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CONTENTS.

Three companies have made applications to the New York municipal authorities for permission to put down pipes and to furnish fuel gas to consumers. None of the companies has yet established any plant, and it is probable that at least one of them is merely looking for a franchise which it can sell out later to the highest bidder. It is claimed that the others have been organized by responsible parties, and it is believed that one of them is controlled by the same parties who expect to furnish Boston with fuel gas, as noted recently in this column. The present situation of matters is characteristic of New York municipal methods; but it is interesting to observe that there is a growing belief that the fuel supply of a great city like New York can be furnished far better and more economically in the form of gas than is done by the present somewhat antiquated methods.

The price of silver has fallen considerably from the level which it reached and held for several months earlier in the year. From February to July it was remarkably steady, ranging between 31 and 31¼ pence in London, or the corresponding rates of 67½ and 69 cents in New York. In July, when the highest point was reached, it began to decline slowly, and the decrease in price has continued, the price now being over 2 pence in London, or 4 cents in New York, below the July quotations.

Part of this decline has been due to the withdrawal of speculative support which the market for some time received, and to which some part of the highest price was due. In the main, however, it is due to natural causes. China and Japan have both been light buyers this year and will probably continue to be so for some time, owing to their comparative decrease in exports of produce. Above all, India, which is the chief customer usually, is passing through a period of crop failure, which will probably prevent the people from buying and further may compel them to become sellers of silver, as they draw on their hoards for support. A further fall is possible, even from the present level.

On another page we give the first part of a paper on the applications of zinc to roofing and other purposes, which ought to interest many readers. It is well understood that at the present time the productive capacity of our zinc mines and smelting works is in excess of the demand for spelter, while exports of any considerable quantity to Europe are possible only at the risk of a disastrous break in prices. How this condition has come about it is useless to inquire; it exists and the only remedy for miners and smelters is to find new uses for the metal. The employment of sheet zinc for roofs is quite common abroad, though almost unknown here. Its adoption for that purpose, for which it is very well suited, would create a new and important market for the metal, which would be of great advantage to the trade. The article referred to is a thoroughly practical one and gives very fully the best methods of handling and applying zinc for the purpose, besides setting forth the advantages obtained by its use.

It is in such directions as this that future gains for the zinc trade are to be found. The establishment of a new source of demand is of far more permanent importance than any temporary increase in price through a trust or combination; and is moreover a legitimate gain, which will be felt not only now, but for a long time to come.

The average price realized for coal at the mines in Great Britain last year showed a considerable decrease from the previous year. According to the mineral returns just published the average per long ton in 1895 was $1.45, while in 1894 it was $1.59, the decrease being 14 cents, or 8·8 per cent. Even the lower price was considerably above our own average, which was, in 1895, according to the statistics given in *The Mineral Industry*, Vol. IV. only $1.10 per short ton, equivalent to $1.23 per long ton. Our average was, moreover, increased by including the higher-priced anthracite; if bituminous coal alone is taken the average at mine for 1895 was $0.91 per short ton, equal to $1.02 per long ton. That is, our average return at mine was 84·6 per cent. of the British, including all coal, or 70·3 per cent., taking bituminous coal only.

At first sight it seems rather singular that with higher prices Great Britain should still remain the great coal-exporting nation, while our own sales abroad are comparatively very small. It must be remembered, however, that a large part of the British mines are within a few miles of the shipping ports, while nearly all our great coal-fields are a long distance from tidewater. Even with our very low railroad rates, which are per ton-mile very much lower than those of the British lines, the operator here cannot usually put his coal on board ship as cheaply as his British competitor can. With this difference considered, however, there is no reason why we cannot obtain a very considerable foreign trade, which would be a great help to our coal producers.

Our friends, the mining stock brokers of San Francisco, are puzzling themselves over the apparent anomaly now presented in California, where mining was never more active and the speculation in mining stocks was never more quiet. All over the State we hear of new mines being worked, new mills built, old mines reopened, and a general interest

in the exploitation of the gold mines, which is leading not merely to prospecting and the location of claims, but to the actual investment of capital on a very considerable scale. While all this is going on, the public is staying persistently away from the exchanges; the old board-rooms are given up to the small inside speculations, and the fluctuations in stocks interest no one outside of their very limited circle. The Gold Mining Exchange, which it was hoped would introduce a new element to draw the attention of the speculative public, languishes with the rest.

Perhaps the conditions are not so anomalous after all. The people who are working California mines and putting their money into them are doing it, as a rule, with the expectation of getting a return from the mines themselves and not from the stocks; they are making a business of it and look to business methods to secure a profit. When the speculative element enters into their ventures, it is speculation on the value of the mine itself, and not on the possible fluctuations of prices in the stocks. On the other hand, the public long ago learned to distrust thoroughly the management of the Comstock companies, whose stocks furnish the great bulk of the transactions on the San Francisco Exchanges. The methods of the operators have come to be pretty well understood, and those who have money to use in this way now regard the results of inside and ring manipulation with apathy, and are quite content to leave the game to the insiders, with whom it has become a matter of habit, and not a very profitable habit after all. The brokers and operators have themselves alone to blame for this condition.

Gas Engine Hoists for Small Mines.

The first step toward equipping a mine with machinery is usually when the shaft gets to a point beyond the capacity of a hand-windlass or a horse-whim, and the purchase of a hoisting plant becomes necessary. At this stage the matter of first cost is generally the most important; but there are many other considerations, such as the supply of fuel and water, the difficulties of transportation, the site where the engine is to stand, and other points which those who have had experience will readily understand. Where there is no water-power available, a steam engine is the first thing to be procured, with its accompanying boiler, and in many cases the transportation and erection of the latter is a formidable undertaking, even where the plant is small.

In such cases as these there is now an alternative presented which we think might be adopted in a great many cases. This is found in the gas or oil engine, the use of which is now rapidly extending as its merits are understood and appreciated. While these engines are now being used in large works and built of large sizes, they are especially adapted to small mining plants, owing to their compactness and to the absence of the boiler, which is so large a factor in a steam plant. The fuel supply can readily be arranged for; where it is convenient a small gas-producer using almost any kind of fuel may be provided, or in other cases the variety of the engine using petroleum or naphtha, which is the most easily transported of fuels, can be used. The water supply required with these engines is only for the purpose of cooling the cylinder. The quantity needed is small, as it can be used over and over again, and the quality makes no difference, so long as it will not actually corrode the iron of the cylinder. The management of the engine is easily learned, and the danger of explosion is removed.

For all these reasons the operators of mines or quarries who need power in the form referred to will find it to their interest to consider the gas or oil engine, and often to use it. Some very good and compact types of gas-engine hoists have been designed by different makers, and out of these it is easy to select one suitable for almost any case.

The Cyanide Process in the United States.

The cyanide process may now be said to have passed the experimental stage in the United States, and may be recognized as an economical method for the treatment of certain classes of gold ores. This point has been reached, long after the process had become a pronounced success in South Africa and New Zealand, only by the costly experience gained in a succession of failures. The latter were due to a variety of reasons, among which were the difference in conditions between this country and others where the process had been successfully applied, incompetence of the original promoters and a general tendency to devote attention to the chemical side of the problem, leaving the engineering questions to take care of themselves. The first attempt to introduce the process in America was made in 1889 by licensees under the MacArthur-Forrest patents, who advertised in the usual haphazard manner that the new method of treating gold ores was applicable to all kinds, and required for an installation only a few old casks or tubs. Of course there were many mine-owners anxious to try so alluring a proposition, and the results of their experiments, needless to say, were more or less disastrous failures. It is now recognized that the cyanide process is by no means adapted to all classes of ores, and that, instead of being one which can be carried out with cheap make-shifts, requires elaborate and well-designed works, especially where it is intended to handle rough ore direct from the mine. Such a mill of 100 tons capacity per 24 hours can not be built, probably, anywhere in the Rocky Mountains for less than $75,000, while one of half the capacity may be safely estimated as costing $40,000 to $45,000. Obviously a large part of these amounts is formed by the cost of the heavy machinery for finely crushing the ore (dry), and in cases where the purpose is merely to treat stamp-mill tailings the figures would be considerably less; but apparently there are few accumulations of such tailings in this country and from the first the chief problem confronting the process has been the treatment of mine ore.

The first noteworthy success of cyanide lixiviation in the United States was at the Mercur mine, in the Camp Floyd district, Utah. This was made, however, with an ore exceptional in two respects; first in being an occurrence of gold in limestone, and second in the existence of the gold in such form that it could be exposed to the action of the cyanide liquor by comparatively coarse crushing. The result was a high extraction of value, with a low consumption of cyanide, and low cost of milling. In most cases, on the contrary, cyanide lixiviation can only be carried out successfully with very fine pulp, say pulp that has passed a 40-mesh sieve, which even with the most carefully designed crushing and intermediate sizing apparatus means that fully 50 per cent. will pass a 100-mesh sieve. This degree of fineness is enforced by the tardy solvency of coarse gold in the cyanide solution. Attention has been repeatedly called to this point by chemists who have made experiments with fragments of metal of various sizes and shown that grains weighing but a few milligrams may lose only an insignificant part of their weight after many days in the cyanide solution. We are unaware, however, that any have laid sufficient stress upon the feeble action of cyanide in this respect, even when the gold is in a condition that may properly be described as very fine. It has been, however, the experience in certain works that if 40-mesh pulp showed by panning any gold approximately the size of the screen aperture an exposure of upward of a week would be necessary to effect solution, and that any coarser crushing than 40-mesh was absolutely hazardous. At the works near Florence, Colo., running on ores from Cripple Creek, which in general contain their gold in a very fine state of division and are well adapted to cyanide lixiviation, it was originally contemplated, after experiments on a large scale, that charges should remain in the tanks 100 hours, which would mean probably about 60 hours' exposure to the cyanide liquor, the remainder of the time being occupied in charging, washing, discharging and loss; but in practice it is found that a longer time is required to insure proper extraction. Coarse gold is, indeed, a bugbear to the cyanide metallurgist, although undoubtedly ores containing it can be successfully handled by a combination of the cyanide process with amalgamation on plates or otherwise if the results attained promise more profit than some other mode of treatment.

The ores especially adapted to cyanide lixiviation seem to be those of chemically neutral, or slightly basic character, in which the gold occurs in a very fine state of division. Included in these ores are the auriferous calcites of Mercur, the silicious ores of Cripple Creek and many pyrites in which oxidation has not begun. The ores unadapted to the cyanide process are especially those containing coarse gold, those containing copper, which consumes the expensive chemical, potassium cyanide, and for the same reason those containing ferrous sulphate or other acid soluble salts. With respect to telluride ores the question is not yet satisfactorily decided. Experiment has sometimes shown a high extraction from these ores when treated raw, and sometimes a surprisingly low extraction. The difference is possibly to be accounted for in the presence of different telluride minerals, sylvanite, petzite, calaverite and hessite, which may be soluble in cyanide to a greater or less degree. The proposed plan for the treatment of telluride ores, however, is not raw lixiviation, but lixiviation following a preliminary roasting at low temperature to dissociate the gold and the tellurium. This has not yet been carried out on a large scale and its outcome is dubious. The experience of the chlorinators at Cripple Creek, where ores of this kind exist probably in the largest amount, has proved that the roasting can be performed without significant loss of value. Other conditions, however, enter into the consideration of the procedure with respect to subsequent leaching with cyanide. It may be recognized that the ore must be dead-roasted, *i. e.*, it must not contain any sulphates of iron, simple or basic, since neutralization by passage of a caustic soda solution through the pulp is likely for some unexplained reason to reduce appreciably the extraction of gold. This essential dead-roast is not, however, difficult to effect to such a degree that loss of cyanide will be unimportant, at least with ores containing only a moderate percentage of pyrites. A more problematical point is the condition in which the gold will be in the ore after roasting. In driving off the tellurium from gold tellurides the gold is likely to be left in numerous smooth globules, perhaps a millimeter or more in diameter, which for practical purposes may be put down as insoluble in potassium cyanide. We have observed this in roasting ores assaying two ounces per ton. This is not, however, invariably the case, since telluride ores of higher grade

are regularly treated by the Cripple Creek chlorinators, and chlorine-water, though a more powerful solvent for gold than is potassium cyanide, is proportionately susceptible to the comparative size of the metallic particles. Probably telluride ores differ in their behavior in this respect according to the fineness of the telluride minerals which they contain. The conclusion to be drawn, therefore, is that in determining the adaptability of an ore to the cyanide process the ordinary chemical tests should be supplemented by physical tests to show the subdivision of the gold in pulp of various sizes and a microscopical examination to show its form, *i. e.*, if essentially occurring in minute scales or more or less prismatic nuggets.

As to the comparative cost of cyanide-lixiviation and chlorination there are not yet sufficient data to speak dogmatically, even where ores are equally adapted to the two processes. Such a comparison is always difficult when figures must be taken from different works which are not equally well designed. For this reason chlorination probably shows to comparative disadvantage at Cripple Creek, where the best of the cyanide works, which, we believe, is reducing ores for the lowest figure, is much larger and far better arranged than the best of the chlorination works. In the abstract, the comminution of the ore, which is not necessarily so fine for chlorine-extraction as for cyanide, is proportionately cheaper for the power, a significant item where fuel is dear; cyanide has the advantage, however, in not requiring a preliminary roasting except for telluride ores, and the labor involved in leaching in large tanks is less than in comparatively small barrels. There remains the consumption of chemicals, which in the cyanide process is an exceedingly variable quantity. Given, however, a favorable ore, it is probable that the gold can be extracted by potassium cyanide for a little less than by chlorine-water, the salvage of gold being approximately the same, and the extraction of silver in the ratio of x:0 in favor of cyanide. The merits of the two processes, nevertheless, hardly admit of a general summing-up, but must be determined for each particular case. They are both valuable contributions to the metallurgy of gold, and are assisting immensely in increasing the production of that metal.

NEW PUBLICATIONS.

Manual of Assaying: Gold, Silver, Lead, Copper. By Walter Lee Brown. Sixth edition. Chicago; E. H. Sargent & Co. Pages, 517. Illustrated. Price, $2.50.

The success of this well-known work is evidenced by the continued call for new editions. It is very simply and clearly written, and is of a handy form, and is therefore adapted rather for the use of beginners or the self-taught assayer than the expert in close and delicate work, the specialist or the smelting works assayer. In its own field it is quite complete—in fact, it is an advantage that it is not overburdened with a confusing mass of details. The appendix, which forms about one-third of the bulk of the volume, contains sections on special methods and many convenient tables and lists.

The Elements of Physics: Vol. II., Electricity and Magnetism. By Edward L. Nichols and William S. Franklin. New York and London; The Macmillan Company. Pages, 272. Illustrated. Price, $1.50.

The second volume of the series of three on the *Elements of Physics* by the above authors has just made its appearance. The work is intended as a college textbook. In no field of study, probably, has there arisen a greater need of new textbooks during the past 10 years, than in the field of electricity, and to keep pace with the rapid advancement in this science and the wonderful discoveries constantly being made, the textbook of yesterday has had to be replaced to-day, and that of to-day must in turn give way to a new one to-morrow. The present work necessarily covers much ground already covered in all of the more modern textbooks on the subject, but is very much up to date in its more advanced chapters, as it discusses the Roentgen-ray manifestations in its chapter on the "Phenomena of Discharge," the action of the electric furnace in the manufacture of carbide of calcium; the property of "Hysteresis," and others not until recently appearing in textbooks, or any other books.

Chemistry for Beginners. By Dr. Edward Hart. Third edition, revised and enlarged. Easton, Pa.; The Chemical Publishing Company. Pages 245; illustrated.

Dr. Hart, who is professor of chemistry at Lafayette College, has been impressed with the fact that the great majority of students are not likely to become professional chemists, and he has therefore prepared this book with special reference to the needs of those who seek to gain general information about chemistry without being burdened by a mass of detail. The book is, therefore, in a sense complete in itself, and not an introduction to higher study, as is the plan of most elementary treatises on chemistry. There is considerable matter on practical topics, such as water purification, fertilizers, metallurgy, etc., which gives a fair idea of these subjects and others which all educated persons wish to understand.

We observe that Dr. Hart has adopted the new system of spelling chemical names—dropping the final "e" from oxide, spelling sulphur with an "f," etc.—but he does not go to the logical extreme of the system nor so far as some other recent writers. Of course there is authority for the new nomenclature, although most practical chemists and metallurgists rebel at it because in many cases it runs counter to current pronunciation and is not wholly consistant. If "sulfur," why not "fosforus"?

The Money Question: A Handbook for the Times. By Henry W. Poor. New York; H. V. & H. W. Poor. Pages, 103.

This pamphlet is a selection, with some alterations, from matter soon to appear in a large work, *The Monetary History of the United States*, by the same author. The principal topics covered in this brochure are: The function of governments in the matter of metallic money; the metallic money of the United States; symbolic money (bills of exchange, checks, etc.); banks of issue; money by law; the Bank of the United States; bimetallism; the act of 1837; the act of 1873; United States notes, gold certificates; remonetization of silver; the act of 1890; banking system of the United States; substitution of government money for that of banks; what would follow free coinage of silver, etc.

Mr. Poor is a frank and outspoken gold monometallist, and presents his case with the vigor and clearness characteristic of his other writings. While we find many points as to which we disagree with him, the ground being entirely too wide for discussion here, we cannot but express appreciation of the very able and businesslike way in which he treats of the practical details of banking systems and other similar matters. Although the subject is an intricate one, there is here never any obscurity or doubt as to the author's meaning.

California State Mining Bureau, Bulletin No 9. Mine Drainage Pumps, Etc. By Hans C. Behr. Sacramento, Cal.; State Printing Office. Pages, 210; illustrated.

This treatise is intended to give brief expositions of the methods and constructions in use on the Pacific Coast for freeing mines from water under all the varied conditions there found; and it includes also some machines not found in use, but which are believed to be worth consideration. The principles governing the design and operation of pumps are given at some length, but in a very simple way, the use of mathematics being avoided as far as possible. The object has been, in short to treat the subject in such a way that the book could be read and understood by miners and mine operators who have not the technical knowledge which an engineer is supposed to possess. An attempt has been made also to give details of practical working and economical results obtained, wherever these could be procured. Only brief notice is given to the older Cornish and other systems, which have generally been superseded by more modern machines and methods.

After a brief introduction, Section 1 treats of the general features of pumping plants and of the details, such as pipes and valves. Section 2 is devoted to pumps operated by rods, describing the construction of pump-rods and connections, power-plants for operating them, and of the different kinds of pumps, such as sinking pumps, plunger pumps and others. Section 3 is devoted to direct-driven reciprocating pumps, including those operated by steam and compressed air, hydraulic-pressure engines and the other types of this class. Section 4 describes underground geared and belted crank-driven pumps. Section 5 treats of bailing tanks and their uses. Section 6 speaks of various appliances for raising water from small depths, including in these centrifugal pumps, pulsometers and other jet lifters, air-lift pumps, and, finally, such small apparatus as can be run by human or animal power. Section 7 gives some general considerations on mine-drainage plants. Finally, Section 8 is an appendix, devoted to pumps for drainage or irrigation purposes.

The general plan of the book is good, and the defects are chiefly of a minor order. The references to electrically driven pumps are few and rather slight, which is rather an omission considering how rapidly electric power transmission is being introduced. The examples given of engines for driving pumps are hardly the best that could have been selected, though most of them are fairly good. The writer rather avoids—as indeed most writers do—a consideration of the real economy of centrifugal pumps compounded or placed in series; which is, indeed, rather a puzzling matter. The method of reference adopted in the index, to paragraphs instead of pages, is not the most convenient.

These lesser matters aside, the book is likely to be a useful one, and to be very well appreciated by the practical miners for whose use it is chiefly written. It contains much useful information and many directions of a practical kind for the management and operation of pumping machinery. The author has evidently used some care in compiling and in giving instances to support his views. He has collected a large number of illustrations of different forms of pumps and of their details.

The book has been kept down to a moderate length, and generally avoids points on which there is likely to be controversy. On the whole it is an acceptable addition to the series of bulletins published by the Mining Bureau.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

Tables for Iron Analysis. By John A. Allen. New York; John Wiley & Sons. London, Eng.; Chapman & Hall, Ltd. Pages, 85.

Bulletin of the Philosophical Society of Washington, Volume XII., 1892-94. Washington, D. C.; Printed for the Society. Pages, 567; with diagrams, map and illustrations.

Seventeenth Annual Report of the British Columbia Board of Trade, August, 1896. F. Elworthy, Secretary. Victoria, B. C.; Province Publishing Company. Pages, 79; illustrated.

Natal, South African Republic: Departmental Report of the Commissioner of Mines; July 1st, 1894 *to December* 31st, 1895. Pietermaritzburg, Natal; Government Printer. Pages, 22; with diagrams.

Mineral Statistics of the United Kingdom of Great Britain and Ireland, with the Isle of Man; Mines and Quarries, for the year 1895. London, England; H. M. Printer. Pages, 151; with diagram and map.

Missouri Geological Survey. Sheet Report No. 4. A Report on Mine La Motte Sheet including portions of Madison, St. Francois and Ste. Genevieve Counties. By Charles Rollin Keyes, State Geologist. Jefferson City, Mo.; published by the Geological Survey. Pages, 132; illustrated; with accompanying maps.

CORRESPONDENCE.

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

Gold Mining in the South.

Sir: In reply to "M. F's" communication in the *Engineering and Mining Journal* of September 12th, in which he requests information relative to the Southern gold fields, I would respectfully refer him to the following literature on the subject: "Reconnaissance of the Gold Fields of the Southern Appalachians," by George F. Becker, in Part III. in the *Sixteenth Annual Report* of the United States Geological Survey; "Conditions of Gold Mining in the Southern States," by Messrs. Nitze and Wilkins; "Notes on Gold Mining in Georgia and Alabama," and "Further Notes on Gold Mining in Georgia and Alabama," all in *Transactions American Institute Mining Engineers*, 1895 and 1896; *Bulletin No.* 3, Alabama Geological Survey, "Preliminary Report on the Lower Gold Fields of Alabama," by Wm. B. Phillips; *Bulletin No.* 5, Alabama Geological Survey, "Preliminary Report on the Upper Gold Fields of Alabama," by Dr. Eugene A. Smith, State Geologist. Also correspondence and articles in the *Engineering and Mining Journal*, of New York; *Dixie*, of Atlanta, and the *Tradesman*, of Chattanooga.

From these sources M. F. will find the most reliable reply to his query as to the real truth relative to these gold-fields, as well as where such are situated and what are their features. I do not desire at this time to occupy the space necessary to answer his queries in detail, but I will add to this brief communication an account of some of the results which have been recently obtained from mining operations conducted by Mr. Joshua Franklin, superintendent of the Idaho mine, in Clay County, Ala., and which have come under my personal observation recently.

This mine was purchased several years since by William Barr, of New Jersey, and Joseph Franklin, of St. Louis, Mo. After making some successful runs on a 10-stamp mill, a law suit was instituted, which clouded the title. Operations were abandoned in 1888 because the bond required if such operations continued was considered to be excessive. This litigation was decided in favor of Messrs. Barr and Franklin in 1895, and they immediately instructed the superintendent to get ready to resume work. Because of the clayey, talcoid character of the ore—the gold being found disseminated through decomposed schist and lenticular stringers of quartz—a Huntington mill was added to the stamp mill during the spring of 1896, which was started up in August last. The first run was made on washed material, which had caved in in the open cut, and showed by panning that it carried a small value in gold. It was very soon demonstrated that all this value was saved in the mill and on the plates. Since September 17th the mill has been running on regular ore mined from an open cut, the floor of which is about 50 ft. below the surface of the hill. Although no general clean-up has been made, yet the condition of the plates and the quantity of amalgam known to be in the mill, as well as the fact that thoroughly systematic panning fails to show any losses in the tailing sluices, demonstrates the fact that the ore is free milling and the grade sufficient to make the mining profitable.

W. M. Brewer.

Atlanta, Ga., Sept. 23, 1896.

A NEW COAL AUGER.

Written for the Engineering and Mining Journal by our Special Correspondent.

There has lately been introduced in the coal mines of southern Illinois, a coal drill which has many advantages over the ordinary coal auger. It is made of one solid piece of steel, and bores a rocket at the end of the hole driven by the ordinary miner's boring machine.

By means of this "Jumbo" auger, as it is called, holes 12 ft. deep can be bored. This is a very great advantage in solid-shooting mines. The coal is not scattered as it is by the use of the common drills, and the yield of lump coal is from 15 to 18% greater.

The Jumbo has also been used in shooting down coal undermined by mining machines. Here the yield of lump coal is increased from 12 to 15%.

The drill owes its conception to the experiments of some Kansas miners who were engaged in blasting gypsum. It was so successful in that material that it was applied to blasting shales, conglomerates, etc. The drill seems to give satisfaction in coal or shale. The Jumbo is more economical than the ordinary drill in its consumption of powder; since the pocket confines the explosion, and the minimum amount of work is obtained.

But perhaps the best feature of this drill is that blow-outs are impossible. The force generated strikes against the shoulders at the front of the pocket, and the tamping presents such a small surface relatively, that blow-out shots never occur. This ought to greatly reduce the danger from explosions of gas and coal dust.

Electricity in Gold Milling.—At a recent meeting of the Engineers' Club of Philadelphia, Mr. H. M. Chance described the application of electricity to the extraction of gold from the ores. The processes differ widely, both in method and principle, and were described as consisting of six classes, each involving a different principle or method of application. These classes are: 1. Electro-magnetic; 2. Electro-solvent; 3. Electro-amalgamating; 4. Electro-precipitating; 5. Electro-inductional; 6. Electro-smelting. The first class employs electro-magnets to remove magnetic material from the gold with which it is associated. In the second class, the current is used to assist in dissolving the gold from ores by means of chemical solvents of gold. In the third class, the current is passed through the amalgamated plates or mercury to facilitate amalgamation. The processes of the fourth class are electrolytic, the gold being electrically deposited from its chemical solutions. These processes are extensively used in South Africa and to some extent in this country. The fifth method aims to remove gold particles from other materials by the inductive action of high-frequency alternating currents. The sixth method, that of electric smelting, promises well, provided the cost can be reduced to that of ordinary smelting processes.

THE MINERAL PRODUCTION OF GREAT BRITAIN.

The *Blue-Book*, giving the mineral and metallurgical production of the United Kingdom for the year 1895, has made its appearance. The following table gives in condensed form the mineral statistics for the year, compared with the returns for 1894:

GENERAL SUMMARY OF THE MINERAL PRODUCE OF THE UNITED KINGDOM AND OF THE ISLE OF MAN.

Mineral.		1894. Quantity.	1894. Value at mine.	1895. Quantity.	1895. Value at mine.
Alum clay (bauxite)	Tons	7,970	£5 618	10,408	£2,506
Alum shale	"	3,972	496	2,063	258
Arsenic	"	4,801	48.614	4.798	52,198
Arsenical pyrites	"	3,288	3,823	2,951	2,785
Barytes	"	20.656	21,110	21,170	23.059
Bog ore	"	7,803	1,951	5,652	1,413
Chalk	"	..	....	2,924,235	153,864
Chert and flint	"	....	....	94,7:7	16,661
Clays	"	3,763,768	823,701	9,796,0*6	1,839,607
Coal	"	188,277,525	62,730,179	189,661,362	57,231,213
Copper ore	"	5,752	13,909	7,531	21,912
Copper precipitate	"	242	2 313	260	2,855
Fluorspar	"	126	69	36	54
Gold ore	"	6,603	13 573	13,266	16,584
Granite	"	....	....	1,667,766	547,999
Gravel and sand	"	....	....	1,014,477	81,107
Gypsum	"	153,450	66,255	177 892	71,835
Iron ore	"	12,367,308	3,190,647	12,615 414	2,865,709
Iron pyrites	"	15,523	8,042	9,048	4 114
Jet	Lbs.	479	48	168	16
Lead ore	Tons	40,599	266,995	38,412	273,392
Lignite	"	334	83	....	....
Limestone (other than chalk)	"	....	....	9,525,039	1,205,261
Manganese ore	"	1,809	740	1,273	681
Ochre, umber, etc	"	8,516	14,040	7,625	16,989
Oil shale	"	1,986,385	496,596	2,246,865	561,716
Petroleum	"	49	92	15	28
Phosphate of lime	"	700	1,277	500	875
Plumbago	"	....	....	40	100
Quartz	"	....	....	724	550
Salt	"	2,235,912	763,629	2,173,253	709,751
Sandstone	"	....	....	4,230,526	1,366,596
Slag	"	....	....	134,882	5,888
Slate and slabs	"	461,673	1,171,366	581,760	1.274,146
Soapstone	"	10	45	....	....
Stone, etc	"	....	7,695.716	....	....
Strontium sulphate	"	6,823	1,962	12.273	3,529
Tin ore	"	12,910	487,523	10,612	370,530
Uranium ore	"	19	815	40	2,071
Whinstone, basalt, etc	"	....	....	1,728,350	352,382
Zinc ore	"	21,821	67,311	17,478	49,430
Total values		....	£77,898,938	....	£69,129,664

In the present volume a somewhat different classification from that of last year has been adopted, the quantity and value of a number of minerals previously classed under the one category, "stone, etc.," being now entered under separate heads.

Taking the aggregate figures, the value of the mineral produce in 1895 is shown to have fallen short of that of the previous year by £8,769,274, or 11·3%. The chief decrease was in coal, the aggregate value of which is returned at £5,498,966 less than in 1894, although there was an increase in the output of 1,383,837 tons. In this case, therefore, the decline was wholly due to a fall in prices, the extent of which can be seen when it is stated that the average value per ton at mine returned in 1894 was 6s. 7½d., while in 1895 it was 6s. 0½d. only. We may note that this value last year, $1.45 per long ton, was higher than the average given by *The Mineral Industry* for the United States, which was $1.10 per short ton, equivalent to $1.23 per long ton. Of iron also a larger quantity was produced than in 1894, but the aggregate value was less owing to lower prices.

The extent to which each of the different divisions of the Kingdom contributed to the total production of the last four years is shown in the following table:

VALUE OF TOTAL MINERAL PRODUCE.

	1892	1893	1894	1895
England	£58,476,040	£49,992,042	£56,954,496	£47,653,272
Wales	13,572,812	11,212,528	12,299,750	11,686,228
Scotland	9,837,740	9,327,085	8,419,510	9,539,282
Ireland	387,128	170,396	171,312	196,083
Isle of Man	77,040	65,600	50,870	54,799
Totals	£82,350,760	£70,767,651	£77,898,938	£69,129,664

The quantities and values of metals obtained from ores raised in the United Kingdom is given in the table below, the values being given at the average market price for each year:

VALUE OF METALS OBTAINED.

Metal.		1894. Quantity.	1894. Value.	1895. Quantity.	1895. Value.
Copper	Tons.	446	£19,482	579	£27,263
Gold	oz.	4,235	14.811	6,600	18,520
Iron	Tons.	4,347,472	9,999,185	4,394,987	10,534,525
Lead	"	29,687	284,624	29,001	308,734
Silver	oz.	275,696	33 313	280,434	34,908
Tin	Tons.	8,327	604,500	6,648	416,780
Zinc	"	8,130	131,029	6,654	101,695
Total values			£11,086,945		£11,472,225

The pig iron reported above is only that from British ores. In addition to the 12,615,414 tons of British iron ore raised last year the furnaces dealt with 4,885,547 tons of foreign ores, and the total production of pig-iron was 7,703,459 tons, against 7,427,342 tons in the preceding year. The quantity of coal used in the production of the pig-iron was 15,224,517 tons, and the total value of the output at the average price for the year was £18,629,337, of which £10,534,325 was due to pig-iron obtained from British ore. The foreign ore was on an average much higher grade than the British; according to this statement 2·27 tons of British ore were required to make one ton of pig iron, but only 1·47 tons of imported ore.

Mining in Siam.—In Siam there are gold mines at Kabin and Wattana, but little is known about them and no statistics can be obtained. The same thing may be said of the ruby mines at Chantaboon, though it is known that some fine stones have been obtained there. The Siamese States on the Malay Peninsula produce a large quantity of tin, estimated at 5,000 tons yearly.

THE APPLICATIONS OF SHEET ZINC FOR ROOFING AND OTHER PURPOSES.*

Written for the Engineering and Mining Journal by W. H. Seamon.

During the year 1873 there were but 16,000 short tons of spelter consumed in the United States, of which 7,343 tons were produced here, the remainder being imported. In 1892 the production of spelter attained its maximum of 84,082 tons and in 1895 it was 81,858 tons.

The rapid development of the zinc mining and smelting industries is one of the striking incidents in the wonderful development of the natural resources of this country; the home production, increasing still more rapidly than consumption, has gradually shut out the importations of foreign spelter. Consumption attained its maximum in 1892, when it reached 78,040 tons, distributed as follows: Galvanizing sheet iron and wire, 35,000 tons; brass manufacture, 20,500 tons; sheet metal, 15,500 tons; desilverization of lead bullion, 3,500 tons; monuments, 300 tons; miscellaneous and unaccounted for, 3,240 tons.

The exceeding richness of the zinc deposits of this country, the small amounts of capital required for their development and successful operation and the proportionately large returns derived from the necessary investments, have resulted in the rapid increase in the production of ore and spelter to the point of overstocking the market in recent years and depressing the price of the metal below a remunerative figure. Under this condition producers imagined that their richer ores had only to be offered to the foreign smelters to immediately displace the poor foreign ores, and that they could easily market their surplus spelter in the markets of Europe. The ores have been offered, and while their superiority is conceded, foreign smelters cannot afford to pay the prices expected so long as they have at their own doors an unfailing supply of low-grade, but relatively cheaper ores, and the efforts of smelters to sell spelter abroad only succeeded in destroying the European combination for the upholding of prices.

FIG. 1.

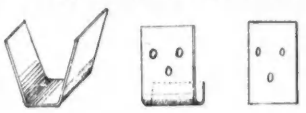


FIG. 3.

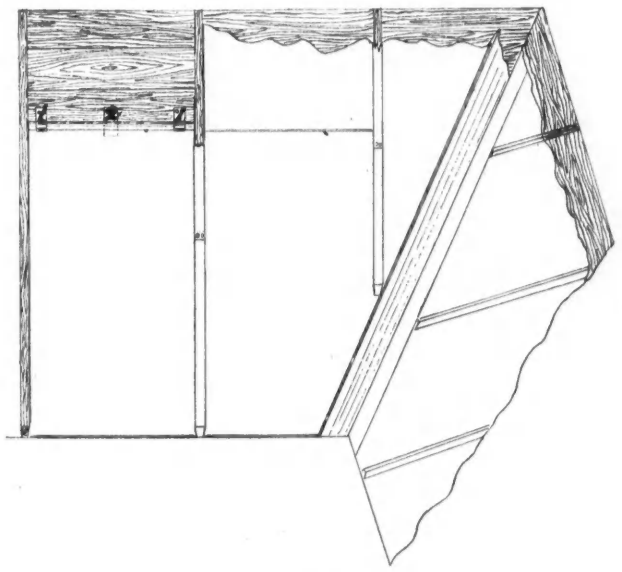


FIG. 2.

To-day the capacity of the mines and smelters of the United States equals 120,000 tons of spelter per annum, while the consumption, under normal conditions, does not surpass, if it equals, 85,000 tons. And yet, tempted by the reputed large profits in the business, new smelting companies are projected and new ore fields are undergoing development, still tending to aggravate the existent conditions. It is evident, therefore, that the time is opportune for the development of new uses for zinc if this industry is to grow and prosper.

In the United States "tin-plate" is the favorite metal roofing, the uses of sheet zinc for roofing are almost unknown, and yet in England, the home of the "tin-plate" industry, and in all parts of Europe, zinc is now the most favored material. It was first employed for roofing in 1811, when the Abbé Dony, the founder of the Belgian zinc industry, in his efforts to create a market for the consumption of his small output of spelter, roofed a house with sheet zinc. During the same year portions of the roof of the church of St. Barthelemy, at Liege, were covered with the metal, and both of these roofs exist to-day in good condition, although the first has always been subjected to the deleterious influences of the sulphurous fumes proceeding from the smelting furnaces of the Vieille Montagne Zinc Company. In 1820 the Theatre de la Monnaie, at Brussels, was roofed with zinc, and up to the time of its destruction by fire, in 1855, it is authoritatively stated that no repairs had been required. Mosselman, the successor to Dony, and the founder of the Vieille Montagne Zinc Company, continued the experiments of his predecessor with marked success, and without any special effort on the part of the companies' many buildings in Belgium, France and Germany were roofed with the metal, and during the year 1836 it is said that more than 12,000 tons of sheet zinc were used in France for roofing purposes, while the consumption in England amounted to only between 2,000 and 3,000 tons.*

In 1867 the smelting companies of Europe had careful examinations made of the then existing roofs, from which observations carefully prepared instructions for zinc workers were formulated and workmen were trained to handle the metal properly. Since then the increase in consumption has been rapid, until to-day more than 100,000 tons of sheet zinc are annually used for roofing purposes in Europe, and it is now recognized there as a durable and desirable roofing material, taking the place of lead and copper because of its greater economy. Its comparatively low cost has secured its application on structures of all kinds, palaces, municipal and State buildings, cathedrals, chapels, churches, schools, universities, hospitals, hotels, depots, theaters, warehouses, manufactories, stores and private dwellings. The German Imperial Palace, the University of Bonn, the Berlin Academy of Fine Arts, the Cathedral of St. Marys at Düsseldorf, the Hotel de Ville and Cathedral de Ste. Clotilde in Paris, the Haymarket Theater, Canterbury Cathedral and the government dockyards in England, are a few of the large structures covered with it in Europe; while, until very recently, a court house in Indiana and a high-school building in Missouri were the only instances of its employment in this country, and these were covered by men unacquainted with the proper working of the metal.

The family residence of Hon. L. Bradford Prince, formerly Governor of New Mexico, at Flushing, L. I., was about the year 1839 roofed with zinc, formed of strips about 2 ft. in width and 10 ft. in length, united laterally, as shown in Fig. 1. It gave perfect satisfaction until about 1885, when some small holes were found in the sheets, and it was replaced by "tin-plate," which has proved very unsatisfactory from the beginning.

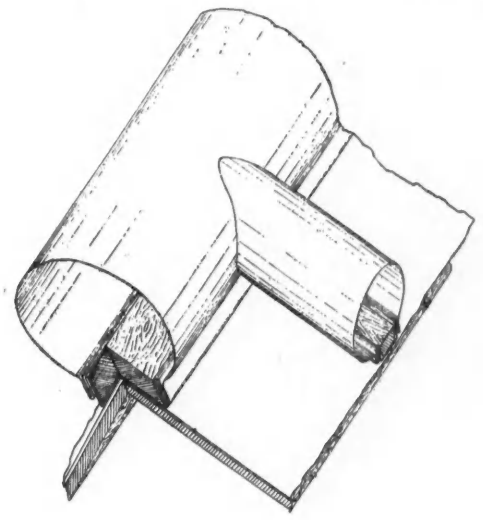


FIG. 4.

APPLICATIONS OF SHEET ZINC FOR ROOFING.

In Europe, the business of zinc roofing is conducted by the various zinc manufacturers, and partly by roofing companies. The sheets are usually corrugated and stamped at the rolling mills, which are ready to execute special orders, though some of the roofers cut and stamp their own sheets. The usual lengths of the sheets are 7 ft. or 8 ft., but even 10 ft. may be had by special order, and they are from 2 ft. 8 in. to 3 ft. in width. For roofing purposes the following thicknesses are recommended by the Vieille Montague Zinc Company:

Gauge.	Thickness.		Weight per square foot.		33 in. × 72 in. Weight of sheets.		36 in. × 84 in. Weight of sheets.		36 in. × 96 in. Weight of sheets.	
	In.	Mm.	Lbs.	Oz.	Lbs.	Oz	Lbs.	Oz.	Lbs.	Oz.
13	·029	·740	1		19	½	22	3½	25	6½
14	·032	·820	1	2½	21	1½	24	9½	28	2
15	·038	·950	1	5½	24	7½	28	8½	32	10
16	·043	1·080	1	8½	27	13½	32	7½	37	2
17	·048	1·210	1	11½	31	2	36	5½	41	8½
18	·053	1·340	1	14½	34	8	40	4½	46	½

The various clips and fastenings may be had direct from the zinc rollers; the only labor required to be done by the roofer is that of bending the lateral edges of the sheets, and the actual operations of laying them.

The tools required are those commonly employed by tin and coppersmiths. It is better to use wood mallets rather than metal hammers, since they thin the metals less at the points of impact. The shanks, anvils,

*The information in this article has been derived mainly through the kindness of Mr. A. M. Layat, who has furnished the writer with all the European printed matter relating to the zinc industry. So thoroughly has this information been absorbed, that the writer is unable to properly accredit his several authorities, but has frankly disclaimed originality.

* *Journal of Gas and Sanitary Engineering*, 1893, p. 419.

etc., are of the various forms required for shaping and are familiar to all metal workers, as are the patterns for cutting metals. As a general rule solder should not be used in working zinc, since the metal is always weakened somewhat, perhaps no more than any other metal, at the soldered junction, but there is no special difficulty in the operation of soldering, except that a little more care must be taken in wiping and smoothing the joints than with some other metals. The best solder is composed of two parts of pure tin to one of lead, but any of the common varieties may be used, and the soldering flux, known as "killed spirits," made by saturating commercial muriatic acid with strips of common zinc, is applied in the usual way, with a brush, or a stick of wood roughened at one end.

The nails used are made of zinc, but since they cannot be driven into hard wood, those made of galvanized or plain iron are sometimes employed.

Sheet zinc owes its value for roofing purposes to its durability, lightness and economy as compared with galvanized iron, tin-plate, slates and tiles, lead and copper, usually employed in this country. The latter two metals, generally regarded as the best, owing to their great cost are seldom adopted, and, in fact, zinc is as durable and costs much less.

A good tin roof, properly laid, and painted thoroughly at least once in every three years, will last from 20 to 30 years (Trautwine). A well-laid slate roof will require occasional repairs in consequence of the loosening and cracking of the slates by frost and hail and the throwing of stones. On steep slopes they loosen more quickly, owing to their great weight constantly bearing on the nails, which gradually rust and loosen themselves. The life of a slate roof varies from 30 to 50 years. Galvanized iron is a very popular material for sheds, warehouses and factories, but it is not long-lived; the unequal expansion of zinc and iron, gradually causes the zinc to scale off and expose the iron, and thus creates an electrical couple which results in the more rapid corrosion of the iron and destruction of the roof. This is delayed somewhat by frequent and thorough painting after the iron is exposed. With the greatest care 15 years is a long life for a roof of galvanized iron.

