the earnings for the month of December, payable at the office of the company on and after January 10th, 1880. Transfer-books close January 5th, and reopen January 12th, 1880. J. S. LOCKWOOD, Secretary.

MEETING.

OFFICE OF THE LEADVILLE MINING COMPANY, 57 BROADWAY, NEW YORK, Dec. 22, 1879. Notice is hereby given to the stockholders of the Leadville Mining Company that the annual meeting of the stockholders of the company will be held at the office of the company in the city of New York, on Tuesday, the 6th day of January, 1880; at which meeting an election of seven trustees to serve for the ensuing year will be held. Polls open from 1 to 3 o'clock P.M. J. S. LOCKWOOD, Secretary.

PHILADELPHIA & READING RAILROAD COMPANY. GENERAL OFFICE, 227 SOUTH FOURTH STREET. PHILADELPHIA, Dec. 16, 1879.

NOTICE IS HEREBY GIVEN TO THE Stockholders of this Company, that the Annual Meeting and Election for President, six Managers, Treasurer, and Secretary will take place at Musical Fund Hall, Locust street, above Eighth, on the second Monday, 13th of January next, at 12 M. By order of Board of Managers. DAVID J. BROWN, Secretary.

ELKO CONSOLIDATED MINING AND SMELTING COMPANY, OF ELKO, NEVADA.

OFFICE, 152 BROADWAY, Room 2, second floor. 100,000 shares, \$10 each, organized under laws State of New York; no incumbrances; vein 2200 feet in length; tested by 10 shafts and 5 tunnels; furnace, etc., complete. Ready for active operations. Stock can be purchased at office of the company at \$3 per share.

W. W. WAKEMAN, President. C. DIMON, Vice-President. GEO. H. EVERETT, Secretary and Treasurer.

ADVERTISING IN SOUTH AMERICA.

THE SOUTH PACIFIC TIMES (PUBLISHED IN PERU).

ISAAC LAWTON, Proprietor and Editor. This is the only paper published in English and Spanish on the West Coast of South America, South of Panama. Subscriptions and advertisements received by the General Agent, CHARLES M. FLETCHER, 72 William Street, New York.

FINANCIAL.

VAN DEVENTER & PATTON, Successors to LUDLOW PATTON & Co., Bankers and Brokers, NO. 6 WALL STREET, NEW YORK. C. H. VAN DEVENTER, WILLIAM LUDLOW PATTON. Stocks, Bonds, Gold and Government Securities Bought and Sold on Commission. Loans negotiated. Interest allowed on deposits. Dividends and Interest Warrants collected and remitted.

B. B. MINOR, J. M. HARPER, MINOR & HARPER, DEALERS AND BROKERS IN MINING SHARES AND MINING PROPERTIES. Special attention given to the Stocks of the BODIE AND BLACK HILLS DISTRICTS. Office, No. 43 Exchange Place, New York. Care Dickison Bros., Bankers. Circulars sent on application, showing operation in Bodie and Black Hill Stocks.

PARKER HANDY, J. S. CRONISE.

HANDY & CRONISE,

BANKERS, AND DEALERS IN Bullion and Specie, 24 NASSAU ST., NEW YORK. Dealing exclusively in GOLD AND SILVER BULLION AND COINS of all kinds. We are prepared to guarantee satisfaction to those who may intrust their business to us.

COLORADO CENTRAL RAILROAD. The only line for Central Idaho Springs, Georgetown, Boulder, Longmont, Golden, and the famous resorts and Parks of Colorado. Trains leave depot, foot of Sixteenth Street, Denver, at 7:00 A. M. and at 6:10 and 8:15 P. M. O. H. HENRY, Supt., Golden. W. N. BABCOCK, Gen. Freight & Pass. Agent, Golden.

THE BRIGGS'S

CONSOLIDATED GOLD MINING COMPANY

BLACK HAWK, NEAR CENTRAL CITY, GILPIN COUNTY, COLORADO.

The Mine is now being Operated on a Dividend-Paying Basis. Machinery and Appurtenances complete and in thorough condition. CAPITAL, \$2,000,000. SHARES, 200,000, \$10 EACH.

