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CONTENTS.

We are able this week through the courtesy of Mr. H. Bratnober, who has just returned from Alaska, to publish what is undoubtedly the most accurate technical description of the Klondike placers that has yet been given out. We are sure that the statements he makes concerning them may be accepted with a good deal of confidence.

As we forecasted in our issue of last week, the nitrate combination has been disrupted, cable advices to this effect coming to hand last Saturday. Although nothing definite has yet been decided, there is some indication that the new *oficinas* will be more inclined now to treat with the other producers and a new combination may be expected.

According to the Tucson *Citizen*, the law recently passed by the Arizona Legislature, which requires the Assay Office of the University of Arizona to make determinations of gold and silver, each for 50 cents, has practically closed up all the private assay offices in the city. This is a case of entirely unjust interference on the part of a State in the domain of private enterprise. The price for which the University is required to make these assays is not low in comparison with the schedule in Denver and elsewhere in Colorado, but apparently the business at Tucson is too small in amount to enable more than one public assayer to make a fair living at it.

The Montana legislature passed a law last winter requiring that all cages should be enclosed while hoisting men, the new regulation going into effect June 1st, 1897. At the present time, however, not more than 20 of the cages in the Butte district have been fitted to comply with this law. Irrespective of the need of the law the fact that it is a law should require its enforcement. The State of Montana has an Inspector of Mines, but the office is largely a political one. We pointed out in these columns recently the high rate of mortality in metal mining in Colorado, and surmised that it was equally high in other Western States where conditions are similar. Intelligent and systematic mine inspection should be arranged for in each of these States. Colorado has already set a good example in this direction.

A very extraordinary law exists in the South African Republic with reference to stolen gems and bullion. According to this, any stolen amalgam, unwrought gold or uncut precious stones that may be recovered are forfeited to the State. Recently two natives charged with a small theft of amalgam from the Langlaagte United Company, upon being convicted of the crime, were sentenced to two years' imprisonment and twenty lashes, which was held to be a very suitable punishment, while the stolen amalgam was not turned over to the Langlaagte United Company, but was forfeited to the State, which was considered a somewhat remarkable procedure, though reference to the law showed it was thus prescribed. The Commission which has been recently investigating the mining conditions in the South African Republic accepted an estimate that 10 per cent. of the gold output is stolen. The *South African Mining Journal* points out that with a proper detective service, which might recover 90 per cent. of the total amount stolen, the government would stand to win 9 per cent. of the total output of the mines. It is well recognized the world over that stolen treasure, of which the ownership cannot be traced, reverts to the State, partially at least, but that the State should also appropriate recovered treasure of which the ownership can be clearly established is simply ridiculous.

The increased attention which is being devoted to the recovery of by-products in iron manufacture in this country at the present time is worthy of mention, especially since our furnace-men have been backward in this direction. The Illinois Steel Company is already engaged in the manufacture of slag cement on a large scale, and recently it has been reported that the Maryland Steel Company will establish a similar branch in its business. Slag cement may not be so good as Portland cement, but experience in Europe has demonstrated amply that it is a satisfactory material for certain kinds of construction, and a good deal of it is made and consumed there. Another application of slag in Europe which is very extensive is the manufacture of brick for building purposes. This is not carried on yet in this country at all, except in isolated cases, as for instance at certain of the Montana smelting works where the roasting stalls are built of brick made of the silicious slag from the reverberatory furnaces, for which purpose there is nothing better.

The possibilities of slag as a road metal are worthy of consideration. Experiments with it as a substitute for stone in the construction of a macadam road in Chicago are now being made, and so far the results are said to be satisfactory, the surface packing hard and solid. Certain kinds of slag grind rapidly to dust under the wheels of vehicles, it is true, but slags of another composition may be well adapted for the purpose. Fifty years ago William Kelly, who had a distinguished part in the development of the Bessemer process, utilized the slag from his iron furnace for the construction of roads to the beds whence he was obliged to bring his supply of ore by wagon, and they are said to have been very

good roads. Slag is already used to a certain extent in this country in the manufacture of mineral wool, but natural stone is claimed to be generally preferable for this purpose. More or less broken slag is employed for railway ballast, and it is good material for this where proper stone cannot be had.

Stephen J. Field.