The superiority of sheet zinc over galvanized iron was shown in the case of the Northwestern Railway station at Birmingham, England, which was roofed in 1853 with galvanized iron, and was carefully painted on both sides every three years and repairs made whenever required. Yet at the end of 13 years it was found to be rotten, necessitating its removal in 1867, when it was replaced with a zinc roof, which exists to-day in perfect order and has given but little trouble or expense for repairs.

The enamel-like coating of the hydrous carbonate formed on zinc roofs, is practically insoluble to atmospheric waters and thoroughly coats every particle of the metal, absolutely preventing contact of the metal with the oxidizing atmospheric agents. A zinc roof of proper gauge weighs from 125 to 180 lbs. per 100 sq. ft.; lead about 800 lbs.; copper the same; tiles, 1,500 lbs., and slate from 700 to 900 lbs. The roof timbers when zinc is used need not, therefore, be so heavy or costly as for the other materials.

The different systems of zinc roofing are classified by the Vieille Montagne Zinc Company, according to the methods of laying and differences in the shape and the sizes of the sheets as follows:

1. *Ordinary Roll Cap.*—This is recommended for slopes of not less than 20° and not more than 36°, and is always laid upon sheathing, usually with number 13 zinc, in sheets from 6 to 8 ft. long (Fig, 2); the lateral edges of each sheet being turned up for 1 in., and held down to the sheathing and up to the battens by means of clips (No. 2, Fig 3). One end of each sheet is folded under for 1 in. to 1½ in., while there is a corresponding upfold at the other end, and the upper edges of each sheet are held in position on the sheathing by a clip (No. 3, Fig. 3), which is soldered to the bottom of the sheet, and by two clips (No. 1. Fig. 3), which are nailed to the sheathing and engage with the folded edge of the sheet, so as to allow for a slight expansion. The form given to the roll cap which covers the battens, fitting over the upturned edges of the adjacent sheets may be as shown in Fig. 3, which is a common form, or as in Fig. 4, which is much used in certain parts of Germany.

2. *Patent Roll Cap.*—The essential difference between this and the preceding lies in the manner of uniting the ends of the several sheets. A double fold (Figs. 5 and 6), prevents infiltrations by capillary action when laid on slopes as low as 4°. The form given to the battens and the manner of holding down the caps (Fig. 7), while essential to the claims of the patent, are not really necessary.

(To be continued.)

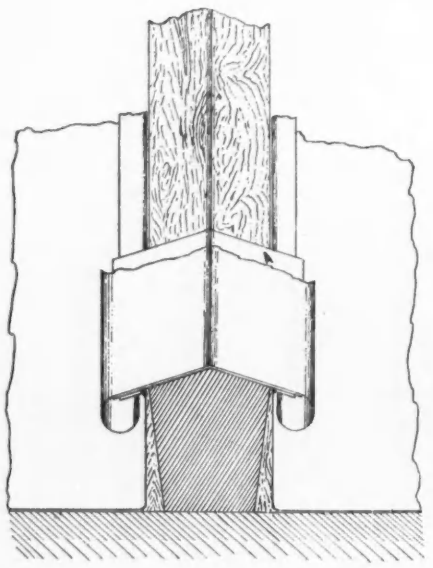


Fig. 7.

Applications of Sheet Zinc for Roofing.

Fig. 6.

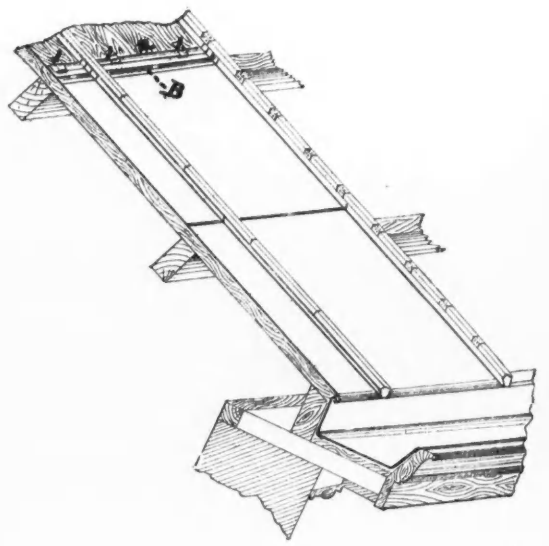


Fig. 5.

ON THE CHEMISTRY OF THE CYANIDE COPPER ASSAY.

Written for the Engineering and Mining Journal by J. J. Beringer and H. W. Hutchin.

The extreme sensitiveness of this assay to the varying circumstances of its performance is met in practice by the rule, now everywhere adopted, of working the assay and standard under the same conditions. A discussion of these conditions, while emphasizing the importance of the rule, may help toward a better understanding of the process and be of interest to those engaged in its working.

Adding ammonia to the assay causes an increase in the quantity of cyanide required; and if a portion of the ammonia be neutralized by an acid to a moderate extent the increase will be [all the greater. At first sight it looks as if ammonium salts interfere much more than their equivalent of ammonia does; but this is erroneous and is easily seen to be so on examining the results of titrations with increasing quantities of reagents. In both cases it will be seen that the effect of the first addition of ammonia (or, say, ammonium nitrate) is greater than that of subsequent ones and that the effect decreases with the quantity of ammonia (or ammonium nitrate) already present; so that an increase in the quantity of acid may cause an increase or a decrease or leave unaffected the quantity of cyanide required according to the proportions of free and combined ammonia already in the solution. To determine what proportion of free to combined ammonia produces the maximum effect on the assay we tried a series of experiments, all containing the same quantity of ammonia, 32 c.c. of 33% solution of ammonia, but differing in the quantities of acid which we adjusted so as to neutralize $\frac{1}{8}$, $\frac{2}{8}$, $\frac{3}{8}$, $\frac{5}{8}$, and $\frac{7}{8}$ of the ammonia present. We found 36 c.c. of nitric acid, sufficient to just neutralize the 32 c.c. of ammonia. And inasmuch as our view of the reaction caused us to expect a variation in the results with different quantities of copper present we repeated with experiments, using very different weights of the metal. The bulk before titration was in all cases 350 c.c. The solution of cyanide used was made up with 45 g. of 95% salt to the liter; but had been made some months and was probably a little weaker than this. The results, expressed in cubic centimeters of cyanide used are shown in the following table:

C.C.'s Nitric Acid Added.	4·5	9·0	13·5	22·5	31·5
Copper ·02 gram	2·3	——	2·1	1·7	1·6
" ·10 "	9·9	9·9	9·9	9·7	9·6
" ·20 "	19·6	19·7	19·9	19·8	19·2
" ·30 "	29·5	29·8	30·0	29·9	29·3
" ·40 "	38·7	39·7	39·8	39·6	38·7

These show that while one cannot play fast and loose with the quantity of acid present yet a difference of about 1 c.c. will produce no great

effect. To us, however, their chief interest lies in their general harmony with the theory we hold as to the chemistry of the process.

The accepted theory throws very little light on the matter. It is stated by Dittmar (*Quantitative Analysis*, page 117) in its baldest form. He says "to explain the reaction we need only remember the readiness with which cupric cyanide passes into cuprous"; he adds, "3KCN should correspond to 2Cu. Yet in practice we find the ratio varies with the quantities of ammonia salt, ammonia and water and depends on the nature of the acid present." We remark that in practice the quantity of cyanide required for 2Cu is pretty closely 8KCN instead of the 3KCN demanded by the theory and yet no hint is given as to how so considerable a result is brought about. When so skillful a chemist and so clear a teacher as Dittmar leaves the subject in so much obscurity there is room for discussion.

If you add cyanide to a solution of copper sulphate until the precipitate first formed is just re-dissolved and then pour on ammonia and ammonium nitrate a blue color is slowly produced which attains its maximum in a few hours and does not increase on further standing. On the other hand, if you titrate a solution fairly rich in ammonia and ammonium salts and let it stand overnight and then add ammoniacal copper till a blue is obtained, you will find the copper solution at first rapidly discolorized, but afterward very sluggishly, and finally you will get a faint blue which will stand for a week without fading. These experiments, and the general experience of working the assay, suggest a reversible reaction with a slowly attained state of chemical equilibrium.

It may reasonably be doubted that there is any considerable formation of cuprous cyanide under the conditions of the assay. In even feebly acid solutions the change of cupric cyanide into cuprous* is instantaneous: it is slow in neutral solutions (the change is appreciable for hours); while the green precipitate obtained by adding a copper solution to potassium cyanide made alkaline by soda or ammonia may be kept, at any rate in a moist state, unchanged for a long period. This green precipitate is a cupric salt and a cyanide, and does not reduce silver from ammoniacal silver nitrate. It may be obtained by slow precipitation from a slightly ammoniacal solution in distinct crystals. Washed with water and very dilute ammonia it is what we speak of in the next paragraph as cupric cyanide.

The action of ammonia and ammonium salts on cupric cyanide affords an explanation of the disturbing influence of these reagents in the assay. If excess of cupric cyanide be shaken up with dilute ammonia a blue color is developed in the course of a minute or two; the addition of a little ammonium nitrate makes the color much stronger. The reactions may be expressed as follows:

$$2\,Cu\,Cy_2 + 6\,NH_3 + 2\,H_2O = 4\,NH_3.\,Cu\,(HO)_2 + (NH_4)_2\,Cu\,Cy_4$$
$$2\,Cu\,Cy_2 + 4\,NH_3 + 2\,NH_4NO_3 = 4\,NH_3.\,Cu\,(NO_3)_2 + (NH_4)_2\,Cu\,Cy_4$$

Now it is evident that if we drew off the blue solution and added cyanide of potassium cautiously we would decolorize it. On the other hand more ammonia or ammonium nitrate would restore the color or increase it.

We shook up cupric cyanide with 50 c.c. of semi-normal ammonia, diluted with water to 300 c. c., and in other flasks repeated the experiment, having previously neutralized portions with normal hydrochloric acid. We then filtered off the blue liquid and titrated with potassium cyanide. The results were:

Ammonia neutralized.....	none	1/8	3/8	5/8	7/8
Cyanide required.....	3·0 cc.	2·9 cc.	2·8 cc.	2·2 cc.	1·4 cc.

Repeating the experiment with ammonia one-half the strength the three-eighth experiment showed the strongest color, while the first and last were very much paler.

While both series show plainly the falling-off in effect with excessive proportion of ammonium salt, they also show that the relative importance of the two reactions (expressed above by equations) varies with concentration and probably with other conditions. We have proved to our own satisfaction that the presence of much double cyanide in solution has a big effect on the result.

We suggest the above as a first step toward a theory of the process, the completion of which in the hands of a chemist of sufficient leisure and mathematics would be full of interest.

* Cuprous cyanide is easily recognized by its remarkable resemblance in appearance to silver chloride.

THE SOPRIS COAL-WASHING PLANT IN COLORADO.

The accompanying illustrations are from photographs of a coal-washing plant recently erected for the Colorado Fuel and Iron Company, at its mines near Sopris in Las Animas County, Colorado. The first is a general view of the plant, showing the arrangement of the buildings, the tipple and the delivery to cars; the second is a front view showing especially the conveyor.

This plant is another illustration of the tendency to use increasing care in the preparation of coal for market. The Sopris coal is here sized washed and delivered on cars in excellent condition for the consumer. the company being repaid for its expenditure in the higher prices obtained and in the securing of a better market for the product.

The coal is taken from under the main screen at the tipple by a Jeffrey conveyor composed of No. 518 steel link chain with attachments every 32 in., carrying steel scrapers 18× 10×$\frac{3}{16}$ in. with cross-bars, axles and rollers. This conveyor is 260 ft. long and elevates coal a vertical distance of 83 ft., on an angle of 18° 40' from the horizontal. It has a capacity of 700 to 800 tons in 10 hours of coal that will fall through screen spaces 4½ in., 6 in. between diameter bars. The coal, just before discharging at head of elevator, passes over screen bars set 1½ in. apart in the bottom of the conveyor trough, which takes out most of the slack and small coal. This goes direct to a pair of sizing screens; while that which passes over the conveyor screen, including all the large pieces, falls into a Jeffrey coal crusher with teeth set in movable rings. The product of the rolls joins the fine material from the conveyor, and falls into sizing screens 18 ft. long by 6 ft. diameter, covered with perforated steel plates which have for one-half their length ½-in. square holes and for the other half 1½-in. square holes.

Coal passing over the screens is called nut; coal through 1½-in. square holes pea, while that through the ½-in. square holes is a mixture of dust and buckwheat. The nut and pea are collected in bins direct, while the

The Sopris Coal Washing Plant, Colorado.

finest material is allowed to fall past the mouth of an air blast pipe which blows away the dust, the cleaned buckwheat falling into its proper bin.

From the bins the different-sized coals pass to washing machines or jigs, in which the slate, bone, sulphur and other impurities are removed, while the washed coal is carried by water to the cross-conveyors. These are so arranged that one conveyor handles buckwheat, another pea, and the third nut. The dust taken out by the blower mentioned above does not pass into the washing machines, but is sent into the larry-bin without washing.

The cross-conveyors are arranged to carry coal to the center of the washer-room, the upper flights carrying from one side, the lower flights from the other, and each section is provided for 9 ft. of its length with a perforated bottom, through which the water drains off while the coal is moving along. These conveyors are 30 ft. center to center of sprocket wheels, and consist of two strands of No. 504 steel link chain with swivel attachments with oak-wood flights 6 × 12 in., 2 in. thick. They are driven direct from a line shaft overhead with Jeffrey detach link belt, the shaft making 80 revolutions per minute to 22½ revolutions of the sprockets or conveyor shafts. The coal is drained thoroughly, and no water remains except that naturally clinging to it.

The central conveyor runs from end to end of the main building, and is 36 ft. long center to center of sprockets. It is composed of No. 516 steel link chain with attachments 24 in. apart carrying plates 18 × 6 × $\frac{3}{16}$ in. with a No. 10 steel trough. It runs about 200 ft. per minute and has sufficient capacity to carry all the washed coal to the disintegrator at one end of the building.

From the disintegrator the coal is carried to the larry-bin in the bucket elevator. This is very slightly inclined, and is 61 ft. 4 in. center to center of sprockets. It is composed of No. 518 steel link chains with attachments every 32 in., in two sections right and left, with centrally hung buckets 24 × 12 × 10 in. of No. 10 steel, with re-enforced front lip. It carries the disintegrated coal at a speed of about 245 ft. per minute. This coal is quite fine and is damp enough to be very sticky, so that a high speed of discharge is essential. Otherwise a slower speed would be more economical as regards wear and tear of machinery.

All driving belts except those of the centrifugal pump, the blower and the crusher are of Jeffrey roller chain. The engine furnishing the power is one which was already on hand, and in order to utilize it and bring the speed of chains down to a safe limit a countershaft was interposed. From this a steel thimble roller-chain conveying 90 H. P. drives a line shaft in

the center, from which the belts to the jigs and the washed-coal conveyors are taken; at one extreme end a steel roller chain connection through a pair of miter gears drives the bucket elevator at the top end. From the other end of the line shaft a roller chain drives the center conveyor, while another steel roller chain drives the sizing screen and the head of the long conveyor from the tipple.

All the machinery has been put up in the most thorough and substantial manner under the direction of Wm. J. Murray, local superintendent of the Sopris mine, from plans furnished by the engineering department of the Colorado Fuel and Iron Company, under the supervision of Mr. R. M. Hosea, designing engineer. It is to the careful work of design and construction that the successful operation of the machinery is largely due, and as the company is now handling about 500 tons of washed coal daily without trouble, the machinery, which was furnished by the Jeffrey Manufacturing Company, of Columbus, O., is fulfilling all expectations.

MINING IN NORWAY.

An interesting report on the trade of Norway in 1895 by Consul-General Mitchell, recently issued by the British Foreign Office, gives some particulars as to the mineral industries of the country during the year. At the Röros Copper Works a large foreign loan was obtained by the company for the placing of machine power in the mines, heretofore worked by man and horse-power. The plan is to transmit 600 to 700 H. P. by electricity to the higher pits from the Kuraas pit near Jensvold station, about midway between the chief pits, and from 5 to 7 km. from each of them, so as to secure power for the machinery there. When this work, which is now begun, is finished, it is calculated that the cost of production will be considerably decreased. The amount produced at these works in 1895 was about the same as in former years.

At the Sulitelma Copper Works business was very brisk, and enlargements are on hand. The Arendal Works produced, with an average of 130 men, 1,400 tons of washed ore with 20% of copper. The veins in the mines are very good on an average, and especially a vein of "Bunt" copper ore with a considerable admixture of silver. Work in the Vigsnæs mine was stopped at the end of 1893 as far as mining was concerned.

A quantity of ore is said to have been found near the old works at Fiöen and near Kopervik. But these discoveries have not yet been closely examined.

At the Ringerikes Nickel Works business has not been good, and at the Evge Nickel Works it is the same. When, however, the Sœterdals railway is ready this autumn, it is hoped things will mend. The Sande Zinc Works near Ryfylke have also stopped. A few men are engaged to keep things in order until trade improves. The Knaben molybdenum mine is kept at work with about 20 men chiefly during the summer time, and gives a yearly produce of about 7 tons pure sulphuret of molybdenum, which brings about 2 kroner (53·6c.) per kilo.

Many iron mines along the coast are stopped. There has been only a small demand from abroad for ore from many of these mines. The chief iron-works still working are those at Nœs which are more correctly steel works. The mining of rutile, in the Arendal-Kragerö neighborhood, is on the increase. The produce in 1895 amounted probably to about 20 to 30 tons. The Compagnie Francaise des Mines de Bamble did little business in apatite, but has taken out a considerable quantity of thorite. The Dahll apatite mines in the Bamble district report good business all the year through with about 46 men employed. The product amounted to 1,200 tons of apatite, of which 500 tons were classed as No. 1 (85 to 90%) and 700 tons as No. 2 (68 to 75%). Exports amounted to 1,000 tons of No. 2 and 100 tons of No. 1, the latter being worth about 65 kroner, or $17.42 per ton.

Blast Furnaces in Great Britain.—The total number of blast furnaces in Great Britain on September 30th was 690, while two new ones were reported building and three more are being reconstructed. On the same date 373 of these furnaces were in blast, while 317 were out. The list, however, as is the case in this country, includes many old furnaces which have not been in blast for a long time, and probably never will be again.

The Siberian Railroad.—The Chinese government has given permission for the construction of the main line of the Siberian Railway through Northern Manchuria to Vladivostok. By virtue of the new agreement the route will be greatly shortened, as the line, instead of skirting the banks of the Amour, will cross that river into Chinese territory and follow a direct line to Vladivostok. The government withholds for the present permission to build a branch to a port on the Gulf of Pechili, but will doubtless grant this also when Russia wants it.

The Limestone Industry in Indiana.—A recent report from the Indiana Bureau of Statistics says, concerning the limestone industry, that reports were received from 112 quarries, covering 4,944 acres of ground. The estimated value of grounds and machinery is $3,056,320. There were quarried and shipped during the past year 61,217 cars of stone of the value of $1,958,376. The total of $940,648 was paid in wages to 3,519 men and 175 boys. The average wages of men were $1.65 per day; of boys, 67c. The average number of days worked was 225 for the year.

The Highest Bridge in Europe.—The most noteworthy feature in connection with the new Prussian State line, which is now in course of construction between the industrial centers of Remscheid and Solingen, will be the viaduct spanning the Wupperthal at the little town of Müngsten. When completed the structure will enjoy the distinction of being the loftiest of its kind on the European continent. The total height of the Douro bridge in Portugal is 62 m., or about 204 ft., whereas the viaduct at Müngsten will attain an altitude of 107 m., or about 353 ft. The span of the center arch at Müngsten will be 170 m. Upwards of 1,700 tons of ironwork will be required for the principal arch, and the total quantity of iron employed on the viaduct will amount to 4,000 tons. The cost of the viaduct is estimated at 2,500,000 marks.

COST OF EUROPEAN GEOLOGICAL SURVEYS.

Written for the Engineering and Mining Journal by E. A. Schneider.

(*Concluded from page* 366.)

SWITZERLAND.

The geological committee of Switzerland, which corresponds to the United States Geological Survey, has been in existence since 1865. In this year the Society of Swiss Naturalists petitioned the Government of the country to grant a subvention to be used for the purpose of a geological survey of Switzerland. This petition was favorably received and an appropriation of 10,000 francs ($2,000) per annum granted. Up to this day the same sum is paid out annually to the Swiss Society of Naturalists. The society elects every six years a geological committee consisting of five geologists. The committee in its turn elects a president. The first president was Studer, followed by Faber, Lang and Professor Heim, the present head of the Swiss geological survey. Neither the president nor the members of the committee receive a salary. Nevertheless the best geologists of Switzerland consider it a high honor to belong to this committee.

The duties of the committee consist in the supervision of the geological field-work and of the publications. Notwithstanding the large correspondence, which this work necessarily entails, the committee has managed for the first thirty years of its existence to get along without any hired clerical help. At present a secretary at a salary of 200 francs ($40) a year is employed, who attends to the correspondence and to the clerical work of the committee. The office expenses amount to 50 francs ($10) per annum.

The survey mapping of the country is chiefly carried on by geologists, who occupy at the same time professional positions at the Swiss Universities, but also by high-school teachers—a splendid testimony to the efficiency of the Swiss educational system. No financial remuneration is attached to this work; only the field expenses are paid for by the geological committee. Fifteen francs ($3) per diem are allowed for field work in the High Alps, 10 francs ($2.50) for work in the Jura. The total item for field expenses amounted formerly to 3,000-4,000 francs ($750-$1,000) a year; at present this part of the expenditure has still decreased. These figures explain better than anything else how it was possible to complete with such astoundingly small means the splendid geological map of Switzerland during the period of 1865-1888.

The map has been drawn to the scale of 1:100,000 and consists of 25 sheets. Each sheet is accompanied by a quarto volume of explanatory notes, which is printed on excellent paper and usually contains a very large number of highly detailed profiles and views; frequently, also, special maps drawn to the scale of 1:25,000 or 1:50,000. Many of the profiles and views are finished in colors. From the artistic point of view also the general map is very satisfactory. The geological features are superposed in colored tints on the topographic ground work, which has been furnished by the engineer corps of the Swiss army. The topographic map of Switzerland completed in 1870, cost the country very little.

The present task of the geological committee is the revision of the sheets, which have been already published; frequently for new editions a larger scale is adopted. Also, the publication of monographs, of which only two need be mentioned: "The Reefs of the Region of Iberg by Quereau," "The Terraces in the Zürich Valley, with detailed map," scale 1:25,000, by A. Apple. In honor of the Sixth Geological Congress which met 1894 in Zürich, the committee had printed a geological map of Switzerland (scale 1:500,000). A very important measure of the geological committee is the rule that all the cartographical drawings have to be deposited in some public collection of Switzerland. The committee does not possess either a petrographical or a chemical laboratory. The work which was necessary in this direction has been mostly performed gratuitously by professors and students of the Swiss Universities. In some few cases an appropriation of money has been made for rock analysis.

The geological map of Switzerland is a lasting monument to the patriotism and scientific enthusiasm of the Swiss geologists. It is wholly a work of love and consequently highly reliable. The astounding fact should be well borne in mind that an appropriation of $2,000 per annum, and all in all about $60,000 during a period of 30 years, have been sufficient to carry out a great and monumental work. An explanation of such results is readily found if we call on the president of the geological committee. In vain our eyes seek a host of clerks and good looking typewriter operators. The president of the geological committee, who is not a politician, but a geologist of the highest standing, Professor Heim, receives us in his working room, surrounded by rock specimens. In response to our request that the office rooms of the geological committee should be shown to us, Professor Heim leads us in a modest room, filled up with rock specimens. The middle of the room is occupied by a pine desk with a number of pigeon holes. Our host informs us that all the clerical work of the committee is performed at this table by a young gentleman, who receives for his efforts the magnificent sum of $40 per annum. Some American visitors would be liable to believe that the geological committee does very little work, but 33 large volumes containing the work of Swiss geologists, and the magnificent geological map which hangs on the wall, would be sufficient to dispel all doubts in this direction.

In conclusion it is only just to mention some of the most important volumes which contain the explanatory notes to each of the 25 sheets of the geological map of Switzerland. Escher von der Linth has furnished a volume and a sheet scale 1:25,000, covering the region of the Sentis. Professor Theobald 3 sheets—the region of the Graubündten High Alps; Professor Heim has treated the subject of the High Alps between Reuss and Rhein, and has contributed one sheet (No 14). Schardt and Gilliéron have devoted their attention to the High Alps. Rénevier has studied the Vaudois Alps. Kaufmann (teacher at the Luzern Lyceum) has contributed an interesting memoir pertaining to the chalk and molasse formations (Pilatus). Gutzwiller, Taccard, Rollier and many others should be mentioned but for the lack of space.

The geological committee attends to the printing of its maps and memoirs, which are sold by Schmidt, Francke & Company, in Berne. The price of the single sheet is in most cases 10 francs ($2.50). The geodetic survey receives an annual appropriation of 15,000 francs ($3,000).

Switzerland covers an area of 41,346 square kilometers and numbers, according to the census of 1883, 2,917,754 inhabitants. In 1893 the income of the Federal Government amounted to 78,226,526 francs ($15,645,305). Each canton, corresponding to our counties, has besides a separate budget.

SCAFFOLDING IN THE BLAST FURNACE.

By E. Bernard.

The question of scaffolds or obstructions in the body of the furnace is one which possesses great interest for all connected with the working of blast furnaces, because although, usually speaking, these obstructions are not so inimical to the existence of the furnace as other irregularities, yet they may stop or disturb the work sometimes for weeks together. It is certainly astonishing, the author says, in a note communicated to the Association des Ingénieurs Sortis de l'École de Liege, that the best-known works on metallurgy contain no explicit information on this subject. It is not possible to confound these scaffolds with obstructions in the crucible, from which they are entirely distinct. The choking of the crucible results always from an insufficiency of heat, whether due to an excess of ore, very imperfect reduction or a too refractory mixture of ores. In every case the cause is understood and the remedy quite clear. In the case of scaffolding, on the contrary, the crucible is always free; it is an obstruction which occurs in the body of the furnace, and which consequently escapes observation as to its nature. The result is that the gas and air can find no passage, combustion ceases, and the descent of the charges is prevented just as if the furnace were not working at all. The accident occurs only when the process is hot and regular, and analysis reveals nothing abnormal in the composition of the metal, slag or gas. What, then, can be the cause?

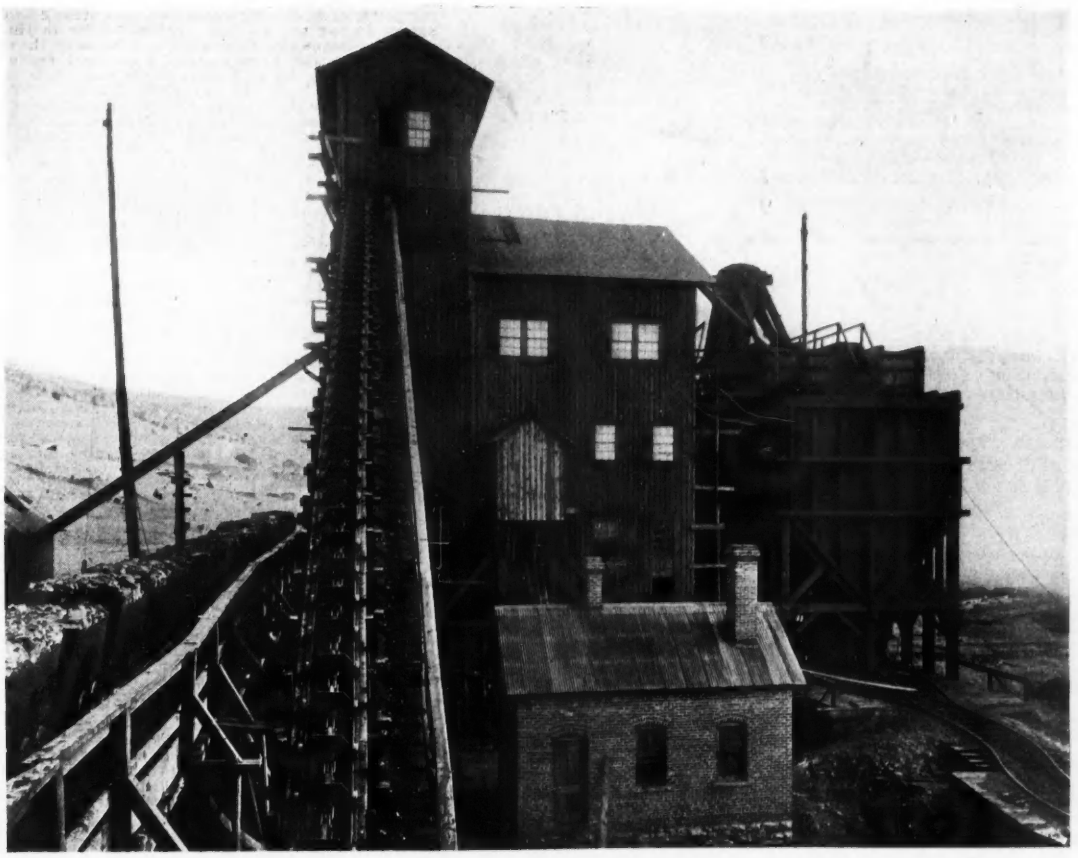
In an article published in 1892 in *Stahl und Eisen*, by M. Van Vloten, the only time when the subject has been clearly handled, the author attributes these obstructions to the formation in the charges of a deposit of pulverulent carbon, the result principally of the dissociation of the oxide of carbon in the reduced and spongy ore, $2CO = C + CO_2$. This dissociation of CO has been dealt with by many authors. It depends largely on the temperature; it is very great about 425°, but after 900° there is no dissociation, the inverse reaction $C + CO_2 = 2CO$ preponderating. A relatively slight proportion of CO_2 prevents it at any temperature; at the low temperatures favorable to dissociation the gas of the blast furnaces is never free from CO^2. The quantity of carbon therefore deposited should not be very great, and although the charges are usually impregnated with dissociated carbon, so that it may be supposed that this carbon terminates the reduction of the ore, incompletely effected by CO, and that the carbon absorbed by the CO_2 of the carbonates is also dissociated carbon as well as the carbon carburetting the iron; the quantity, according to these hypotheses, would not exceed a quarter of the total amount of carbon consumed. To obstruct the furnace the quantity ought to be 10 times greater, corresponding to all the CO produced during several hours. But in cases of scaffolding the analysis of the gas indicates no deficiency of carbon. Following up the above-mentioned article, M. Duvaux, manager of the blast furnaces and foundries of Brousseval, expressed the opinion that the obstruction of the furnace would be due to the excessive heat causing the reduction of an excess of silica, rendering the slag thereby so basic as to be infusible. The case of a slag being made refractory by excess of alumina is somewhat rare. Usually slags are refractory owing to excess of lime; at all temperatures the lime limits the quantity of silica reduced. Besides, the infusibility of the slag chokes the crucible, which irregularity differs entirely from an obstruction in the body of the furnace. As we have already said, this latter accident is not due to any change of composition in the productions of the furnace. These views of the question do not appear to have any foundation. It is suggested that these obstructions may be due to the method of fusion of the slag of the blast furnaces.

The laws governing the fusibility of compounds of silica, lime, alumina, magnesia and metallic oxides, which constitute the slags of blast furnaces, are not well defined. According to the experiments of Berthier, combinations of the three principal elements—silica, alumina and lime—are not fusible at blast-furnace temperatures, with the exception of those cases where the proportion of the oxygen of the silica to the oxygen of the sum of the two bases is as 2 to 0·5, and where at the same time the proportion of lime is 0·3 to 1. The most fusible slags are those where the first ratio is equal to 1 and the second to 0·4, corresponding to the ordinary slags of the cold process; with the least fusible the silica or the bases are in excess. By the combination of the bases, magnesia, oxides of iron and manganese without excess, and other things being equal, the fusibility is somewhat increased.

Slags are rendered refractory, with the hot process, by an excess of silica in blast-furnaces where charcoal is used, and by an excess of lime or alumina where coke is employed. The point of fusion increases with such excess, which appears dissolved and not combined. Slags are not very well defined compounds; experiments show that a very basic slag, cooled below its point of fusion, does not solidify; an excess of base precipitates. Let S be a refractory slag produced by the hot process in a furnace employing coke, melting at $T°$, b an excess of bases; $S=s+b$; s is a mass fusible at a temperature $t°$ similar to a cold process temperature. Such an intimate mixture, S, heated progressively, commences to melt at part s, when the temperature is $t°$, after which the melted portion becomes saturated with the base, and is constantly at the limit of fusibility, the mass remains in a pasty state until temperature $T°$ is reached, when the remainder b, being dissolved, fusion is completed and the mass becomes fluid. In a furnace the materials heat progressively from the throat to the crucible, and on the level, $A\ B$, toward the bottom of the boshes, fusion is produced. In the process of refining, the temperature in the crucible being close upon $t°$, fusion, either partial or total is possible only at this level, $A\ B$. With the hot process, with mixture S, fusion may commence if the mass be sufficient, on the level $A'\ B'$ above $A\ B$ at temperature $t°$, at the most fusible part s, owing to the excess of bases b. It has an incomplete and pasty fusion from level $A'\ B'$ to level $A\ B$, where at temperature $T°$ fusion is complete. The cinders from the coke, which would not affect the question at issue, are not taken into consideration.

In the accompanying diagram, Fig. 1, the dotted line $XT°$ shows the hypothetical curve of temperature with the hot blast, or working at high temperature; the crossed line $Xt°$ shows the similar curve when working cold or at the lower temperature. The mass of partially-smelted matters and bases, agglomerating with the fuel, constitutes the scaffold or obstruction of the furnace.

This result may always be expected with the hot process; in fact, a furnace is always less free with this method of working. It may be partial or complete, according to the previous mixing of the materials. It



The Sopris Coal Washing Plant, Colorado.

is to this previous mixture that may be traced the well-known influence on the obstructions of the nature of the matters treated, of the mode of charging, and especially of the section.

There are two ways of freeing a furnace which is obstructed: By blowing at the boshes, toward the breast, by one or more relief tuyeres. Combustion and fusion are effected in the agglomerated mass, which becomes loosened and soon falls down. A more general method consists in blowing as violently as possible into the crucible, open at the tap hole, and then stopping the blast abruptly. This operation, if repeated several

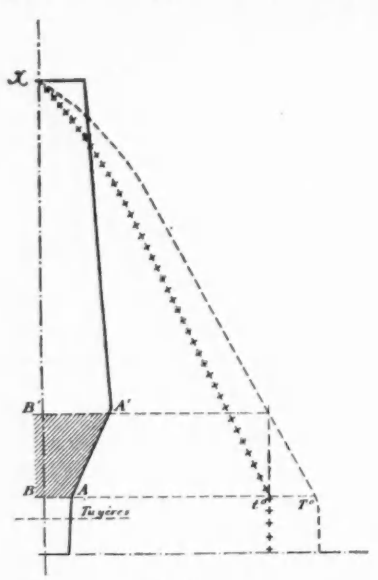


Fig. 1.

times frequently, causes the suspended matters to descend. The colder the blast the more rapid is the effect; the pasty agglomeration cools and solidifies while contracting and loosening. Obstructions, in fact, appear to last a specially long time if one persists in applying the hot blast.

Tests of Steel Castings.—The Sargent Company, of Chicago, furnishes the following record of tests of open-hearth steel castings recently made:

PHYSICAL PROPERTIES OPEN-HEARTH CASTINGS.

Heat No.	Tensile strength per sq. in. Lbs.	Elongation in 8 in. Per cent.	Reduction in area. Per cent.
E 138	67,800	22·5	41·5
E 141	60,200	24·8	46·6
E 142	64,700	23·3	44·7
E 144	59,300	24·8	46·9
E 149	60,500	26·2	45·4
E 154	62,200	25·5	52·5

The steel was made in the company's furnaces in Chicago, and the tests show its excellent quality, which is further established by the evidence of manufacturers to whom castings have been supplied.

Cost of Mine Haulage in Germany.—Electrically-driven rope haulage at the Eintracht Colliery, near Steele, in the Ruhr District, forms the subject of an article in *Glückauf* of September 5th, by M. Dickmann, who compares the expense of horse and mechanical haulage at that colliery. In the last quarter of 1894 the cost of horse haulage for 78,880 ton-kilometers (48,905 ton-miles), including horses, grooms and drivers, shoeing, repairs to tubs, cleaning the track, supervision and repairs, came out at 32 pf. per ton-kilometer (5c. per ton-mile). Against this, in the first quarter of the present year, the cost of rope haulage with 75,139 ton-kilometers (46,586 ton-miles), including the same expenses as above over the difference between the figures given per ton-kilometre, in addition to enginemen, men for hitching on and releasing the tubs, splicing ropes, two ropes worn out, oil and steam, came to 23 pf. per ton-kilometre (3·5c. per ton-mile). This last result will be still more favorable when all the horses are superseded by rope haulage. The system of signaling enjoined by the mine police is an electric-bell arrangement by which it is possible to signal the engineman from any point in the haulage plant. The electric transmission of power with accessories was carried out by the Allgemeine Elektricitats-Gesellschaft of Cologne, which has also electrically lighted the landing and engine-room.

Mineral Traffic of British Railroads.—The railways of the United Kingdom carried in 1895 over 240,000,000 tons of mineral traffic, and about 94,000,000 tons of general merchandise traffic, so that mineral traffic stood for about 72% of the whole traffic carried, apart from passengers. The tonnage of minerals carried, and the receipts therefrom, in each of the three divisions of the kingdom were as under:

	Tons.	Gross receipts.
England	200,274,270	£15,514,154
Scotland	38,698,676	2,587,324
Ireland	1,391,619	175,057
Totals	240,335,565	£18,176,535

The quantities of mineral carried by the leading railroad companies in 1895 show a remarkable disproportion between the quantities carried and the gross receipts therefrom, owing mainly to the differences in the length of haul. The English railroads do not report ton-mileage, as ours do, so that no comparison can be made of their rates. At present, according to the London *Iron and Coal Trades Review*, the railroads which carry coal from the Midland coalfields to London are placed at an increasing disadvantage as compared with sea transport, owing to the material reductions that have recently been made in the latter, and hence the condition of the coal industry of the Midlands, and especially of South and West Yorkshire, is far from satisfactory. It will require considerable further reductions in the railway transport charges to bring the Midland coalfields into line with those of Durham, Northumberland and South Wales, which have transport by sea.

PATENTS RELATING TO MINING AND METALLURGY.

United States.

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

WEEK ENDING OCTOBER 13TH, 1896.

569,157. System for Operating Oil-Wells. George Allen, Franklin, Pa. The combination with a connecting medium between the driving and driven mechanism, of a compensating device interposed between the ends of the connecting medium and constituting a part thereof.

569,177. Scale for Weighing Gaseous Substances. Alphons Custodis, Dusseldorf, Germany. The combination of a gas-scale provided with a pair of chambers, having inlet-orifices, a joint-chamber communicating with the chambers, a common exhaust-pipe, floats suspended within chambers, a scale-beam operated thereby, a pointer secured to the scale-beam, a movable scale and a worm for adjusting the scale in a lateral direction.

569,221. Apparatus for Melting Metals. Richard G. G. Moldenke, Pittsburg, Pa. The combination with a crucible furnace, having a sloped platform for the charge and means for heating the charge up to (or near) its melting point, of an electric apparatus, comprising two carbon electrodes, set in sliding sockets, funnel-shaped holes in the wall of the furnace, and a horseshoe electro-magnet, set between the carbon electrodes, the carbon electrodes being inserted into the furnace through the funnel-shaped holes in this wall, and adapted to produce therein an electric arc.

569,272. Ore Crushing Mill. Samuel M. Briggs, San Francisco, Cal. The combination with a shaft, cams, dies and shoes of the mortar block cut away at the corners to admit the vertical posts of the framework, the posts being secured to the block by bolts passing entirely through the block, and a mortar secured to the block and having a flange with its corners cut away to correspond with the cut-away edges.

569,273. Acetylene-Gas Generator. Alfred S. Bucher, Decatur, Ga. Combination of a receiver and a discharge-pipe for gas, a water-tank and a pipe connecting the tank with the receiver and extending to near the bottom of the latter, and a gas-generator connected to the receiver and an inverted cup perforated at its top end and set over and near the opening of the pipe into the tank.

569,283. Feed-Table for Rolling-Mills. Sigmund V. Huber, Youngstown, O. The combination of a series of delivery-rollers arranged in certain vertical and horizontal planes, a series of receiving-rollers arranged in different vertical and horizontal planes, and mechanism for lifting an article from the receiving-rollers and shifting it laterally onto the delivery-rollers.

569,293. Process of Softening Base Bullion. George A. Marsh, Carnegie, Pa. The process consists in melting the bullion, heating the molten bullion to a temperature at which litharge will be reduced by the arsenic and antimony, say about a bright-red heat, and then promoting the formation of litharge or oxide of lead in the molten bullion by any known means of oxidizing, and thereby permitting the reduction of the litharge by the arsenic and antimony, and the consequent elimination of such impurities.

569,325. Process of and Apparatus for Producing Cyanides. Paul Danckwardt, New York, N. Y. The process consists in melting the chloride of an alkali or alkali-earth metal, introducing into the molten bath carbon and nitrogen, electrolyzing the bath while in contact with the carbon and nitrogen, and continuously removing the cyanide so formed from the action of the electric current.

569,334. Process of Extracting Gold. Bertrand C. Hinman, New York, N. Y., Assignor to the Gold and Bromine Separating Company, same place and West Virginia. The process consists in dissolving the precious metals by bromine chloride adding chlorine to the liberated bromine, separating the bromine chloride thus formed from the solution in the form of vapor, condensing such vapor and precipitating the gold.

569,361. Ore-Roasting Furnace. Charles E. Stockford, Sulphur Creek, Cal. The combination of a shell or casing, a series of superposed oppositely-inclined floors having vertically-connecting throats between the bottom of each floor and the upper end of the succeeding one, fireplaces in the shell or casing, one on each side of the ore-passage, and having arches or openings leading inward, a passage or flue back of each floor and following the inclination thereof and of its vertical throat, and having substantially the same diameter throughout, having a channel opening into the ore-passage at the top of one floor and just above the lower end of the floor next above, whereby the heat acts directly on the ore passing alternately under one floor and then over the ore on the floor above, and means for charging the furnace.

569,421. Regenerative Gas-Furnace. Louis J. Lemaire, Alexandria, Ind. The combination with the hearth, of air-regenerating chambers, two on each side, corresponding deposition-chambers two on each side of the hearth arranged to receive the draft on its passage from the hearth to the regenerative chambers or vice versa, ports connecting each regenerative chamber with its corresponding deposition-chamber, and flues provided with valves connecting the deposition-chambers with the hearth.