OFFICERS: President, CHARLES PLACE; Vice-President, JAMES M. MOTLEY; Treasurer, JOSEPH POOL. TRUSTEES: JORDAN L. MOTT, Mott Iron Works; CHARLES PLACE, Mutual Gas Co.; JAMES M. MOTLEY; JOSEPH POOL, President Manufacture and Mer. Bank; THEO. W. MORRIS, Importer of Glass Plate; Hon. BENJ. A. WILLIS, Lawyer; FERDINAND P. EARLE, Proprietor of Earle's Hotel; Secretary, JOHN H. KING. OFFICE OF COMPANY: DREXEL BUILDING, Room 55, corner Wall and Broad streets, New York. A limited number of shares for sale by JAMISON SMITH & COTTING, 14 Broad street.

Horn - Silver Mining Co., OF FRISCO, UTAH.

Office, 44 Wall Street, New York. Capital, \$10,000,000; 400 000 Shares; Par. \$25.

DIRECTORS. CHARLES G. FRANKLYN, Pres.; A. BYRAM, FRANK G. BROWN, Vice-Pres.; M. CULLEN, ALLEN G. CAMPBELL, Treas.; D. RYAN, WILLIAM S. HOYT, Sec.

C. H. SMITH, STOCK BROKER, No. 15 Congress Street, Boston.

Special attention given to buying and selling mining shares in Boston market. ORDERS RESPECTFULLY SOLICITED.

HENRY F. GILLIG & CO., American Bankers and Agents, 449 STRAND, LONDON, ENG. New York Agents—DONNELL, LAWSON & CO.

W. W. HANLY & CO., BANKERS AND BROKERS, 60 Broadway, New York. Buy and sell mining stocks on commission on New York Mining Stock Exchange, and offer superior facilities on San Francisco Exchanges through agency of the Bank of California.

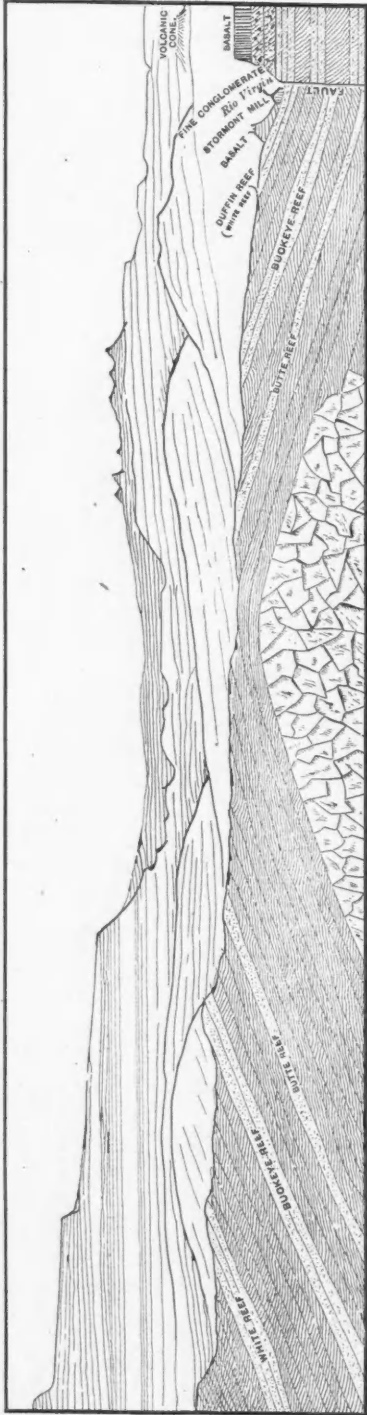
ADVERTISERS' INDEX.