The newspapers are unanimous in their cordial recognition of the ability and public service of Stephen J. Field, who has just retired from the bench of the United States Supreme Court, after occupying that position for a longer period than any of his predecessors. It is a pity that (probably for political reasons) his merits were not long ago rewarded with the well-deserved office of Chief Justice. No man except Marshall has directly done so much to place upon firm foundations of justice and wisdom the organization of our Federal law under the Constitution. I refer more particularly here to the part which Justice Field took in relation to the land laws of the United States. His eminence in this department led, indeed, to his nomination by Mr. Lincoln and his confirmation by a Republican Senate. He had then already framed the principal mining laws of California, and, as Chief Justice of that State, had announced the leading principles governing the complicated questions of land titles in the territories acquired from Mexico. His decisions given in the famous Mariposa cases became the guide of American policy, and, reinforced by his subsequent career upon the Federal bench, have fixed for all time the leading features of our public land system. They have saved us alike from paternalism and socialism.

In the construction given by the Supreme Court to our ill-devised United States mining law the knowledge and wisdom of Stephen J. Field have laid the whole mining industry of the West under permanent obligations to him. It was he who prepared the famous Eureka-Richmond decision in the Circuit Court, and the Flagstaff decision, though penned, I believe, by another hand, bears the impress of his clear and decisive mind. For many years his colleagues at Washington leaned upon his judgment in land and mining cases; and in those few instances of comparatively recent date in which they overruled him his dissenting opinions, I make bold to say, carry greater logical, if not legal, weight than the official utterances of the majority.

That he was utterly fearless in the declaration of his honest judgment there is abundant evidence. He repeatedly took the unpopular side—not in spite of its unpopularity, and not in a romantic spirit of theatrical heroism, but because he never thought of such an aspect of the question before him. His opinions will be searched in vain for any recognition of such consideration, whether by way of defiance or of conciliation. He was an upright judge, leaning neither forward nor backward.

This manly virtue was emphasized by his great learning and practical wisdom, and by the vigorous, pithy style of his judicial utterances. Many a phrase from his decisions has become a proverb in the courts, almost as much revered as the old Latin mottoes which used to be on the lips of advocates continually. One which I recall at this moment may serve as an illustration. I refer to the allusion in the Eureka decision, of the "iron-clad potency" of a United States patent for land. It carried with it a history and an agreement compact with a political philosophy and a sovereign decree.

As an expert, attempting to explain in court the features of complicated mining cases, I have never stood before a more patient, intelligent, thorough and impartial listener upon the bench than Judge Field, and it is a great regret to me, as to many others interested in the wise administration of our mining law, that he will sit there no longer.

R. W. R.

Metallurgical Experiments and Practice.

It is often said with reference to a metallurgical process that it may work on a small scale, and will not work on a large scale. Inquiry to settle this doubt is certainly desirable before any attempt is made to apply a process in commercial work. The idea, however, that tests on a small scale are without value is entirely erroneous. On the contrary, it may be said safely that as a general thing work on a large scale will give the same results as experiments on a small scale if carried out in precisely analogous manner. This, of course, is often impossible. It is never easy to form an accurate estimate of the cost of execution from experiments performed on a very small scale, but the chemical principles involved are the same and the adaptability of a certain kind of ore to a certain process can be well established by a comparatively small test if the same steps are followed as will be necessary in practice. The reason for many discrepancies of this kind is that the method of procedure is different, either through ignorance of the metallurgist making the test, or some entirely mistaken assumption on his part.

There are cyanide mills where the charge of pulp for a tank is sampled as it is put in, and this sample being cut down for assay a kilogram from the last quartering is subjected to the same kind of leaching as the 50 or 100 tons of ore in the tank. It is treated with precisely the same proportion of the identical strong solution, weak solution and wash water for the same lengths of time. Tallings of the one kilogram charge have been found to agree regularly with those of the 100-ton charge of which the former was an accurate sample.

The cyanide process is one which can be easily conducted on a small scale under conditions similar to those of practice, but notwithstanding this there have been some vexatious mistakes due to improper assumptions by the metallurgist making the experiments. For instance, in testing an ore to determine its docility with the cyanide process it is common to determine the extraction by a comparison of the gold in the sample leached with that in the solution derived from it (the assay of the latter being very easily and accurately performed), while the tailings assay serves as a check on the result. It is assumed then that the gold in the solution can be easily precipitated on zinc, excepting the trifling amount which never comes down, but there have been solutions from which the gold has not precipitated itself as it was assumed it ought to do, a fact which has not been discovered until the works were started. Such a case as this is pointed out by the thoughtless as one wherein the result of tests on a small scale is not borne out by actual experience, but, of course, it is only necessary to remark that the test on a small scale was never made in the way that the process was going to be applied on a large scale.