569,461. Process of Manufacturing Steel. Elias M. Johnson, New York, N. Y. This process of making chrome-steel consists in introducing into the steel as it is flowing from the converter or furnace in a molten state chromium in a fluid or semi-fluid state.

Reissue 11,572. Open-Hearth Furnace. Henry Aiken, Pittsburg, Pa.; Frederick W. Wood, Baltimore, Md., and Harry H. Campbell, Steelton, Pa. Original No. 481,885. A metallurgical furnace having rockers on which it can be tipped, a supporting cradle, traveling anti-friction rollers between the rockers and cradle, and a discharging spout at the end of the furnace toward which it is oscillatory.

Great Britain.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy:

WEEK ENDING SEPTEMBER 5TH, 1896.

17,707 of 1895. N. G. Kimberley, London. Concentrator for minerals.
18,741 of 1895. W. Kitto, London. Crushing mills for ores.
19,224 of 1895. J. Prestwich, Manchester. Miners' safety lamp.
14,957 and 15,159 of 1896. C. James, Swansea. In treating copper sulphides, preparing a matte with 75% copper, roasting it and smelting two parts of the roasted matte with one part of raw ore.
15,684 of 1896. B. H. Thwaite and F. L. Gardner, London. Rendering blast furnace gases suitable for use in gas engines.

WEEK ENDING SEPTEMBR 12TH, 1896.

15,682 of 1896. B. F. Lacy, San Francisco, Cal., U. S. A. Roasting furnaces.
22,460 of 1895. O. Hamilton, Northfleet, Kent. Making basic carbonate of lead.

WEEK ENDING SEPTEMBER 19TH, 1896.

20,166 of 1895. W. H. Coward, London. Improvements in the "Niagara" Pulverizer.
21,022 of 1895. W. Foggo, London. Method of securing cams in stamp mills.
21,151 of 1895. W. Foggo, London. Improvement in the heads of stamps.
13,886 of 1896. W. P. and W. Tatham, Philadelphia, Pa., U. S. A. Manufacture of white lead.
15,157 of 1896. W. Barnes and T. Eden, Johannesburg, South African Republic. Preventing overwinding in mines.
15,542 of 1896. W. H. Howard, Pueblo, Colo., U. S. A. Improvements in the Parkes desilverizing process.

PERSONAL.

Mr. Otto Abeling is now at Illecillewaet, B. C., where he has been making a test of ores from the Lanark group of mines and designing a mill for those mines.

Mr. E. R. Argersinger, manager of the Golconda mine, on the south slope of Squaw Mountain, Colo., has returned from a business trip to Buffalo, N. Y. and Pittsburg, Pa.

Mr. John W. Gates, president of the Illinois Steel Works, has paid a visit to Breckenridge, Colo., where he has mining interests, and has inspected other mining districts.

Mr. D. V. Donaldson, Secretary and Treasurer Colorado Springs Mining Stock Association, is in New York on a visit, and will return to Colorado Springs, Colo., in a few days.

Major J. E. Jackson, resident agent of the Consolidated Kansas City Smelting and Refining Company in Salt Lake City, has gone to Helena, Mont., on business for the company, to be absent a week or ten days.

Mr. H. A. Keller is now consulting metallurgist of the Keswick Smelting Works, owned by the Mountain Mines, Limited, at Keswick, Shasta County, Cal. Mr. Keller retains also his headquarters in San Francisco.

Mr. A. H. Holgate, of Duluth, Minn., is on his way to Plumas County, Cal., to take charge of the La Porte Hydraulic mine. Mr. Holgate has had a large and successful business experience at Duluth, and leaves a host of friends in the Zenith City.

Mr. J. H. Tibbetts, formerly of the Clark Exploration Company, of South Africa, is about to visit Arizona in the interests of the Anglo-Pacific syndicate. On his return he will examine mining properties in Mariposa and Madera counties, Cal., for the same company.

Mr. Louis Sloss, Jr., of the Alaska Commercial Company of San Francisco, who returned last week from a visit to the various mining districts in Alaska, says miners should not go to the Yukon River mines in search of gold unless they have money enough to keep themselves out of want for at least two years.

Mr. Percy Le Roy Fearn, of Messrs. Olcott, Fearn & Peele, mining engineers, of New York, has returned to Chicago, on his way to Canada and thence to New York. Mr. Fearn has been in Yuma County, Ariz., examining a gold property of large possibilities for Eastern capital. He will shortly go to British Columbia to investigate some gold mines.

Professor J. Rigaed, a noted French engineer and a contributor to the scientific press of the world, is now president of the newly organized Ralston's Divide Mining Company of Placer County, California. Accompanied by M. Traucha of Paris, who is also interested in this company, he has spent some time in looking after the development work at the mine. It is their intention to sail for Paris very soon.

Messrs. Edward Roderick and Henry O. Prytherch were the only applicants for the position of mine inspector who answered more than the necessary 90% of the questions asked them at the examination held recently at Scranton, Pa. Mr. Roderick is the present inspector of the First Anthracite Mining District and will be recommended by the examining board for appointment to succeed himself. Mr. Prytherch has been employed for some years in the Lackawanna valley by various mining companies, and will be recommended by the board of examiners to succeed Patrick Blewitt as inspector of the Second Anthracite Mining District.

Messrs. Buff and Berger, manufacturers of surveying, engineering and astronomical instruments at Boston, Mass., celebrated the twenty-fifth anniversary of the establishment of their business on October 18th. Both are of German birth and learned their present trade in their native country, working there and in England. They came to the United States about 1865, working in New York, Washington and Boston. On October 18th, 1871, they went into partnership and began business on a small scale at No. 9 Province Court, Boston. Step by step they advanced until to-day their business ranks with the best, and they enjoy the reputation of making mathematical instruments as fine and accurate as any in the world.

OBITUARY.

John T. Linn, manager of the McKeesport Coal Company, died at McKeesport, Pa., October 14th.

Henry E. Collins died at Pittsburg, Pa., October 14th, aged 54 years. Nineteen years ago he went to Pittsburg from St. Louis and engaged in the metal brokerage business, the firm being known as H. E. Collins & Co.

Rufus Scott, well-known to local oil men and throughout the oil regions, died October 9th, at Wellsville, N. Y. He was an extensive producer, a lawyer of prominence in Western New York, and for the past 10 years had been prominently identified with the movements of the independent oil men.

Richard K. Winters, a real-estate owner and mining man, died at Seattle, Wash., on October 7th. He was born in Nova Scotia in 1854. When a boy he went to California, and for 25 years he followed mining. Part of the time he lived in San Francisco and part of the time at Virginia City, Nev. He was quite successful and amassed considerable wealth.

John H. Drake, of Middletown, Conn, died in Philadelphia, Pa., on October 20th, aged 55 years. He was president of the Drake & Stratton Company, one of the largest contracting companies in the United States, with offices in New York City. Among the extensive contracts performed by the company were the foundations of the Bartholdi Statue, on Bedloe's Island; the rebuilding of the great bridge at Johnstown, Pa., after the floods; the New York Reservoir, at Jerome Park, and thousands of miles of railroads in this and other countries.

SOCIETIES AND TECHNICAL SCHOOLS.

Civil Engineers' Club of Cleveland.—A meeting was held in the club rooms, Case Library Building, October 13th, 1896. Resolutions upon the death of Mr. J. F. Holloway and Dr. C. O. Arey were read and adopted. Mr. J. D. Varney presented a paper on "Solar Work in Land Surveying." Mr. Varney gave a simple explanation of the principles governing solar work and a description of a new device for use in that method of land surveying.

Society of Chemical Industry.—The opening meeting of the session was held in New York on October 23d. The following papers were read: Opening address by the chairman, Prof. Dr. Charles F. Chandler; "The Ammonia-Soda Process and the Alkali Trade of the United States," by J. A. Bradburn; "On the Determination of Sulphate of Lime in Paints," by G. W. Thompson; "Formaldehyde as a Re-agent," and "On Asphaltum," by H. Endemann.

Columbia University, New York City.—This institution entered upon its 143d academic year on October 5th. Mr. Charles C. Worthington, M. Am. Soc. C. E., has offered to equip a laboratory of hydraulic engineering in the new School of Mechanical Engineering. The gift is to be made in the name of his father, the late Henry R. Worthington. A notable change has been made in regard to the School of Mines, which will hereafter no longer be known by its old name, but by the name of the School of Applied Science, while the School of Chemistry, the School of Architecture and the School of Engineering will be set apart as distinct schools, all four schools being under the charge of one faculty, known as the faculty of Applied Science.

INDUSTRIAL NOTES.

The Indiana Iron Works at Muncie has resumed in every department, giving employment to over 500 men.

At the Atlantic furnace, in Newcastle, Pa., a new stockhouse is being erected. It is entirely of iron and is 60 ft. × 80 ft. in size.

The Akron, O., Iron and Steel Company has started up its puddling and finishing departments. During an eight weeks' shut-down repairs and improvements were made.

S. R. Seyfert & Brothers' Rolling Mill, at Seyfert's Station, Pa., have resumed work after an idleness of two months. The firm put 225 men to work and will run "double turn."

The Minneapolis Wire and Iron Works, at Minneapolis, have been incorporated; capital stock, $25,000, incorporators, F. A. Clarke, F. E. Tucker and J. D. Caskey, all of Minneapolis.

The Sharon, Pa., Iron Works' new by-product coke ovens have been tested and found so satisfactory that there is a possibility that an additional 25 ovens may be erected in the near future.

Citico, Tenn., furnace, which gives employment to about 500 men, including furnace hands, ore miners, cokemen and trainmen, went into blast again last week, after having been shut down for several months.

The Pottstown, Pa., Iron Company's entire works have passed into the hands of George B. Lessig, president of the Ellis & Lessig Steel and Iron Company, the Gas and Motor Company, and the Citizens' National Bank.

The Buhl steel mill at Sharon, Pa., has a force of men engaged upon the construction of the new mill, for which a part of the material is on the ground. The building will be 910 ft. long, with two annexes each 150 ft. long.

The Franklin H. Kalbfleisch Company, of 80-82 William Street, New York City, the well-known manufacturers of acids and chemicals, have distributed among the trade a rather unique but artistic paper-weight in the shape of a carboy.

The American Stoker Company, of Dayton, O., has recently perfected a steam motor which is applied to each stoker, thus making each machine independent. This renders the work of installation very simple. It also renders the stoker practicable for use under marine boilers.

The Pennsylvania Railroad shops at Altoona, Pa., closed down on October 20th on account of the extensive depression in business. Seven thousand men as a consequence are idle, and every branch of trade in the city is affected. How long the suspension will last is not known.

Charlotte furnace, at Scottdale, Pa., has been blown out, after having been in blast since July 21st. The furnace was started then to work up the stock of ore on hand. That object has been accomplished and the plant will remain idle until business conditions are greatly improved.

The Lucy Furnace Company, of Pittsburg, has contracted to take the entire coke output of the Semet-Solvay Company's Dunbar plant. Twenty-five by-product ovens are now in blast and 25 more will be fired as soon as built. Over 800 idle ovens in the Connellsville region were put in blast last week.

The Baron Manufacturing Company has been incorporated to manufacture and deal in metals, alloys and compounds of metals in New York City. Capital, $50,000. Directors are: Aime Baron, of Paris, France; Robert A. Cheseborough, William R. Garrison, Paul Fuller and Frederic R. Coudert, Jr., of New York City.

The Bethlehem Iron Company has been notified that the test plates representing the group of 16 plates for the turret of the Russian vessel *Rostislay* have successfully withstood the bombardment of big projectiles in St. Petersburg, and that the group has been accepted by Russian government officials. The plates are 8 in. thick.

Messrs. Church & Company, of 129 Pearl street, New York City, has removed to 63 and 65 Wall street. The business will be carried on in the name of the Church & Dwight Company in consequence of the consolidation some time ago of the firms of Church & Company and John Dwight & Company. The Church & Dwight Company will continue to manufacture and sell bicarborate of soda, saleratus, sal-soda and carbonate of soda in all forms.

The Glauber Brass Goods Manufacturing Company, of Cleveland, O., will settle the differences between themselves and the union brass workers by arbitration, the union men and the company having each selected three members of the board of arbitration, the arbitrators to choose the seventh. Ten weeks ago the 50 union brass workers employed by the company struck because the managers refused to discharge three non-union employees, one of whom was a foreman.

The Berlin Iron Bridge Company, of East Berlin, Conn., has received the entire contract for the erection of a power-house and car barn for the Union Traction Company, of Rutherford, N. J. The buildings will be of brick with steel frame work, and the plant, when completed, will be up to date in all respects. The car barn is 97 ft. × 100 ft., adjoining which will be offices, store-rooms and repair shop. The engine-room is 50 ft. × 65 ft. and the boiler-room 40 ft. × 65 ft. The roofs are supported on steel trusses, and the covering is to be corrugated iron throughout. The roof of the engine house is to be lined with the Berlin Company's patent anti-condensation fireproof roof lining, which gives protection against fire and condensation.

TRADE CATALOGUES.

Compressed Air is the name of a monthly publication devoted to the useful application of compressed air, edited and published in New York by W. L. Saunders. No. 8, for October, now at hand, contains matter of such interest and value as to assure a publication of this nature a hearty reception among those connected with the subject of compressed air.

The Colorado Iron Works Company, of Denver, Colo., has found it necessary to publish a second edition of the pamphlet entitled *Explaining Ore Crushing Machinery*, which first appeared last January. Considerable space is given to the subject of crushing rolls, which are explained with much exactness. Various styles of ore breakers—the Black Hawk, Blake and Bosworth—are shown. Reference is also made to the Finlayson patent wire rope tramway and to the Elspass frictional roller quartz mill, both productions of the Colorado Iron Works Company. It is a safe prediction to say that this edition will be received with even more favor than was the first one.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the *Engineering and Mining Journal* of what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufacturers in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the *Engineering and Mining Journal* are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GENERAL MINING NEWS.

ALASKA.

BALD EAGLE.—The tunnel of this mine, at Sum Dum, is in 800 ft. and is half completed. Other portions of the mine are producing ore enough to give a yearly net profit of $100,000.

BOSTON & ALASKA GOLD MINING COMPANY.—There was transferred recently to this company the title to 41 mining claims on Admiralty Island. The property transferred includes a 10-stamp mill in operation.

SUM DUM CHIEF.—This property, which has been under bond to Seattle men for $45,000, is now in the hands of the new owners, and they are developing the mine.

TREADWELL.—D. O. Mills and others, who have a bond on the southwestern lode of this property, are encountering $6 gold to the ton in a shaft that is down about 100 ft.

ARIZONA.

GILA COUNTY.

BLACK COPPER GROUP.—W. W. Hill, superintendent of this group of claims, reports that development work has been temporarily suspended, to permit of the under-ground works being timbered. A one-fourth interest in the Black Copper group was recently sold to New York parties who are refiners and dealers in copper.

YAVAPAI COUNTY.

HERMIT.—A gang of men is to be put at work on this copper mine, Slate Creek District, near Prescott, to sink 100 ft. There is 5 ft. of good ore now exposed in the bottom of the shaft, which runs parallel to Wilson & Bowdre's Black Oak gold mine.

YUMA COUNTY.

LA FORTUNA GOLD MINING AND MILLING COMPANY.—This company has shipped a bar of gold bullion aggregating $76,000. It is the product of a 30-days' run of the 20 stamps at La Fortuna.

CALIFORNIA.

AMADOR COUNTY.

(From Our Special Correspondent.)

ALLEN, HAYDEN & MARRE MINES.—This property, which comprises 230 acres, is reported to have been sold to Bailey, Porter & Bailey, of San Francisco, for $200,000, and that a large hoisting and milling plant will be put in immediately.

LIGHTHOUSE.—The purchasers of this mine, formerly the property of W. E. Stewart, have extended the tunnel and crosscut the ledge. They have cut a 22-in. ledge of good gold-bearing quartz which shows free gold. The owners of the property intend to erect a 5 or 10-stamp mill immediately.

CALAVERAS COUNTY.

(From Our Special Correspondent.)

FOLSOM.—At this mine, near Angels, a force of nine men is at work developing the property. A 5-stamp mill is at work.

MALONEY.—The strike at this mine, about 50-ft. from the surface, is said to be very extensive. Ore is being sacked and shipped to San Francisco. A hoisting plant and other machinery is being put in and sinking on the vein will soon commence.

THORPE.—The shaft at this mine, near Fourth Crossing, is down 500 ft. on a large vein of low-grade ore.

EL DORADO COUNTY.

(From Our Special Correspondent.)

RODGER & CRAWFORD.—These claims, one mile from Placerville, have been purchased by an Oakland, Cal., syndicate, which has commenced development work.

KERN COUNTY.

(From Our Special Correspondent.)

ST. ELMO.—This mine, on the Mojave Desert, in the Randsburg District, is owned by Borgwardt & Kyle, of Bakersfield, Cal. Although the development work consists only of a 40-ft. shaft, the owners have made several shipments of ore to San Francisco, which returned on an average $250 per ton. The vein is said to crop out for 3,000 ft. A pulverizer and a drywasher with a capacity of 200 tons per day, is to be put in at an early date.

MARIPOSA COUNTY.

(From Our Special Correspondent.)

MARIPOSA GRANT.—This property, which comprises 44,000 acres of mineral and agricultural land owned by Senator Jones, Alvinza Hayward, the Hobart estate and J. W. Mackay is said to have passed into the hands of the Exploration Company, of London. Manager Hamilton Smith, of this company, is reported due in San Francisco about November 1st.

NEVADA COUNTY.

(From Our Special Correspondent.)

PROVIDENCE.—At this mine, one mile west of Nevada City, the 40-stamp mill has been started up, and a full force of men put at work. There is plenty of good ore in sight.

PLACER COUNTY.

(From Our Special Correspondent.)

GLENN & GRAY EAGLE CONSOLIDATED.—This property, 15 miles northeast of Michigan Bluffs, on the south side of Bald Mountain, comprises 400 acres of land giving two miles of channel. The tunnel reaches the gravel at 400 ft. and a crosscut run to the west run shows a heavy body of gravel, some of which runs as high as $4 to the car.

HIDDEN TREASURE MINING COMPANY.—The Dam drift claim near Centerville, one mile north of Sunny South, is being worked by this company. About $90,000 has been spent in development work during the past two years without levying an assessment. The main tunnel is in over 6,000 ft., and the various drifts and crosscuts leave the gravel in blocks of 200 ft. × 260 ft. ready for breasting. About 100 men are employed.

PLUMAS COUNTY.

(From Our Special Correspondent.)

LA PORTE CONSOLIDATED GOLD MINING COMPANY.—At a recent meeting of the Board of Directors of this company, held in Duluth, Minn., A. H. Holgate, of that city, was selected from their number to take charge of the company's property. Mr. Holgate, having temporarily located his family in Oakland, is now on his way to the mine to personally superintend the work. The ditches, which are very extensive, are being put in first-class shape and it is confidently expected that the handsome returns yielded by this mine during the past season will be doubled during the next, as the supply of water promises to be much greater.

RIVERSIDE COUNTY.

(From Our Special Correspondent.)

LEON.—This mine is located in the Menifee Mining District, seven miles from Winchester. The superintendent reports $20,000 spent in development work, which consists of a 300-ft. prospect shaft, a 60-ft. double compartment shaft and three levels run about 500 ft. each. About 100,000 tons of ore, which will mill over $8 per ton, have been blocked out. Milling machinery will soon be put in. This property was formerly owned by the Briggs Bros., of Leon.

SAN DIEGO COUNTY.

(From an Occasional Correspondent.)

CINCINNATI BELL COMPANY.—This company is hauling ore from the Gold King to its mill in Banner, and getting good returns. They are compelled to haul over 11 miles, and the mines are not over 2 miles from the mill.

OWENS CONSOLIDATED.—This property, in the Julian district, has been pumped dry and the mill put in order. The ledge is about 2 ft. of $50 rock and is in good shape for stoping. Concentrators have been put in (the only ones in the district), and save concentrates from $50 to $23,000 per ton. The Ella is producing small crushings of $75 rock.

RANCHITA.—Cave Couts has developed a wonder in this mine. At the 250-ft. level he has from 3 ft. to 4 ft. of ore for 100 ft. on either side of the incline. The ore mills high and other levels show that it reaches to the surface. A 5-stamp mill is being built.

READY RELIEF.—This mill, in Banner district, is shut down temporarily, but much development work and prospecting is being done on the properties of the owners, the Bailey Bros. They have a fine water power developed.

TUOLUMNE COUNTY.

(From Our Special Correspondent.)

CONFIDENCE.—At this old mine, 4¼ miles from Soulsbyville, the new hoisting engine has been placed in position at the mouth of the incline, which is to be retimbered and enlarged. A large amount of high-grade ore is reported in sight. A 30-stamp mill and a new hoist have been ordered.

DRAPER.—The old shaft is being cleaned out and retimbered. The adit level, which is at a depth of 100 ft., is also being put in order to be used to carry off the water pumped from the shaft. Development work will commence soon.

COLORADO.

BOULDER COUNTY.

EMANCIPATION AND WESTERN SLOPE.—Bert Langridge has sold these mines to an English syndicate, and it is said that they are to be operated on an extensive scale. If so it will put new life into Sunshine camp. The purchase price is said to be $100,000. Mr. Langridge is having the old machinery pulled out and the shaft-house torn down preparatory to putting up a complete new plant on the property.

GOLD CHIEF.—Work on this tunnel is being steadily prosecuted, and the breast has been driven to a depth of 450 ft. There are several good streaks of ore in the breast which are now coming together as the big porphyry body is being cut out, and which has broken the vein for the last 40 ft. Recent tests from the ore streaks show them to run about $20 per ton.

GOLD KING.—The new steam hoisting plant has been started and works perfectly. Work has been resumed on sinking the shaft, now down 100 ft. It is the intention of the company to continue sinking 200 to 300 ft. deeper, and at the same time putting men to work running levels from time to time at convenient distances. Night and day shifts are employed. Good mineral was encountered at a depth of 40 ft. In the bottom of the shaft there is a streak of smelting ore of from 6 in. to 12 in. wide and mill ore running from 10 in. to 30 in.

CLEAR CREEK COUNTY.

(From Our Special Correspondent.)

CONQUEROR.—This mine, at Empire, recently made such good showings in output of mineral that the force of miners has been doubled in the drifts and crosscuts, with the object of doing aggressive development during the coming winter months.

DORIC.—Three air drills are in use at this Georgetown tunnel. It has now been driven for 800 ft., and one of the big lodes should be cut within a few days. One blind lead was crossed, and it, too, is being drifted on with satisfactory results. The pay streak is 12 in. wide and runs $30 a ton.

MINT.—The water is being taken out of the shaft of this mine at Empire with the intention of sinking the shaft to a connection with the adit, which has been driven into the hill 340 ft. The smelting streak ranges from 10 in. to 15 in. in width, and is running from 3 oz. to 4 oz. gold per ton. There is also a big body of low grade ore by its side.

MIXSELL MILL.—The Kincaid process mill is being put in by Mr. Philip Mixsell at his Idaho Springs mill. While it has been used in California for several years, and more particularly at the Comstock, it is the first of its kind to be used in Colorado. It is for the treatment of free milling ores, and the stamps are done away with, although plates and bumpers are used. The ore is fed to a rock crusher, which in turn feeds to a friction crusher which contains amalgamated copper plates.

PIONEER.—This property, near Dumont, has been closed down by the Nebraska people, who claim it is but temporary. They have had the mine under lease and bond for two years, and have made it pay its way, but were unable to take out enough ore to pay the purchase price of the property, although the mine is doubtless a good proposition for the right parties. Another deal for the transfer to other people is said to be under way. A good amalgamating and concentrating mill is included with the mine.

SENATOR.—After doing considerable development work, Estey, Mudd, Bellan and Loose, of Leadville, have opened up a big body of ore in this property located near Idaho Springs. The Blue Bell adit has been driven something over 2,200 ft. to cut an ore chute encountered nearer the surface. They have been expecting it for the past two months, and now find it at a depth of 1,200 ft. from the surface. The pay streak now measures 3 ft. in width, one-third of which is a polybasite, and worth in total values from $200 to $600 per ton.

SILENT FRIEND.—In extending the upper adit on this Idaho Springs mine, the management encountered about 5 in. of sylvanite at 800 ft., tests of which show 64 oz. gold and 34 oz. silver to the ton. This streak pitches down, for in the stope above the ore is not worth over $100 per ton, but the streak is much larger. A winze will probably be sunk on the richest ore body.

EL PASO COUNTY—CRIPPLE CREEK DISTRICT.

DEAD PINE.—This mine, near Victor, has been bonded for $100,000 to Dennis Sullivan and Messrs. Wolcott and McShea, of Denver. The property is located on the apex of Battle Mountain. Twelve tons of ore shipped two weeks ago ran 1·26 oz. and 7¼ tons returned 4·45 oz., the amount of each being $807.87.

(From Our Special Correspondent.)

BERTHA B.—This mine, on Raven Hill, has at last made a shipment from the depth of 50 ft. from a north shaft. This claim was purchased in 1893 by Messrs. Joe Vaile, Jeffrey, etc. Considerable money was expended in developing the claim; a shaft was sunk 300 ft., and levels extended nearly 1,000 ft., but without any shipments save a few tons of low-grade milling ore from a surface shaft. Mr. Vaile, of Denver, is now the sole owner of the property, and has recently struck some ore.

BLUE BIRD.—The Bartlett Lease, on the north end of this claim, at a depth of 150 ft., has within the past few days taken out some of the richest ore ever found on the claim, and some of the best specimens found in the camp.

GOLD COIN.—This mine in the town of Victor, has shipped in the past five months 1,500 tons of ore, 500 tons of which has been shipped in the past 30 days. The first 1,000 tons averaged $38.50 per ton; the other 500 tons sampled much better, one shipment going over 7½ oz. The average of the 1,500 tons may safely be said to average over 2 oz. The shaft has been sunk 220 ft. The ore chute has a total length along the course of the vein for 225 ft., while the largest, the north chute, is estimated to have a length of over 400 ft. The width of the ore chutes increase with depth. At surface the width of the ore chute is 11 in., at the first level it varies from 2 to 5 ft., on the second level it averages from 2 to 8 ft. The mine gives employment to 76 men.

HANNAH BRITT.—This is the name of a claim located on the apex of Bull Hill. The owner of the claim has stayed with it for 4½ years, has spent several thousands in protecting his rights and keeping away trespassers, until now he says he owns the land. Recently he has erected a steam hoist and is about to sink a shaft 200 ft. deep. Pat. Britt, the owner, deserves success.

JUBILEE.—This claim, on Globe Hill, has been steadily worked under lease and bond for 12 months, but without making any shipments. A shaft has been sunk 252 ft. and drifts 100 ft.

KITTY MAY WELLS.—This mine, on Carbonate Hill, has another car ready, taken from a shaft 75 ft. deep. The vein is about 15 in. wide and dips into the hill at an angle of 70°, the pay streak being on

the hanging wall. The vein is largely a porous quartz and mud. In sinking the shaft the last 40 ft. two caves have been found, which show no signs of crystallization. The evidence of this hill contributing to the output of Cripple Creek during 1896 is very flattering.

NEW HAVEN MINING COMPANY.—Eclipse No. 1, owned by this company, shows the the ups and downs of mining. The claim was located by Mr. Coombs and a Congregational minister. In the year 1892 Mr. Coombs sank a shaft 40 ft., when the finances "played out." In 1893 the property was leased to some Denver parties, who did considerable work, but without any grand result. In 1894 it was leased to other parties, who shipped some surface dirt. In 1895 it was sold to the New Haven Mining Company, which erected a first-class plant of machinery, sunk a shaft 150 ft. and doubtless when the funds were exhausted the property was closed. Mr. Coombs, the original locator, in connection with others of his friends, took a lease recently on the property, and in a hole drilled 18 in. deep from the bottom of the 1892 shaft the vein was found, the first assay of which gave value of $1,310 and shipments are being regularly made of medium-grade ore.

PHARMACIST.—This mine, on Bull Hill, recently made a 35-ton shipment to the sampler. The new vein at the 200-ft. level steadily improves. The sinking of the shaft proceeds very slowly, the present depth being less than 150 ft.

SPECIMEN.—This property, on Bull Hill, under the management of Mr. Burrough Edsall, bids fair to become a mine. The grade of ore is steadily improving, yielding over $40 per ton. The ore is found in the new shaft at a depth of 90 ft.

STANDARD.—This tunnel, for double track, has pierced Beacon Hill from the west, a distance of 610 ft. in a formation of gneiss. As yet no veins of value have been encountered. The tunnel is being driven by four men by hand labor.

ST. LOUIS LEASING COMPANY.—The Claude, a fractional claim on Gold Hill, worked by this company, made a shipment of 40 tons recently. This claim is close to the Anchoria, Leland and the Jefferson.

GOODWILL TUNNEL AND MINING COMPANY.—This is the name of a corporation whose object is to bore into Gold Hill directly under the Anchoria-Leland. The tunnel commences at Cottontail Gulch, about 100 ft. south of town, and will be driven in a northeast direction. The company says in its prospectus . "It is here distinctly stated and understood that, unlike most of the companies of the Cripple Creek District, the Goodwill Tunnel and Mining Company makes no claim whatever to veins that rightfully belong to owners of property on the surface, but proposes to offer a clear and clean business proposition, whereby the mine owners can, instead of pumping water, hoisting and otherwise extracting their ore at great expense, drain the mine and take the ore out through the Goodwill tunnel to the railroad with greater ease and at an immensely reduced cost." From what the writer knows of the present directorate he has no doubt whatever but what they will live faithfully to the above clause. Already $50,000 has been subscribed for this tunnel, and bids are now being considered for the erection of a power plant on a large scale. The size of tunnel is 7 ft. × 7 ft. in the clear.

TRACHYTE.—This, mine on Bull Hill, has been kept uninterruptedly at work for three years. The shaft has been sunk 200 ft., and at that depth a level has been extended 75 ft., and to-day it looks, as if the ore chute is being found, as the vein matter is heavily interspersed with fluorine, in which free gold and telluride can readily be seen. It is to be hoped that this property will soon enter on the list of permanent shippers.

VIRGINIUS.—This claim, adjoining the Kitty May Wells, is under lease and bond, and in a shaft sunk 35 ft. deep a well-defined lead is exposed sampling $20 per ton, which the lessees are saving, hoping it will net them a small profit. The ore at present is oxidized, but the indications are that with depth the ore will be pyritous. Considerable work is being carried on in this section.

GILPIN COUNTY.

(From Our Special Correspondent.)

BALTIMORE NOTTOWAY.—Local parties have leased and bonded these claims, situated west of the McLeod Nottoway, recently acquired by Chicago parties.

BRITISH.—A small shaft-house is being erected on this mine, which has for many years been abandoned.

CHASE.—Work has been recommenced at this mine, situated east of the Saratoga. The shaft, now 325 ft. deep, is being sunk another lift of 100 ft. and a test run of ore is being broken from the east 225-ft. level.

GOLD COIN.—The Kansas mill, owned by this company, is being fitted with automatic feeders, the use of which is not general in this camp, most of the ore being milled in small lots at custom mills. It is reported that good ore is being opened up in the Kansas mine. Last month's total production is stated to have been $28,000.

OPHIR-BURROUGHS.—The Gilpin County tramway line is being graded in to this mine, situated west of the Phœnix-Burroughs, on Quartz Hill. The Ophir is operated by a local pool, and has for many years past been a very steady producer of comparatively high-grade ore.

PARK COUNTY.

NO END.—A new strike is reported in this mine in the Alma district. The find was made while prospecting between the No. 1 and No. 2 tunnels, and the ore was found only a short distance below the surface. Only a few feet of open cut has been made preparatory to the commencement of a tunnel, and a body of ore has been developed 6 ft. in width, which assays $100 to the ton.

SAN JUAN COUNTY.

REPEAL, GOLD BUG AND NUGGET.—The sale of these claims in the new camp of Bear Creek, 15 miles east of Silverton, has been made for a consideration of $25,000 cash. The owners are Holly, Taylor & Roe. The purchasers were F. Nathan & Company, of Kansas City. The mines have been shippers of high-grade ore since their discovery last spring. The purchasers will operate the mines all winter. A tunnel 800 ft. in length is to be run at once, and shipments are to be suspended from the upper workings until its completion. It will tap the lowest point of the vein at 407 ft.

SAN MIGUEL COUNTY.

ELECTRIC POWER COMPANY.—Work is being pushed on this company's flume from Trout Lake to the power plant below Aimes. This plant furnishes several hundred horse-power to the mines now, and will be enabled to supply more when their flume is completed. In addition to supplying the Gold King, Bear Creek and Tomboy mines, they also furnish light for the town of Telluride.

FLORIDA.

MARION COUNTY.

FLORIDA PHOSPHATE COMPANY.—The company has been organized to open phosphate mines near Ocala. The stockholders are A. S. Anderson, Edwin W. Davis, Frank Grant, James V. Burke and Frank E. Wetherbee.

WHITFIELD & SANDERS PHOSPHATE MINE.—This mine at Early Bird, near Ocala, was sold recently at sheriff sale. It was purchased by the Anglo-Continental Guano Works for the sum of $500.

GEORGIA.

BARTOW COUNTY.

GRADY MINING COMPANY.—This company has been incorporated by L. S. Munford, T. R. Jones and others to develop iron ore and coal lands. The offices are at Cartersville.

WALKER COUNTY.

MARSH MINING COMPANY.—This company, of Atlanta, reopened its hematite ore mines at Shaw, last week, and will ship direct to Chattanooga, Tenn. W. D. Hix is superintendent of these mines.

IDAHO.

BOISE COUNTY.

IOWA.—This mine, near Quartzburg, owned by Dave Coughanour, has produced $17,000 in gold during the last three months. At a recent clean-up, after a 10-days' run, $5,000 worth of bullion was taken from the mill, and a similar amount resulted from a later 24-days' run.

OWYHEE COUNTY.

DE LAMAR MINING COMPANY, LIMITED.—The following is the return reported for the month of September: Crushed during the month, 4,470 tons of ore; bullion produced in the mill, $58,610; estimated value of ore shipped to smelters, $5,200; Miscellaneous revenue, $295; total produce, $64,105; total expenses, $44,090; profit for the month of September, $20,015. The directors have declared an interim dividend (No. 21) for the half year ending September 30th, 1896, of 1s. per share (free of income tax payable on October 31st at the London office.

TRADE DOLLAR.—Probably the richest carload of ore ever received in Denver, Colo., by the State Ore Sampling Works, is the ore from this mine in the De Lamar mining district, a short distance below Silver City. The ore was sampled and ran 41·42 oz. gold and 5,936·32 oz. silver to the ton. The car weighed 22,846 lbs., or a little less than 11½ tons, and the net value was $50,438.87, an average of $4,465 per ton.

SHOSHONE COUNTY.

GRANITE.—Lessees on this mine shipped a carload of 21 tons of high-grade ore last week. The Granite ore bodies were supposed to be about exhausted when the mine closed down four years ago, but a few lessees have been working on it nearly all the time since, and are said to have as much ore in sight now as ever.

ILLINOIS.

LAKE COUNTY.

UNITED STATES MALLEABLE IRON AND STEEL COMPANY.—The sand of the beach of Lake Michigan, a little north of Waukegan, has been discovered to contain considerable iron, and this company has been formed in Chicago for the purpose of separating the iron from the sand and making it into iron and steel. The company has been incorporated with a capital stock of $100,000, by Henry H. Blake, Frank J. Kilcrane and Manuel Friedlander. The office at present is at 210 Chicago Opera House Block. The promoters of the company have leased five miles of the lake front along the shore north of Waukegan, the property extending one-half a mile or so into the country. The sand has been analyzed and is found to contain an average of 10% of iron ore, which runs about 66% in metallic iron. The ore is to be ecured from the sand by magnetic separators and an experimental plant has been erected on the beach.

MACOUPIN COUNTY.

(From Our Special Correspondent.)

CONSOLIDATED COAL COMPANY.—Fire broke out at the bottom of the air-shaft in this company's mine, at Gillespie, on October 16th. All the men escaped, but 12 mules were suffocated. It is thought the fire will not extend to the surface. The entire mine has been closed down and the shaft sealed in an attempt to suppress the flames.

SANGAMON COUNTY.

MINERS' STRIKE.—On October 19th 3 0 miners employed in the Barclay, Riverton, Clear Lake, Dawson and Spaulding mines struck for an increase from 32½c. to 40c. per ton, gross weight. It is probable that all the miners of the Springfield District will be called out shortly. At a meeting held in the spring the scale was fixed at 32½c. for summer and 40c. per ton gross weight for winter.

MAINE.

KNOX COUNTY.

FOX ISLAND GRANITE COMPANY.—This company, at Vinalhaven, has leased the entire operating plant to the National Granite Company and business will start up at once. T. J. Lyons will superintend this quarry.

MASSACHUSETTS.

WORCESTER COUNTY.

BOYLSTON GRANITE COMPANY.—This new company has been formed in Clinton. W. D. Blanchard, of Leominster, is president and manager, and Herbert E. Poole, of Clinton, treasurer. The company will open a quarry, and is now building a road to open a direct line from the quarry to both Clinton and West Berlin. As soon as this road is completed, a steam derrick and steam drill will be put in and the work commenced: the company has several good orders.

MISSOURI.

JASPER COUNTY.

(From Our Special Correspondent.)

JOPLIN ORE MARKET.—The output of ore last week was less than the week before, but the coming week the output will be largely increased if the weather is favorable. Twelve cars of zinc ore at Joplin and three cars from Galena, Kan., sold at $21 per ton. Nearly half of the balance sold at $20 per ton, and all the lower grades of zinc ore got an increase of $1 a ton. Last month the top price paid was $20 per ton, and very little sold at that. The spelter and ore markets are stiffening, with an upward tendency, in spite of the coming election. The price of lead ore, on the other hand, is weak and unsettled, at $14 delivered. The Joplin lead output was very light. Galena, Kan., also had a drop, but Webb City increased. The following are the reported sales for the week ending October 18th, 1896: Joplin zinc, 1,360,210 lbs.; lead, 137,400 lbs.; value, $15,866. Webb City zinc, 554,630 lbs.; lead, 76,920 lbs.; value, $6,368. Carterville zinc, 669,620 lbs.; lead, 241,630 lbs.; value, $9,743. Galena, Kan., zinc, 2,700,000 lbs.; lead, 350,000 lbs; value, $29,025. Aurora zinc, 540,000 lbs.; lead, 40,900 lbs.; value, $3,605. Alba zinc, 358,000 lbs.; value, $3,580. Oronogo zinc, 110,010 lbs.; lead, 9,950 lbs.; value, $1,069. Zincite zinc, 33,710 lbs.; lead, 1,210 lbs.; value, $320. Totals for the district: Zinc, 6,315,580 lbs.; lead, 860,010 lbs.; value, $69,776.

COWAN & MCCONEY.—They leased an old lot on the Mastin land and went into an old shaft and struck a fine zinc ore prospect with very little trouble. They will clean their dirt on the steam plant near the post office at Gregg for the present.

MRS. PRESTON & COMPANY.—Cowan, Parker & Company have leased their mine on the Byers & Murphy land to Mrs. Preston & Company, who are putting up a steam holster and boiler. The ground is being worked at a depth of about 65 ft. on a good face of zinc ore.

SCOTIA.—Col. H. H. Gregg, at this mine, is drifting at 75 ft. on a 14-ft. face of pebble jack in open ground with very little water. Last week he cleaned up 59,920 lbs. of zinc ore on five hand jigs. This is the finest ore produced in the district.

SIG & SAM BARNETT.—They have a lot on the Roaring Springs lands and have just opened a good jack prospect at 60 ft. They have started to drift and are taking out good pay dirt.

THOMAS MASTIN, JR.—He is drifting at 77 ft. on a 30-ft. face of zinc ore in open ground and enough water to wash the ore. This mine turns in from 40 tons to 50 tons of jack and from 4,000 lbs. to 5 000 lbs. of lead each week. The ore is cleaned on hand jigs.

UNO COMPANY.—The Uno mine, on the Scotia lease, is a new one and has only made two turn-ins until last week, when they made and sold 30 tons of top price zinc ore. They are drifting at 75 ft. in open ground.

MONTANA.

DEER LODGE COUNTY.

HERCULES MINING COMPANY.—J. F. Firch, president of this company, of Deer Lodge, is receiving good reports from recent development work on the Herculaneum. The showing in copper, it is said, is very good and some shipments made to Butte have averaged $72 per ton in copper and silver. The company is engaged in running a crosscut tunnel to tap the ledge, which is said to be from 40 ft. to 100 ft. wide. The tunnel is in 100 ft. and the lead will be

reached at a total distance of about 225 ft. The property is capitalized for $2,000,000.

GRANITE COUNTY.

El Dorado.—Charles Bourrier and Michael Sullivan are operating a group of claims northeast of the Royal, on the south fork of Gold Creek. At the El Dorado, the principal mine of the group, a tunnel has been run in 470 ft., cutting a big lead, assays from which range from $15 to $100. They have about 400 tons on the dump, which will be shipped when the roads will permit. Owing to the fact that the air in the tunnel is bad, operations have been suspended until cold weather sets in, when an upraise will be run.

Lookout Mountain Mining Company.—This company is doing extensive work on the mountain of that name. The company was incorporated by Philipsburg men, Geo. A. Maywood being the president, Frank Wilson vice-president, and C. H. Ashbaugh secretary. The company has 13 locations. Tunnel No. 1 was begun 1,800 ft. from the summit of Lookout Mountain. At a distance of 160 ft. the lead was cut, showing a 9-ft. body of ore assaying $22.50 in gold and a trace of copper. No. 2 tunnel uncovered a 7-ft body of ore assaying $7.20. Tunnel No. 3 is 400 ft. lower down the mountain and is in 310 ft. Another tunnel is being run with the expectation of tapping the ore chute found in No. 1 tunnel. If this work is successful the company will run another tunnel at the base of the mountain to tap the lead at a depth of 500 ft., and will erect a Kincaid mill, which can be operated by water power, Gold Creek furnishing an abundant supply at all seasons of the year.

Potosi.—A contract was recently let to James Anderson to run a 100-ft. tunnel at this mine. It is owned by S. R. Graves, Ralph Lewis, Fayette Harrington, Charles Williams, W. A. Clark W. W. McCrackin, Joseph Loiselle and others and is now developed by a 120-ft. tunnel. There is an 18-in. streak of rock in the tunnel which shows some free gold.