Table listing various categories of advertisements such as Air Compressors, Attorneys and Counselors, Bankers and Brokers, Belting and Rubber, Carbon (Black Diamonds), Blasting Powder, Blowers, Boilers, Boiler Tubes, and Steam and Water Pipes, Books and Periodicals, Chemicals, Copper Dealers, Coal, Crushers, Ore, Dividends, Emery Wheels, Engineers and Chemists, Engineers' Instruments, Financial, Fire Brick, Food, Hoisting Machinery, Metal Brokers, Mining Companies, Mining, Milling, and Smelting Machinery, Photography, Pumps, Purchasing Agent, Railroads and Transportation, Rock Drills, Roofing, Scales, Saws, Smelting and Refining Works, Special Notices, Steel Works, Stoves, Tackle Blocks, Valves, Water-Wheels, Well-Boring Machinery, Wire Rope.

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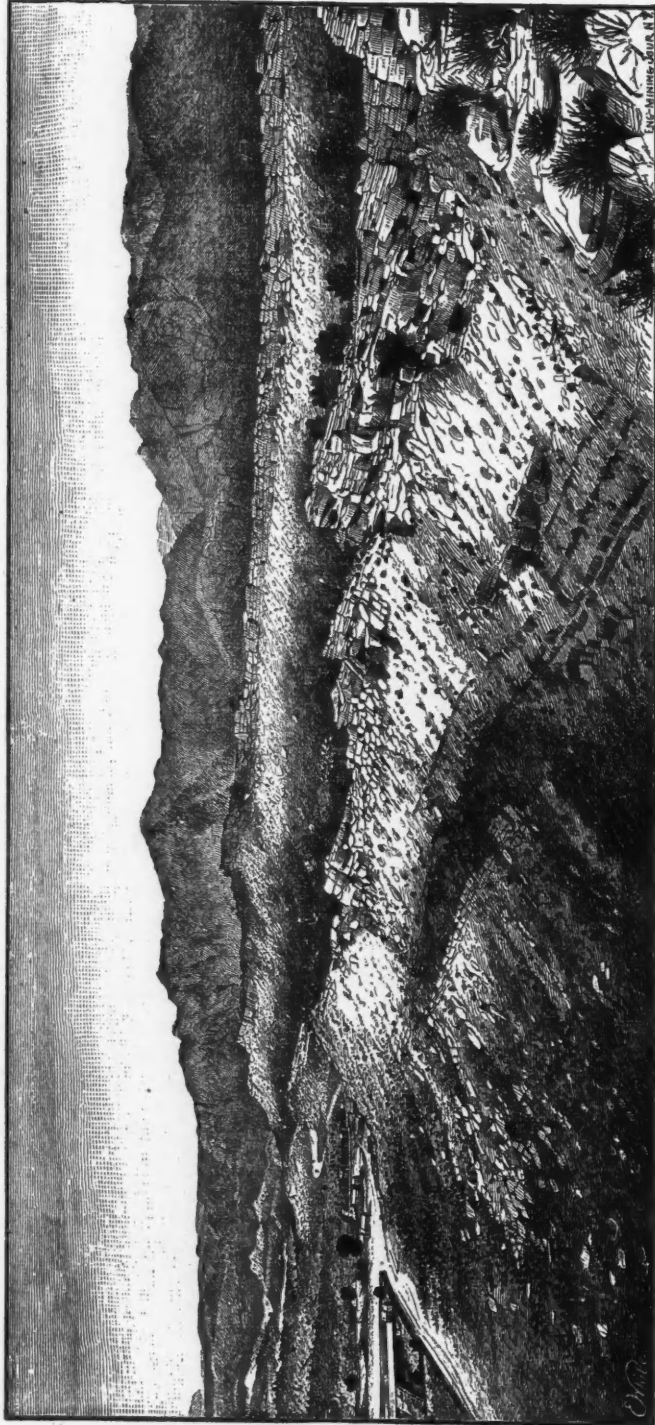
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CROSS SECTION VIEW OF THE SILVER REEF COUNTRY.

STORMONT MINE.

THOMPSON & McNALLY.



WHITE REEF

STORMONT-VILLE.

WHITE REEF LEEDS CO.

HUCKEYE REEF CHRISTY CO.

LAST CHANCE.

BUCKEYE.

SILVER FLAT.

THE SILVER-BEARING SANDSTONE REEFS.

(Looking South-west from Mineral Monument No. 1.)