There are many metallurgical processes which cannot by any means be carried out experimentally in the way that will be done on a large scale. Thus it is exceedingly difficult to demonstrate experimentally the possibility of smelting certain kinds of ores, because the working of a large furnace is totally different from that of a small one. The reactions, indeed, are the same in one as in the other, but every metallurgist knows that he can run successfully charges in a large furnace that would soon have him in difficulties with a small furnace, while with a small furnace it is never possible to attain the conditions of the forehearth of a large matte smelting furnace, or the lead-well of a lead blast-furnace, which are so essential to the proper operation of each. Yet it should not be forgotten that Sidney Gilchrist Thomas made the first experiments which led to the basic Bessemer process on a very small scale indeed.

The Consumption of Metals.

The world produced in 1896 of copper 387,207 metric tons; of lead 670,000 metric tons, of zinc 421,313 metric tons, and of tin about 83,000 metric tons. Inquiry is often made what becomes of such enormous quantities of these common metals, which are produced every year at an increasing rate. There is never more than a comparatively small amount of any of them on the market as scrap or in any second-hand form. Where then do they go? The answer to this inquiry involves the proportion of each which is absorbed in the various channels of consumption.

With respect to lead, by far the most part is converted into white lead, red lead and orange mineral, which are used as pigments. These are distributed over great surfaces in such thin coatings that their metallic contents could never be recovered; at least not practically, even if it were not dislodged by the weather and blown away as dust. A good deal of lead is manufactured into shot and bullets for cartridges, and though still remaining in a metallic form it is used in such a high degree of subdivision over so large an area of the world's surface that it is irrecoverable. That part of the lead product which is used as sheet lead and as pipe may come again into the market, but the amount of metal consumed in this way is proportionately so small that the sales of old sheet and pipe do not figure with much importance. The production of antimonial lead, which in the United States amounts to about 6,000 tons per annum, is largely used in the manufacture of coffin cases. This, too, may be regarded as a final consumption.

The production of zinc is used chiefly in galvanizing, brass making, as sheet metal, and as oxide. The part of it which is used in galvanizing is distributed as a thin covering over a large surface of iron to protect the latter from the weather. This covering wears gradually away, and the metal is lost in the dust of general disintegation, but in any event it would hardly pay to recover zinc from old galvanized iron. The zinc which is consumed in brass making and as sheet remains in a permanent form which is available for new use, when the structure in which they are employed is dismantled. There is, however, the natural accidental loss of the numerous small articles into which the alloy and the metal are made. Zinc oxide, which, in the United States, is made directly from ores, but in Europe is prepared largely from spelter, is consumed irredeemably in the same manner as white lead.

By far the greater part of the tin production of the world is used in making tin and terne plates, which are thin sheets of iron or steel coated with tin or an alloy of tin and lead. Ordinary tin plate carries from 1·5 to 3·5 per cent. of tin. The most part of the tin-plate that is made, however, is used in such forms, as for tin cans, etc., that it would never pay to collect them in order to recover the more valuable metal. Tin can manufacturers, however, have always an accumulation of tin plate

scrap from which it would seem it might be feasible to recover the tin that is thus wasted. Numerous processes have indeed been devised for this purpose, but we do not think there is any which has been industrially successful.

Of the four metals, copper is the one which is used to the largest extent in the metallic form, only a small part of the production being employed as blue vitriol, which may be regarded as a final consumption. The remainder is used chiefly in brass making, in wire-drawing for electrical purposes, and as sheet, of which each may be considered only a temporary consumption, from which the metal may appear again upon the market. It may be easily understood, therefore, that the proportion of old copper for sale is much greater than of any of the other metals, especially since copper is the most valuable of them. But, after all, the amount of old copper offered for sale is comparatively insignificant.

It is much more difficult to account for the consumption of the enormous make of pig iron of which only a trifling amount is used a second time. We can only do so by the assumption that it is used in so many diverse forms in every part of the world, while the cost of production has been reduced to such a low figure, that it is cheaper to make iron afresh from the ores than it is to collect any considerable quantity of discarded metal. Old steel rails and track material are easily gathered, and consequently are available for reworking; old castings and parts of broken and worn-out machines go into the cupolas of local foundries, where there are such establishments at hand, but otherwise there is an enormous wastage. The more part of our iron production, converted into steel, is employed in constructions, however, which will not soon outlive their usefulness. The age of steel began only a few years ago. What conditions there will be a century hence, who can say?

NEW PUBLICATIONS.

AMERICAN AND OTHER MACHINERY ABROAD. By Fred J. Miller, New York; published by the *American Machinist*. Pages, 90.