Queen.—John P. Rains and W. P. Forbis, of Butte, and James M. Self have taken a lease and bond on this mine, in the Royal District, near the Royal mine. They will begin development work at once. Some of the assays have yielded a rich return of silver to the ton, and a careful sampling across the vein has been entirely satisfactory. The Queen was patented in the early '70's by R. S. Kelley, Thomas Aspling and George Cockrell, from whom the present lease was obtained.

JEFFERSON COUNTY.

Eva May.—This mine is working with its usual force of miners, and continues to be a heavy producer. Sinking the shaft to the 500-ft. level is now in progress.

Silent Friend.—This new property on Bear Gulch is doing considerable development work. It is handled by a company organized last spring by Charles S. Muffly, of Helena; Lynn D. Kent and G. Hughes, of Basin, and a number of Cleveland, O., capitalists. They have a strong lead of gold, copper and silver ore, and are now sinking on the shaft between the 100-ft. and the 200 ft. levels. They have recently acquired some new property and have increased their capital stock to $800,000, and will build a concentrator at an early date.

MADISON COUNTY.

Kennett.—At a depth of about 330 ft. and on the 300-ft. level, the shaft cut through what is known as the Bertha vein; at this depth the vein is 15 ft. in width and, with the Kennett vein proper, gives an ore body 31 ft. in width. The ore body is of large proportions. The value of the ore has not yet been fully determined, but assays made demonstrate the fact that it does not run below $7 and much of it will give from $20 to $30 in free gold.

MISSOULA COUNTY.

Keystone.—H. L. Frank, Pat. Clark, John C. Finch and others are developing this gold property in the Yahk district. A railroad has been constructed from Troy to the mine, a 10-stamp mill is now being erected and arrangements have been made to put in 10 additional stamps at an early date. The mill will be started up about November 1st.

SILVER BOW COUNTY.

Butte & Boston Mining Company.—In the United States Circuit Court in Butte, October 19th, the attorneys for the trustees under the mortgages presented forms for the decree of foreclosure for the approval of the court. They were taken under advisement, and the court granted attorneys for the Davis estate—which holds 90,000 shares of the stock, and has so far declined to pay the $10 assessment—leave to examine the proposed decree and submit objections. It is reported that the administrator of the estate is willing to arrange some compromise with the reconstruction committee.

On the same day the receivers submitted a report showing total receipts of $107,374, and a cash balance of $24,641 on hand. There are 114 leases on the property now in existence; among these is a lease of the smelter to the Boston & Montana Company at a rental of $1,000 a month.

NEVADA.

LANDER COUNTY.

A big strike is reported in the new tunnel under the old mines of Austin in the State Line district. The ore runs 1,000 oz. of silver to the ton, but is hard to work. A 20-stamp mill is being built to work the ore.

LINCOLN COUNTY.

April Fool.—Gold bullion to the value of $6,200 was the result of a short run on April Fool ores by the new April Fool mill, which was erected during the past spring. Sixty men are now working at the mine and mill and at the present time are doing some extensive development work. At the present time the April Fool mill is treating about 20 tons of ore daily with 10 stamps dropping.

NEW JERSEY.

WARREN COUNTY.

Prospectors have for some time been at work at Oxford and have located a valuable deposit of zinc ore on the Raub farm, the quality of which is said to be excellent. It is reported that a combination of capitalists who control the zinc output of this country has recently become interested, and an analysis has shown the ore contained 60% of metallic zinc. If a sufficient quantity can be obtained a zinc plant will be erected.

NEW MEXICO.

LINCOLN COUNTY.

American.—This mine, near Nogal, is producing some good ore, 23 men being employed. The company is developing systematically, and while part of the ore is refractory, enough is free to yield a surplus to the stockholders, besides paying for the dead work of present development. Excavations for new buildings are now completed and their construction will at once begin.

SOCORRO COUNTY—COONEY DISTRICT.

(From Our Special Correspondent.)

Confidence.—This mill has shut down and is expected to remain so for some time. Most of the men in the mine have been laid off and only a small number kept on doing development work. Drifts are being run at the 160-ft. level from shaft No. 2. Shaft No. 3 will be sunk to same depth and connection made by a drift 400 ft. long. The temporary shut-down is due to contemplated extensive improvements. It is proposed to connect the mine and mill by bucket-gravity tramway, the distance being about 13,000 ft., and the fall about 1,600 ft. The company is, furthermore, considering the possibility of utilizing the water in Whitewater Creek for generating electric power for mill and mine. It is, furthermore, proposed to adopt electric drills in the mine. A great amount of ore is blocked out in the mine.

Copper Queen.—About six men are still at work driving on the vein. The drift is in close to 600 ft., passing now and then through bunches of very good ore, but no continuous ore chunks have yet been encountered.

Deadwood.—The owners are developing this claim; a tunnel on the vein is now 725 ft. long, the last 45 ft. in good ore. The tunnel is driven to intersect an ore chute discovered on the surface and from which ore assaying $500 per ton was shipped.

Florida.—The tunnel on the center vein is being pushed ahead and is expected soon to lap the intersection of three different veins, where a large orebody is expected.

TAOS COUNTY.

La Belle.—A vein 4 ft. in width was cut in the tunnel of this mine recently. The vein matter is of a mixed oxide and sulphide nature and returns low grade values for the entire streak. The work of driving the tunnel continues.

NEW YORK.

WESTCHESTER COUNTY.

Bulkley Quarry.—A new quarry is being opened on the Bulkley property at Rye. The stone has long been locally known, and it is proposed to work it on a large scale. The quarrymen have been at work stripping for several weeks, and now have a good solid face prepared to work on.

OHIO.

Strike Situation.—A despatch from Columbus says that the miners employed in several of the larger mines in Hocking Valley, on October 21st, voted to return to work at the reduced wages of 45 cts. per ton, and in consequence there will not be more than 2,000 idle miners in the State in a few days. This will probably break the backbone of the strike movement.

OREGON.

BAKER COUNTY.

White Swan.—A rich strike is reported to have been made recently in this mine at the 400-ft. level. A big body of fine-looking quartz has been uncovered, and it is expected that the mill will be started up immediately.

DOUGLAS COUNTY.

Black Republican.—In running a tunnel into this mine, on Frozen Creek, a tributary of Myrtle Creek, the workmen have struck rich ore, bearing copper and gold.

PENNSYLVANIA.

ANTHRACITE COAL.

Babylon Coal Company.—A fire was discovered in this company's shaft at Duryea on the evening of October 15th. Quite a number of miners were at work at the time, but the prompt action of mine foreman McCarthy, in diverting the air current from the fire into the return airway before the smoke could reach the men, prevented any fatality, all being removed without accident. One of the men while fighting the fire was quite seriously injured by a fall of rock.

Fisher Coal Company.—It is reported that a party of New York capitalists is negotiating for the purchase of the coal land owned by this company, at Trevorton. The land is on the mountain about two miles from that place, and contains rich deposits of coal. In case the deal is consummated extensive improvements will be made to the workings. A large new breaker will be erected and new openings made, thus giving employment to many additional hands.

SOUTH DAKOTA.

CUSTER COUNTY.

Wide World.—The Pittsburg holders of the bond on this group at Custer have a vein 20 ft. wide and averaging about $3 to the ton, free milling. It is figured that it can be mined and milled at not over $1.50. The rock is a very soft decomposed material

LAWRENCE COUNTY.

Deadwood Mining and Development Company.—The shaft of this company, on Two Bit Gulch, is now down 85 ft., and will be continued to the 100-ft. level, when drifts will be driven to crosscut the formation. A fissure vein 2½ ft. in width is now exposed in the bottom of the shaft. The gangue is a decomposed porphyry, intermixed with lime, from which a good prospect is obtained by pan and mortar test.

Gushurst.—This property, situated at the head of Squaw Creek, is being opened up. Drifts are now being driven on the ore chutes discovered in running the new tunnel. The rock is of good grade and there is a large amount of it on the dump.

National Mining Company.—This company has decided to resume work on its property, situated on Sugar-Loaf Hill, southeast of the Ruby Bell. The shaft, now 203 ft. deep, will be carried down to the ore contact, estimated to be 50 ft. or 60 ft. deeper. The property is well equipped with a steam hoist and all appurtenances for the work.

TENNESSEE.

KNOX COUNTY.

It is reported that a vein of chalk several feet thick has been discovered on the farm of Brock York.

Island Home Quarry.—This marble quarry has been reopened by Harmon Kries and William Monday, who now own the property. Some very fine variegated marble has been taken out.

MONROE COUNTY.

Cooper Gold Mining Company.—This company has been organized to operate in the gold fields said to have been discovered on Coco Creek. Mr. H. H. Taylor, of Knoxville, Tenn., is at the head of the company.

ROANE COUNTY.

Welcker Quarry.—The John J. Craig Company, of Knoxville, Tenn., has leased and will develop the sandstone quarries near Kingston. The property is owned by James H. Welcker, of Knoxville.

WILLIAMSON COUNTY.

Knoxville Mining and Promoting Company.—Work has been commenced by this company on a manganese mine near Carpenters, on the Marietta & North Georgia road. The work is in charge of W. E. Spence, secretary and treasurer of the company. Options have been secured on 160 acres, and other property will be secured at an early date. Only a limited amount of work has been done, but the prospects are excellent for a good mine.

UTAH.

BOX ELDER COUNTY.

Century Gold Mining and Milling Company.—This company, of Salt Lake City, is about to file articles of incorporation. The capitalization is placed at 150,000 shares of a par value of $1 each. The officers and directors of the company have been named as follows: Delaney Wilson, president; Samuel Oliver, vice-president; Thomas B. Busby, secretary; William R. Bowden, treasurer; James Rosevear, John Angove and Frank Edison. The property consists of nine claims, as follows: The Century, Century No. 2, Laura, Lizzie, Marian, June Bug, Fraction, Gold Star and Gold Star No. 2. Considerable development work has been done on the property and there is a good showing of high-grade ore in the various workings. It is the intention of the company to work the property all winter and to sink a deep shaft on the ledge for the purpose of determining the extent of the ore deposits.

JUAB COUNTY.

Mammoth Hill Mining Company.—This company, of Provo, owning valuable ground in Tintic district, near Mammoth, and on the line of the Ajax-Sioux tunnel, has entered into an agreement with the promoters of this enterprise whereby it has agreed to convey to them a certain proportion of the capital stock of the company, in consideration for which the tunnel is to be run through the Mammoth Hill ground, and the company is to have a perpetual use of the same for mining purposes.

Sunbeam Consolidated Mining Company.—The new find on the 250-ft. level in this property, at Silver City, assays as high as 200 oz. in silver to the

ton, and the ore also carries values of 20% copper and $2 in gold to the ton. Since the organization of the company last summer $10,000 has been expended in cleaning out the old work of the mine, and in getting it in shape so that ore shipments could be resumed, in addition to which a gasoline hoist has been put in, shaft house erected and other improvements made. President A. E. Welby and Secretary E. L. Carpenter have gone to the property.

SALT LAKE COUNTY.

VIRGINIA.

WISE COUNTY.

JONES COAL AND COKE COMPANY.—It is reported that this company has given an option on its mines and coke oven plant near Coeburn to a Pittsburg syndicate.

WASHINGTON.

OKANOGAN COUNTY.

IVANHOE.—The owners of this mine are now down with the shaft 340 ft. on the ledge, and it is still showing up high-grade ore. They expect to continue to the 500-ft. level this winter before drifting.

MONTEREY GOLD AND SILVER MINING COMPANY.—This company was recently incorporated. The capital stock is $1,000,000, divided into 1,000,000 shares of $1 each. Samuel Gibson, D. M. Solliday and Walter H. Rudd have been elected directors. The officers are: President, Samuel Gibson; Secretary, D. M. Solliday; Treasurer, George L. Hay, of Chicago. The company owns nine claims in Leavenworth District.

SNOHOMISH COUNTY

BONANZA.—This group of copper claims, near Silverton, which has been under bond to Dennis Ryan, of St. Paul, has changed hands, and Ryan takes the property and will put on a large developing force this fall and winter. The consideration is $150,000.

STEVENS COUNTY.

ALICE GOLD MINING COMPANY.—This company was recently incorporated with the following trustees: J. F. Nylander and Benjamin F. Parker, of Portland; J. B. Benway, S. E. Phillips and George M. Forster, of Spokane. The officers are: J. F. Nylander, president; George M. Forster, vice-president; J. B. Benway, secretary, and Jacob Hoover, treasurer. The capital stock is $500,000, and the principal office is in Spokane. The Alice is located about four miles north of Chewelah, on the Colville road, and is a gold and copper proposition.

WEST VIRGINIA.

MONROE COUNTY.

FISHER OIL COMPANY.—North and adjoining the Price farm, in the Benwood pool, this company has drilled in its No. 1 on the Cheres farm; at 10 ft. in the sand the pay was tapped, and the well began to flow at the rate of 30 bbls. an hour. The indications are all now in favor of an extension to the north. The well on the Tubaugh farm, to the south of the Price, came in a duster, showing that the pool does not run out in that direction.

TYLER COUNTY.

CARTER OIL COMPANY.—An important strike was made by this company at Owl's Head last week, which, when drilled in, started off at the rate of 100 bbls. a day. The strike is in new soil and lies about 10 miles back in the country from Sisterville, between Wick and Sancho territory.

WETZEL COUNTY.

KANAWHA OIL COMPANY.—This company has completed its No. 3 well on the Mills tract. It is a Gordon sand producer, estimated good for 100 bbls. a day. Its location is 1,300 ft. southwest of their first venture on this property. The new strike is the largest and most encouraging that has been made in the deep sand in the county.

FOREIGN MINING NEWS.

ARGENTINE REPUBLIC.

(From Our Special Correspondent.)

Interest in mining matters in this country is fast awakening. Within the past few months several American and English experts have been exploring the country in different directions. This work has been done chiefly in the interest of English capitalists, and we already hear of several important options having been taken on mining property. These properties are located in different provinces, and it is expected that some active development work will result.

BRAZIL.

ST. JOHN DEL REY GOLD MINING COMPANY.—This company reports for September a total product of 4,265 oz. gold, the average return obtained being 0·67 oz. per ton. The grade of the ore is showing a considerable improvement.

BRITISH COLUMBIA.

IDAHO DISTRICT.

IDAHO.—These mines have paid another $20,000 dividend, and the announcement is made that regular monthly dividends of from $15,000 to $20,000 may be expected. These mines have paid over $60,000 in dividends heretofore.

SLOCAN DISTRICT.

BLUEBIRD.—An important strike has been made on this mine. This strike is on a new vein, which is from 2 ft. to 4 ft. wide, and assays from the ore run as high as 270 oz. in silver and 50% lead. The Bluebird has not been worked for the past two years, various accounts being circulated as to the cause of the shut-down. It is now said that previous to the recent strike, the mine had run out of ore.

CHARLESTON.—This claim, near the Whitewater, bonded some time ago to J. E. Mitchell, of Winnipeg, is showing up well. After sinking a winze from No. 1 tunnel to a depth of 7 ft. it was abandoned owing to the water, and another tunnel commenced. When this tunnel is in far enough an upraise will be commenced. The development of the Charleston will in a great measure fix the value of the Lone Star, a location made upon the same lead and owned by the Hansard Gold Mining Company.

MONTANA CHIEF.—The operators of this mine will start shipping ore next month. There is at present about 300 tons of ore on the dump.

NICKEL DISCOVERY.—S. N. Bodge, of Harvey, has made a valuable discovery of nickel about four miles from his place, on the Columbia River, and about 12 miles west from Colville. The ledge in which the metal exists is about 4 ft. in width. Nickel is known to abound in many places north of Nelson, but this is the first discovery that promises to be valuable chiefly for that metal.

PAYNE GROUP.—A. W. McCune, the well-known mine owner of Salt Lake City, has purchased the entire interest of S. S. Bailey in this group of mines, consisting of the Mountain Chief No. 2, Maid of Erin, Payne and Two Jacks. Mr. McCune has other large interests in South Kootenay. He is part owner of the Mountain Chief No. 1, Idaho and Best in the Slocan, and holds 23 Crown-granted claims in the Hot Springs camp, at Ainsworth, including the well-known Skyline, upon which a large sum was expended before any returns accrued. His recent purchase makes him, probably, the largest individual owner of mining property in the district. Development work at the Payne group will be actively continued.

RECO.—The owners of this mine claim to have a million dollars worth of ore blocked out and another million worth in sight. From the small lead on the claim $125,000 worth of ore has been shipped that went from 211 to 730 oz. to the ton. A $50,000 concentrator and tramway has been ordered from E. P. Ellis & Company, of Milwaukee.

THOMPSON GROUP.—This group, on Four Mile Creek, was bonded recently by Dr. Bell-Irving $40,000, paying for 5% cash.

TRAIL CREEK DISTRICT.

(From Our Special Correspondent.)

CALIFORNIA.—The work on this property continues to be pushed with vigor. A night and a day shift are at work, and the upper tunnel is in about 30 ft. The diamond drill, under the management of Mr. Kelly, has not yet completed its contract, but it has reached a depth of 150 or 160 ft., and an assay made from the cars shows $20 in gold to the ton. Hon. Rufus Pope, M. P., of Quebec, is president of this company, which is said to be one of the strongest organizations in the camp.

COLUMBIA & KOOTENAY.—The Burleigh drills on this property are doing very successful work. The ore chute which was recently opened has been entered a distance of 60 ft. The face of the 8-ft. tunnel is said to be in solid ore. The ore on both sides of the tunnel is very rich, assaying as high as $118 in gold. The width of the ore body has yet to be determined. There is a large quantity of ore on the dump.

MORNING STAR GOLD MINING COMPANY.—This company recently issued a prospectus. The Morning Star is incorporated under the laws of British Columbia. The capital stock is divided into 1,000,000 shares, the par value of which has been placed at $1 each. The treasury stock comprises 200,000 shares at the same par value.

A visit was made to this property with Mr. J. H. Mulroney, who owns the Ida and Marion mineral claims adjoining. The Morning Star and the two adjoining claims are situated on the toe of Red Mountain, on the northeast side. There is a shaft 7 ft. × 7 ft. and 68 ft. deep sunk on the ore body, and there are two well-defined east and west veins.

No one was at work on the property, but the management has decided to place machinery in the mine and sink the shaft to a depth of 300 ft.

To raise the necessary capital the management has decided to place a block of 100,000 treasury stock shares on the market at 12½c. per share. The president of the company is George Haldorn, of Butte, Mont.; vice-president, George E. Pfunder, Rossland, B. C.; treasurer, P. A. Largey, Butte, Mont.; auditor, Louis Leernman, Butte, Mont. The secretary is C. M. Cowper Coles, Rossland.

On the Ida, which is the adjoining claim, Mr. Mulroney is running a tunnel which has reached a depth of 30 ft. and what looks to be very much like a quartz gangue has recently been uncovered.

CANADA.

ONTARIO.

A gang of men under J. Holmes is operating the Adams mica mine, Burgess township, Lanark.

Bog ore of fine quality is being mined near Bannockburn. A few carloads have been smelted and it turned out very well.

DELORA.—This gold mine, near Marmora, has been re-opened after having been closed for a dozen years.

LAKE OF THE WOODS MILLING COMPANY, LIMITED.—The annual meeting of this company was held recently in Montreal. The directors' report was unanimously adopted and a dividend of 7% was declared on the paid-up capital for the year ending August 31st, 1896. The following directors were elected: Robert Meighen, W. A. Hastings, R. B. Angus, John Turnbull and John Mather. At a subsequent meeting of the directors Robert Meighen was elected president and managing director; W. A. Hastings, vice-president and general manager; George V. Hastings, manager at Winnipeg and general superintendent; F. E. Bray, secretary; B. S. Sharing, assistant secretary.

RAT PORTAGE DISTRICT.

(From Our Special Correspondent.)

The excitement relative to gold mining in this district—the Seine, Manitou and Rat Portage are really one—is increasing right along, and many sales are being consummated in Rat Portage. The Sweden has been secured by Winnipeg money; another promising proposition in the same district has become the property of a combination of Manitoba gentlemen. A remarkable coincidence is that our two Shoal lakes—one in the Seine District, and the other in Rat Portage District—should both prove to be rich. Several properties on the Rat Portage Shoal Lake have changed hands since the discovery of the Mikado, an American gentleman, Mr. Markell, being the purchaser in two instances. Messrs. Street and Terry, of New York, the former a partner of Sir Roderick Cameron, have been here during the past week. Mr. Hay, of London, England, is here with a party of English and continental capitalists. Colonel Engledue, of London, England, spent two days at the Mikado. He has left for the West. Mr. W. H. Cawthra, of Toronto, has passed through to the Seine District. Captain Hooper, of Detroit, is here. The place is very full of mining men from different places and extensive developments are soon to follow.

BULLION MINING COMPANY.—This company, a purely local concern, has secured two excellent properties in the Master Jack and Jennie Lee, upon which considerable development work has been done. As depth is reached indications increase in value, and Mr. Parks, the consulting engineer, is evidently quite satisfied that both locations will prove to be good paying mines. Bullion is a developing and promoting company, perhaps the first one of the kind ever formed in Canada.

MIKADO.—This late addition to the bullion-producing properties of the district is also owned by English capital. Work has lately been commenced upon it in charge of Mr. Breidenbach. In a test run of Mikado ores made in the local reduction works, 417 oz. of gold were obtained, exclusive of the concentrates, a result which has materially increased the growing interest in Western Ontario gold mining.

REGINA.—This mine is being steadily developed, and the workings are now quite extensive. General Wilkinson, of London, England, has remained here during the whole of the summer to conduct operations. Many valuable buildings have been erected on the company's property, and the whole place bears the air of a prosperous little village.

SCRAMBLE.—This is controlled mainly by American capital, Mr. Partridge, of Detroit, being largely interested. It is stated that machinery will shortly go upon this property and its further development at once proceeded with. Later discoveries have greatly improved the value of this excellent property.

SULTANA.—This, the pioneer mine of the district, is doing excellent work. About $3,500 in gold was the output for the week ending October 10th. The plant lately installed for the treatment of the concentrates is doing its work with entire satisfaction. Some disputes as to the water rights approximating upon this location have excited widespread sympathy for Mr. Caldwell.

SEINE RIVER DISTRICT.

ONTARIO GOLD MINES COMPANY.—General Manager Joseph C. Foley, under date of October 3d, gives the following report as to condition of the mines October 1st, 1896: Bonanza, or North Shaft, depth 210 ft. Levels North Shaft: 100 ft. level, north drift, 37 ft., south, 51 ft.; 150-ft. level, north drift, 44 ft.; south, 143 ft.; 200-ft. level, north drift, 77 ft.; south, 14 ft. No. 5 or south shaft, 1,200 ft. from north shaft, and on same vein, has a depth of 125 ft. Three hundred and fifty feet east of No. 5 vein on A. L. 75, a new vein has been discovered running 12 in. in width, and has been traced on the surface and stripped for over 100 ft. It has been called the "Lucky Joe," and is rich, although narrow. We have also discovered another vein about 70 ft. west of No. 5, exposing 14 in. of quartz and equally as rich as "Lucky Joe." The 40-ton mill building is up and is boarded in. The new barn, 26 ft. × 30 ft., has been completed, also a new "root house" to store the winter supplies, such as potatoes and other vegetables. This makes six new buildings and additions that have been erected this season. The tram road is being vigorously pushed to completion; 2,200 ft. of trestle work is ready and waiting for the ties and rails. The new hoist at the North Bonanza shaft is erected, and at present the shaft house structure is being raised to height of trestle work. Our steam launch *Wanda* tows all the lumber for trestle work across the lake and proves itself a good investment. The last ship-

Pittsburg. Oct. 22.

(From Our Special Correspondent.)

Coal.—Rather unexpectedly we had a rise in the Allegheny and the Ohio: the 2,500,000 bushels left for the lower markets. This leaves the pools bare of loaded barges; the boats loaded will wait for more water. The miners are still having trouble with their wage rates, the arbitration committee of ten has called a meeting to determine the question of entry work in machine mines. The rate for cutting and loading in entries is higher than for room cutting, because of the difficulty in the work. The operators charge that cutters and leaders have cut in rooms and sent the coal out checked as entry coal and received pay at the higher rate. Another point in dispute. The real cause of the trouble is whether the machine cutters and leaders should work at the old rate for cutting clay veins and spans, or lower. The decision of the arbitration committee will be final, and will date from the time the grievance was filed.

The mining situation has not been disturbed, and uniformity on the 54c. basis appears to be practically established.

Rail shipments are showing a slight increase over last week, while river miners are kept busy supplying local wants. There will be barge water this week. There is, however, no coal loaded.

Connellsville Coke.—The market ruled steady with an increased demand. Since our last the condition of the coke trade was encouraging from the fact that over 800 idle ovens were fired up; this makes the total number of ovens in operation 7,129, with 10,843 idle. The production is estimated to amount to nearly 59.000 tons; the shipment in tons amounted to 59,814, showing an increase of 4,878 tons over the previous week. In the running order of the ovens in blast, 401 ovens made six days, 1,642 ovens made five days, 5,031 ovens made four days and 25 ovens seven days, being an average of 432 days, as against 489 days the preceding week. The coke shipments for the week amounted to 3,323 cars, against 8,052 cars the week previous, being an increase of 271 cars. The shipments from the region were as follows: To Pittsburg and way points, 1,575 cars; to points west of Pittsburg, 1,166 cars; to points east of Pittsburg, 582 cars; total, 3,323. While some coke is selling at reduced rates the large operators are holding furnace coke at $2.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Oct. 23, 1896.

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending Oct. 25, 1895. F'ces.	Tons.	Oct. 23,1896. F'ces.	Tons.	From Jan.,'95. Tons.	From Jan., '96. Tons.
Anthracite.	56	34,250	26	15,150	947,768	1,012,160
Coke.....	150	172,450	81	94.650	6,168,244	6,203,454
Charcoal...	22	4,830	24	6,750	177,805	245,315
Totals....	228	211,530	131	116,550	7,193,817	7,460,929

The old familiar report of a waiting market is especially true of the iron trade at the present time. We hear everywhere of increasing confidence in the future and of a boom which is to close the year; but while there is a better feeling apparent, very few men are confident to the point of action. The effort to stimulate buying by talking of higher prices has very little effect; in pig iron those who are likely to want large supplies if business improves rely on the large furnace capacity now blown out or banked, but ready to start, to keep prices at a reasonable point. In steel billets and a number of other lines the market is choked by pools and combinations. These may have a temporary prosperity if trade revives, but they are a sure source of trouble in the future.

There continues to be a great deal of complaint about the high prices of ore and coke which, with the low prices of iron, have made the furnaceman's life a burden this year. A very general opinion is that the Lake ore combination and the coke ring must be broken, if the iron trade is ever to be really prosperous. Many think that by-product coke and basic steel are to be the emancipators of the trade hereafter.

There is still some speculative buying of Bessemer pig, but foundry iron is not in demand for future delivery.

It is understood that another contract for rails for Japan has been taken, 10,000 tons being the size named for the order. The export movement of pig iron to England has been checked by high ocean freights.

NOTES OF THE WEEK.

The 16½-ft. channel below the Sault Ste. Marie Canal is now completed, and some of the big ore-boats are taking cargoes of over 5,000 net tons of iron ore out of the Lake Superior ports.

Figures have been published giving the cost of mining iron ore at some of the big steam-shovel mines on the Mesabi Range at 6c. to 7c., while stripping costs about 3c. more, making the cost of ore 10c. per ton on cars. These figures are not official and may not be authentic; but probably they are not far out of the way. It must not be supposed, however, that all Mesabi mines can do as well as this.

It is stated that the Illinois Steel Company is having plans made for a big basic open-hearth steel plant, to be erected at its Milwaukee works, where it now has two blast furnaces and a rolling-mill, but no steel plant. The ore used for making basic pig will be a red fossiliferous ore from Iron Ridge, Wisconsin.

New York. Oct. 23.

The waiting condition of the general trade describes the local market very well also. The chief discussion now is over plans proposed for some large new buildings, but, in any event, these will not be placed for a month yet. There is more inquiry and some increase in small orders. Some of the shops are beginning to take on men and say they have work in sight besid s that actually in hand, but all are not so fortunate.

Pig Iron.—There is some buying, chiefly from Newark and Eastern foundries, which are pretty bare of stocks. Agents are so far encouraged that they are refusing to shade prices, and while there is no change in the nominal quotations, we have for this reason to put actual prices up a little, especially on Southern iron.

We quote for Northern iron: No. 1 foundry, $12@$12.75; No. 2, $11.25@$12; No. 2 plain, $10.50@$11; gray forge, $10.25@$10.75. For Southern iron prices are: No. 1 foundry, $11.25@$11.75; No. 2 foundry, $10.75@11.25; No. 3 foundry, $10.25@$10.75; No. 1 soft, $10 75@$11.25; No. 2 soft, $10.25@$10.75; forge, $10@$10.50; basic pig, $10.75@$11.25. All prices are for tidewater delivery.

Cast-Iron Pipe.—An order for 6,000 tons for Boston has been divided between Birmingham and the Warren Foundry. One or two small Eastern orders are coming.

Spiegeleisen and Ferro-Manganese.—No business of consequence is reported. Ferro-manganese is quoted at $46.50@$47 for imported 80%, New York.

Steel Billets and Rods.—The pool prices are $21 75, New York, for Bessemer billets, and $23.75, New York, for open-hearth billets. Two or three small sales are reported of old outside lots on private terms, but known to be below pool prices. Rods are $28@$29, with few sales.

Merchant Iron and Steel.—The market is still quiet, but there is some increase in small orders. Prices shows no quotable change. For bars we quote: Common, 1·10@1·15c.; refined, 1·20@1·45c.; soft steel bars, 1·20@1·30c. Other quotations are: Steel hoops, 1·50@1·60c.; steel axles, 1·60@1·75c.; links and pins, 1·60@1·70c.; tire steel, 1·80@1·90c.; spring steel, 1·95@2·15c. All prices are for delivery on dock, New York.

Plates.—There have been several sales, but it is said that some were secured by concessions in prices. We quote for universal mill plates, 1·30@1·40c. For steel plates we quote: Tank, 1·25@1·35c.; boiler shell, 1·45@1·55c; good flange, 1·60@1·75c.; firebox, 1.90@2·40c. Charcoal iron plates are quoted 2·25c. for shell, 2·75c. for flange, and 3·25c. for firebox. Rivets are 2·15@2 25c. for steel and 3@3·25c. for iron.

Structural Iron and Steel.—A few small orders are on hand and some more are promised. Any indication of work develops a tendency to cut prices to secure it We quote for angles, 1·25@1·35c.; channels, 1·70@1·75c.; tees, 1·65@1·70c.; beams, 1·70@1 75c. for large orders, and 1·80@1·90c. for small lots.

Wrought-Iron Pipe.—Small orders still make up the business. Discounts are as follows for plain pipe, out of store: 1½ in. and over, 67, 10, 10, 10, 10 and 5%; 1¼ in. and under, 57, 10, 10, 10, 10 and 5%. Galvanized pipe, 1½ in. and over, 55, 10, 10, 10, 10 and 5%; 1¼ in. and under, 52, 10, 10, 10, 10 and 5%. Boiler tubes, 1 in. to 2¼ in., 70, 10 and 5%; 2½ in. up, 70 and 5%. Cold-drawn seamless steel tubes, 60%.

Nails.—The pool price continues $2.55 per keg f. o. b. Pittsburg for steel wire nails, and $2.30 per keg f. o. b. Pittsburg for cut nails. Business is light. The combination seems prepared to resist any amount of pressure; meantime business is cut down to a very low point.

Steel Rails and Rail Fastenings.—The combination price is still $28.75 per ton at tidewater or $28 at mill, for heavy sections. Girder rails are $29@$31, tidewater. No business is reported here.

Little is doing in rail fastenings. Angle-bars are 1·15@1·25c. and spikes 1·60@1.65c., tidewater delivery. Bolts are 1·85@1·95c. for square nuts, and 1·95@2·05c. for hexagon nuts.

Old Rails.—Old iron rails are quoted $12.50@$13.50, New York. Old steel rails are quoted $10@$11.50, with small sales, and holders are firm, some asking $12. Old steel rails fit to relay, standard sections, can be had at $20@$22, New York harbor, according to condition; no sales are noted this week.

Scrap Iron.—Good lots of cast scrap are salable, but with some dickering over prices; poor stuff is piling up in the yards. We quote for good machinery scrap $10@$11.50 per ton; ordinary cast scrap, $8@$9.50; stove-plate and mixed, $6@$7.50. Several sales of small lots of old wrought-pipe and tubes are reported at $7.25@$7.75 per ton.

Buffalo. Oct. 21.

(Special Report of Rogers, Brown & Co.)

Politics continues to attract more attention than pig-iron matters, but there have been enough sales to make up a fair tonnage. Several good-sized orders for extended deliveries have been placed by buyers who think it wise to cover requirements now. The quotations given below are on a cash basis f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $12.25; No. 2 strong foundry coke iron, Lake Superior ore, $11.75; Ohio strong softener No. 1, $12.25; Ohio strong softener No. 2, $11.75; Jackson County silvery No. 1, $15.25; Southern soft No. 1, $11.40; Southern soft No. 2, $11.40; Lake Superior charcoal, $14@$14.50.

Chicago. Oct. 21.

(From Our Special Correspondent.)

Pig Iron.—The market for pig iron has no changed materially, the run of small sales continuing to foot up a very respectable total. Most of the business done was in Northern iron, though the Southern material had some call. The largest sale reported is one of 1,000 tons, and the majority of them were in carload to 100 ton lots. Contracts at prevailing prices are not being made for delivery of iron after January 1st next. Southern iron prices have strengthened, and there is little or no cutting being done. We quote: Lake Superior charcoal, $13.50@$14; local coke foundry No. 1, $11 25@$11 75; No. 2, $10.75@11.25; No. 3, $10.25@$10.75; local Scotch foundry No. 1, $11.25@$11 75; No. 2. $10.75@$11.25; Southern coke No. 1, $11.35@$11.50; No. 2, $10.90@$11.10; Southern No. 1, soft, $10.90@$11.10; No. 2 soft, $10.90@$11.10; Southern silveries No. 1, $11.25; No. 2. $11; Jackson County silveries, $14@$16; Ohio strong softeners, $14@$14.25; Alabama car-wheel, $16.25@$16.75; malleable Bessemer, $12.25@$12.50.

Bar Iron.—There continues rather a good demand for bar iron, though appearances have it that buyers are hesitating at placing contracts for any large amounts just yet. Prices are: Common iron 1 30@1·35c.; guaranteed, 1·35@1·40c.

Steel Rails.—But little business is being transacted in rails; the Illinois Steel Company's mills at South Chicago having closed down temporarily. The other branches of that concern are running, though it is contemplated closing some of them if business shows no revival. Rails are yet quoted $29, Chicago.

Billets and Rods.—There is a stagnation in both these lines and prospects are not good for any immediate improvement. Billets are quoted $21.25, and rods $27.50.

Structural Material.—A fair run of orders for quick delivery is being received principally for the building of small railroad bridges. Building shapes are in limited demand. Quotations are as follows: Beams and channels, 1·70@1·75c.; angles, 1·30@1·35c.; plates 1·35@1·40c.; tees, 1·50@1·55c.

Old Rails and Wheels.—There have been a few sales of both old iron rails and car wheels. Old iron rails are quoted $11@$12, and old wheels, $12.

Scrap.—A few small sales are observed, but prospects are not good for any increased business. Quotations are: Railroad forge, $8 50@$9, iron axles, $11.25@$11.50; cast borings, $2.50@$2.75; wrought turnings, $3.25; axle turnings, $5.25.

Cleveland. Oct. 21.

(From Our Special Correspondent.)

Iron Ore.—A moderate business has been done in ores during the past week and the brokers are encouraged over the outlook for the future. Within the last week about 15,000 tons of Bessemer have been sold, which represents as large a business as could be expected, considering the general depression. Some of the smaller sales, it is reported, were at slightly better prices than were obtained in transactions of the preceding week. This was to be expected, however, because of the higher lake rates which the ore dealers have been compelled to pay. Nominal quotations for ores are as follows: Standard hard speculars, Bessemer quality, $4.50 and $5; standard hematites, Bessemer quality, $4 and $4.25; standard hard hematites, non-Bessemer quality, $3 and $3 50; standard soft hematites, non Bessemer quality, $2.40 and $3.

There has been no change in the lake freights during the past week, the rates still being high. It is the belief of shippers that the rates will remain the same until the close of navigation.

Pig Iron.—In view of the light production and the light stocks on hand at the furnace yards, and notwithstanding the moderate amount sold, the pig-iron market continues strong. During the past week a little foundry iron has been sold. Following are the quotations: Lake Superior charcoal, $13.50; Bessemer pig, $10.75@$12; No. 1 foundry iron, $12.25; No. 2 foundry, $11.75; No. 1 Ohio Scotch, $12.25; No. 2 Ohio Scotch, $11.75; Mahoning & Shenango Valley neutral mill irons, $10; Mahoning & Shenango Valley red short mills, $10.25.

Pittsburg. Oct. 22.

(From Our Special Correspondent.)

Raw Iron and Steel.—Business is steadily increasing. Trade in iron and steel products continues to improve; makers and sellers show an increased confidence. The advance in Bessemer pig at valley furnaces was maintained. There is an indisposition to sell crude material for deliveries extending into the new year, except at higherprices; in these have been several large sales for the first quarter of 1897 at an advance.

The buying of pig iron as an investment is on the increase; parties who purchased earlier in the season have done well and will do better. The demand for finished material is increasing steadily; several of the plants that have been idle have commenced operations, and others are preparing to do so. There has been a steady demand for foundry iron with increasing transactions; there was a larger inquiry for charcoal iron without any change in values.

Gray forge iron was much fancied last week; over

ment of Fraser & Chalmers' Corliss engine, etc., is on its way from Rat Portage to the mines. We have six other shafts on veins in this property, not enumerated in the mine workings, one 6 ft. two of 10 ft., one of 14 ft., one of 17 ft., all in ore, and one of 31 ft.; the latter, a new bonanza, showing a 6-ft. vein of concentrating ores averaging $22.35 to the ton. Barring accidents, the mill will be running and turning out bullion by December 1st, 1896.

MEXICO.

DURANGO.

(From an Occasional Correspondent.)

The past rainy season has caused much loss in several mining camps in the western part of this State, the rains having been unusually heavy. Besides the loss at Bacis, previously reported in these columns, there has been great damage to property at San Andres, where important mines are operated by the house of Hildebrand of Durango, and in the San Dimas region, where Daniel Burns, of San Francisco, and T. B. Haggin, of New York, have extensive interests. These summer rains are a peculiarity of the climate of the Sierras. From about the middle of June to the middle of October, perhaps a little earlier or later each year, the prevailing direction of the wind is from the east or northeast. The air, heated over the Gulf of Mexico and saturated with moisture, is cooled by its passage over the Sierra Madre, the main ranges of which average perhaps 10,000 ft. in height, and precipitates its water in the summits. There is rain nearly every day—rarely of long duration but often of great violence for an hour or two—accompanied by thunder and lightning. The showers are more or less local, but are so numerous that few parts of the country escape a daily wetting. Owing to the precipitous character of the mountains, the sides of the *arroyos* and *barrancas* sloping everywhere at least 35°, the water that falls drains off immediately, and, collecting in the main channels, pours down them with a force that nothing can withstand.

SOUTH AFRICA.

TRANSVAAL.

African Gold Recovery Company.—The report for the year ending June 30th states that the board regrets that the results are considerably less favorable than in previous years. This is mainly due to expenditure in connection with the litigation over the MacArthur-Forrest cyanide patents in the South African Republic, and prevents the declaration of a dividend. The Supreme Court in Pretoria has not yet given judgment. The balance of the share capital, 25,000 shares, has been issued, yielding a premium of £8,853. In view of the gold developments in Western Australia, the board has secured mining interests in the Kalgoorlie Field, as well as over 400 acres near Lake Carey.

Geldenhuis Deep Level Gold Mining Company.—The return for September shows that with 100 stamps at work there was a total of 15,055 tons of ore crushed, yielding in the mill 3,506 oz. gold, or an average of 0·23 oz. per ton. In the cyanide plant there were 9,720 tons of tailings treated, the yield being 2,009 oz. gold, or 0·21 oz. per ton. The total product was 5,515 oz. gold, an average of 0·37 oz. per ton crushed. The report states that the net profit for the month at $6,250, which contrasts with a loss of $19,830 in August.

SPAIN.

Rio Tinto Company, Limited.—A circular from this company's London office, under date of October 8th, gives a brief interim report upon the company's operations during the current year. The deliveries of pyrites under existing contracts have continued to be satisfactory, and indicate an amount of consumption in excess of last year. The production of copper in precipitate and regulus at the mines, and of refined copper at the Cwmavon works continues without interruption, besides which the cost has been further diminished. The directors have now to declare an interim dividend out of the estimated year's profits of 18s. per share, free of income tax, payable November 2d.

LATE NEWS.

Lowmoor Iron Mine.—It is reported that this mine, on the Mesabi Range in Minnesota, has been sold to the Thomas Iron Company at a good price.

United States Pipe Line Company.—The Court of Chancery of New Jersey has given a decision in favor of this company in the proceedings for an injunction by the Delaware, Lackawanna & Western Railroad Company, to restrain the other company from laying oil pipes under the plaintiff's tracks in Warren County. The Pipe Line Company will go on now with the construction of the line to the seaboard.

Butte & Boston Mining Company.—In the United States Court at Butte, Mont., Judge Knowles has signed the decree of foreclo-ure and sale under the first mortgage held by the Massachusetts Loan and Trust Company, with an amendment allowing six months for redemption, as provided by Montana law. The property, however, will be sold in bulk, as desired by reorganization managers. The Judge declined to sign the other decree of foreclosure and sale in the case of the Globe National Bank, but said he would give until the first Monday in December to prepare a new decreee. The judgment of the Globe National applies to the Tramway, Snohomish, Blue Jay and other valuable properties acquired since the execution of the first mortgage, and not covered by that. The form of the decree shows that the reorganized company cannot secure a full title to the property until six months after sale, with the chance, in the meantime, that it may be redeemed on payment of the amount of mortgage, with accrued interest and cost.

BY TELEGRAPH.

(From Our Special Correspondent.)

Leadville, Colo., October 23d.—The situation remains practically unchanged. While men continue to come in to work at the mines, and pumping continues, there has been no violent outbreak. In another week it seems probable that many of the mines will be at work again.

COAL TRADE REVIEW.

New York, Friday Evening, Oct. 23.

Statement of shipments of anthracite coal (approximated) in tons of 2,240 lbs., for the week ending October 17th, 1896, compared with the corresponding period last year:

	1896. Week.	1896. Year.	1895. Year.
Pennsylvania Railroad.....	87,589	2,845,792	2,942,994

Production of Bituminous Coal, in tons of 2,000 lbs. for week ending October 17th, and for years from January 1st, 1896 and 1895:

Shipped East and North:	1896. Week.	1896. Year.	1895. Year.
Allegheny, Pa.....	37,527	1,822,696	2,492,117
Barclay, Pa.....	1,159	35 547	.....
Beech Creek, Pa.....	17 ,392	2,316,438	2,246,762
Broad Top, Pa.....	7,094	302 279	278,816
Clearfield, Pa.....	78,963	79,953	4,213,357
Cumberland, Md.....	78,808	2,753,245	2,291,514
Kanawha, W. Va.....	175,177	2,895,210	2,268,983
Phila. & Erie	771	62,119	38,308
Pocahontas Flat Top.....	.....	*2,606,412	1,897,254
Totals	349,891	12,873,899	15,757,141

* For year ending September 26th.
† For week ending October 7th.
‡ For week ending October 14th.

Shipped West:	1896. Week.	1896. Year	1895. Year.
Monongahela, Pa	24,385	1,004.320	579,847
Pittsburg, Pa.....	35,520	1,499 663	1,312,725
Westmoreland, Pa.....	37,673	1.488,721	1,313,343
Totals	97,578	3,992,704	3,205,915
Grand totals	447,469	16,866,603	18,963,056

Production of coke on line of Pennsylvania Railroad for the week ending October 17th, 1896, and year from January 1st, 1896, in tons of 2,000 lbs.: Week, 53,202 tons; year, 4,581,131; to corresponding date in 1895, 3,159,145 tons.

Anthracite.

It is not a very cheering report that is made by the representatives of the various producers as to the present condition of the anthracite coal trade, and the prospects for the future are not reported as full of promise. Whether conditions are really as bad as outward appearance indicates is a point that cannot easily be decided. If, as a report says, 1,000,000 tons of coal are being disposed of per week, it would indicate to the public that there is no real cause for complaint about dullness of trade. If, on the other hand, as reported from many sources, the September schedule of prices cannot be realized except on special grades of coal, there is just cause, so far as the producers are concerned, for complaint. Consumers have not taken kindly to the last advance in prices, and on such orders as they are obliged to pay the September rates they do a hand-to-mouth business entirely. Depleted stocks are not being replenished with large cargoes but only by such amounts as will meet immediate demands. This is proved by the smallness of the orders which are sent in by consumers.

Trade at New York seems to be very quiet just at present. Business along the line is much better than at tide water, while the West is said to be taking considerable of the 4,500,000 tons allotment for October. Egg coal is still the size that is in best demand; stove coal also is quite active, while the largest and smallest sizes are but little called for.

The September schedule of prices is as follows: $4 for broken, $4.25 for egg and chestnut and $4.50 for stove.

Bituminous.

In the soft coal market there is a little more activity than there was and than was expected. The market cannot be called an active one, yet it is an improvement. It probably comes from people putting in their winter supplies and those having some stock on hand increasing what they have for the winter's demand.

There has been some showing of shoal water port orders in the market and some shipments to these points. This does not seem to be as great this year as formerly, when this demand used to make an appreciable difference in the market, the customers at these points being obliged to put in enough coal before ice made at their receiving points to last them into the spring, or to pay an extra rail charge from the nearest deep water unloading port. We hear of one or two instances where the rail charge has been redued to the point of taking away the direct freighting, which is generally high at these shoal water points, and permitting consignees to unload their coal at the nearby deep water point advantageously.

Most of the producers have a fair quantity of orders on hand; this relieves the tension somewhat and allows the producers to ship more freely in a regular way. The only trouble this week in the handling of the coal is the very short supply of vessel tonnage to charter for orders in hand, though some small fleets have been making into the loading ports during the week.

Transportation from mines to tide is very good; to all-rail points it is slower than usual. Car supply is up to all demand. The coastwise vessel market is strong, with vessels scarce.

We quote current rates of freight from Philadelphia as follows: To Boston, Salem and Portland, 75c.; Providence, New Bedford and other Sound ports, 65c.; Wareham and Portsmouth, 80c.; Lynn, 90c.@$1; Newburyport, 90@95c.; Dover, $1.10@$1.15, alongside and towage; Saco, $1, alongside and towage; Bath, 80@85c.; Gardiner, 85c., and towage; Bangor, 90c.@$1. Five and 10 cents above these rates are asked from Norfolk, Newport News and Baltimore.

The association prices remain as follows: F. o. b. Philadelphia, Norfolk and Newport News, $2.35; Baltimore, $2.28; New York Harbor shipping ports, $2.80, alongside; New York Harbor, $3. There is a 20c. differential in favor of Clearfield and Beech Creek coals.

Buffalo. Oct. 22.

(From Our Special Correspondent.)

The weather has been very variable, heavy rains, strong winds, snow, alternating with exasperating brilliant sunshine and moonlight nights. The anthracite coal trade varied daily as the clerk of the weather changed his programme. On the whole a fair trade was done the past seven days for local and near-by points and Western and Canadian dealers. No change in quotations and none expected for some time.

Bituminous coal is quiet at nominally unchanged figures. Prices are really in favor of buyers, as stocks are larger, consequent on the lighter demand for fuel for vessels.

Coke is quiet at unchanged figures.

Coal freights advanced 10c. to Lake Michigan ports, viz., Gladstone, Chicago and Milwaukee, shippers now paying 30c. instead of 20c. This rate is expected to prevail for some time, although some vesselmen prognosticate another advance before long.

The shipments of coal westward by lake from Buffalo from October 11th to 17th, both days inclusive, improved in quantity, as they aggregated 83,537 net tons, distributed as follows: 24,150 tons to Chicago, 29,600 tons to Milwaukee, 10,750 tons to Duluth, 9,612 tons to Toledo, 1,200 tons to Green Bay, 500 tons to Lake Linden, 25 tons to Grand Marais, 1,800 tons to Bay City, 3,700 tons to Superior, and 2,200 tons to Gladstone. The rates of freight advanced 10c. to Chicago, Milwaukee, and Gladstone. The quotations are as follows: 20@30c. to Chicago, Milwaukee and Gladstone, 30c. to Bay City; 40c. to Green Bay and Portage; 25c. to Toledo, and 20c. to Duluth and Superior. Closing with fair inquiry and firm feeling.

The steamer *Australasia* was burned last Sunday. She was laden with 2,200 tons of bituminous coal consigned to the Manitowoc Coal Dock Company at Monitowoc, and presented a beautiful appearance while being destroyed. The crew, 17 in number, had a narrow escape from death, but all were saved. The remains of the vessel and cargo now lie sunk in White Fish Bay. On Monday the steamer *Grand Traverse* was run into and sunk near Colchester heights, in the Detroit River. She had, as part of her cargo, 650 tons of coal, which is now covered by 30 ft. of water. The *Australasia* was valued at $60,000, the *Grand Traverse* at $30,000.

Chicago. Oct. 21.

(From Our Special Correspondent.)

Anthracite.—The city and out-of town trade in anthracite coal has improved very slightly through the influence of the first really winter weather, an early snow storm having been general throughout the middle West and Northwest. The reduction in hard coal carrying rates to Missouri River and other points has undoubtedly stimulated trade somewhat, though there is yet a decrease in the amount of coal going to such points, if the natural condition in that trade be taken into consideration. As has been mentioned before, the conditions are likely to continue here in the West until there is a lower price quoted on hard coal to the great body of consumers who depend upon it to supply heat for their houses. The use of soft coal is becoming more and more in vogue, and if there is no decrease in hard-coal prices this year, soft coal will answer the purpose in a great many cases. Circular prices on hard coal are as follows: Grate, $5.60, and egg, stove and chestnut, $5.85, f. o. b. cars at Chicago. The retail circular price is yet $6.75. There is some small cutting being done from above-quoted prices, but the retailer sells coal whenever possible at circular rates and it can be assured he looks the ground over thoroughly before having to cut.

Bituminous Coal.—Coal is in ready demand, a great deal of it being bought for heating purposes. There has developed a good inquiry for soft coal also from large and small industrial concerns.

the year up to October 8th are reported by Messrs. Pixley & Abell's circular as below :

	1895.	1896.		Changes.
India	£2,847,180	£3,251,078	I.	£403,898
China	1,483,724	574,413	D.	909,311
The Straits	622,003	545,686	D.	76,317
Totals	£4,952,907	£4,371,177	D.	£581,730

Arrivals for the week this year were £176,000 in bar silver from New York; £42,000 from Chile, and £3,000 from Australia; a total of £221,000. Shipments for the week were £122,000 in bar silver to Bombay.

There has been a slight decline in Indian exchange and the 40 lakhs of Council bills offered in London were taken at an average of 14·16d. per rupee. The short crops in India and the probable light imports in consequence would have a tendency to depress exchange, but the rate is kept up by heavy remittances on account of new railroad and other works which are now going on. At present it looks as if India would be an importer instead of an exporter of grain for some time to come.

The foreign merchandise trade of Great Britain is given by the Board of Trade returns as follows for the nine months ending September 30th:

	1895.	1896.
Imports	£303,935,714	£316,368,471
Exports	211,739,280	222,150,429
Excess, imports	£92,196,434	£94,218,042

The increase in the value of imports this year over last was £12,432,757, or 4 1/7, while the gain in exports was £10,411,149, or 4·9%. This left an increase of £2,021,608, or 2·2% in the net excess of exports.

The movement of gold and silver in Great Britain for the nine months ending September 30th is given by the Board of Trade returns as beow :

GOLD:	Imports.	Exports.		Excess.
1895	£27,035,412	£15,327,702	Imp.	£11,707,710
1896	19,946,712	20,429,414	Ex.	482,702
SILVER:				
1895	7,973,947	7,676,373	Imp.	297,574
1896	10,788,570	11,228,233	Ex.	439,663

The exports of gold exceeded the imports this year for the first time in several years. This was entirely due to the heavy movement in September. During that month only £1,472,901 in gold came in, while £6,726,991 went out.

Domestic and Foreign Coins.

The following are the latest market quotations for the leading foreign coins:

	Bid	Asked.
Mexican dollars	$0.50½	$0.51½
Peruvian soles and Chilean pesos	.45¾	.46½
Victoria sovereigns	4.84	4.90
Twenty francs	3.85	3.90
Twenty marks	4.73	4.80
Spanish 25 pesetas	4.78	4.85

Other Metals.

Copper.—The demand from consumers still leaves a great deal to be desired, and if it were not for the support from Europe, prices would have a sagging tendency. Early in the week several sales for Lake copper took place at 10½c., while electrolytic copper is 10·35, cathodes 10· 10c. and casting copper 10⅛@ 10¼c. Later in the week there were no more sellers at these figures, as the impetus given by the London market, where prices for g. m. b's show a material advance, coupled with a better demand for fine copper from Europe, has considerably stiffened sellers. At the close 10¾c. is bid for Lake copper, and some small contracts are understood to have been made at that figure, but outside of this no actual business can be reported. The market, however, closes firm, with a decidedly upward tendency.

The speculative market in London has been very active, opening quiet at about the closing quotation of last week, £47 for spot. It continued so for a couple of days, but then a strong upward movement developed, and prices quickly rose to £48, which was the highest price touched this week. After that, under heavy realizations, prices gave way somewhat, and the closing quotations are £47 15s.@ £48 for spot and £48 5s @£48 10s. for three months prompt. It will be noticed that there is again a margin of about 7s. 6d.@10s. for three months delivery, and thus the normal state has again been established. No doubt, the higher rates for money in England have a great deal to do with that, but besides, the scarcity in spot g. m. b. copper has disappeared. There has been a better demand for fine copper abroad, but the higher prices asked by consumers have only in single instances been paid. We quote: English tough, £50 10s.@£51; best selected, £51@£51 10s.; strong sheets, £57 10s.@£58; India sheets, £54@£54 10s.; yellow metal, 4½d.

Imports of copper into Great Britain for the nine months ending September 30th included 67,498 tons of ore, against 71,866 tons last year; 66,544 tons of matte and precipitate, against 66,920 tons last year, and 44,200 tons fine copper, against 32,680 tons in 1895. Of the imports this year, 871 tons of ore, 15,300 tons of matte and 23,151 tons of fine copper were from the United States, a comparison with 1895 showing increases of 227 tons ore, 5,058 tons matte and 12,831 tons fine copper.

Tin has become decidedly quiet, and for the moment the larger consumers, at least, seem to be well stocked. Prices, however, are if anything a trifle higher, in sympathy with the London market, which advanced somewhat on good purchasing, and we quote to-day 13c. for spot and October delivery.

The London market opened at £58 for spot, declined the following day to £57 10s., and afterward advanced to £58 5s.@£58 7s. 6d. for spot and £59@ £59 2s. 6d. for three months prompt, which are the closing prices.

Lead.—At last the depression which characterized the last three or four months has disappeared. Sellers have entirely withdrawn from the market. Several belated buyers being anxious to cover their immediate wants, and willing to anticipate the market somewhat by buying ahead, found themselves too late, and the quotation put up against them. With very few transactions the market rapidly advanced to 2·85@2·87½c. for spot, while for November and December no sellers can be found. The St. Louis market also has materially advanced, and 2·55c. has been freely paid for soft Missouri or chemical lead. This large advance only too well illustrates that prices had been too much depressed.

The foreign market has eased off somewhat, mainly because northern ports are now being closed to navigation, and prices for Spanish lead have declined to £11@£11 2s. 6d., with English lead 5s. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is strong and higher. Latest sales were on a basis of 2 50@2·52½ for common and 2·55@2·57½ for corroding. Advices from New York seem to have livened up matters in the West, and if the same continues, no doubt we will have higher prices soon.

Spelter.—There is rather a better consumptive demand, but the heavy exports of late have entirely depleted smelters' stocks, and very little is to be had. We have to quote 3·70c. New York for prime western.

The London market is flat and good ordinaries are obtainable at £16 5s., and specials at 2s. 6d. more.

Antimony continues to be a drug on the market and is very flat. We have to quote Cookson's 6¾c.; U. S. Star, 6⅝c., and Hallett's 6½c.

Nickel.—Demand is quiet, and prices show no change and we quote 33@36c. per lb. for ton lots and 37@39c. for smaller orders. London prices are 14d. @15d. for large orders and 15d.@16½d. for small lots. The New York price is on a parity with London, allowing for the United States duty of 6c. per lb. on the metal.

Platinum.—Demand is steady and prices are firm at $14.50@$15.50 per oz., New York. London quotations are 57s. 6d.@59s. per oz.

For chemical ware, best hammered metal, Messrs. Eimer & Amend, New York, furnish the following quotations, the prices given being respectively for orders of over 250 grams, for orders of over 100 grams and less than 250 grams, and for orders of less than 100 grams: Crucibles and dishes, 50c., 51c. and 52c. per gram. Wire and foil are 47c., 48c. and 49c. per gram. The current retail price for crucibles is 60c. per gram.

Quicksilver.—The price is unchanged at $36.75 per flask, New York. The London quotation is £6 12s. 6d. per flask; with £6 12s. 3d. named from second hands. Imports of quicksilver into Great Britain for the nine months ending September 30th were 3,510,934 lbs., a decrease of 118,091 lbs., or 3·3%. The exports for the nine months were 2,052,172 lbs., a decrease of 274,357 lbs., or 11·8%. This makes the approximate consumption this year 1,458,762 lbs., which was greater by 156,266 lbs., or 13·0% more than in 1895.

The Minor Metals.—Quotations for these metals are given in the table below, the prices being for New York delivery:

Aluminum:	
No. 1, 98% pure rolling ingots, per lb	50@55c.
No. 1, " ingots for re-melting, per lb	48@53c.
No. 2, 94% pure, " " "	38@42c.
Ingots from scrap, per lb	35@40c
Aluminum-nickel casting metal, per lb	40@45c.
Bismuth, per lb	$1.30@$2
Phosphorus, per lb	50@55c
Platinum, per oz	$14.50@$15.50.
Tungsten, pure, powder per lb	70c.
Tungstic acid, per lb	45c
Ferro-tungsten, 60% in ton lots, per lb	60c.

Variations in prices are chiefly on size of order.

Imports and Exports of Metals.

Philadelphia.††

	Imports. Week. Oct. 17.	Imports. Year, 1896.
Antimony, casks		102
Copper ore, long tons	2,100	18,710
Ferro-manganese, long tons		767
Ferro-silicon		535
Iron ore, long tons	3,100	221,432
" pig " "		600
" pyrites, long tons		1,575
" and steel scrap, long tons		618
Manganese ore, long tons	4,500	9,264
Spiegeleisen " "		134
Tin " "	35	151
Tin and black plates, boxes		45,978

†† From New York Metal Exchange Reports.

New York.*	Week, Oct. 15. Expts.	Week, Oct. 15. Impts.	Year, 1896. Expts.	Year, 1896. Impts.
Aluminum lbs.			10,000	2,010
Antimony ore....short tons		33	10,000	2,510
" regulus. . casks		11		1,732
Brass, old.....short tons.			241	
Copper, fine .....long tons	†2,536	1,740	56,636	22,445
" matte .... " "	†275		13,766	1,231
" ore..... " "				4,592
" sulphate.. " "			1,436	
Iron ore.... " "				2,997
" pigs, bars, rods..... " "				50,857
Iron pyrites..... " "				4,060
" sulphate..... " "				2,268
Ferro-mangan'se " "			211	670
Ferro-silicon..... " "				70
Manganese ore.. " "		700		6,815
Spiegeleisen..... " "				25,117
Lead ore..... " "				
" pigs and bars " "	†200	956	11,725	32,888
Magnolia metal.. " "	5		72	
Nickel..... " "	15		674	30
Steel, billets, rods. " "		215		20,734
Tin..... " "		†815		1,764
Tin and black plates, boxes.		12,413		711,893
Zinc (spelter).....long tons	†24		1,745	52

* Metal Exchange Reports. † Week ending Oct. 22.

Baltimore.**	Week, Oct. 22. Exp.	Week, Oct. 22. Imp.	Year, 1896. Exp.	Year, 1896. Imp.
Bismuth metal, cases				52
Chrome ore..... long tons				4,802
Copper, fine..... " "	†425		27,840	
" matte..... " "			500	
" sulphate .. " "	20		2,470	
Iron ore ..... " "				321,971
" pigs, bars, ingots, blooms. " "	150		600	2,621
Iron oxide..... bags				300
" pyrites.....long tons			150	
Ferro-manganese " "	75		437	1,508
Ferro-silicon..... " "				76
Lead..... " "			4,145	200
Limestone.....short "				2,743
Manganese metal.long "		21		9,669
Spiegeleisen ..... " "				410
Steel..... " "	74		95	7,836
Steel wire, bundles.....				9,892
Tin, long tons.....			438	2,551
Tin and black plates, boxes		408		130,591
Zinc (spelter) long tons....			715	

**From our special correspondent.

Average Monthly Prices of Metals

In New York since January 1st, 1896, and for the years 1895, 1894, 1893 and 1892; in cents per pound.

Month.	1896.	1895.	1894	1893.	1892.
Copper (Lake):					
January	9·87	10·00	10·13	12·13	11·00
February	10·64	10·00	9·63	12·00	10·00
March	11·03	9·75	9·81	11·88	10·38
April	10·98	9·75	9·50	11·38	11·50
May	11·15	10·25	9·80	11·00	11·63
June	11·67	10·63	8·91	11·00	11·86
July	11·40	11·25	9·00	10·88	11·50
August	10·98	12·00	9·13	10·00	11·50
September	10·66	12·25	9·40	9·88	11·13
October		12·00	9·88	9·75	11·50
November		11·00	9·60	10·00	11·88
December		10·50	9·80	10·25	12·38
Tin:					
January	13·02	13·25	20·16	19·99	20·50
February	13·44	13·35	19·60	20·30	20·00
March	13·30	13·20	19·09	20·71	20·25
April	13·34	14·00	19·75	20·81	20·50
May	13·54	14·65	20·21	19·96	20·80
June	13·59	14·15	19·75	19·76	22·00
July	13·63	14·40	19·22	19·15	21·00
August	13·49	14·35	19.22	18·81	20·50
September	13·15	14·45	16·27	20·14	20·35
October		14·65	15·35	20·84	20·50
November		14·40	14·56	20·61	20·80
December		13·91	13·81	20·67	20·00
Lead:					
January	3·08	3.10	3.19	3·87	4·20
February	3·19	3 12	3·31	4·22	4·12
March	3 14	3·12	3·37	3·96	4·21
April	3·07	3·08	3·43	4·08	4·15
May	3·03	3·16	3·39	3·89	4·22
June	3·03	3·25	2·31	3·77	4·16
July	2·96	3·25	3·50	3·58	4·13
August	2·73	3·50	3·41	3.41	4·11
September	2·77	3·35	3·17	3·89	4·11
October		3·33	3·12	3·51	4·02
November		3·25	3·14	3·41	3·84
December		3 22	3·10	3.27	3·80
Spelter:					
January	3·75	3·28	3·56	4·39	4·69
February	4·03	3·20	3·85	4·39	4·69
March	4·20	3·23	3·89	4·28	4·89
April	4·09	3·30	3·62	4·38	4·68
May	3·98	3·50	3·47	4·41	4·79
June	4·10	3·65	3·40	4·27	4·71
July	3·97	3 75	3·43	4·13	4·78
August	3·76	4·15	3·38	3·89	4·69
September	3·60	4·30	3·44	3 69	4·53
October		4·10	3·45	3·68	4·41
November		3·55	3·36	3·65	4·47
December		3 49	3·43	3·80	4·40

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Oct. 23.

Heavy Chemicals.—Matters generally have become somewhat unsettled owing to the approach of election and attention to politics. There is a good deal better demand for alkali, and shipments

8,000 tons sold said to be to parties who have confidence that prices will advance. The stock of raw iron in the hands of consumers is limited.

Latest.—Parties who have followed our report since the first of the month will perceive that the predictions made in regard to pig iron have been verified. Business men have entered the market and made the largest purchases for many months at an advance on grey forge and Bessemer here and in the valley. Foundry iron in fair demand. For steel billets there is no demand; scarcely anything doing.

COKE, SMELTED, LAKE AND NATIVE ORE.

Tons.	Cash.
6,000 Gray Forge, Jan., Feb., Mar., Pitt.	$10.15
4,000 Bessemer, Oct., Nov., Pitts	12.00
4,000 Bessemer, Oct., Nov., Dec., Valley	10.90
4,000 Bessemer, Nov., Dec., Pitts.	11.85
3,000 Bessemer, Oct., Nov., Pitts	11.75
2,000 Bessemer, Dec., Jan., Feb., Valley	11.00
2,000 Bessemer, prompt, Valley	11.00
2,000 Bessemer, Oct., Nov., Dec., Valley	10.90
1,000 Gray Forge, Nov., Pitts	9.85
1,000 Bessemer, Oct., Valley	10.90
1,000 Bessemer, Oct., Pitts	11.75
1,000 Bessemer, Oct., Nov., Dec., Valley	11.10
1,000 Bessemer, Nov., Dec., Pitts	12.00
500 Bessemer, Oct., Nov., Valley	11.00
500 Gray Forge, Nov., Dec, Pitts	10.00
500 Gray Forge, Nov., Dec., Valley	9.50
300 No. 1 Foundry, Oct., Pitts	11.75
200 No. 2 Foundry, Oct., Pitts	10.75
100 No. 1 Foundry, spot, Pitts	12.00

CHARCOAL.

300 Cold Blast, Pitts	$23.25
50 Cold Blast, Pitts.	23.50
50 No. 2 Foundry, Pitts.	16.00
50 No. 2 Foundry, Pitts	16.00
50 Cold Blast, Pitts.	23.50

Tons.	Cash.

BLOOMS, BILLETS AND SLABS AT MILL.

2,000 Billets and slabs, Oct. and Nov., mill	$20.25
1,500 Billets, Nov. and Dec., mill	20 25
1,000 Billets, Oct., mill	18 60
500 Billets, Oct., mill	19.50
400 Billets, Oct. and Nov., mill	19.60

BLOOMS, BILLETS AND BAR ENDS.

2,000 Bloom and billet ends, Pitts	$12.25
1,000 Heavy scrap, Pitts	12.00
1,000 Bar and billet ends, Pitts	12 50

SHEET BARS.

1,000 Delivered, Pitts	$22 25
500 Delivered, Pitts.	22 75
500 Delivered, Pitts.	22 20

MUCK BAR.

750 Neutral, delivered, Pitts	$20.00

STEEL WIRE RODS.

600 Five guage, delivered, Pitts	24.00

SKELP IRON.

600 Wide grooved, Pitts	1.20 4 m.
500 Narrow grooved, Pitts	$1.20 4 m.
350 Sheared, Pitts.	1 30 4 m.

SKELP STEEL.

650 Wide grooved, Pitts	$1.10 4 m
500 Narrow gr'ved, Pitts	1.10 4 m.
400 Sheared, Pitts.	1.25 4 m.

SCRAP AND OLD RAILS.

500 Short steel rails, Pitts	11 50
200 No. 1 Wro't, net, Pitts	11.50
100 No. 1 cast, gross, Pitts	9 25
100 Wro't Turnings, net, Pitts	6.75
100 Cast borings, net, Pitts	6.00

Philadelphia. Oct. 23.

(From Our Special Correspondent.)

Pig Iron.—It can be said at last that there is a genuine, but rather feeble upward tendency in crude iron prices. Those parties who purchased all they wanted this week at old prices, declare there is no upward tendency, while others who paid a little more for the particular iron they wanted are asking for terms on supplies for future delivery, in the nature of options. The general market conditions are better, but large transactions, concerning which there is considerable talk, will be put off until November.

The mill owners are showing more interest in the market than others, and are promising to do something under certain conditions. No. 1, foundry is $12.50@$13; No. 2, $11.50@$12; mill, $10.75@$11.25; Bessemer, $12.50; low phosphorus, $15.

Steel Billets.—As present requirements are very small, holders are glad to take $21.

Bars.—There is a rumor that our carbuilders will soon have orders for cars and that they will immediately after place orders for iron. No one seems to know anything definitely. Refined iron and steel bars are 1·20 in large lots. No change in prices on any qualities.

Skelp.—Nothing new has occurred this week and quotations would be made a little less than 1·25 for grooved and 1·35 for sheared. Those who have been looked to for orders are saying nothing.

Sheets.—The storekeepers have something to talk about, but the local mills are doing no more than usual. Agents have managed to scare a few small consumers into buying. Card, 1·70@2·70, Nov. 10–28. There is a better outlook for galvanized.

Pipes and Tubes.—No change for two weeks. Agents of manufacturers say that there is plenty of work to come. No one is straining discounts, as it does not help business.

Merchant Steel.—Open-hearth spring steel has been ordered. Shovel steel is also asked for. Tool steel will be the first to profit by the improved condition of things expected.

Plate and Tank.—The sharp struggle that has been in progress for weeks has shaded prices to a level where it makes no difference who gets the business. Orders for 1,800 tons have been placed. Tanks, 1·30; Universals, 1·30; shell, 1·40; flange, 1·50.

Structural Material.—Expectation is the word that expresses the situation this week. Manufacturers and their representatives have been unusually busy for several weeks scouring the country and getting in touch with interests that will be in the market this winter. They do not give names or details of contemplated work, but they say there is a great deal of work in contemplation.

Steel Rails.—Makers say that the increasing traffic and the higher rates soon to be announced, and which will probably be maintained, will exert a favorable influence on the market during the last few weeks of the year.

Old Rails.—There is no business to report at the lower prices.

Scrap.—Choice railroad scrap has been contracted for this week. Heavy steel scrap is worth $11.50. There is not much movement in other kinds.

METAL MARKET.

New York, Friday Evening, October 23, 1896.

Gold and Silver.

Prices of Silver per Ounce Troy.

October.	St. Ex.	London Pence.	N. Y. Cts.	Value of $1.	October.	St. Ex.	London Pence.	N. Y. Cts.	Value of $1.
17	4·83⅛	30⅛	65⅛	.504	21	4·83⅛	30⅛	65⅝	.506
19	4·83⅛	30 1/16	65⅛	.504	22	4·84	30⅛	65⅛	.504
20	4·83½	30⅛	65¼	.505	23	4·84	30 1/16	65⅛	.504

A large order for the London mint stiffened the price of silver to 30⅛d., but on its completion the quotation lapsed to 30 ⅛d., at which figure the market closes weak, but with sales not pressing.

The United States Assay Office in New York reports the total receipts of silver at 113,000 oz. for the week.

Gold and Silver Exports and Imports.

At all United States ports, September, 1896, and years from January 1st, 1896 and 1895:

	Coin and bullion.		In ores.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
GOLD					
Sept.	$61,050	$34,159,130	$32,505	$183 6 8	I. $34,249,183
1896	55,570,421	61,888,856	114,201	1,356,019	I. 10,560,253
1895	73,19),282	28,839,939	326,653	1,306,112	E. 43,370,884
SILV.					
Sept.	5,534,110	741,678	168,880	1,212,605	E. 3,748,707
1896	46,441,041	8,4)4,637	564 842	13,216.568	E. 25,334,678
1895	38,661,610	7,980,664	99,985	9,128,483	E. 21,655,448

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending October 23d, 1896, and for years from January 1st, 1896, 1895, 1894, 1893 and 1892:

	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$16,600	$5,184,360	$539,150	$76 530	I. $453,620
1896	40,433,948	62,092,796	31 601,581	3,307,757	E. 6,634 996
1895	58,635,902	27,343,252	31,801,102	1,447,119	E. 61.646,333
1894	85,319,346	15,209,240	28 605,168	1,445.185	E. 97.269,989
1893	70,173,547	58.296,787	26,335,273	3,061 080	E. 35 150,958
1892	59,047,353	7,5:8,138	17,727,950	2,674,116	E. 66,572,749

The gold exported went to the West Indies, the silver to London. The gold and silver imported came chiefly from Europe,

Average Monthly Prices of Silver

in New York and London, per ounce Troy, from January 1st, 1896, and for the years 1895 and 1894.

Month.	1896.		1895.		1894.	
	London. Pence.	New York. Cents.	London. Pence.	New York. Cents.	London. Pence.	New York. Cents.
January	30 69	67·13	27·36	59·69	30·81	66·63
February	31·01	67·67	27·47	59·90	29·18	63·43
March	31·34	68·40	28·33	61·98	27·28	59·49
April	31·10	67 92	30·39	66·61	28·95	62 92
May	31·08	67·88	30·61	66·75	28·69	62·96
June	31·16	68·69	30·47	66·61	28·68	62·59
July	31·45	68·75	30·48	66·75	29·82	62·45
August	30·93	67 34	30 40	66 61	28·29	61 83
September	30·19	65 68	30·54	66·90	38·88	64 14
October			30·89	67·64	28 69	63·06
November			30·79	67·40	39 41	65·13
December			30·49	66 47	27·78	60 43

The New York prices are always per fine ounce, or ounce of pure silver; the London quotation is per standard ounce, or for metal ·925 fine.

FINANCIAL NOTES OF THE WEEK.

The continued imports of gold and the unusually heavy demand for wheat and cotton have helped to improve the business situation, but a large part of the improvement is still in feeling only and not in action. Money continues to command high rates, and the hesitation about making long engagements has not disappeared. Only a small part of the gold imported has gone into the Treasury, and there is still a tendency to hoard it, though this is less pronounced than a few weeks ago.

New engagements of gold for import into the United States are reported. In addition to $2,500,000 received at San Francisco, another shipment of $2,375,000 is noted on the way to that port from Australia. The total quantity of gold actually received in this country since the import movement began and now known to be on the way is close on $71,000,000.

The increase in the price of wheat is a marked feature in the situation. Part of it is speculative, of course, but a large part is substantial, based upon short crops in Europe and the inability of other countries to supply the demand, India and Australia having none to export this year. There is little doubt that our surplus product will find a market at good prices; and this will be an important factor in the gold movement for the next half year.

The heavy shipments of gold and the decrease in the reserves of the Bank of England have had their effect, and on Thursday the directors increased the official discount rate from 3% to 4%. It is now double that of a few weeks ago. The general market rate in London is still below the Bank rate, and follows it upward very slowly.

The statement of the United States Treasury on Thursday, October 22d, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

	Oct. 15.	Oct. 22.	Changes.
Gold	$123,714,368	$121,586,830	D. $2,127,538
Silver	14,061,734	14,244,658	I. 182,924
Legal tenders	59,124,826	55,004,900	D. 4,119,926
Treasury notes, etc.	36,712,041	37,534,989	I. 822,948
Totals	$233,612,969	$228,371,377	D. $5,241,592

Treasury deposits with national banks amounted to $16,503,679, showing an increase of $363,679 during the week.

Total United States Treasury notes issued under act of July 14th, 1890, in general circulation and in the Treasury, $123,730,280. Against these are held in the Treasury 10,893,507 coined standard silver dollars, and silver bullion purchased at a cost of $112,836,373, making a total of $123,730,280.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending October 17th, gives the following totals, comparisons being made with the corresponding weeks in 1895 and 1894:

	1894.	1895.	1896.
Loans and discounts	$500,772,500	$504 370,300	$456,139,300
Deposits	594,706,900	531,921,100	473,695,200
Circulation	11,723,000	14 131,100	20,521,100
Reserve:			
Specie	93,937 900	61,851,900	59,156,400
Legal tenders	117,252,500	86,509 300	66,198,500
Total reserve	$211,190,400	$148,361,200	$125,334,900
Legal requirement	148,676,725	132,981,025	113,423 800
Surplus reserve	$62,513,675	$15,380,175	$11,911,100

Changes for the week this year were increases of $225,200 in circulation, and $686,000 in specie. Decreases were $254,000 in loans and discounts; $4,789,600 in deposits; $5,571,500 in legal tenders and $3,688,100 in surplus reserve.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars and comparison is made with the holdings at the corresponding dates last year:

	Gold.	Silver.	Total.
Asso. Banks of New York			$59,136,400
1895			61,851,900
Bank of England	$180,495,890		180,495,890
1895	207,625,740		207,625,740
Bank of France	388,605,200	$246,273,200	634,878,400
1895	393,256,736	246,714,161	639,970,897
Imp. Bank of Germany			204,820,000
1895			227,440,000
Austro-Hungarian Bank	153,086,000	63,473,000	216,553,000
1895	109,790,000	64,876,000	174,666,000
Netherlands Bank	13,180,000	33,643,000	46,823,000
1895	21,376,000	33,921,000	55,297,000
Belgian National Bank			19 814,000
1895			21,951,000
Bank of Spain	42,641,000	50,812,000	93,453,000
1895	40,022,000	56,236 000	96,258,000
Bank of Italy	61,110,000	11,640,000	72,750,000
1895	59,811,500	9,355,000	69,166,500
Imp. Bank of Russia	468,990,000		468,990,000
1895	351,560,000		351,560,000

The return for the Associated Banks of New York is of date October 17th; all the others are of October 22d, except the Bank of Italy, September 20th, and the Bank of Russia, September 16th-28th. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England and the Bank of Russia report gold only. The Imperial Bank of Germany and the Belgian National Bank do not report gold and silver separately.

Shipments of silver from London to the East for

on the whole have been heavier owing to the starting up of idle factories. Contracts for 1897 are still coming in for alkali, and we observe this is due to the prevailing low prices. In sal soda the busy season has commenced when most of the contracts are generally placed. A steadier feeling is manifest in bleaching powder, although prices remain unchanged. Caustic soda and soda ash, together with some of the other heavy chemicals, are moderately active, but no large sized transactions can be reported. We quote the following prices: Caustic soda, 60%, $2.22½@$2.42½; 70, 74@76%. $2.12½@$2.37½ per 100 lbs. Alkali, 58%, 82½@90c. for 50-ton lots and over, and 90c.@$1 for smaller quantities; 48%, $1.20@$1.40 for jobbing lots. Bleaching powder, prime brands, $1.75@$1.87½; Continental, $1.65@$1.75 per 100 lbs. Bicarb. soda, English, 1·60c.@2c. per lb.; American, bulk, $1.50@$3.50 per 100 lbs. Sal-soda, English, 70@72½c.; American, 65c. (in barrels), 80c. (in kegs) per 100 lbs.

Acids.—Necessity has probably compelled some of the consumers to place orders during the week. Contracts for 1897 have been placed sparingly so far, and there exists a doubt as to whether many more will be until November or December. The call for sulphuric acid has fallen off, so that this trade shows only a fair demand. It is rumored that there will be an advance in pyrites should brimstone attain a much higher price than it is now selling for. The outcome of this must be an increase in the price of sulphuric acid. It is not known as yet what crude sulphur will sell for next year, but we understand the Sicilian product will not go up much higher than it is to-day. It is the uncertainty which has deferred the acceptance of new contracts or even renewals for 1897 by acid manufacturers generally. Nothwithstanding this, however, it is said that a few contracts have been taken for next year. We quote: Acetic acid in barrels, $1.35@$1.45; in carboys, $1.40@$1.60; muriatic acid, 18°, 75c.; 20°, 75@85c.; 22°, $1.10@$1.25, according to make and quantity. Nitric acid, 36°, $3.25@$4.36; 40°, $4@$4.50; 42°, $4.50 @$5.50. Oxalic acid, $7.25 ex-dock and $7.50 ex-store. Mixed acids, according to mixture. Sulphuric acid, 66°, 75@95c., 10@15c. higher for small quantities. Cnamber acid, $6@6.50 per ton at factory. Blue vitriol, $3.75@$4.00 according to grade and order.

Brimstone.—The consumption of crude sulphur has been good during the past week, and strong advices from the foreign market have been received. To-day brimstone on spot is scarce. The next arrival is expected on October 28th, while the first in November will be on the 10th. The latter cargo is quoted at $23 per ton, best unmixed seconds. Shipments for November-December are given at $20 50 per ton; thirds, $1 less.

Fertilizing Chemicals.—The demand from the South for all ammoniates continues steady, while the market in the West is firm. It is expected that there will be an improvement in prices in fertilizers this winter in consequence of the recent advances made in farm products. Potash salts show only the usual season's trade with agents' prices maintained. The actual business transacted in all the fertilizing chemicals can hardly be called of large proportions as it is said there are many instances where buyers want concessions on their purchases. We quote: Sulphate of ammonia, gas liquor, $2.05; bone, $2.05@$2.10 per 100 lbs. Dried blood, high grade, $1.65 per unit, New York; low grade, fine ground, $1.45 f. o. b. Chicago. Azotine, $1.60, basis New York. Concentrated phosphate (30% available phosphoric acid), 57½c. per unit. Acid phosphate, 13% @15%, av. P_2O_5, 54@65c. per unit at seller's works in bulk. Dissolved bone black, 17% to 18%, P_2O_5, 85c. per unit. Acidulated fish scrap, $8.50@$9, and dried scrap $16.50@$17, f. o. b. fish factory. Tankage, high grade, f. o. b. Chicago, $14: New York, $19; low grade, $12. Bone tankage, $19@$20; ground bone, $22@$22.50. Bonemeal, $19.50@$21.

Sulphate of Potash: 90-95%, New York and Boston, $1.96½; Philadelphia, Baltimore and Norfolk $1.98; Southern ports, $2.

Double Manure Salts: 48-53%, New York and Boston, $1.01; Philadelphia, Baltimore and Norfolk, $1.02; Southern ports, $1.03½.

Muriate of Potash.—Prices are 1·78c. at New York and Boston; 1·79½c. at Philadelphia, Baltimore and Norfolk, and 1·81½c. at New Orleans for 80@85% (basis of 80%), in lots of 50tons and upward.

Nitrate of Soda.—This market if anything is a little lighter. Recent arrivals have been nearly all distributed or placed in store. It is said that bids at $1.75c, on spot have been refused, and while 1.77½c. was realized in a few instances. $1.80 is generally asked. We quote $1.80 for spot, and 1·77½ @1·82½c. for futures according to position. As high as 1·85c. has been quoted for futures.

NOTES OF THE WEEK.

Shipments of phosphate from Tebessa, Algeria, for the eight months ending with August, 1896, amounted to 109,287 metric tons as compared with 82,671 tons in 1895, and 26,603 tons in 1894. The month of 1896 to show the largest shipments was April with 16,347 metric tons; the second in importance was January with 15,845 tons, while July holds third rank with 15,607 tons.

The shipments of phosphate rock from Mount Pleasant, Tenn., in August, 1896, amounted to 1,966 tons; stock on hand, September 1st, 1,000 tons; total, 2,966 tons. From Hickman County, Tenn., 1,000 tons were shipped during August; the stock on September 1st aggregated 4,430 tons.

The Board of Trade returns for the United Kingdom give the imports of alkali during August, 1895, at 18,471 cwt., against 24,318 cwts. in 1895; of brimstone, 8,741 cwts. against 53,214 cwts. last year and of nitrate of potash, 26,635 cwts., against 22,267 cwts. in 1895. The exports of alkali in August amounted to 323,363 cwts., against 479,220 cwts. in 1895; of bleaching materials, 80,993 cwts. against 111,664 cwts. last year, and of chemical manures, 35,145 tons, against 46,632 tons in 1895.

Shipments of phosphate rock through the ports of Florida for the year September, 1895–1896, aggregated 516,460 tons, of which 302,000 tons was hard rock, 128,000 tons river pebble, 73,560 tons land pebble and 13,000 tons soft rock. Florida phosphate shipments from Savannah, Ga., in September, 1896, amounted to 13,017 tons; the greater part of this went to Germany.

Charleston, S. C.

(From Our Special Correspondent.)

The shipments of phosphate rock from this part for the month of September, 1896, were as follows, comparison being made with the corresponding period one year and two years ago:

	1894.	1895.	1896.
Crude rock (2,240 lbs.)	7,985	11,502	8,889
Ground rock (2,000 lbs.)	—	—	370
	7,985	11,502	9,259

The decrease this year was 2,243 tons as compared with 1895, and the increase was 1,274 tons over 1894.

Liverpool. Oct. 13.

(Special Report of Joseph P. Brunner & Co.)

There is a slightly better feeling in chemicals, but without much actual business passing on spot.

Soda ash is in rather better request, although the demand still continues below the average. For tierces, we quote spot range as to market, as follows: Leblanc ash, 48%, £4@£4 5s.; 58%, £4 5s.@£4 10s. per ton, net cash. Ammonia ash, 48%, £3@£3 10s.; 58%, £3 5s.@£3 15s. per ton, net cash; bags, 5s. per ton under price for tierces. Soda crystals are inactive at £2 5s.@£2 7s. 6d. per ton, less 5% for barrels, and 7s. less for bags.

Caustic soda does not attract much attention from buyers, but position is unchanged. We quote spot range, as to market, as follows: 60%, £6 2s. 6d.@£6 5s.; 70%, £7 2s. 6d.@£7 5s.; 74%, £8 2s. 6d@£8 5s.; 76%, £8 15s.@£9 per ton, net cash.

Bleaching powder is in hand to mouth demand and quotations for hardwood vary from £6 12s. 6d. @£7 per ton, net cash, according to destination.

Chlorate of potash is offering at 4d. per lb., but orders are scarce.

Bicarb. soda is unchanged at £6 15s. per ton, less 2½% for the finest quality in 1-cwt. kegs, with usual allowances for larger packages.

Sulphate of ammonia is still depressed and is quoted at from £7 12s. 6d.@£7 15s. per ton, less 2½% for good gray, 24%@25% in double bags f. o. b. here, as to quality.

Nitrate of soda is dull, at about £8@£8 2s. 6d. per ton, less 2½% for double bags, according to quality.

Carb. ammonia, lump, 3d. per lb.; powdered, 3¼d. per lb., less 2½%.

Valparaiso. Sept. 12.

(Special Report of Jackson Bros.)

Nitrate of Soda.—The reports from consuming markets have been anything but encouraging, prices having declined still further and the unfavorable state of the article in that quarter has prevented any interest being shown in it on this side. Producers, however, show no inclination to meet the market by lowering their limits and the few transactions which have taken place, principally between producers themselves or to speculators, are on the basis of former prices. The low rates of freight now ruling also hold out inducements to them for maintaining their firmness. We quote: 95%, September-October delivery, 5s. 11½d.; November-December, 6s.; January-March, guaranteed sailing, 5s. 11½d.; 96%, 6s. 1½d.; all sellers. The price of 5s. 11½d., with 14s. 6d. all round freight stands in 4s. 6¼d. per cwt. net cost and freight without purchasing commission. The sales for the fortnight aggregated 409,500 metric quintals.

MINING STOCKS.

Complete quotations will be found on pages 406 and 407 of mining stocks listed and dealt in at:

New York.	Colorado Springs.	Paris, France.
Boston.	Duluth, Minn.	Mexico.
Philadelphia.	Helena, Mont.	Shanghai, China.
Baltimore.	Salt Lake, Utah.	Valparaiso, Chile.
Pittsburg.	San Francisco.	London, England.
Cleveland, page 404	Denver, Colo.	British Columbia.

NEW YORK, Friday Evening, Oct. 23.

The local mining stock market still continues to be without any enlivening features, and business is practically at a standstill, although there has been an improvement in the San Francisco market, and prices have continued to advance on reports of recent improvements in the different mines which have tended to encourage a speculative movement which somehow has as yet failed to reach this market.

The deal to consolidate the Standard Consolidated, Bulwer Consolidated, Bodie and Mono mining companies has been practically closed, as it only nows remains with the Standard people to consummate the consolidation, as the other companies have ratified the agreement. The capital stock of the new company will consist of 200,000 shares of which the Standard company will receive 95,000 shares, which will be share for share. The Bulwer stockholders will receive one share for every three, aggregating about 33,000, and the holders of Mono shares will receive one for every six. After the distribution there will still remain about 2,100 shares in the treasury of the new organization which can be used for the purchase of additional ground.

The Comstocks have been quiet, with dealings in the following stocks: Belcher, Comstock Tunnel, Gould & Curry, Mexican Ophir, Potosi, Sierra Nevada and Yellow Jacket.

The Colorado stocks remain the active portion of the market, with Cripple Creek companies still commanding most of the trading, although we note sales of Leadville Consolidated at 10@11c. during the week.

The improvement in California stocks noted last week still continues.

Mr. C. H. Morgan, the superintendent of the Brunswick Consolidated Mining Company, in writing to the manager, Mr. J. J. Halpin, under date of October 12th, says: "The shaft has reached the 900 level and the ground is much easier worked than it has been for some time; ore in stope under 800 level continues good."

Phœnix of Arizona, which has not been heard of for some time, returns this week and we note sales of 1,500 shares at 6c.

Boston. Oct. 22.

(From Our Special Correspondent.)

The market for copper stocks under the lead of Boston & Montana has been active the past week, and prices show a marked improvement in nearly all the list. The dividend on Boston & Montana was announced as $2 regular and $1 extra, and the market advanced from $81 to $88, receding in later dealings to $84⅜, and closing to-day at $85. Over 20,000 shares were dealt in during the week. Old Dominion was more active, and advanced from $15 to $16½, losing the fraction in later dealings, but closing stronger at $16¼.

Calumet & Hecla advanced $5 to $315 on small sales. Quincy sold at $110, and advanced to $113¼, which was the closing sale. The scrip sold at $85@ $84. Tamarack was looking better, and a few orders to purchase advanced the price from $85 to $88, closing at the latter price. Osceola was in better demand, and sold up to $27, losing $½ on the last sale. Kearsarge advanced from $10¼ to $13, but closed at $12½. Atlantic was up from $17½ to $18 on limited dealings. Wolverine was in good demand at $6¾@$7¼, losing the fraction later. Tamarack, Jr., sold at $12, the first sale for several weeks. Tecumseh sold at $3¾ for 50 shares only. Butte & Boston sold at $2¾, and declined to $2. We note sales of Arnold at $1 and Allouez at 50c.

The gold stocks are only fairly active, Pioneer being the favorite, with sales at $5½@$6¼, closing at $6. The reports from the mine continue to be of a favorable character. Gold Coins is steady at $2½@ $2¾, with a small lot at $3; Santa Ysabel sold at $8, same as last week. Merced advanced to $6½ on a sale of 20 shares only.

A sale of 100 shares of Ætna Quicksilver was reported at $4.

Cleveland. Oct. 21.

(From Our Special Correspondent.)

Until after election, it was said by brokers to-day, there will be very little business transacted in iron mine stocks. During the past week the inquiries for stocks have been so few that the dealers report that the business is at a standstill. A revival of business on the stock market will not be inaugurated, however, until some of the mines which are now closed are again operated. Following are the quotations, which are the same as last week:

Name of Company.	Par val.	Oct. 21. Bid.	Ask.
Aurora	$25	$6.00	$8.00
Biwabik	100	.....	34.00
Champion Iron Company	100	10.00	30.00
Chandler	25	.....	35.00
Cincinnati Iron	25	10.00	13.50
Cleveland-Cliffs Iron Company	100	45.00	.....
Jackson Iron Company	25	70.00	75.00
Lake Superior Iron Company	25	.....	25.00
Lake Superior Consolidated	100	.....	21.00
Minnesota	100	.....	44.00
Pittsburg & Lake Angeline	25	.....	75.00
Republic Iron Company	25	18.00	.....

Salt Lake City. Oct. 17.

(Special Report of James A. Pollock.)

With the close came a material improvement in the local mining stock market. Ajax registered a gain, due largely to an improved showing at the properties. The stock developed more strength than it has shown for many weeks. Anchor continued in demand at the previous week's figures, although but little business was done. Alliance is dead, as is also Bogan. Centennial-Eureka paid its dividend of $1 per share October 15th. The stock has been held so strongly and its transfer involves so much money that practically no business is being done in it, except with odd lots. Dalton's assessment sale occurs this week. Some 60,000 shares are advertised. Dalton & Lark was inactive as usual. A slight improvement in Daly was recorded, with very little business done. Daly-West continued in good demand at somewhat better figures. Only a limited amount of the stock is

now on the market. East Golden Gate sold at last week's asking figures, the slight advance being due to a reported improvement in the mines. Four Aces was slightly stronger and did some business. Geyser won all of the five suits that have been pending in the District Courts for some months past, and as a result the stock made rapid advances. While this does not settle the case, as an appeal will more than likely be made, it undoubtedly gives the Geyser strength. Galena was strong at unchanged quotations. Horn Silver did nothing worthy of notice. Lucky Bill made sales at better figures than for over a year past. Little Pittsburg showed some activity at the usual figures. Mercur was strong with very little stock offered. The mill treated 7,000 tons of ore in September, earning slightly in excess of $72,000. Mammoth was stronger. A slightly increased demand for Ontario made that stock show up better. Silver King did little on account of the lack of offerings at buyers' figures. Sunshine was practically unchanged. Swansea advanced materially. Its neighbor, the South Swansea, was also strong. Tetro continues development work, but has encountered no shipping ore as yet. Utah remained unchanged.

San Francisco. Oct. 17.

(From Our Special Correspondent.)

The market this week has been extremely dull and the tendency of prices generally downward. At the close there was a little rally, but on very small sales. Very seldom has there been so dead a week, and even the old timers are deserting the board to speculate in wheat.

At the close Chollar was quoted $2.55@$2.60; Consolidated California & Virginia, $1.85@$1.90; Hale & Norcross, $1.70@$1.75; Ophir, $1.40@$1.45; Confidence, $1,40@$1.45; Bodie Consolidated, 52c.; Bulwer, 42c.

Business at the Gold Mining Exchange has been extremely quiet, and the only sales reported have been a few of Lockwood at 26@27c.

At a special meeting of the stockholders of the Bodie Consolidated Mining Company, held at noon on Wednesday, the sale of the mining and other property of that company to the Standard Consolidated Mining Company, on the terms already published, was formally ratified. A similar meeting will be held by the stockholders of the Bulwer Consolidated Mining Company next week. The Standard Consolidated meeting is called for December 12th.

The Standard Consolidated Mining Company of Bodie has made application through its officers to have its capital stock listed at the San Francisco Stock and Exchange Board and the Pacific Stock Exchange. The Standard is about to absorb the property of the Bodie, the Bulwer, the Summit and the Mono mining companies in exchange for shares in the new consolidated corporation. Old Standard stock was listed at both boards years ago, but was taken off because the transactions in the shares were chiefly in New York, where the property has long been controlled.

British Columbia.

(From Our Special Correspondent.)

ROSSLAND, B. C., Oct. 16.

The promotion of new companies continues almost unabated, yet it is only the meritorious properties that appear to command confidence. Some of the brokers are more active than others and yet this activity does not necessarily imply a lack of merit on the part of properties or any lack of principle on the part of brokers. Much energy and some enterprise are needed and these are being supplied by the more active members of the profession. Those properties which are close to the Le Roi and War Eagle and which are on Red Mountain continue to be favorites and the proper promoters of the camp do not appear to have lost the confidence of investors.

The total amount of dividends paid to date by the Le Roi Mining and Smelting Company is $200,000, and the War Eagle $187,500, being a total of $387,500 to date, If to these be added the Cariboo $96,000, Slocan Star, $250,000, and other companies in the Slocan country amounting to $75,000, the total amount of dividends so far paid in the Kootenay country, including Camp McKenny which is in Yale, will reach $808,500.

The mines making regular shipments of ore from Trail Creek Camp, at present, are the Le Roi, the War Eagle, and twice a week the Evening Star. Those making occasional shipments are the Josie, the Iron Mask, the Iron Horse, the Cliff, the Poorman and the Virginia. The O. K. has been a regular shipper of its concentrates to the coast, but it will now reserve shipments until its new plant and buildings are ready, which will be in another month.

London. Oct. 10.

(From Our Special Correspondent.)

There has been quite a slump in the South African market during the past week. The continuance of dear money has caused a large number of manipulators to close their accounts and sell off their holdings, seeing that they would be unable to carry over from fortnight to fortnight. This closing of bull accounts has been prevalent not only in London, but also very extensively in Paris. There has been no evidence of any desire to buy on the part of the public, so the bears took their opportunity of banging the whole market. All sorts of rumors were sent round, such as the announcement of a general strike by the laborers on the Rand, the giving out of deep levels, etc. The report of the crushings for September, 202,562 oz., was also made use of by the bears, as it is some 6,000 oz. less than in August. This attack by the bears had very serious effects on the market, and falls took place all round. It is said in some quarters that concerted efforts are being made by influential people to stop the bears by buying in when prices touch certain figures; but I have doubts about such an agreement, and expect to see prices go still lower.

Other sections of the market have followed the depressions in South Africans, though the falls have not been so conspicuous. West Australians have been weak and New Zealands dull. Of course in such a state of the mining market it is useless to think of a revival in Americans, and the promised British Columbian boom seems to be indefinitely postponed.

Very great disappointment is to be expressed at the report of the African Gold Recovery Company for the year ended June 30th last. Instead of a profit being made on the working of the company, which owns the MacArthur-Forrest patents in the Transvaal, there has actually been a loss during the period in question. This loss has been entirely caused by the lawsuit with regard to the validity of their Transvaal patents, for the legal expenses entailed during the year have been no less than £32,000. The argument before the Supreme Court was concluded in April last, but no judgment has yet been given. Consequently the company is in an anxious position.

The London Chamber of Commerce has recently formed a West Australian section, as so many London merchants have interested themselves in various ways in the development of that colony. The first thing done by the section has been to draw up several recommendations for improvements in the management of the colony. These recomendations are: 1. That the mining laws shall be less onerous as far as the labor requirements are concerned; 2. That better accommodation shall be given at the ports for the prompt delivery of machinery, supplies, etc. 3. That statistics of the gold production shall be properly collected. These are three excellent suggestions.

The Palmarejo Mining Company, operating in Mexico, in submitting its report for the year ended June 30th last, is able to show a slight reduction in the debt balance, but does not consider that the mine is ever likely to produce sufficient profit to pay a dividend. The company has, therefore, acquired an adjoining property considered more advantageous. As no cash has to be paid in advance the patient shareholders will not be taxed, but as very few particulars have been given with regard to the property it is impossible to judge as to the future of the company. You have in past years referred again and again to this company, and your readers must be acquainted with its history.

Paris. Oct. 11.

(From Our Special Correspondent.)

The Czar's visit and reception have very much interfered with business and have occupied so much time and attention that the *Bourse* has been rather neglected.

Another matter which has taken off attention from mining stocks has been the condition of Spanish finances. Spanish bonds are very largely held here, as well as the securities of Spanish railroads. It is well understood that the Cuban insurrection has drained the Spanish treasury, and to this is now added the trouble in the Philippines. The Finance Minister is desperate, and now says, in effect, to the creditors that he must make a new loan of 1,000,000,000 fr.; if a good part of that sum is not taken abroad, there will be bankruptcy, a default on interest and—who knows what afterward? It is not a pleasant situation, but the very audacity of the demand may secure some degree of success.

The Spanish quicksilver loan—secured upon the lease of the Almaden mines—for 100,000,000 fr., which was to have been issued about this time, has been withdrawn, in order not to embarrass the greater transaction; perhaps also because no one showed any disposition to take the bonds.

The mining market has been quiet, with very few changes, either in the metallurgical or the copper shares. The lead and zinc stocks have been generally steady, but with few sales. The only stock showing any considerable change is Huanchaca (silver) which has again advanced.

The situation in the South African stocks continues to be one of uncertainty and of possible trouble, perhaps almost panic. The selling orders continually increase, and it would take little to bring about a general movement of this kind, which would throw on the market an enormous mass of stocks at any price.

We have at last reached a settlement of the vexed questions between France and Italy with relation to Tunis. The new treaty is a compromise, but the advantage seems to be with us. Italy surrenders her old treaty with Tunis, which included not only special commercial privileges, but also the right of Italian subjects in Tunis to trial in Consular courts. In return she receives the right for nine years to have her products admitted into the country at the tariffs conceded to the "most favored nation." The main point is the concession now made, though heretofore refused, by Italy that Tunis is absolutely French territory, and is, both for commercial and legal purposes, a French colony and not a semi-independent state.

In American stocks there has been nothing done here for a good while. It is a pity, but there is a general feeling of doubt as to your future which does not encourage investments.

An effort is to be made to increase the production and sales of our coal mines in Tonkin. They will have to compete in the East with the Japanese and the Australian mines, but I am told the prospects are good. I note, by the way, that returns of the commerce of Siam, lately published here, show that in that country Russian petroleum has almost entirely replaced American; but in its turn the Baku oil is now being driven out by the Sumatra product, which is beginning to compete actively for the Eastern markets. It is one of the many mutations of modern trade.

AZOTE.

MEETINGS.

Benwood Oil and Gas Company, at the office of the company in Benwood, W. Va., on November 9th.

Idaho Consolidated Gold and Silver Mining Company, at the Coleman House, New York City, on October 28th, at 3 p. m.

ASSESSMENTS.

Name of Co.	Loc'n.	No.	Dinq.	Sale.	Amt.
Alta Silver.	Nev.	53	Oct. 12	Nov. 2	.10
Central Eureka	Cal.		" 10		.02
Challenge Con.	Nev.	22	Nov. 17	Dec. 8	.10
Channel Bend	Cal.		Oct. 16		.02
Christmas	Utah.	3	" 10	Oct. 27	.002
De Soto Gold	Cal.	1	" 17	Nov. 16	.07
Dutch Canyon	Utah.		" 6	Oct 31	.01
Flint Creek	Mont.		" 5	" 27	.002½
Gold Queen	"		" 17		.30
Gould & Curry	Nev.	79	" 5	" 27	.15
Gray Eagle	Cal.		" 5		.10
Haskell Gold	Cal.	3	" 23	Nov. 16	.02
*Justice	Nev.	61	Nov. 17	Dec. 8	.05
*Meteor	Mont.		" 14	" 5	.001⅛
*Mexican Gold & Silver	Nev.	55	" 12	" 3	.20
North Banner Con. Tunnel	Cal	40	Oct. 19	Nov. 9	.02
Occidental Con.	Nev.	24	" 8	Oct. 29	.10
Ophir Silver	"	69	" 7	" 27	.25
Potosi	Nev.	46	Nov. 4	Nov. 24	.05
Savage	"	90	" 4	" 24	.20
Star	Mont.		" 2	" 23	.000½
Troy	Alaska		Oct. 14		.12½
Utah Con.	Nev.	23	" 13	Nov. 2	.05
Victory Silver.	S. D.	6	Nov. 7	" 27	.001½
Yellow Jacket, Silver	Nev.	61	Oct. 15	" 20	.25

* New assessment.

DIVIDENDS.

Name of Company	Current Dividends. Date.	Am't.	Paid since Jan. 1, 1896.	Total to date.
*Ætna Con.			$30,000	$70,000
Alaska-Mexican			52,200	155,031
Alaska Treadwell			275,000	2,950,000
Anaconda			750,000	750,000
Anchoria-Leland	Oct. 15	$6,000	6,000	
Aurora Iron			50,600	700,006
Bangkok-Cora Bell			6,000	107,510
Big Six			2,500	2,500
Boston & Mont.	Oct.	‡450,000	1,500,000	4,925,000
*Bullion-Beck & Ch	" 15	30,000	215,000	2,163,000
*Calumet & Hecla			2,000,000	46,350,000
*Cariboo			60,410	109,410
*Centennial-Eureka	Oct. 15	30,000	330 000	1,860,000
C. O. D.			5,000	25,000
Dalton & Lark			87,500	87,500
Daly			37,500	2,887,500
Deadwood Terra			100,000	1,240,000
De Lamar	Oct. 31	100,000	200,000	2,194,000
Dominion Coal			600,000	
Elkton Con.	Oct. 16	10,000	40,600	116,960
Florence			54,390	89,348
*Galena	Oct 10	5,000	36,000	56,000
Gold Coin	Nov. 2	20,000	85,000	100,000
*Golden Eagle			10,000	10,000
Golden Fleece			132,000	533,179
Gold & Globe Hill			19,500	28.875
Hecla Con.			30,000	2,130,000
Helena & Frisco			50,000	475,000
Highland	Oct. 26	31,250	120,600	3,204,918
*Homestake	" 1	10,000	312,500	6,025,000
Hope			30,000	622,252
Horn Silver			50,000	5,130,000
*Iowa			50,000	50,000
*Iron Mountain			35,000	445,000
Isabella			180,000	202,500
Jackson			7,500	475,000
Le Roi			125,000	200,000
Mammoth	Oct. 1	20,000	40,000	1,130,000
*Mercur	" 20	25,000	175,000	525,000
Minnesota Iron			495,000	3,240,000
Mont. Ore Pur. Co.	Oct. 15	40,000	320,000	480,000
Moon-Anchor			24,000	24,000
Moose			6,000	186,000
Mt. Rosa	Oct. 15	5,000	5,000	15,000
Napa Con.	" 1	†20,000	70,000	810,000
*New Elkhorn			72,000	72,000
*Ontario	Oct. 31	15,000	150,000	13,325,000
Osceola Con.			125,000	2,072,500
Ottaqueachy			1,000	1,000
Portland	Oct. 15	30,000	180,000	803,000
Quincy			710,000	8,370,000
*Silver King			337,500	787,500
Sacramento			2,000	2,000
*Slocan Star			200,000	250,000
Small Hopes			25,000	3,275,000
Smuggler-Union			100,000	100,000
*Swansea	Oct. 10	5,000	10,000	11,500
Tamarack			150,000	4,320,000
Union			23,500	73,000
*Utah	Oct. 10	2,000	20,000	173,000
*Utah Con.			3,000	3,000
Victor			140,000	605,000
Victor M. & L.			12,000	42,000
War Eagle	Oct. 15	30,000	55,000	187,500
Wasp			40,000	40,000
Totals		$884,250	$11,145,100	$127,385,583

* September dividend paid. † Extra dividend of 10c. per share included. ‡ Extra dividend of $1 per share included

STOCK QUOTATIONS.

BOSTON, MASS.*

Name of Company.	Location.	Par val.	Oct. 16 H.	Oct. 16 L.	Oct. 17 H.	Oct. 17 L.	Oct. 19 H.	Oct. 19 L.	Oct. 20 H.	Oct. 20 L.	Oct. 21 H.	Oct. 21 L.	Oct. 22 H.	Oct. 22 L.	Sales.
Allouez	Mich.	25	....	....	....	....	....	....	....	....	.50	....	....	....	250
Arnold	"	25	....	....	....	....	....	....	1.00	....	....	....	....	....	50
Atlantic	"	25	....	....	....	....	....	....	17.50	....	18.00	17.50	18.00	....	421
Bost. & C. C.	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Bost. & Mont.	Mont.	25	82.25	81.00	83.50	82.00	85.25	83.75	88.00	85.50	88‡	84.75	85.63	84.38	20,6.7
Butte & Bost.	"	25	....	....	2.50	2.13	2.75	2.50	2.63	2.00	....	....	....	....	....
Cal. & Hecla	Mich.	25	315	....	....	....	....	....	315	....	....	....	....	....	21
Centennial	"	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Dominion Coal	N. S.	100	7.50	....	....	....	8.00	....	....	....	8.50	8.13	8.38	8.25	1,585
" pref.	"	100	80.00	....	....	....	....	....	....	....	80.00	....	....	....	10
Franklin	Mich.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Coin	Colo.	1	2.50	....	....	....	2.50	....	2.50	....	2.75	....	3.00	2.50	1,050
Illinois Steel	Ill.	100	....	....	....	....	42.50	42.00	45.00	42.50	46.00	45.00	45.00	45.50	248
Kearsarge	Mich.	25	10.38	10.25	....	....	11.50	11.00	....	....	13.00	12.00	12.50	12.38	1,025
Lake Sup. Iron	"	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Merced	Cal.	15	....	....	....	....	....	....	....	....	....	....	6.50	....	20
Minnesota (Ir.)	Minn.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Napa	Cal.	7	....	....	....	....	....	....	....	....	....	....	....	....	....
National	Mich.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Old Dominion	Ariz.	25	....	....	15.50	15.00	....	....	16.00	15.63	16.50	16.00	16.25	16.00	2,906
Osceola	Mich.	25	....	....	26.00	....	....	....	27.00	26.00	27.00	25.00	27.00	26.50	706
Pioneer	Cal.	10	5.75	5.50	6.00	5.75	6.25	6.00	6.25	6.13	6.00	....	....	....	1,085
Pontiac	Mich.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Quincy	"	25	111	....	....	....	111	....	112½	112	113	....	113¼	....	161
do. scrip	"	....	82.00	....	....	....	....	....	85.00	....	84.00	....	84.00	....	168
Santa Rosa	Cal.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
San. Ysabel (G.)	"	5	....	....	....	....	8.00	....	....	....	....	....	....	....	25
Tamarack	Mich.	25	....	....	....	....	85.00	....	85.00	....	88.00	....	88.00	....	96
Tamarack, Jr.	"	25	....	....	....	....	....	....	....	....	12.00	....	....	....	120
Tecumseh	"	25	....	....	....	....	....	....	....	....	....	....	3.75	....	50
Westingh E.&M.	Pa.	50	23.00	....	....	....	....	....	....	....	24.50	....	....	....	70
do. pref.	"	50	....	....	49.00	....	49.00	....	49.00	48.75	....	....	49.25	49.3	212
do. scrip.	"	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wolverine	Mich.	25	....	....	....	....	7.00	6.75	7.00	....	7.25	7.00	7.00	....	825

* Official quotations Boston Stock Exchange. ‡Ex-dividend. Total sales, 31,724.

INDUSTRIAL COAL AND COAL RAILROAD.*

Name of Company.	Par value.	Oct. 17 H.	Oct. 17 L.	Oct. 19 H.	Oct. 19 L.	Oct. 20 H.	Oct. 20 L.	Oct. 21 H.	Oct. 21 L.	Oct. 22 H.	Oct. 22 L.	Oct. 23 H.	Oct. 23 L.	Sales
Balt. & Ohio	100	14⅛	14⅛	....	....	....	....	....	....	....	....	15⅛	14⅞	700
Ches. & Ohio	100	14¼	....	14⅛	....	14¾	14⅛	15	14⅞	15½	15⅛	15⅜	15¼	4,900
Col.C.& I.Dev	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Col. Fuel & I.	100	....	....	17⅛	17	18⅜	18	18⅞	18½	19	18	19	18¾	4,600
Col.,H.V.&Tol	100	15½	....	16	....	16¼	16	16½	16	16¾	16	16	15¾	1,700
do. pref.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Col. & H.Coal	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Del. & Hud. C	100	....	....	122½	....	....	....	123	....	....	....	123¼	123	800
Del., L. & W.	50	....	....	....	....	155	....	155	154	155	154	....	....	1,400
General Elec.	100	25⅞	25⅝	26⅝	26	28	26⅞	27¾	27⅝	28⅝	27½	28⅜	27⅜	8,200
Lake Erie&W	100	....	....	....	....	15¾	15¼	16	15¾	16	....	....	....	700
do. pref.	100	....	....	66	65⅛	....	....	....	....	....	....	....	....	200
Morris&Essex	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Nat'l Lead	100	19¼	....	....	....	21⅞	21¾	....	....	22⅜	22	22¾	22⅛	1,900
do. pref.	100	83½	....	....	....	....	....	86⅛	85¾	....	....	86½	....	500
N. J. Central	100	....	....	100⅛	100	101	....	102⅛	102	102¾	102⅛	101	103⅛	2,700
N. Y.,L.E.&W	100	....	....	....	....	....	....	....	....	....	....	....	....	....
do. pref.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
N.Y.,Ont.&W.	100	....	....	13⅝	13½	13⅞	13⅝	14¼	14	....	....	14⅛	....	3,400
N.Y.,Susq.&W	100	....	....	8	....	8⅛	....	....	....	8½	....	8¾	....	1,700
do. pref.	100	....	....	....	....	21⅛	....	22⅛	22⅛	....	....	23⅛	22⅜	1,900
Norfolk & W.	50	....	....	....	....	....	....	....	....	....	....	....	....	....
do. pref.	50	....	....	....	....	....	....	....	....	....	....	....	....	....
Phila. & Read.	50	23⅛	22¾	23¼	22½	24	23⅛	25¼	23¾	25⅜	24⅜	25¾	25⅛	113400
Tenn. C. & I.	100	21¾	....	22⅛	21¾	23	22	24	22⅞	24⅜	23¼	24¼	23½	21,800
do. pref.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Wheel. & L. E	100	5⅞	5⅛	5⅞	5⅛	6	5⅝	6⅛	5⅞	6	5⅞	6⅛	5⅞	4,000
do. pref.	100	....	....	....	....	....	....	....	....	....	....	....	....	....

* Official quotations N. Y. Stock Exchange. Total shares sold, 175,000.

NEW YORK.*

Name of Company.	Location.	Par val.	Oct. 17 H.	Oct. 17 L.	Oct. 19 H.	Oct. 19 L.	Oct. 20 H.	Oct. 20 L.	Oct. 21 H.	Oct. 21 L.	Oct. 22 H.	Oct. 22 L.	Oct. 23 H.	Oct. 23 L.	Sales
Adams	Colo.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Ajax	Utah.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Alamo	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Alice	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Alliance	Utah.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Amer. Flag	Colo.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Anaconda	"	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Argentum-Jun.	Colo.	2	....	....	....	....	....	....	....	....	....	....	....	....	....
Bedford Con	Mont.	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Belcher	Nev.	100	65	....	....	....	....	....	....	....	....	....	....	....	100
Best & Belcher	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Bodie Con	Cal.	100	.65	....	.70	....	....	....	....	....	....	....	....	....	800
Bullion Beck&C	Utah.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Bulwer	Cal.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Breece	Colo.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Brunswick	Cal.	1	....	....	.26	23	....	....	....	....	....	....	....	....	500
Centennial Eur.	Utah.	50	....	....	....	....	....	....	....	....	....	....	....	....	....
Choliar	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Chrysolite	Colo.	50	....	....	....	....	....	....	....	....	....	....	....	....	....
Comstock T.	Nev.	100	.07	....	....	....	....	....	....	....	....	....	....	....	1,000
do. bonds	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Con. Cal. & Va.	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Con. Imperial	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Creede & C. C.	Colo.	1	....	....	....	....	.07	....	.07	....	.07	....	....	....	2,000
Cripple C. Con.	"	1	....	....	....	....	.12	....	....	....	....	....	....	....	1,500
Crœsus	"	1	.02	....	....	....	....	....	....	....	....	....	.02	....	800
Crown Point	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Dalton	Utah.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Daly	"	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Eureka Con.	Nev.	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Father de Smet.	S. Dak.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Coin	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Golden Fleece	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Gould & Curry	Nev.	100	....	....	....	....	....	....	....	....	....	....	.80	....	200
Hale & Norcross	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Homestake	S. Dak.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Horn Silver	Utah.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Iron Silver	Colo.	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Isabella	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
King & Pemb.	Ont.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Lacrosse	Colo.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Leadville Con.	"	10	....	....	....	....	.10	....	11	....	....	....	.11	....	3,100
Little Chief	"	50	....	....	....	....	....	....	....	....	....	....	....	....	....
Mexican	Nev.	100	....	....	....	....	....	....	....	....	....	....	.50	....	300
Mollie Gibson	Colo.	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Mono	Cal.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Mt. Rosa	Colo.	1	....	....	....	....	.16	....	....	....	.16	....	....	....	400
Occidental Con.	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Ontario	Utah.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Ophir	"	100	....	....	....	....	....	....	1.30	....	....	....	....	....	100
Pharmacist	Colo.	1	.13	....	....	....	.12	....	.13	....	.12	....	....	....	2,300
Phœnix	Ariz.	1	....	....	....	....	.06	....	....	....	.06	....	....	....	1,500
Portland	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Potosi	Nev.	100	....	....	....	....	....	....	.70	....	....	....	....	....	200
Quicksilver	Cal.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Savage	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Sierra Nevada	"	100	....	....	....	....	....	....	.70	....	....	....	....	....	200
Silver King	Utah.	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Sm. Hopes Con.	Colo.	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Specimen	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Standard Con.	....	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Syndicate	....	....	....	....	....	....	....	....	.04	....	....	....	....	....	500
Tetro	Utah.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Union Con.	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Utah Con.	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Victor	Colo.	1	‡3.75	....	....	....	....	....	....	....	....	....	....	....	100
Work	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Yellow Jacket	Nev.	100	....	....	....	....	....	....	....	....	.60	....	....	....	300

*Official quotations N.Y. Stock and Con. Stock & Petroleum Exchanges. ‡Ex-dividend
Total shares sold, 14,700.

COLORADO SPRINGS, COLO.†

Name of Company.	Par val	Oct. 12 B.	Oct. 12 A.	Oct. 13 B.	Oct. 13 A.	Oct. 14 B.	Oct. 14 A.	Oct. 15 B.	Oct. 15 A.	Oct. 16 B.	Oct. 16 A.	Oct. 17 B.	Oct. 17 A.	Sales.†	Sales.*
*Ajax	$1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Alamo	1	.04⅝	....	....	....	....	....	.04¼	.04⅜	....	....	.01¼	....	11,900	....
*Am'ric'nC	1	....	....	.02¼	.02⅜	....	....	....	....	.02¼	.02⅛	....	....	....	16,500
Anaconda	5	.63	.65¼	.66	....	....	....	.65	.67	.67	....	.49⅛	.52	9,830	....
*Aola	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Arg'ntumJ	2	.57	.58⅛	.54	.57	.52	.55	.54	.54¼	....	....	....	....	30,037	....
Bangkok	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Bankers	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Banner	1	.04⅝	....	....	....	....	....	....	....	....	....	....	....	....	....
*Ben Hur	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Blue Bell	1	....	....	.07⅜	.09⅛	....	....	....	....	....	....	....	....	....	1,250
Bob Lee	1	....	....	....	....	....	....	.01¼	....	....	....	....	....	1,500	....
Bost. & C.C.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Buckhorn	1	.02⅝	.03	.02¾	.02⅞	....	....	.02⅝	.02¾	....	....	....	....	....	8,500
*Colo.C.&M	1	.01⅛	.04¼	....	....	....	....	.04	.04⅛	.03¾	.04⅛	....	....	....	9,900
Columbine	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Copper M	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cr. & C. C.	1	....	....	.07	....	....	....	....	....	....	....	....	....	26,000	....
C. C. Con.	1	.13¼	.13⅜	.14	....	....	....	....	....	.12	....	....	....	7,500	2,000
Cr.Cr.Exp.	1	....	....	.12¼	....	....	....	....	....	....	....	....	....	4,750	....
Crœsus	1	....	....	.01⅜	....	....	....	....	....	.09	....	....	....	9,000	....
*Dante	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Des Moines	1	.02⅞	.03	.03⅛	....	....	....	.03¼	....	....	....	....	....	24,000	1,000
*Enterprise	1	.07½	.07¾	....	....	....	....	.06½	.06⅝	....	....	....	....	....	1,500
Fanny R.	1	....	....	....	....	....	....	....	....	....	....	.02⅛	....	5,000	....
Favorite	1	.08	....	....	....	.08	....	....	....	.07⅛	.07⅜	.07⅜	....	12,500	....
Franklin	1	....	....	....	....	....	....	....	....	....	....	.05¾	....	3,000	....
*Garfield-G	1	.08⅛	.08¼	.08⅜	.08⅝	....	....	.08⅝	.08⅞	.09⅛	.09¼	....	....	....	125,000
*Gold. Age.	1	....	....	....	....	.03¼	.02¼	....	....	....	....	....	....	....	1,000
*Gold.E'g'e	1	....	....	....	....	.01¾	.03	....	....	....	....	.02⅜	.02½	....	3,000
Gold Fl'ce.	1	....	....	....	....	....	....	....	....	.99	1.00	....	....	7,500	....
Gold & Gl.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold King	1	....	....	....	....	....	....	....	....	.55	58	....	....	....	1,100
*GoldStand	1	....	....	....	....	....	....	.04¾	.05	....	....	....	....	....	500
*Gould	1	.11⅜	.11¾	....	....	....	....	....	....	....	....	....	....	....	3,000
Grotte	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Henrietta	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Humboldt	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ida May	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ingham, C.	⅛	....	....	....	....	....	....	....	....	....	....	....	10	1,000	....
*Iron Clad.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Isabella	1	.38⅛	49¼	.39⅜	.40	.39½	.40⅛	.40½	41	.40⅛	.41⅜	.41⅛	.41⅜	131,700	2,600
do. stamp.	1	.38	38½	38¼	.38¼	.38⅛	.39	.39¼	.39⅞	.39⅛	40⅛	.40	.40⅛	23,200	....
Jack Pot	1	.06⅞	.07	....	....	....	....	.06¼	.06⅛	.05⅞	.06	.06	....	6,500	4,000
Jefferson	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Keystone	1	....	....	....	....	....	....	....	....	.04⅛	....	....	....	....	2,000
Ladessa	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
L'nc'lnB'y	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
LottieGib	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Marion	1	....	....	.009	....	....	....	....	....	....	....	....	....	1,000	....
Matoa	1	....	....	....	....	....	....	.11¼	.14¼	....	....	....	....	1,000	....
Mollie G.	5	.45	.45⅛	....	....	.43⅝	.44⅛	.44	.44¼	.43	....	44	45	6,700	....
Monarch	1	.04	.04⅜	.03⅝	.04	....	....	....	....	....	....	....	....	....	4,000
Mt. Rosa	1	....	....	.15	....	....	....	....	....	.15¾	....	.15½	.15¾	3,000	....
Mutual	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Nugget	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Ophir	1	.07¾	....	....	....	....	....	....	....	....	....	....	....	....	....
Oriole	1	....	....	....	....	....	....	.04⅞	....	.02⅝	....	.02⅝	....	48,500	....
*Orphan B.	1	....	....	.09⅛	.11	....	....	....	....	....	....	....	....	....	2,500
*Pappoose	1	.03⅞	.04⅛	....	....	....	....	....	....	.03⅜	.05⅛	....	....	....	11,000
Pharmacist	1	....	....	12¼	.12⅜	.12¼	.12⅜	.12⅜	.12¾	.12½	....	.12	.12¼	35,500	....
Portland	1	1.44	1.45	1.44	....	1.43	1.44	....	....	1.40	....	....	....	2,800	....
*Princess	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Reno	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Sacram'to	1	....	....	.06⅛	....	....	....	....	....	....	....	....	....	....	3,000
Silver St.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Specimen	1	.08	....	....	....	....	....	....	....	....	....	.07⅛	....	2,500	....
*Sq'wMt.T.	1	....	....	....	....	....	....	.02⅛	.02⅛	.02¼	.02⅜	....	....	....	20,000
*Temonj.	1	....	....	....	....	....	....	.08¼	.09¼	....	....	....	....	....	500
Trachyte	1	....	....	.02⅞	.03	....	....	....	....	.03	....	....	....	3,500	....
Union	1	.30¾	.31⅛	....	....	.29⅝	.30	.29	.29⅜	.27¾	.28⅜	.27¾	.29¼	72,400	2,000
Virginia M.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Work	1	.09	....	.09¼	....	.09⅛	....	.09	....	....	....	.08	....	12,050	2,500
Total shares sold: Listed														502,417	225,450
" " Unlisted														2,124,679	154,766

† Official quotations and sales Colo. Springs Mg. Stock Assoc. * Board of Trade Exchange. § Ex-dividend.

SAN FRANCISCO, CAL.*

Name of Company.	Location.	Par. value.	Oct. 16.	Oct. 17.	Oct. 19.	Oct. 20.	Oct. 21.	Oct. 22.
Alta	Nev.	100	.15	.14	.15	.14	.13	.15
Belcher	"	100	.62	.60	.62	.59	.59	.59
Best & Belcher	"	100	.98	1.00	1.00	1.00	1.05	1.05
Bodie Con	Cal.	100	.56	.56	.64	.69	.62	.58
Bulwer	"	100	.40	.45	.48	.45	.46	.42
Choliar	Nev.	100	2.15	2.25	2.25	2.25	2.30	2.30
Con. Cal. & Va.	"	100	1.70	1.75	1.75	1.80	1.95	1.90
Crown Point	"	100	.53	.53	.51	.51	.52	.53
Gould & Curry	"	100	.78	.79	.80	.80	.80	.85
Hale & Norcross	"	100	1.40	1.45	1.45	1.40	1.40	1.40
Mexican	"	100	.47	.48	.49	.47	.48	.49
Mono	Cal.	100	....	....	.18	.18	.19	.18
Ophir	Nev.	100	1.25	1.30	1.25	1.25	1.30	1.30
Potosi	"	100	.69	.70	.68	.68	.70	.71
Savage	"	100	.56	.79	.62	.58	.60	.60
Sierra Nevada	"	100	.70	.70	.70	.70	.69	.70
Union Con.	"	100	.56	.56	.59	.56	.58	.59
Utah	"	100	.08	.10	.12	.13	.14	.16
Yellow Jacket	"	100	.59	.60	.55	.53	.54	.56

* Official telegraphic quotations, San Francisco Stock Exchange.

BALTIMORE, MD.* Week ending Oct. 22.

Name of Company.	Location.	Par value	Bid.	Ask.	Name of Company.	Location.	Par value	Bid.	Ask.
Balt. M. & S.	N. C.	5	....	....	Howard C.&C.	Md.	5	....	....
Conrad Hill.	"	10	....	....	Lake Chrome	"	5	....	....
Con. Coal	Md.	100	32	35	Ore Knob	"	10	....	....
G. Cr'k Coal.	"	100	100	105	Silver Valley.	N. C.	5	....	75

* Official quotations Baltimore Stock Exchange.

BRITISH COLUMBIA.* Week ending Oct. 17.

Name.	Selling price.	Name.	Selling price.	Name.	Selling price.
Bound'y Creek:		**Trail C'k** (con.):		**Trail C'k** (con.):	
G. Hester District.	....	Bluebird	$0.05	Le Roi	....
Old Iron. Leas.	$0.15	ButteGoldLeasing	05	Lily May	$0.15
C'p McKenney:		B. Columbia G. K.	.10	Little Darling	....
Cariboo M.& S.Co.	0.40	Caledonia Con.	.07	Mayflower	.15
Ainsworth & Nelson Dis.:		California	.12½	Monte Cristo	.20
		Center Star	1.50	Moruta	.15
Delia M & M. Co.	....	Commander	.20	Mug Wump	.15
Hall Mines	8.15	Crown Point	50	Nest Egg	.12
Colville Res.:		Deer Park	.17	Northern Bell	....
Buton G M. Co.	....	Dewdney	06	O. K	.30
Fidelity G.& C.Co.	....	Dixie	.02¼	Palo Alto	.10
Joe T. Gold M. Co.	....	Enterprise	.18	Phœnix	.12⅛
Mountain View	....	Evening Star	.27	Poorman	.10
Res. Min. & M. Co.	....	Eureka Con.	.75	Red Mt. View	.18
Idaho District:		Georgia	.30	Rossland Red Mt.	.18
Oro Pinar Placer.	....	Gertrude	.15	St. Elmo	.18
Daisy Group	....	Good Hope	.04	Silver Bell	.05
Slocan Dis.:		Great Western	.17	Silverine	.12⅛
Gray Eagle.	....	Helen	.15	Southern Cross & Wolverine Con.	.18
Kootnay Colu'bia	.30	High Ore	.06	St Paul	.07
Noble Five Con.	50	Homestake	...	Virginia	.27
Slocan Star	2.15	Iron Mask	.72	War Eagle	1.68
Wonderful Group	.15	Ivanhoe	.10	West Le Roi	.15
Trail Creek:		Josie.	.58	White Bear	....
Alberta	.10	Josie Mac	.10		
Big Three	.10	Jumbo	75		

Par val.: Hall Mines, Jumbo and Le Roi, $5; Slocan Star, .50; other stocks, $1.

LONDON. Oct. 9.

Name of Company.	Country	Product.	Capital stock.	Par value. £ s. d.	Last dividend. Amt. s.d.	Last dividend. Date.	Quotations. Buyers £ s. d.	Quotations. Sellers £ s. d.
N'th Americans:								
Alaska-Mexican....	Alaska....	Gold......	£200,000	1 0 0	0 4.8	July 1896	1 17 6	2 0 0
Alaska-Treadwell..	" ...	"	1,000,000	5 0 0	1 6	" "	4 17 6	5 2 6
De Lamar.....	Idaho......	Gold& silver	400,000	1 0 0	1 0	May, 1896	12 6	13 6
Montana...........	Montana..	Gold&silver	660,000	1 0 0	0 3	June, 1896	2 6	3 6
Palmarejo	Mexico....	" "	800,000	1 0 0	....	....	1 6	2 0
Pinos Altos ...	" ..	" "	100,000	1 0 0	.....	....	1 3	3 9
Plumas-Eureka.. ..	Colorado.	Gold	281,250	2 0 0	0 9	Apr., 1896	5 0	10 0
Richmond..........	Nevada..	G'ld,sil.,le'd	270,000	5 0 0	1 0	Dec., 1895	17 6	1 2 6
Sierra Buttes.......	Californ'a	Gold.........	245,000	2 0 0	0 6	Apr., 1896	2 6	7 6
Springdale.	Colorado..	"	200,000	4 0	0 2	Sept.,1894	6	1 0
S'th Americans:								
Colomb. Hydra'lic	Colombia.	Gold.........	75,000	1 0 0	1 0	July, 1895	6 3	8 9
*Frontino & Bolivia	"	"	140,000	1 0 0	0 9	July, 1896	1 5 0	1 10 0
St. John del Rey...	Brazil....	"	562,000	1 0 0	xn	Jan., 1895	15 0	17 6
Copper:								
Anaconda..........	Montana.	Cop. & Sil. .	6,000,000	5 0 0	2 6½	May, 1896	6 3 9	6 6 3
Cape Copper........	So. Africa	Copper.	600,000	2 0 0	2 0	June "	2 8 9	2 8 9
Copiapo......... ...	Chile...	" .	200,000	2 0 0	2 0	May, "	2 5 0	2 10 0
Hall Mines	BritishCol	Cop.&Silver	25[illegible],000	1 0 0	......	....	1 11 3	1 13 9
Mason & Barry.....	Portugal..	Cop.& sulph	1,0[illegible]0,000	1 0 0	2 6	May, "	2 10 0	2 15 0
*Rio Tinto..........	Spain......	Copper.. .	3,250,000	10 0 0	12 0	" "	24 5 0	24 7 6
Tharsis	"	Sulpr &cop'r	1,250,000	2 0 0	4 0	April, "	5 12 6	5 17 6
Australians:								
Bayley's Reward...	W.Au't'lia	Gold	480,000	1 0 0	0 4	Dec., 1894	3 6	4 6
*Broken Hill Prop.	N.S.Wales	Silver... ..	384,000	8 0	1 0	Aug., 1896	2 7 6	2 10 0
*Mt. Morgan Gold .	Qu'ns'and	Gold.... ...	875,000	17 6	0 6	Sept., "	3 7 6	3 10 0
South Africans:								
British S.Africa Co	So. Africa.	Lands &Ex.	2,500,000	1 0 0	xrts.	July, 1895	2 16 3	2 18 9
*City & Suburban..	Transvaal	Gold.........	85,000	4 0 0	10 0	" "	4 2 6	4 7 6
*Crown Reef..	"	"	120,000	1 0 0	10 0	Apr., 1896	10 10 0	10 15 0
De Beers	CapeCol'y	Diamonds.!.	3,950,000	5 0 0	22 0	July, "	28 8 9	28 11 3
Ferreira......	Transvaal	Gold.......	90,000	1 0 0	25 0	Aug. "	18 10 0	19 0 0
*†Geldenhuis Est...	"	"	200,000	1 0 0	6 0	July, 1895	3 10 0	3 15 0
Henry Nourse ...	Witw'sr'd	"	100,000	1 0 0			6 5 0	6 10 0
*Heriots (New).....	"	"	115,000	1 0 0	5 0	July, 1896	8 10 0	8 15 0
‡Jagersfontein.....	OrangeF.S	Diamonds...	1,000,000	5 0 0	6 0	Sept. "	8 17 6	9 2 6
Langlaagte Estate.	Transvaal	Gold.........	500,000	1 0 0	3 0	July, "	4 17 6	5 2 6
Primrose (New)....	"	"	280,000	1 0 0	xrts.	Sept. "	4 17 6	5 2 6
Robinson.....	"	"	2,750,000	5 0 0	5 0	July, "	8 5 0	8 10 0
Sheba	"	"	85[illegible],000	1 0 0	1 0	Sept, "	1 15 0	1 17 6
Sim. & Jack (New).	"	"	5,000,000	5 0 0	......	....	5 5 0	5 15 0
Wemmers....... ..	Witw'sr'd	"	55,000	1 0 0	10 0	Apr., 1895	8 10 0	8 15 0

* Dividend pending. † Reconstruction or increase of capital pending. ‡ Ex-dividend.

PARIS. Week ending Oct. 8.

Name of Company.	Country.	Product.	Capital Stock.	Par value.	Divs. last year.	Prices. Op'ning.	Prices. Closing.
			Francs.	Fr.	Fr	Fr	Fr.
Acieries de Creusot.. ...	France......	Steel mfrs..	27,000,000	2,000	100.00	1,985.00	1,925.00
" " Firminy....	"	" " ..	3,000,000	500	85.00	1,723.75	1,723.00
" " Fives-Lille..	"	" " ..	12,000,000	500	35.00	780.00	789.00
" " la Marine...	"	" " ..	20,000,000	500	37.50	925.00	946 25
" " Longwy....	"	" " ..	....	500	35.00	780.00	795.00
Aguas Tenidas...........	Spain.. ...	Iron pyrites	10,000,000	500	25.00	170 00	165.00
Anzin.......	France......	Coal........	....	....	160.00	4,600.00	4,600.00
Boleo	Lower Cal..	Copper.	....	500	65.00	1,395.00	1,395.00
Briansk................	Russia ...	Coal & Iron	....	....	....	1,300.00	1,300.00
Bruay..................	France....	Coal..	3,000,000	400	700.00	22,790.00	22,490.00
Callao.......	Venezuela.	Gold....	32,200,000	125	....	8.50	7 50
Cape Copper.........	S. Africa....	Copper......	....	50	1.50	62.5	59.00
Champ d'Or	"	Gold........		25	....	42 00	34.50
Courrieres............	France	Coal.........	600,000	300	160.00	4,530.00	4,495.00
De Beers Consolidated..	S. Africa....	Diamonds ..	98,750,000	125	15.63	717.00	726.50
Dombrowa	Russia	Coal...	....	500	....	572.00	570.00
Dynamite Centrale......	France .	Explosives..	. ....	500	25.00	497.00	493.00
Fraser River....	Brit. Col'mb	Gold........	... .	....	....	37.50	35.00
Huanchaca............. .	Bolivia	Silver.	.. ..	125	5.00	85.50	84.50
Huta-Bankowa.	Russia.......	Iron & steel	... .	....	....	2,800.00	2,795.00
Langlaagte Estates.....	S. Africa....	Gold	11,750,000	25	11.25	127.00	125.00
Laurium....	Greece......	Zinc & lead.	16,300,000	500	40.00	655.00	655.00
Lautaro	Chile........	Nitrates.....	... .	125	. . ..	148.00	150 00
Malfidano.........	Italy	Zinc	12,500,000	500	44 90	1,030.00	1,020.00
Metaux, Cie. Fran. de...	France.....	Metal d'lers.	25,000,000	500	37.50	554.00	557.50
Mines d'Or de la Russie.	Russia.......	Gold..	.....	....	..	1,005.00	1,005.00
Mokta-el-Hadid..........	Algeria.. ..	Iron........	18,312,500	500	40.00	780.00	780.00
Nickel	N.Caled'nia	Nickel... .	12,720,000	500	30.00	170.00	167.00
Paccha-Jazpampa.......	Chile........	Nitrates...	....	....	....	22.00	22.00
Penarroya........	Spain..	Coal, etc....	.... ..	500	52.50	1,570.00	1,570.00
Rebecca.......	Colo'do,U.S.	Gold........	....	....	.. ...	15.0	8.50
Rio Tinto	Spain.... ..	Copper.....	81,250,000	250	10.05	604.50	602.50
Robinson	S. Africa. ..	Gold..	....	125	12.50	219.50	204.50
Saint Elie.	Fr. Guiana..	"	4,000,000	25		19.00	19.00
Salines de l'Est.....	France.....	Salt.........	. . ..	500	27.00	305.00	310.00
Sels Gem.de la Rus. Mer	Russia.......	" etc......	. ...	....	....	607.00	605.00
Tharsis...............	Spain..	Copper.. ...	.. ..	50	8.75	148.00	147 50
Vielle Montagne..... .	Belgium	Zinc.........	9,000,000	80	30.00	510.00	510.00

MEXICO. Week ending Oct. 15.

Name of Company.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Prices. Closing.
Amistad y Concordia	Hidalgo.........	9,600	$0.59	....	$18	$20
Angustias...	Guanajuato....	2,400	10.00	....	600	580
Arevalo y Anexas....	Hidalgo.	....	10.00	....	280	300
Asturiana y Anexas..	Zacatecas......	2,500	10.00	....	400	390
Bartolome de Medina	Hidalgo.........	2,000	3.50	....	180	150
Carmen.....	"	1,100	7.75	....	400	450
Castellana y SanRam	Tepic...........	2,448	3.00	....	170	170
Cerro Colorado......	Chihuahua... .	15,000	....	$1.00	10	10
Cinco Senores y An..	Guanajuato....	2,000	15.00	....	950	980
Concepcion y Anexas	S. Luis Potosi...	2,700	....	....	200	100
El Oro................	Guanajuato....	500	....	....	80	80
Guadalupe...........	"	10,000	2.00	....	100	180
Luz de Maravillas....	Hidalgo.........	1,100	....	....	110	125
Pabellon.........	"	1,000	27.89	....	180	200
Purisima de los Com.	Zacatecas......	2,400	....	....	15	10
Real del Monte.......	Hidalgo..	2,554	10.00	....	850	800
Rosario y Anexas....	Durango.......	4,800	....	....	70	60
San Francisco...	Hidalgo........	2,000	6.00	....	425	450
S. Ped. Chalchihuites	"	1,000	2.00	....	100	100
San Rafael y Anexas	"	1,200	20.00	....	500	600
do. free stock.	"	1,200	14.00	....	250	300
Sta. Maria de la Paz..	S. Luis Potosi..	2,400	.....	....	180	190
Soledad........	Hidalgo.... ...	960	7.50	....	200	300
Sorpresa.............	"	960	5.00	....	200	150
Trinidad............	Guanajuato...	2,000	....	....	100	90
Tlauzingo...........	Puebla...... ...	2,400	....	....	30	40
Union	Hidalgo.........	2,000	8.00	... .	380	350
Zaragoza...........	"	1,100	....	....	15	15
Zomelahuacan (gold)	Vera Cruz	5,000	....	....	100	100
Zona Min. de Pozos.	Guanajuato....	2,400	... .	1.50	50	40

NOTE.– In most Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Prices are in Mexican dollars.

VALPARAISO, CHILE.* Aug. 20.

Name of Company.	Capital.	Share value Nominal	Share value Paid up.	Last Dividend.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat	$3,300,000	$100	$100	0½ per cent.	$31	$32	$31
Caracoles	315,000	100	100	5 "	25	30	30
Descub. de Huantajaya...	1,000,000	100	100	3 "	15	16	10
Huanchaca de Bolivia....	8,000,000	25	25	4 "	47	47½	47½
Oruro....	800,000	200	200	....	500	508	500
S. Agustin de Huantajaya	1,500,000	100	100	2½ per cent.	30	35	35
Todos Santos......	2,000,000	100	100	1 "	16	17	16
Nitrate Cos:							
Agua Santa...............	3,000,000	50	50	4 "	162½	163	163
Antofagasta..............	2,000,000	200	200	5 "	150	151	151
Union.	3,000,000	200	500	. ...	45	50	50

* Special Report of Jackson Bros. Values are in Chilean pesos or dollars.

SHANGHAI, CHINA.* Oct. 11.

Name of Company.	Country.	No. of shares.	Value. Par.	Value. Paid up.	Last dividend. Date.	Last dividend. Amount.	Price.
Jelebu Mg. & Trad..	China.........	45,000	$5	$5	Oct., 1894..	$0.25	Taels 2.19
Punjom Mg. Co., Ltd.	"	60,000	4	3.75	....	....	" 9.85
do. pref	"	30,000	1	1	....	....	" 2.85
RaubA'lian G.Mg. Co.	"	200,000	£1	13s. 10d.	Dec., 1893..	0.21	" 3.83
Sheridan Con.Mg. Co.	Colorado,U.S	20,000	Taels 100	Taels 100	....	....	" 2.50

* Special Report of J. P. Bissett & Co. The prices quoted are in Shanghai taels.

DENVER, COLO.*

Name of Company.‡	Par val.	Oct 12. B.	Oct 12. A.	Oct. 13. B.	Oct. 13. A.	Oct. 14. B.	Oct. 14. A.	Oct. 15. B.	Oct. 15. A.	Oct. 16. B.	Oct. 16. A.	Oct. 17. B.	Oct. 17. A.	Sales.
L'd Mines														
Anaconda...	$5	.63	......	.64⅛	.65	.67	.79	.67	.78	.63⅛	.66	.67	.69	23,898
Bangkok..	1	.03¾	.04	.03⅞	.04⅛	.03¾	.04⅛	.03⅝	.04	.03	.04	.03½	.04	7,500
Bankers.. ..	1	.11¼	.11⅝	.11⅛	.12	.11⅛	.11⅞	.10⅛	.11¾	.10¾	.11⅛	.10⅝	.11⅜	7,000
Gar.-Grouse	1	.08⅛	.08¾	.08⅜	.08⅝	.08¼	.08⅜	.08⅛	.08⅛	.09⅛	.09¼	.10	.10¼	178,650
Golden Fl	1	.98	1.05	.95	1.05	1.00	1.05	1.00	.....	1.02	....	.99	1.02	4,190
Gold Stand.	1	.04⅜	.04⅞	.04⅞	.05	.04⅞	.05			.05	.03⅛	.04¾	.05	47,000
Insley.. ...	1	.011¼	.012	.01	.012	.010¾	.011	.011	.011¼	.010¾		.010½		107,000
Iowa	1	......	.56		.56	.....	.56			.30	.55	.....	.56	2,000
Ironclad....	1	.10	.12	.10¾	.11½	.10½	.11	.09	.10¼	.07⅝	.....	....	.....	36,000
Isabella.....	1	.39	.40	.39	.39⅞	.40	.40½	.40½	.41	.40⅞	.42	.....	.....	48,900
Mollie G....	5	.45	.48	.43¼	.44	.44	.44¼	.43¼	.44	.43	.46	.49	......	27,000
Mt. Rosa....	1	.	.17¾	......	.18	.15¾	.16⅞	...	.18	.15	.16	....		5,000
New Zeal'd.	1	.04½	.05	.03½	.05	..	.05	.04	.04¾	.04	.04¾	...	.04⅞	5,000
Pharmacist	1	....	....	...	....	.11⅛	.17	.....	....	.....	...	.10	.14	6,000
List. Pr.														
Addie C....	1	.009	.012½	......	.012	.01	.02	.....	...	.008	.013	.....	..	25,000
Agate... ...	1	.003⅛	.004	.003¾	.003⅛	.003½	.003⅛	.003	.003¼	.003	.003½	.002¾	....	3[illegible]2,000
Aola........	1	.02⅛	.02⅜	.02	.02⅛	.02	.02⅛	.02	.02⅜	.02	.02¼	..	.02⅛	18,000
Big Johnny	1	.003¼	.004	.003	.003½	.003	.003⅛	.002¾	.003	.003⅛	.003	.002¾	.003	150,000
Blue Jay....	1	.003¼	.003⅛	.003	.003¼	.003	.003¼	.002¾	.003¼	.002¼	.003	.002½	.002¾	177,000
Cannon Ball	1	.005¼	.005⅛	.005	.005⅛	.005	.005½	.005	.005¼	.005	.005¼	.005	.005¼	150,000
Champagne	1	......										.004½		1,000
C. C. Imp...	1	.003	.006	.003⅛	.005	.003	.005	.003	.005	.003	.005	.003	.005	120,000
Defender...	1	.009⅝	.010½	.009⅛	.011½	.009⅛	.01	.009	.009⅝	.009	.01	.008	.008¾	5,000
Dictator....	1	.008	.008⅛	.008	.008⅛	.008	.008¼	.007⅝	.008⅝	.007⅝	.009	.007⅝	.008	160,000
Dixie..	1	.003⅛	.005	.003⅛	.004¼	.003¼	.004¼	.003	.004¼	.003¼	.003⅛	.003	.003¼	266,000
Gene Field	....	....	..	.003⅛	.003⅜	.003	.004	.002¾	.003⅛	.002½	..	.002½	..	30,000
Geo. Wash..	1	.01⅜	.02⅛	.01⅜	.02⅛	.01¼	.02⅛	.01	.	.01	......	.01¼	.02⅛	116,000
Gold Cryst..	1	.01⅛	.01⅝	.01⅛		.01⅜	.01⅜	......	.01⅛	....	......	.01⅜	.03	5,000
Gold Field..	1	.005¼	.006⅛	.005	.005⅛	.004¼	.006	.004⅛	.005½	.004	.004¼	.003¼	.004	11,000
Gold Queen	1	.002⅛	.002¾	.002⅛	.003	.002⅛	.003	.002⅛	.002¾	.002⅛	.003		.003	34,000
Gregory....	1	.008⅛	.008¾	.008	.008⅛	.008	.008¼	.007	.007½	.007⅛	.007⅛	.007¾	.008	543,000
Hecla.. ..	..	......	.007	.004	.006	.004	.006	.004	.006	.005				50,000
Henrietta .	1	.01⅛	.01⅛	.01	.01¼	.01	.01¼	.01	.01¼	...	.01⅜	.01	.01¼	239,000
Illinois . ..	1	.007¼	.007⅛	.007	.007¼	.006½	.007	.006⅛	.006⅛	.006⅞	.006½	.006⅛	.006⅛	17,000
Internat'l...	1	.003	.003⅛	.003		.003	.003¼	.003	.003¼	.002⅜	.003½	.002⅞	.003	64,000
Justine.....	1	.004⅜	.006	.004⅜	.005⅛	.004⅛	.004⅜	.004¼	.004⅜	.004	.005	.004¼	.005	6,000
Lincoln Boy	1	.003	.004	.003¼	.003⅛	.002¾	.003	.003	.003¼	.002½	.003¼	.002½	.003	76,500
Orient... .	1	.002	.002¼	.002	.002⅛	.002¼	.002⅛	.002	.002⅛	.001⅞	.003	.001½	.002⅛	134,000
Pilgrim....	1	.008¼	.009	..	.010	.007½	.009	......	......		....	.005¼	.006	67,000
Puritan.	1	.007¼	.007½	.007	.008	.006⅛	.006⅝	.005⅛	.005⅝	.004	.....	.004⅝	.005	91,000
Q'n Victoria	1	.007¼	.007⅝	.006½	.007	.006¼	.007	.005	.005½	.004¾	.006	.004	.006	244,000
Reno	1	.03⅛	.04	.03⅛	.03⅝	.03⅝	.03⅝	.003¼	.004	.03⅛	.03⅝	.03⅜	.03⅝	28,000
Royal Age..	1	.006¼	.007⅛	.006¾	.007	.006¾	.007	.006⅛	.007	.006	.007	.005	.007	218,000
Senator. .	1	.004½	.005	.004⅛	.005	.004¼	.004⅛	.004	.004½	.004⅛	.005	.003⅜		53,000
Sentinel ...	1	.004⅜	.005⅛	.004⅛	.005	.004	.004⅛	.004	.004⅜	.003⅜	.004¼	.003⅜	.004	168,000
Unity.......	1	.004⅛	.005⅛	.005	.005¼	.005¼	.005½	.005	.005½	.005¼	.004⅜	.004⅛	.005	435,000
Unl. Act.														
Ætna.......	1	.007½	.010	......	......	.007¼	.007⅜	.006	.006⅛	.003	.007½	.006¾	.007	112,000
Alamo.	1	.04⅛	.04¾	....	...	......	......	.04		.04¼	.05	.04¼	.05	16,000
Arcadia....	1	.13¼	.14¼	.13¼	.14	.13⅜	.14¼	.13	.14	.12⅝	.13	.12	.12¼	5,000
Argentum-J	2	.57⅛	.59	.53¾	.54⅛	.53¾	.54¾	.52	.55	.52⅜	.53	.51	......	16,300
Bob Lee.	....	.001	.012½	......	...	......	.01¼	.01	.01¼	.011	.012	.01		14,000
Chimborazo	1	.008	.012⅛	....	...	.008	.008⅜	...	...	.008	.010	.008	.009	16,000
C. K. & N.	1	.008	.008⅛	......	.009	.008	.009	.007¾	.008⅛	.007½	.007⅜	.006⅛	.007½	4,000
C. C. Con ..	....	.12⅞	.13	.12⅜	.13	..	.12	.12	.12⅛	.10⅜	.12½	......		6,500
Colo.C.& M.	1	.03⅜	.04⅛	.03⅛	.04¼	.03½	.04¼	.03⅜	.04	.03⅝	.03⅜	.03	.03⅜	15,500
Currency...	..	.04	.05	.04	...	.03⅝	.04⅜	.03½	.03⅞	.03	......	.03	...	12,000
Enterprise.	1	.07⅜	......	.06¾	.07⅛	.05½	.07	.06	.07	.06¼	.07	.07¼	.08	16,000
Goldsmith..	..	......	....	.006	.009	.006	.009	.005	.007	.005	.007	.005	.006	65,000
Goldstone..	....	.011¼	.012	......								.009	.015	3,000
Jack Pot...	....	.06⅞	.07	.06⅞	.07	.06⅛	.06⅝	.05	.06⅛	.05⅛	.06⅛	.05¼	.06	13,000
Mt. Beauty	..	.03⅛	.03¾	.03	.03⅝	.02⅞	.03¼	..	.03¼	.02	......	.03	.03⅛	4,000
Portland ...	1	1.40	1.50	1.39	1.45	1.43	1.49	1.30	1.54			......	....	10,700
S'cram'nto.	1	.06⅛	.06¼	.05¼	.06⅛	.06¼	.06⅜	.05½	.06⅛	.05	.06	.05	.06	39,500
Santa Fe..	....	.004	.006¼	.003½	.005	.004½	.005	......		.003	.005	.004¼	.004½	67,000
Union Gold	....	.28					.31	.37	.30	.37½	.27½	.26		3,500
Wh. of For.	1	.006¼	.006⅛	.006¼	.007	.006½	.007	.006⅛	.006¾	.006⅛	.007	.006⅛	.008	136,500
Work......	1	.09	.09¾	.09⅛	.09⅛	.09¼	.09⅛	.08¾	.09¼	.09¾	.09⅛	.08¼	.08⅛	19,500

*Official quotations Colo. Mg. St'k Exch. Sales, listed, 4,572,543; unlisted, 595,000; total, 5,167,543

SALT LAKE CITY, UTAH.* Week ending Oct. 17.

Stocks.†	Par value.	Bid.	Asked.	Actual selling price.	Stocks †	Par value	Bid.	Asked.	Actual selling price.
Ajax.	$10	$0.68	$0.75	$0.70	Horn Silver.....	$25	$1.00	$2.00	....
Alliance........	1	.15	.35	....	Little Pittsburg	....	.01	.02¼	.02½
Annie....	... ..	.05	.10	....	Lucky Bill	.....	.25	.35	30
Am. Nat. Gas.....	.....	.01	.02	.01½	Malvern.........	... .	.21	.25	....
Anchor............	20	1.40	2.00	1.50	Mammoth	25	2.00	2.10	2.05
Bogan	1	.07½	.11	.10	Mercur....	25	6.10	6 25	6.15
Brick Con........	......	50	.60	....	Morgan........	125	20	.40	... ..
Bullion Beck & C.	10	5.95	6.25	6.05	Ontario..........	100	9.50	10.75	10.50
Centen'l Eureka.	50	55.00	65.00	62.50	Overland	...	.25	.45	....
Dalton...........	5	.02¼	.03	.02⅛	Rover	10	.25	.35	30
Dalton & Lark..	....	20	.30	.. ..	Silver King.....	20	14.74	17.50	15.50
Daly............	20	5.00	6.25	5.75	Sioux Con.......	10	75	1.00	....
Daly West......	20	8.12½	8.75	8.50	Sunshine..	10	1.75	2.50	1.75
Eagle......	10	.04	07	.....	Swansea. .. .	....	2.40	2.50	2.45
East Golden Gate	......	.02½	.04	.03	So. Swansea....	....	.95	1.15	1.00
Four Aces.......	..	.19	23	.21	Tetro............	1	.05	.07½	....
Galena	10	1.00	1.70	1.65	Utah...........	......	1.35	1.50	1.40
Geyser	......	1.00	1.50	1.25	Utah Con	1	60	.90	....
Herschel.......		.07½	10	... .					

* Special Report of James A. Pollock. † All the companies are located in Utah.

PHILADELPHIA PA.*

Name of Company.	L'ca-tion.	Par Val'e	Oct. 15. H.	Oct. 15. L.	Oct. 16. H.	Oct. 16. L.	Oct. 17. H.	Oct. 17. L.	Oct. 19. H.	Oct. 19. L.	Oct. 20. H.	Oct. 20. L.	Oct. 21. H.	Oct. 21. L.	Sales
Ace'leneL'tCo.	. .	25	.....	....	....	.. ..	... ..	.. ...	.....	.....	.....	.....	....	....	......
Cambria Iron.	Pa.	50	39 50	39 25	39.50	.....	.....	....	.....	.....	.....	.....	39 25	....	64
Choc.&Gif.Ctfs	I.T.	50	6.88	... .	.....	.....	.....	.....	6.50	... .	7.00	6.88	7.00	6.88	550
Hunt & Br.Top.	Pa.	50	24.50	....	.....	.....	.....	.....	23 25	.....	.....	.....	.....	.....	60
" pref.	"	50	49.00	....	49.00	....	.....	.....	.....	.....	.....	.....	49.63	.....	29
Lehigh C. & N.	"	50	42.0	41.38	42.00	41.50	42.00	41.50	42 00	41.50	42.00	41.63	41.75	41.50	65
Lehigh Valley.	"	50	29 50	29.00	29.50	29 13	29.50	29.00	29.75	29.50	30.13	30.0	30.13	30.00	2,307
Ll'le Schuylkill	"	50	60.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	59.00	.....	10
Penna. R. R....	"	50	51.75	51 63	51.63	.....	51.88	51.63	51.88	51.75	52 50	51.88	52.38	52.00	2,929
Penna. Steel...	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...
UnitedGas Im.	"	.. ..	67.00	66.88	66.63	.....	67.00	....	67.00	.. .	67.00	....	....	.....	405
Welsb.of Can	Can.	.. ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Welsbach Com	Pa.	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	......
" pref.	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Welsb'h Light.	"	......	40.75	....	.....	... .	.....	.....	.....	.....	40.25	40.00	42.00	41.00	214
Westmoreland.	"	.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	......

* Official quotations Philaelphia Stock Exchange. Total sales, 6,633.

HELENA, MONT.* Week ending Oct. 10.

Name of Company.	Location.	Company's office.	Par value.	Bid.	Asked	Shares sold.	Price.
Am.Dev.&M.Co.	Mont. & Idaho	Butte, Mont.	$1	$1.25	$1.50	....	....
Bald Butte	L. & Clake Co.	Helena "		1 50	2 00	....	....
Bi-Metallic......	Granite "	St. Louis, Mo.		....	3 25	.....	....
Combination....	" "	" "	10	.35	50	. .....	....
Granite Mt	" "	" "	....	1.25	1.75	......	....
Helena & Victor	Missoula "	Helena, Mont.	5	26	.25	.....	....
High Ore.......	Jefferson "	Butte "	.... .	1.00	1.50	. ...	....
Iron Mountain.	Missoula "	Helena "	10	.45	.47½	2,300	.42 to .42½
Judge....... ..	Meagher "	" "	....	....	......	....	....
Merrill (Gold)..	Jefferson "	Butte "	1	. ....	... ...	....	....
Ontario..	DeerLodge "	Helena "	1	....	......	....	... .
Yellowstone....	Meagher "	" "	5	.15	17½	1,000	17

* Special Report of Samuel K. Davis. Total shares sold, 3,300

PITTSBURG, PA.* Week ending Oct. 19.

Name of Company.	Loca-tion.	Par val	Bid.	Ask.	Selling price.	Name of Company.	Loca-tion.	Par val	Bid.	Ask.	Selling price
COAL:						NAT. GAS:					
Mansfield........	Pa.	50	.....	.....	....	Allegheny.......	Pa.	100	... ..	......	......
N.Y. & C. Gas C.	"	50	40	....	. ....	Chartiers Val......	"	100	5½	......	......
MINING:						Manufacturers....	"	100	.	......	......
Ent'prise	Colo.	5	.....	.....	....	Peoples' Nat. Gas.	"	50	...	......	......
Lustre...........	Mex.	10	8	8¾	....	Peoples' Pipeage..	"	25	13	15	......
Silverton	Colo.	10	.....	.....	....	Pennsylvania......	"	50	4	6	......
MISCELLANEOUS:						Philadelphia.	"	50	17	17½	.....
Carborundum...	Pa.	100	. . .	.....	....	Wheeling	W.V.	50	18	18½	. ..

* Official quotations Pittsburg Stock Exchange.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			Dividends. Total Paid.	Dividends. Date and Amount of Last.		
1	Adams, s. l. c.	Colo..	$1,500,000	150,000	$10	*				$693,500	Oct...	1895	.04
2	Ætna Cons., q	Cal ..	500,000	100,000	5	*				70,000	Sept..	1896	.10
3	Alaska-Mexican, g	Alask	1,000,000	200,000	5					155,031	Aug..	1896	.09
4	Alaska-Treadwell, g	Alask	5,000,000	200,000	25	*				2,950,000	Aug..	1896	.35
5	American Belle, g. s. c.	Colo..	2,000,000	400,000	5	*				50,000	April.	1891	.12
6	Anaconda Copper	Mont.	30,000,000	1,200,000	25					750,000	May..	1896	.62½
7	Argentum Juniata, s. l. g	Colo..	2,600,000	1,300,000	2	*				156,000	Oct...	1895	.03
8	Aspen Mg. & S., s. l.	Colo..	2,000,000	200,000	10	*				900,000	July..	1894	.10
9	Atlantic, c	Mich.	1,000,000	40,000	25					700,000	Feb..	1891	1.00
10	Aurora, i	Mich.	2,500,000	100,000	25	*				700,000	April.	1896	.50
11	Bald Butte	Mont.	250,000	250,000	1	*				437,500	Dec..	1895	.03
12	Bangkok-Cora Bell, s. l.	Colo..	600,000	600,000	1					107,510	July..	1896	.01
13	Bates Hunter, g. s.	Colo.	1,000,000	1,000,000	1	*				67,500	Dec..	1891	.00¾
14	Belden, F. E., m	N. H.	500,000	100,000	5	*				217,000	Jan..	1896	.04
15	Big Six, g. s	Colo..	500,000	500,000	1					2,500	May..	1896	.00½
16	Bi-Metallic, g. s.	Mont.	5,000,000	200,000	25	*				1,630,000	June.	1893	.10
17	Bodie Cons., g. s.	Cal ..	10,000,000	100,000	100	$716,490	April.	1896	.15	1,677,572	Dec..	1894	.25
18	Boston & M. Cons., g.s.c	Mont.	3,750,000	150,000	25	*				4,475,000	Aug..	1896	3.00
19	Brotherton, i	Mich.	2,000,000	80,000	25	*				120,000	Mar..	1893	.50
20	Bunker Hill & S., s. l.	Idaho	3,000,000	300,000	10					150,000	Oct...	1888	.06
21	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25					46,350,000	Sept..	1896	5.00
22	Centen'l-Eureka, g.s.l.c	Utah.	1,500,000	30,000	50	30,000	Mar..	1889	1.00	1,830,000	Sept..	1896	1.00
23	Central, c	Mich.	500,000	20,000	25	100,000	Oct...	1861	.65	1,970,000	Feb..	1891	1.00
24	Charleston, p. r.	S. C..	1,000,000	10,000	100	*				140,000	Dec..	1893	2.50
25	Chrysolite, s. l.	Colo..	10,000,000	200,000	50	*				1,650,000	Dec..	1884	.25
26	Clay County, g. s. c.	Colo..	60,000	60,000	1	*				52,000	Nov..	1891	.02
27	C. O. D., g	Colo..	500,000	500,000	1	*				25,000	Mar..	1896	.01
28	Cœur d'Alene, s. l.	Idaho	5,000,000	500,000	10					340,000	June.	1893	.06
29	‡Cons. Cal. & Va., g. s.	Nev..	21,600,000	216,000	100	441,800	April.	1896	.30	3,898,800	Feb..	1895	.25
30	Cons. New York, g. s.	Nev..	10,000,000	100,000	100	168,000	Jan..	1896	.05	10,000	Feb..	1893	.10
31	Coptis, g. s	Nev..	10,000,000	100,000	100					77,000	Feb..	1895	.01
32	Cortez, Ltd., s. g.	Nev..	1,500,000	300,000	5					735,000	Feb..	1893	.15
33	Dalton & Lark, s. l.	Utah.	2,500,000	2,500,000	1					87,500	Aug..	1896	.00½
34	Daly, s. l	Utah.	3,000,000	150,000	20					2,887,500	Aug..	1896	.25
35	†Deadwood-Terra, g	S. D..	5,000,000	200,000	25	*				1,240,000	Aug..	1896	.50
36	De Lamar, g. s.	Idaho	2,000,000	400,000	5	*				2,094,100	April.	1896	.25
37	Derbec Blue Gravel, g	Cal ..	10,000,000	100,000	100	110,000	June.	1893	.10	280,000	Aug..	1891	.10
38	Dexter, g. s	Nev..	1,000,000	100,000	10	8,000	June.	1892	.08	100,000	Aug..	1893	.33
39	Elkton Cons., g	Colo..	1,250,000	1,250,000	1					106,960	Aug..	1896	.01
40	Elkhorn, s	Mont.	1,000,000	200,000	5					1,212,000	June.	1895	.06
41	Enterprise, g. s.	Colo..	2,500,000	500,000	5	*				825,000	May	1893	.25
42	Eureka Cons., g. s. l.	Nev..	1,000,000	50,000	20	555,000	July..	1896	.10	5,112,500	Jan..	1892	.25
43	Evening Star, s. l.	Colo..	500,000	50,000	10	*				1,437,500	Dec..	1889	.25
44	Florence, s	Mont.	2,500,000	500,000	5	*				89,348	May..	1896	.02
45	Franklin, c	Mich.	1,000,000	40,000	25					1,240,000	Jan..	1894	2.00
46	Gold Coin, g. s	Colo..	1,000,000	200,000	5	*				80,000	Aug..	1896	.10
47	Golden Eagle, g	Colo..	1,000,000	1,000,000	1	*				10,000	Sept..	1896	.01
48	Golden Fleece, g. s.	Colo..	600,000	600,000	1	*				533,179	Aug..	1896	.01
49	Gold & Globe, g	Colo..	750,000	750,000	1					28,875	June.	1896	.00 3/10
50	Gold Rock, g. s. c.	Colo..	500,000	500,000	1	*				28,750	Dec..	1891	.01
51	Granite Mountain, g. s.	Mont.	10,000,000	400,000	25	*				12,120,000	July..	1892	.20
52	Granite, s. l	Idaho	500,000	200,000	2.50	*				83,400	Nov..	1890	.10
53	Gt. West'n Quicksilv., q.	Cal ..	5,000,000	50,000	100					388,366	Nov..	1893	.10
54	Harquahala, g	Ariz..	1,500,000	300,000	5					126,000	Nov..	1894	.12
55	Hecla Cons., g. s. c. l.	Mont.	1,500,000	30,000	50	*				2,130,000	Feb..	1896	.50
56	Helena & Frisco, s. l.	Idaho	2,500,000	500,000	5	*				475,000	Aug..	1896	.04
57	Holmes, s	Nev..	10,000,000	100,000	100	345,000	Mar..	1890	.25	75,000	April.	1892	.25
58	Homestake, g	S. D..	12,500,000	125,000	100	200,000	July..	1878	1.00	5,993,750	Sept..	1896	.25
59	Hope, s	Mont.	1,000,000	100,000	10	*				622,252	Oct ..	1896	.10
60	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*				5,130,000	Jan..	1896	.12½
61	Iowa	Colo..	1,000,000	1,000,000	1					40,000	Aug..	1896	.01
62	Iron Mountain, s. l.	Mont.	5,000,000	500,000	10	*				445,000	Sept..	1896	.01
63	Iron Silver, s. l.	Colo..	10,000,000	500,000	20	*				2,500,000	April	1889	.20
64	Isabella, g	Colo..	2,250,000	2,250,000	1					202,500	Sept..	1896	.01
65	Jack Rabbit, g	Cal ..	10,000,000	100,000	100	118,000	April.	1894	.02	260,000	April.	1891	.10
66	Jay Hawk, g	Mont.	1,425,000	285,000	5					33,375	Dec..	1892	.12
67	Kearsarge, c	Mich.	1,000,000	40,000	25	190,000	Oct...	1887	1.00	120,000	Dec..	1895	1.00
68	Kennedy, g	Cal ..	10,000,000	100,000	100					1,796,000	Aug..	1895	.48
69	Leadville Cons., s. l.	Colo..	4,000,000	400,000	10	*				316,000	Feb..	1893	.03
70	Little Chief, s. l. i-o.	Colo..	10,000,000	200,000	50	*				820,000	Dec..	1890	.05
71	Maid of Erin, g. s. c. l.	Colo..	3,000,000	600,000	5	*				740,000	Nov..	1895	.02
72	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	*				1,130,000	Oct...	1896	.05
73	Mayflower Gravel, g	Cal ..	1,200,000	60,000	20					166,897	Dec..	1895	.10
74	May-Mazeppa Con., l. s.	Colo..	1,000,000	1,000,000	1	*				170,000	Oct...	1891	.03¾
75	Mercur, g	Utah.	5,000,000	200,000	25	*				500,000	Sept..	1896	.12½
76	Minnesota Iron, i	Minn.	16,500,000	165,000	100	*				3,240,009	July..	1896	1.50
77	Mollie Gibson, s	Colo..	5,000,000	1,000,000	5	20,000	Jan..	1891	.02	4,080,000	Jan..	1895	.05
78	Monitor, g	S. D..	2,500,000	250,000	10					45,000	Oct...	1890	.03
79	Montana, Ltd., g. s.	Mont.	3,300,000	660,000	5	*				2,890,637	Oct...	1895	.06¼
80	Montana Ore Purchas'g	Mont.	1,000,000	40,000	25	*				440,000	July..	1896	1.00
81	Moon Anchor Gold	......	600,000	600,000	1	*				24,000	July..	1896	.01
82	Moose, g	Colo..	600,000	600,000	1					186,000	Jan..	1896	.01
83	Morning Star Cons., s. l.	Colo..	1,000,000	100,000	10	*				1,025,000	Dec..	1891	.25
84	Mt. Diablo, s	Nev..	5,000,000	50,000	100	140,000	July..	1896	.05	225,000	Aug..	1893	.25
85	Mt. McClellan, g. s. l.	Colo..	1,250,000	250,000	5	*				21,936	June.	1891	.03
86	Mt. Rosa, g	Colo..	1,000,000	1,000,000	1					10,000	Jan..	1895	.00½
87	Napa, q	Cal ..	700,000	100,000	7	*				810,000	Oct...	1896	.20
88	New Elkhorn	Colo..	1,500,000	300,000	5					72,000	Sept..	1896	.24
89	New Guston, g. s. c.	Colo..	550,000	110,000	5	*				1,198,120	Oct...	1892	.25
90	New Hoover Hill, g.	N. C..	300,000	120,000	2.50	*				22,500	Dec..	1885	.20
91	North Banner, g. s.	Cal ..	1,000,000	100,000	10	21,794	Oct...	1896	.02	20,000	July..	1891	.05
92	North Belle Isle, s.	Nev..	10,000,000	100,000	100	523,074	July..	1896	.10	230,000	May	1888	.50
93	North Com'wealth, s.	Nev..	10,000,000	100,000	100	85,000	April.	1890	.25	25,000	June.	1891	.25
94	North Star, g	Cal ..	2,000,000	200,000	10	20,000	June.	1885	.02	450,000	June.	1893	.50
95	Nugget, g	Colo..	1,000,000	1,000,000	1	*				10,000	Jan..	1895	.00½
96	Ontario, s. l	Utah.	15,000,000	150,000	100					13,310,000	Oct...	1896	.10
97	Osceola, c	Mich.	1,250,000	50,000	25	*				2,072,500	July..	1896	1.00
98	Pacific Coast Borax, b.	Cal ..	2,000,000	20,000	100					422,500	July..	1893	1.00
99	Parrot, c	Mont.	2,300,000	230,000	10	*				1,622,215	June.	1894	.05
100	Petro, s	Utah.	1,000,000	10,000	100					17,500	July..	1891	.75
101	Pharmacist, g	Colo..	1,200,000	1,200,000	1					80,000	Jan..	1893	.01
102	Portland, g	Colo..	3,000,000	3,000,000	1	*				773,000	Aug..	1896	.03
103	Quicksilver, pref., q.	Cal ..	4,300,000	43,000	100	*				1,823,911	June.	1891	1.25
104	" com., q.	Cal ..	5,700,000	57,000	100	*				643,867	July..	1882	.40
105	Quincy, c	Mich.	1,250,000	50,000	25	*				8,370,000	Aug..	1896	6.00
106	Reed National, s	Colo..	500,000	500,000	1	*				45,000	Dec..	1890	.01
107	Robinson Cons., s. l.	Colo..	10,000,000	200,000	50	*				585,000	Mar..	1886	.05
108	Running Lode, g. s. l.	Colo..	1,000,000	1,000,000	1	*				27,000	June.	1893	.00 1/10
109	Savage, g. s	Nev..	11,200,000	112,000	100	1,006,600	June.	1896	.20	4,460,000	June.	1869	3.00
110	St. Joseph, l	Mo...	2,500,000	250,000	10					2,524,000	Dec..	1895	.25
111	Silent Friend, g. s. l.	Colo..	500,000	500,000	1	*				60,000	Aug..	1891	.25
112	Silver Cord Com., g. s. l.	Colo..	5,000,000	500,000	10	*				270,000	April.	1889	.10
113	Silver King, s	Ariz..	10,000,000	100,000	100	222,858	June.	1896	.25	1,950,000	July.	1887	.25
114	Silver King, g. s. l.	Utah.	3,000,000	150,000	20					787,500	Sept..	1896	.25
115	Silver Mg. of L. V., s.	N. M.	500,000	500,000	1	*				300,137	Dec..	1891	.04
116	Small Hopes, s	Colo..	5,000,000	250,000	20	*				3,275,000	Mar..	1896	.10
117	‖Smuggler Union	Colo..	5,000,000	50,000	100					100,000	July..	1896	1.00
118	Standard Cons., g. s.	Cal ..	10,000,000	100,000	100					3,771,160	June.	1895	.10
119	Swansea, g. s. l.	Colo..	600,000	60,000	10	*				39,000	Sept..	1892	.10
120	Tamarack, c	Mich.	1,250,000	50,000	25					4,320,000	June.	1896	3.00
121	Teal & Poe, s. l.	N. M.	150,000	150,000	1	*				9,000	Nov..	1891	.01½
122	Tom Boy, g	Colo..	2,000,000	200,000	10	*				410,000	Mar..	1896	.20
123	Tombstone, g. s. l.	Ariz.	12,500,000	500,000	25	*				1,250,000	April.	1882	.10
124	Trinity River, g	Cal ..	500,000	500,000	1	*				15,000	July..	1893	.00½
125	United Verde, c	Ariz..	3,000,000	300,000	10	*				562,500	Dec..	1893	.25
126	Union, g	Colo..	1,250,000	1,250,000	1					73,000	June.	1896	.01
127	Union Leasing	Colo..	500,000	500,000	1					340,000	July..	1895	.04
128	Victor, g	Colo..	1,000,000	200,000	5	*				605,000	July..	1896	.10
129	Woodside	Utah.	1,000,000	100,000	10					25,000	Oct...	1889	.25
130	Yankee Girl, s	Colo..	1,300,000	260,000	5					520,000	July..	1891	.25

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.		
1	Ada Cons., s. l.	Utah.	$100,000	100,000	$1	$3,333	Nov..	1895	.01⅓
2	Ajax, g	Colo..	1,000,000	1,000,000	1				
3	Alamo, g	Colo..	1,000,000	1,000,000	1				
4	Alice, g. s. c	Colo..	5,000,000	5,000,000	1	*			
5	Alliance, g. s. l	Utah.	100,000	100,000	1	200,000	Dec..	1895	.10
6	Allouez, c	Mich.	2,000,000	80,000	25	1,440,937	June.	1894	.20
7	Alpha Cons., g. s.	Nev..	10,500,000	105,000	100	257,500	Sept..	1896	.10
8	Alta, s	Nev..	10,080,000	108,000	100	3,579,760	Oct...	1896	.10
9	American, c	Idaho	5,000,000	500,000	10	*			
10	Anaconda, g	Colo..	5,000,000	1,000,000	5				
11	Anchor, g. s. l.	Utah.	1,500,000	150,000	10	560,000	Aug..	1893	.20
12	Anchoria-Leland, g	Colo..	600,000	600,000	1	*			
13	Aola, g	Colo..	1,000,000	1,000,000	1	*			
14	Argonaut Cons., g. s.	Colo..	1,000,000	1,000,000	1	*			
15	Atlantic Cable Cons.	Colo..	1,500,000	1,500,000	1	*			
16	Bahama, g	S. D.	1,250,000	250,000	5	3,125	Sept..	1893	.00¼
17	Bankers, g.	Colo..	1,250,000	1,250,000	1	*			
18	Belcher, s. g	Nev..	10,400,000	104,000	100	3,312,420	Sept..	1896	.25
19	Belle Isle	Nev..	10,000,000	100,000	100	240,271	July..	1896	.10
20	Ben Hur, g.	Colo..	900,000	900,000	1				
21	Blue Bell, g	Colo..	500,000	500,000	1	*			
22	Blue Jay Cons., s. l.	Utah.	2,000,000	400,000	5	4,750	July..	1893	.004
23	Bob Lee, g	Colo..	1,200,000	1,200,000	1	*			
24	Bullion, s. g	Nev..	1,000,000	100,000	100	3,030,000	Sept..	1896	.10
25	Burlington, g. s.	Cal...	10,000,000	100,000	100	3,000	May..	1896	.03
26	Buskhorn, g	Colo..	900,000	900,000	1				
27	Butte Queen, g	Cal...	1,000,000	100,000	10	16,000	Feb..	1893	.10
28	Calumet, g	Colo..	1,400,000	1,400,000	1	*			
29	Central Lead, l	Mo...	400,000	4,000	100	*			
30	Central North Star, g.	Cal...	1,000,000	100,000	10	10,000	July..	1893	.10
31	Challenge, s, g	Nev..	5,000,000	50,000	100	295,000	April.	1896	.05
32	Chollar, g. s	Nev..	11,200,000	112,000	100	2,021,600	July..	1896	.25
33	Cleveland Cliffs, l.	Mich.	5,000,000	50,000	100	*			
34	Columbine, g	Colo..	1,000,000	1,000,000	1	*			
35	Confidence, g. s.	Nev..	2,496,000	24,960	100	1,636,974	Sept..	1896	.30
36	Cons. Imperial, g. s.	Nev..	5,000,000	50,000	100	2,082,000	Aug..	1896	.01
37	Copper Mountain, g.	Colo.	1,000,000	1,000,000	1	*			
38	Creede & C. C., g.	Colo..	800,000	800,000	1				
39	CrippleCreekCons., g.	Colo..	2,000,000	2,000,000	1				
40	Crip. Cr'k Gold Expl'n	Colo..	1,800,000	1,800,000	1				
41	Dante, g	Colo..	1,250,000	1,250,000	1	*			
42	Denver City, s.	Colo..	5,000,000	500,000	10	*			
43	Denver Gold, g.	Colo..	300,000	60,000	5				
44	Dickens-Custer, g. s.	Colo..	2,100,000	420,000	5				
45	Enterprise, g.	Colo..	800,000	800,000	1				
46	Eureka Con. Drift, g.	Colo..	500,000	500,000	1	90,000	Oct..	1892	.07
47	Exchequer, g. s.	Nev..	10,000,000	100,000	100	715,000	Nov..	1895	.05
48	Favorite, g	Colo..	1,200,000	1,200,000	1	*			
49	Fortunatus, g. s.	Colo..	100,000	100,000	1	*			
50	Found Treasure, g. s.	Nev..	10,000,000	100,000	100	55,770	Jan..	1892	.50
51	Franklin Gold, g.	Colo..	1,000,000	1,000,000	1	*			
52	Free Coinage, g.	Colo..	1,000,000	1,000,000	1	*			
53	Galena, l. s	Idaho	500,000	500,000	1				
54	Garden City, g.	S. D..	2,500,000	250,000	10	2,898	Sept..	1891	.001⅛
55	Garfield-Grouse, g.	Colo..	1,200,000	1,200,000	1	*			
56	Gem, g	Cal...	10,000,000	100,000	100				
57	Gold Belt, g. s	Utah.	500,000	500,000	1	3,012	July..	1896	.00⅝
58	Golden Age, g	Colo..	1,000,000	1,000,000	1	*			
59	Golden Dale, g	Colo..	2,000,000	2,000,000	1	*			
60	Golden Fleece Grav. g	Cal..	130,000	130	1000	56,000	Aug..	1892	2.00
61	Gold Flat, g	Cal...	1,000,000	100,000	10	13,000	Aug..	1893	.03
62	Gold King, g	Colo..	1,000,000	1,000,000	1	*			
63	Gold Rock, g	Colo..	1,000,000	1,000,000	1	*			
64	Gold Standard, g	Colo..	1,000,000	1,000,000	1	*			
65	Gould & Curry	Nev..	10,800,000	108,000	100	4,801,800	Oct...	1896	.15
66	Hale & Norcross, g. s.	Nev..	11,200,000	112,000	100	5,758,800	Aug..	1896	.15
67	Hartshorn, g. s	S. D..	1,250,000	250,000	5	8,750	Sept..	1891	.00⅛
68	Head Cent. & Tr., g.s.	Ariz..	2,000,000	200,000	10	22,824	Mar..	1892	.03
69	Hidden Treas., g. s.	Cal...	20,000	20,000	1	1,000	Nov..	1893	.05
70	Himalaya, s. l	Utah.	1,800,000	180,000	10	10,000	Oct..	1892	.01
71	Idaho Co., Ltd., g.	Idaho	100,000	1,000	100	*			
72	Idlewild, g	Cal...	1,000,000	100,000	10	*			
73	Inez, s. l	Idaho	1,000,000	1,000,000	1	*			
74	Jack Pot, g	Colo..	1,250,000	1,250,000	1				
75	Jackson, l	Mich.	300,000	12,000	25	*			
76	Justice, g. s. c.	Colo..	500,000	500,000	1	*			
77	Keystone, g	Colo..	1,500,000	1,500,000	1	*			
78	Kingman Silver, g. s.	Ariz..	10,000,000	100,000	100	5,000	Sept..	1891	.05
79	Lacrosse, g	Colo.,	1,000,000	100,000	10	*			
80	Lottie Gibson, g	Colo..	1,000,000	1,000,000	1				
81	Matoa, g	Colo..	5,000,000	1,000,000	5				
82	Mayflower, g	Colo..	1,000,000	1,000,000	1	*			
83	Mexican, g. s	Nev..	10,080,000	100,800	100	3,063,920	May..	1896	.20
84	Michigan Gold, g. s.	Mich.	2,500,000	100,000	25	40,000	Mar..	1892	.10
85	Milwaukee, s. l	Idaho	500,000	500,000	1				
86	Modoc Chief, g. s. l.	Idaho	1,000,000	200,000	5	4,375	Jan..	1892	.00⅛
87	Monarch, g	Colo..	1,000,000	1,000,000	1				
88	Mutual, g	Colo..	500,000	500,000	1				
89	Neath, g	Colo.	1,000,000	100,000	10				
90	New Gold Hill	N. C..	1,750,000	350,000	5				
91	New Viola, s. l	Idaho	750,000	150,000	5	*			
92	Occidental Cons., g.s.	Nev..	10,000,000	100,000	100	438,652	Sept..	1896	.10
93	Original Keystone, s.	Nev..	10,000,000	100,000	100	250,000	Mar..	1892	.10
94	Oro Cache, g. s	S. D..	1,250,000	250,000	5	6,250	July..	1893	.00¼
95	Orphal Bell, g	Colo..	1,000,000	1,000,000	1				
96	Overman Silver, g. s.	Nev..	1,152,000	115,200	100	4,177,040	June.	1896	.10
97	Pappoose, g	Colo..	2,000,000	2,000,000	1	*			
98	Peer, s	Ariz..	10,000,000	100,000	100	215,000	July..	1894	.05
99	Peerless, s	Nev..	10,000,000	100,000	100	410,000	July..	1894	.05
100	Pine Hill, g	Cal ..	1,000,000	100,000	10	20,000	July..	1896	.05
101	Pioche Con., g. s. l.	Nev..	20,000,000	2,000,000	10	*			
102	Potosi, g. s	Nev..	11,200,000	112,000	100	2,016,000	May..	1896	.20
103	Princess, g	Colo..	1,000,000	1,000,000	1				
104	Puritan, g, s	Colo..	1,500,000	150,000	10	*			
105	Quincy, c	Colo..	3,000,000	300,000	10				
106	Red Mountain, s.	Colo..	300,000	60,000	5	22,500	Mar..	1891	.12½
107	Ruby & Dun., g. s. l.	Nev..	25,300	506	25	*			
108	St. Mary, c	Mich.	1,000,000	40,000	25	4,000	July..	1895	.05
109	Seg. Belcher & M., g.s.	Nev..	10,000,000	100,000	100	330,000	Oct...	1895	.10
110	Silver Age, g. s. l.	Colo..	2,000,000	200,000	10	*			
111	Silver Hill, s	Nev..	10,800,000	108,000	100	1,992,600	July..	1894	.05
112	Silver Queen, c	Ariz..	5,000,000	200,000	25	*			
113	Silver State, g	Colo..	700,000	700,000	1	*			
114	Siskiyou Con., s	Cal ..	2,000,000	200,000	10	44,000	June.	1896	.01
115	Specimen, g	Colo..	1,200,000	1,200,000	1				
116	Temonj, g	Colo..	1,000,000	1,000,000	1				
117	Tornado Con., g. s.	Nev..	100,000	100,000	1	*			
118	Union Con., g. s	Nev..	10,000,000	100,000	100	2,545,000	Sept..	1896	.20
119	Utah Cons., s.	Nev..	10,000,000	100,000	100	415,722	Oct...	1896	.05
120	Victory, g. s.	S. D..	1,250,000	250,000	5	1,250	Nov..	1895	.005
121	Virginia M. Cons., g.	Colo..	1,000,000	1,000,000	1				
122	Waterloo, g	Cal...	2,000,000	200,000	10	30,000	Aug..	1893	.15
123	West Granite Mt., s.	Mont.	500,000	100,000	5				
124	Whale, g. s. l.	Colo..	500,000	500,000	1	*			
125	Work, g	Colo..	1,250,000	1,250,000	1				
126	World, g	Colo..	1,500,000	1,500,000	1	*			

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable. † The Deadwood previously paid $275,000 in eleven dividends and the Terra $75,000.
‡ Previous to the consolidation in August, 1884, the California had paid $31,320,000 in dividends and the Cons. Virginia $42,390,000. ‖ Dividends paid since consolidation.
NOTE.—Corrections to this table are made monthly. Correspondents are requested to forward changes or additions so as to reach us before the end of each month.

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Pass, C., & Son, Ltd.
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Raymond Lead Co.
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Fraser & Chalmers.
Kendall Gold & Silver Extraction Co.
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Mining and Land Companies.
American Dev. & Mg. Co.
Atlantic Mg. Co.
Arizona Copper Co.
Copper Queen Con. Mg. Co.
Detroit Copper Mg. Co.
Eureka Co.
Rio Tinto Copper Co
Isabella Gold Mg. Co.
Smuggler-Union Mg. Co.

Nickel.
Canadian Copper Co.

Ore Cars.
Truax Mfg. Co.

Ore Roasters
Brown, Horace F.
Cummer, F. D., & Sons Co.

Ore Testing Works
Hunt, F. F.
Ledoux & Co.
Montana Ore Purchasing Co.
Ricketts & Banks.
Robertson, W. F.
Simonds & Wainwright
State Ore Sampling Co

Packing and Pipe Coverings.
Asbestos Paraffine Co
Brandt, Randolph.
Jenkins Bros.
Hine & Robertson.
New York Belting & Packing Co., Ltd.
Wyckoff & Son, A.

Perforated Metals.
Aitcheson, R., Perf. Metal Co.
Fraser & Chalmers.
Harrington & King Perforating Co.

Peroxide of Sodium.
Roessler & Hasslacher Chemical Co.

Phosphor-Bronze.
Phosphor-Bronze Smelting Co.

Pile Drivers.
Bucyrus Steam Shovel and Dredge Co.
Ingersoll-Sergeant Drill Co.

Pipes.
Pollock, Wm. B., & Co.
Wyckoff, A., & Sons.

Platinum.
Baker & Co.
Johnson, Matthey & Co.

Powder.
Atlantic Dynamite Co.
Ingersoll-Sergeant Drill Co.
Lau, J. H., & Co.
Repauno Chem. Co.

Pressure Blowers.
Connersville Blower Co.

Publications.
American Fertilizer.
Australian Mg. Standard.
British Columbia Mining Record.
Denver Republican.
El Minero Mexicano.
Indian Engineering.
Iron & C. Trade Review
McNeill's Code
Mining Investor.
Mining Journal.
Scientific Pub. Co.
So. African Mg. Jour.
Zeitschrift fur Praktische Geologie
Wall Street Reporter.

Pumps
Blake, Geo. F., Mfg. Co.
Cameron, A. S., Steam Pump Works.
Denver Eng. Wks. Co.
Fraser & Chalmers.
Jeanesville Iron Wks
Snow Steam Pump Co.
Stilwell-Bierce & Smith-Valle Co.
Tod, Wm., & Co.
Worthington, Henry R.

Quarrying Machines.
Ingersoll-Sergeant Drill Co.
Rand Drill Co.
Sullivan Machinery Co.

Quicksilver.
Eureka Co.

Railroads.
Atchison, Topeka & Santa Fe Ry.
Chicago & N. West. R. R.
C. B. & Quincy R. R.
Denver & Rio Grande R. R.
Denver, Leadville & Gunnison Ry
Florence & Cripple Creek R. R.
Illinois Central R. R.
Midland R. R. of Kentucky.
Rio Grande Southern R. R.
U. P., D. & G. R. R.

Railroad Supplies and Equipment.
Hunt, C. W., Co.
Porter, H. K., & Co
Robinson & Orr.
(See Machinery.)

Regulators, Damper, Heat, Etc.
Eddy Valve Co.
Jenkins Bros.

Rock Drills. (See Air Compressors.)

Roofing
Berlin Iron Bridge Co.
Cincinnati Corrugating Co.
Phelps, Dodge & Co.
Shiffler Bridge Co.
Sykes Steel Roofing Co

Rubber Goods.
New York Belting & Packing Co., Ltd.

Screens.
Aitcheson, R., Perf. Metal Co
Denver Eng. Wks. Co.
Fraser & Chalmers
Harrington & King Perforating Co.
Link Belt Machinery Co.
Ludlow-Saylor Wire Co. (See Machinery

Second Hand Machinery.
Hine & Robertson.
Robinson & Orr.

Shoes and Dies
Chester Steel Cast. Co
Chrome Steel Works.
Crescent Steel Co.
Denver Eng. Wks. Co.
Fraser & Chalmers

Shovels (Steam).
Bucyrus Steam Shovel & Dredge Co
Marion Steam Shovel Co.

Smelting and Refining Works.
Balbach S. & Ref. Co.
Baltimore Cop'r Wks.
Bridgeport Copper Co.
Con. Kas. City S. & R. Co.
Elliott's Metal Co., Ltd.
Mathison Smelting Co.
Orford Copper Co.
Penna. Salt Mfg. Co.
Penn Smelting and Refining Works.
Phosphor-Bronze Smelting Co.

Steel Rails, Castings, Rolls, Drill Steel
Bethlehem Iron Co.
Chester Steel Cast. Co.
Chrome Steel Works.
Crescent Steel Co.
Moore, S. L., & Sons Co.
Robinson & Orr.
Pollock, Wm. B. & Co.
Taylor Iron & Steel Co
Jessop Wm. & Son Ltd.
(See Metal Dealers)

Tanks.
Denver Eng. Wks. Co.
Gates Iron Works.
Walker Co.
Williams Mfg. Co.

Telegraph Wires and Cables
Okonite Co., Ltd.,

Tools
Besly, Chas. H., & Co.
Pratt & Whitney Co.

Tubes
Besly Chas. H., & Co.
Pollock, Wm. B. & Co.
Williams Bros

Tubing-Rubber
New York Belting and Packing Co., Ltd

Turbine Water-Wheels
Leffel, Jas., & Co.
Pelton Water Wheel Co.
Stilwell-Bierce & Smith Valle Co

Valves
Eddy Valve Co.
Jenkins Bros.

Ventilators
Bullock, M. C., Mfg. Co.
Fraser & Chalmers.
Tod, Wm., & Co.

Voltmeters.
Weston Electrical Instrument Co.

Vulcanite Emery Wheels
New York Belting and Packing Co., Ltd

Water-Wheels.
Leffel, James, & Co.
Pelton Water Wheel Co.
Stilwell-Bierce & Smith-Valle Co.

Well Drilling Machinery.
Sullivan Mach'y Co.
Williams Bros.

Wharfage.
Lambert's Wharfage Co.

Wheels, Car.
Chester Steel Cast. Co.
Taylor Iron & Steel Co.

White Lead.
Cookson & Co.
Foster, Blackett & Co.

Wire Cloth.
Aitcheson, R., Perf. Metal Co.
Harrington & King Perforating Co.

Wire Rope & Wire
Besly, Chas. H., & Co.
Broderick & Bascom Rope Co.
California Wire Wks.
Cooper Hewitt & Co.
Hunt, C. W., Co.
Phelps, Dodge & Co.
R'bling, J. A. Sons & Co
Trenton Iron Co.

Wire Rope Tramway.
Brown Hoist. & Conv. Machine Co.
California Wire W'ks.
Colorado Iron Works.
Denver Eng. Wks. Co
Fraser & Chalmers.
Hunt, C. W., Co.
Roebling, J. A., Son & Co.
Vulcan Iron Works.

POSITIONS VACANT.

FREE ADVERTISING

Inquiries from employers in want of Superintendents, Engineers, Metallurgists Chemists, Mine or Furnace Foremen, or other assistance of this character, will be inserted in this column WITHOUT CHARGE, whether subscribers or not.

The labor and expense involved in ascertaining what positions are open, in gratuitously advertising them and in attending to the correspondence of applicants, are incurred in the interest and for the *exclusive* benefit of *subscribers* to the ENGINEERING AND MINING JOURNAL.

☞ **Applicants should inclose the necessary postage to insure the forwarding of their letters.**

1486 WANTED.—A MAN TO TAKE ENtire charge of a mining property in Mexico; must be a first-class man and thoroughly conversant with the management of Huntington Mills and chlorination; one who speaks Spanish preferred; permanent engagement, with good prospects, given to first-class man. Address INDEPENDENCIA, ENGINEERING AND MINING JOURNAL.

1488 WANTED—AN ENGINEER AND Assayer who has had experience in the mines of the Ouro Preto District, Brazil. Address with full particulars, F. F. F., ENGINEERING AND MINING JOURNAL.

1489 WANTED—A MAN ACQUAINTED with lead smelting, sweep smelting, cupolation and refining and desilverizing processes, to run a small blast furnace and refinery in South Africa. A technical graduate preferred, but practical experience absolutely necessary, as well as tact and ability to manage men. A man between 30 and 40 years of age preferred. A good salary will be paid to the right party, who will be expected to return it in a responsible position. Address TRANSVAAL, ENGINEERING AND MINING JOURNAL.

1492 WANTED—A YOUNG MAN WHO is competent as an analytical chemist, with some experience as an engineer, can find a situation at a moderate salary with a mining company in Virginia, by furnishing satisfactory testimonials of his character, ability and experience. Address MINING COMPANY, ENGINEERING AND MINING JOURNAL.

1493 WANTED—BY AN IRON COMPANY —A General Superintendent to take charge of a blast furnace plant, with coal mines and coke ovens. Applicant must be thoroughly qualified in modern blast furnace practice. Preference will be given to a man of technical education Good position for a man of thorough experience and ability. Address IRON, ENGINEERING AND MINING JOURNAL

SITUATIONS WANTED.

Advertisements for SITUATIONS WANTED will be charged only 10 cents a line.

AN EXPERIENCED ORE BUYER AND assayer is open for engagement; speaks Spanish. Address SAMPLER, ENGINEERING AND MINING JOURNAL. No. 14,832, Nov. 7.

WANTED—POSITION AS MINING SUPERintendent, assayer or mill man; nine years' experience; amalgamation or concentration. Address M. D. S., 38 So. Grant Ave., Denver, Colo. No. 14,833, Oct. 31.

WANTED — POSITION — A GRADUATE Chemist, Assayer and Metallurgist; acquainted with the cyanide and chlorination processes; first-class references; speaks five languages; 30 years old. Address E. de G., 206 Boston Building, Denver, Colo. No. 14,835, Oct. 31.

MINING AND MECHANICAL ENGINEER of executive ability and 20 years' experience is open for engagement with first-class company, as superintendent or resident manager; specialty, erection and treatment of low-grade ores; speaks German and Spanish; references the best. Address A. L., ENGINEERING AND MINING JOURNAL. No. 14,839, Nov. 7.

CHEMIST, GRADUATE STATE UNIVERsity, desires employment in works, foundry or office; has had two years' experience clay and iron laboratories; can invest several hundred dollars, together with services, in small chemical business. Address JOURNAL, 737 Monadnock Block, Chicago, Ill. No. 14,826, Oct. 31.

POSITION WANTED BY ASSAYER AND Chemist, graduate of technical school; experienced with smelter and mine work; out of work on account of Leadville strike; best of reference. Address BOX 672, Lake Geneva, Wis. No. 14,836, Nov. 7.

SUPERINTENDENT AND ACCOUNTANT, age 32, temperate, wants position with mining company; eight years' experience; no objection to location. Address GOLD, ENGINEERING AND MINING JOURNAL, 12 Montgomery St., San Francisco, Cal. No. 17,837, Oct. 31.

ASSAYER AND CHEMIST, GRADUATE of Northwestern University, '95, desires position; experience limited; best of references. Address N. W. U., ENGINEERING AND MINING JOURNAL. No. 17,842, Nov. 21.

A YOUNG MECHANICAL ENGINEER wants position with mining or manufacturing company. Good draughtsman. Willing to take up any branch. Limited experience, but will work cheap to start. Address C. P., ENGINEERING AND MINING JOURNAL. No. 17,841. Oct. 31.

YOUNG MAN NOW IN NEW YORK, thorough technical education, surveyor and draughtsman, experienced in Colorado mining, desires position as assistant to mining engineer or manager. Address H. F., ENGINEERING AND MINING JOURNAL. No. 17,844, Nov. 7.

METALLURGIST AND MINING ENGINEER would like a position with company intending to adopt the cyanide process, or with company using it with unsatisfactory results. References. Address CYANIDE, ENGINEERING AND MINING JOURNAL. No. 17,843, Dec. 5.

OPEN TO ACCEPT ENGAGEMENT JANuary 1st, 1897—a man having 16 years' practical experience in the planning and supervision of the development and equipment of gold and silver mining property, with plants of mining and reduction machinery, and the management of extensive mining and milling operations, and who is well abreast of modern up-to-date practice in the principal and incidental departments of precious-metal mining, including the handling of men in the vigorous and systematic prosecution of mining work. Reference as to moral character and ability given. Address A. Z., ENGINEERING AND MINING JOURNAL. No. 17,840, Nov. 21.

Contracts Open.

TREASURY DEPARTMENT. Office of Supervising Architect, Washington, D. C., October 17th, 1896.—Sealed proposals will be received at this office until 2 o'clock p. m., on the 17th day of November, 1896, and opened immediately thereafter, for all the labor and materials required for the low-pressure, return circulation, steam heating and ventilating apparatus, for the U. S. Post Office building at Newburgh, N. Y., in accordance with the drawings and specification, copies of which may be had at this office or the office of the Superintendent at Newburgh, N. Y. Each bid must be accompanied by a certified check for a sum not less than 2% of the amount of the proposal. The right is reserved to reject any or all bids and to waive any defect or informality in any bid should it be deemed in the interest of the Government to do so. All proposals received after the time stated will be returned to the bidders. Proposals must be enclosed in envelopes, sealed and marked, "Proposal for the Heating and Ventilating Apparatus for the U. S. Post Office Building at Newburgh, N. Y.," and addressed to WM. MARTIN AIKEN, Supervising Architect. Orig.

TREASURY DEPARTMENT, OFFICE SUPERvising Architect, Washington, D. C., October 24th, 1896.—Sealed proposals will be received at this office until 2 o'clock p. m. on the 20th day of November, 1895, and opened immediately thereafter, for all the labor and materials required for the erection and completion (except heating apparatus) of the U. S. Post Office Building at Saginaw, Mich., in accordance with the drawings and specification, copies of which may be had at this office or the office of the Superintendent at Saginaw, Mich. Each bid must be accompanied by a certified check for a sum not less than 2% of the amount of the proposal. The right is reserved to reject any or all bids and to waive any defect or informality in any bid should it be deemed in the interest of the government to do so. All proposals received after the time stated for opening will be returned to the bidders. Proposals must be enclosed in envelopes, sealed and marked, "Proposal for the Erection and Completion of the U. S. Post Office at Saginaw, Mich.," and addressed to WM. MARTIN AIKEN, Supervising Architect. Orig.

MINERAL OIL.—Jeffersonville, Ind.—Sealed proposals, in triplicate, will be received here until November 21st, 1896, for furnishing at Quarter-Master depot here 250,000 gallons mineral oil, 135 degrees flash test, in cases of two five-gallon cans each. United States reserves right to reject or accept any or all proposals or any part thereof. Information furnished on application. Envelopes containing proposals should be marked "Proposal for Mineral Oil," and addressed A. G. ROBINSON, Depot Quarter-Master.

PUMPING ENGINES.—Sealed proposals will be received by the city of Chicago until November 14th, 1896, for furnishing and erecting on the foundations to be constructed at the proposed pumping station at the southeast corner of Springfield avenue and Bloomingdale road (Pacific Junction), in the city of Chicago, three vertical condensing triple-expansion engines of a capacity of twenty (20) million gallons per twenty-four hours each, with a total lift of one hundred and fifty (150) feet, together with necessary boilers and all accessories and appurtenances, according to plans and specifications on file in the office of the Department of Public Works of said city. Proposals must be made out upon blanks furnished at said office.

PUMPING ENGINES.—Sealed proposals will be received by the city of Chicago until November 14th, 1896, for furnishing and erecting on the foundation to be constructed at the proposed pumping station, at the northeast corner of Central Park avenue and Fillmore street, in the city of Chicago, three vertical condensing triple-expansion engines of a capacity of twenty (20) million gallons per twenty-four hours each, with a total lift of one hundred and fifty (150) feet, together with necessary boilers and all accessories and appurtenances, according to plans and specifications on file in the office of the Department of Public Works of said city. Proposals must be made out upon blanks furnished at said office.

STEEL HIGHWAY BRIDGE.—Sealed proposals for constructing a steel highway bridge over the Woonasquatucket River will be received at the office of the Commissioner of Public Works, City Hall, City of Providence, R. I., until November 5th, 1896. Plans and specifications may be seen at the office of the City Engineer, City Hall, where blank forms of contract, proposal and bond may be obtained.

WATER-WORKS.—Sealed bids will be received by the Village of Milford, Ill., until November 10th, 1896, for furnishing and constructing the system of mains, hydrants and valves for the waterworks for said village. The approximate quantities are as follows, viz.: 289 tons 4-in. to 8-in. cast-iron pipe; 8,219 lbs. special castings; 29 4-in. to 8-in. valves and valve boxes; 34 two-nozzle hydrants; 20,910 ft. pipe-laying and setting valves and hydrants. Plans can be seen at the office of the Village Clerk, or JACOB A. HARMAN, Engineer, Peoria, Ill. For specifications, blank form of proposal and all information, address the Engineer.

PUMPING ENGINES—OFFICE OF THE DEpartment of Public Works.—Sealed proposals will be received by the city of Chicago until November 14th, 1896, for furnishing and erecting on the foundations to be constructed at the proposed pumping station at the southeast corner of Springfield avenue and Bloomingdale road (Pacific Junction), in the city of Chicago, three vertical condensing triple-expansion engines of a capacity of twenty (20) million gals. per 24 hours each, with a total lift of one hundred and fifty (150) ft., together with necessary boilers and all accessories and appurtenances, arranged for a complete plant of the best type according to plans and specifications on file in the office of the Department of Public Works of said city.

Proposals must be made out upon blanks furnished at said office, and be addressed to said department, indorsed "Proposals for Pumping Engines, Pacific Junction Pumping Station," and be accompanied with $25,000 in money or a certified check for the same amount on some responsible bank doing business in the city of Chicago, and made payable to the order of the commissioner of public works.

The commissioner of public works reserves the right to reject any or all bids; due consideration will be given to general merits of design, durability of construction, economy of operation and maintenance, facility of repair and proven performance and record of similar works in actual service elsewhere.

No proposal will be considered unless the party offering it shall furnish evidence satisfactory to the commissioner of public works of his ability, and that he has the necessary facilities, together with sufficient pecuniary resources to fulfill the conditions of the contract and specifications, provided such contract should be awarded to him.

Companies or firms bidding will give the individual names as well as the name of the firm with their address. JOSEPH DOWNEY, Commissioner of Public Works.

STEEL RAILS.—Supply of 150,000 tons of steel rails and other permanent way materials, to be manufactured in the Colony of New South Wales. Offers are hereby invited by the Government of New South Wales and will be received by the Secretary for Public Works in Sydney, and the Agent-General for New South Wales, in London, until December 30th, 1896, from persons willing to contract for the supply of 150,000 tons of steel rails and the necessary quantity of fish-plates, fish-bolts and spikes, manufactured in the Colony of New South Wales, out of iron ore and other necessary materials the natural product of, and with coal, coke or other fuel, smelted, gotten and raised within the said colony, upon the terms and conditions which can be seen at the offices of the Minister for Public Works, Syndey, or the Agent-General for New South Wales, London. J. H. YOUNG, Minister for Public Works.

WATER-WORKS.—Sealed proposals for all material and labor required in the construction of a system of water-works for the City of St. Augustine, Fla., will be received by the Secretary of the Board of Bond Trustees until the 19th day of November, 1896. Plans and specifications may be seen at the secretary's office, on and after November 2d, 1896.

LANDS AND MINES FOR SALE.

J. F. CROSETT,
Secretary, Gold Mining Exchange,
No. 628 Sacramento Street. San Francisco, Cal.

GOLD MINES FOR SALE.
On Pacific Coast. Correspondence solicited.

IMPORTANT.
To be sold, the Mineral Property called

"DIOS TE GUIE,"

producing Silver and Gold, situated in the Section of Yepachi, Municipality of Famosachic, in the District Guerrero, State of Chihuahua, Mexico, by the Rascon Hermanos Co., of Nuevo Leon, Rayon District, State of Chihuahua, Mexico.
For information as to price and conditions of sale apply to RASCON HERMANOS.

MINING PROPERTY IN THE VIRGINIA Gold Belt, Fauquier Co.; 600 acres of mineral and timber land; veins opened and proved; well equipped with Blake Crusher; Griffin mill, 75 H. P. Westinghouse engine, two low boilers and other necessary machinery, all in good running order. Address X, ENGINEERING AND MINING JOURNAL.

FOR SALE.

WORKS OF THE PHOSPHATE MINING CO., LIMITED.

Under order of the United States Circuit Court for the District of South Carolina.

The valuable piece of property, being the works of the Phosphate Mining Co., Limited, generally called Brotherhood's, situated about 1½ miles from Port Royal, S. C., consisting of about 24 acres, more or less, having a river frontage on Battery Creek of 971 feet, with fine wharves, etc. Convenient for loading ocean steamers (have from this point carried down steamers loaded to 21 ft. 6 in.). The Port Royal & Augusta Railroad passes through the property and has suitable switch conveniently located.

On property is fine large open shed some 240 feet by 70 feet, brick piers, with three railroad tracks overhead. Other desirable warehouse buildings, with overhead railroad trestles from wharves, boiler-house, etc.; desirable dwelling-houses and outhouses; fine artesian well and large brick cisterns.

A most desirable site for Cotton Mill, Manufacturing, Warehouse purposes, Ocean Shipments.

For particulars apply to

F. BROTHERHOOD, Receiver,
53 Hayne Street, CHARLESTON, S. C.

FOR RENT.

A three-story Frame Building with slate roof. Size, 50 feet × 32 feet. Extensions, 16 × 32 feet and 26 × 75 feet. Additional buildings can be had if required. Steady power furnished by a 30-inch Risdon Water Wheel of 150 horse-power.

This building is situated at Boonton, New Jersey, on the line of the D., L. & W. Railroad. Trains run to and from New York every hour. Railroad switch 15 feet from building.

Address Estate J. COUPER LORD,
63 Wall Street, New York.

FOR SALE,

At half price, a large lot of Engineering Instruments, Levels, Transits, Level Rods, Flag Poles, Sight Rods Surveyor's Chains and Iron Flag Pins; also large assortment of Blueprint Frames and Drafting Tables Detailed lists furnished upon application to

W. G. NEVIN, General Purchasing Agent,
The Atchison, Topeka & Santa Fe Ry. Co.,
1010 Great Northern Building, Chicago, Ill.

MACHINERY AND SUPPLIES FOR SALE.

SECOND-HAND RAILS.

If you have any Rails which are in good condition to relay—or if only good to be used as scrap—write us; we buy both kinds.

ROBINSON & ORR,
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BARGAINS in Electrical Machinery. All Guaranteed and of Standard Make. One 325-light Jenney; one 325-light Mather, multipolar compound; two 360-light United States; one 425-light Westinghouse; one 450-light Thomson-Houston, H. I.; one 450-light Edison, 25 K. W.; one 500-light Western Electric; one 540-light Edison, 30 K. W.; one 550-light Mather, compound wound; one 600-light Western Electric, compound wound; two 1,000-light Standard, multipolar, compound wound; one 950-light Mather, 55 K. W., compound; one 1,000-light Mather, 60 K. W., compound. Also Dynamos for Incandescent and Arc Lighting, Alternators, Power Generators, Arc Lamps, Transformers, Instruments and Supplies. Send for our Bargain Sheet. CHAS. E. GREGORY CO., 47 & 49 South Jefferson St., Chicago, Ill.

Second-Hand • Machinery.

The following named Machinery is offered for sale:
One 60-ton Howe Scales, 36-ft. platform.
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One 25-H. P. Locomotive Boiler and 15-H. P. Engine, Watertown Steam Engine Co. make.
One Diamond Hand Prospecting Drill, two Hoists, Skips, Sheaves, Rails and other Mining Machinery.

W. R. DODGE,
Gouverneur, N. Y. (St. Lawrence Co.)

To Dredging Contractors.

For Sale under Order of United States Circuit Court for South Carolina.

The powerful elevator dredge John Kennedy, recently in use dredging South Carolina river phosphate rock.

Can be readily converted for ordinary dredging purposes, working in from 10 feet to 42 feet of water.

Especially constructed for dredging very hard material. Can be seen at Phosphate Mining Co., Limited, works near Port Royal, S. C.

For particulars, etc., apply to

F. BROTHERHOOD, Receiver,
53 Hayne Street, - CHARLESTON, S. C.

FOR SALE.

Mining Machinery at Mt. Pleasant Mine.

—INCLUDING—

1 Large Corliss Engine.	17 Ingersoll Columns.
4 Air Receivers.	7 Tripods.
11 Boilers.	Shafting.
12 McClave Blowers.	3 Smoke Flues.
1 Blowing Engine.	2 Smoke Stacks.
3 Condensers.	1 Steam Engine.
1 Feed Water Heater.	17 Steam Pumps.
5 Hoisting Engines.	2 Turbine Water Wheels.
2 Locomotives.	Also heavy Power Transmitting Equipment, and a complete outfit of Blacksmith's and Steam Fitter's Tools.
1 Platform Scale.	
1 Railroad Scale.	
20 Ingersoll Rock Drills.	

This machinery is of various makes, sizes and patterns. If you are in need of anything in our line, send for our full list, which gives specifications and full descriptions, and see if we have not something which will exactly "fill the bill." Complete information and prices on request.

Address THE MT. PLEASANT MINING CO., 68 Wall St., N. Y. City, or Port Oram, N. J.

UTAH MINES.

Sloan's Handbook on Utah Mines, entitled "MINES, MINERS AND MINERALS OF UTAH," has been issued from the press.

It tells everything about mining. It tells all about every mine in Utah.

"It is the most complete book on mining ever published—just as necessary to those in any manner interested as a Directory is to a city business man or a dictionary to a country editor."—Editor C. C. Goodwin in *Salt Lake Tribune.*

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—References on Application.—
Moreing & Neil's Code Used.
Cable Address, - ADAMCO, BUTTE.

Cripple Creek—Its History to Date, Illustrated.

We have just issued in book form the only authentic and reliable history of Cripple Creek gold camp (with correct map), the marvel of the mining world. The book contains numerous full-page illustrations of gold mines true to life. With the sole object of introducing our big 8-page 56-column illustrated weekly paper (established 1890) we will send a copy of the above interesting book free to all who send us 25c. (stamps or silver) for a 3-month (13 weeks') trial subscription to our big weekly, which contains the latest mining news and illustrations of Rocky Mountain scenery. Club of 5 and 5 books, $1. Mention the ENGINEERING AND MINING JOURNAL and address *Illustrated Weekly*, Denver, Colorado.

COLORADO'S GOLD"

is the title of a pretty book just issued by the Gulf Railway and the South Park Line. Send six cents in stamps and mention this paper.

Our other new publications, as follows, will be sent on receipt of TWO cents postage, each:
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"BOREAS, BRECKENRIDGE and the BLUE."
"A DAY IN THE CANONS."
Address . . . .

B. L. WINCHELL
General Passenger Agent.
DENVER, COL.

DIVIDENDS.

ISABELLA GOLD MINING COMPANY.
Colorado Springs, Colo., September 10th, 1896.
DIVIDEND NO. 9.

A dividend of ONE CENT PER SHARE ($22,500) has been declared, payable September 25th, 1896, to stockholders of record September 18th, 1896.

The stock transfer books will be closed September 18th, 1896, at 3 o'clock p. m., and will be re-opened on the morning of September 26th, 1896.

PERCY HAGERMAN,
Vice-President and Treasurer.

MEETINGS.

OFFICE OF THE ADAMS MINING CO.,
Room 66, Laclede Building,
St. Louis, Mo., Oct. 20, 1896.

The Stockholders of this company are requested to attend a meeting for the purpose of electing seven Directors to serve during the ensuing year, said meeting to be held at the office of this company, 618 Mining Exchange, in the City of Denver, Colo., upon Thursday, November 19th, 1896, and for any other business that may properly come before it. Polls open from noon until 3:00 P. M., to Stockholders of record October 30th. Transfer books will close October 30th and reopen November 20th.

JAS. J. SYLVESTER, President.
W. W. SYLVESTER, Secretary.

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Steam Plants running in the OLD-FASHIONED way.

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50 Cortlandt Street, NEW YORK