This book is chiefly a reprint of letters written by the author to the *American Machinist* during a trip through Europe. It is a record of impressions gathered in foreign workshops and an attempt to show the way in which those shops are conducted and how work is done in them. The author naturally paid especial attention to the use of American tools, which has already made considerable progress in European shops. He shows also how the sales of American manufacturers abroad may be extended and what work can best be done in this direction. It is well worth reading by manufacturers and others interested.

THE CALCULUS FOR ENGINEERS. By John Perry. London and New York, 1897; Edward Arnold. Pages, 378; illustrated. Price, $2.50.

This book is based on the course adopted for students in mechanical and electrical engineering at the Finsbury Technical College in England, and gives the calculus or so much of it as is believed to be useful in engineering work. A brief introduction is followed by three chapters; the first on the study of x^n; the second on the compound interest law and the harmonic function, and the third on general differentiation and integration. It presupposes, of course, an elementary knowledge of mechanics. The rules and formulas given are accompanied by some practical illustration, though the number of these might have been increased to advantage. Perhaps the calculus is hardly used by engineers as much as it should be, and this book may help to extend its application.

KRUPP'S GUSSSTAHLFABRIK. By Prof. Dr. Friedrich C. G. Muller. Illustrated by Felix Schmidt and A. Montan. Dusseldorf, Germany, 1897; August Bagel. Pages, 170. Illustrated.

This is a very handsomely bound and illustrated description of the Krupp steel works at Essen, giving incidentally a history of the growth and success of those works. Besides the illustrations in the text there are a number of fine photogravures showing different parts of the works and different processes in the steel manufacture, including some of the great hydraulic presses, steam hammers and other tools. The colonies at Essen and elsewhere in which the Krupp workmen and their families reside are also illustrated and described. Besides its interest as an account of the great steel works, it is a fine specimen of German skill in printing, engraving and binding. The information is rather of a general than of a strictly technical or statistical kind.

DIE BEDEUTUNG UND NEUERE ENTWICKLUNG DER FLUSSEISENERZEUGUNG Dusseldorf, Germany; published for the Verein deutscher Eisenhüttenleute by *Stahl und Eisen*. Pages, 61; illustrated.

At the annual meeting of the German Iron and Steel Association, held April 25th last, the feature of the meeting was a discussion on the different processes in use for making steel, which was conducted by members of the society. This discussion is now published by *Stahl und Eisen* in a volume which is enriched by numerous tables and diagrams. The subject was treated by six experts, Herr Schrodter, the secretary of the society, opening by a general statement in which he treats of steel production in different countries, presenting a mass of statistics, showing not only the production of the various nations, but also the use of the different leading metallurgical processes and their relative growth. The statistics are in most cases brought up to 1896 and the tables are accompanied by illustrated diagrams, which are of great service to the reader.

The Thomas process, which is by far the most important in Germany, is described by Herr Kintzle, whose paper gives, in addition to the statistics, some interesting descriptions of the latest steel plants of this type, prominent among which are the new works of the Dortmund Union in Germany, and those of the Troy Steel Company in the United States.

Herr Malz treats the Bessemer process in a paper which is comparatively brief, but gives some interesting data, especially with regard to new works. The Martin or open-hearth process is described by Herr Springorum, whose paper is illustrated by a number of drawings. Herr R. M. Daelen describes recent improvements and changes in steel processes, and finally Herr Thiel presents a paper on the Bertrand-Thiel open-hearth process at Kladno.

Not the least interesting part of the report is found in the discussions. Some of these were brief, but the paper on the Bessemer process brought out such speakers as Dr. Wedding, Herren Schrodter, Schott, Schurmann and Meier. There was also some discussion over the Bertrand-Thiel process. The book is an interesting contribution to recent literature on the steel manufacture, and its publication in a form in which it can be preserved is very acceptable.

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.

The Mineral Wealth of Canada. By Arthur B. Willmott. Toronto, Canada; William Briggs, 1897. Pages, 201. Price, $1

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.

Smelting Works in British Columbia.

Sir: Two parties are now trying to secure a bonus from the city of Vancouver, in British Columbia, for the establishment of smelting works, but little faith is to be placed in either, and it is to be hoped that the city will be very cautious about accepting any such proposition. The first of these parties is Henry Symons, who represents an English company, which proposes to smelt ores by electricity—just how it is to be hoped they know, for no one else seems to. The other party is W. H. Remington, of Salt Lake, Utah, who has been trying to get a bonus from nearly every city and large town on the coast, so far without success.

The fact is that the advisability of erecting smelting works at Vancouver has not yet been proved, and it is quite certain that when the time comes for it good people will be found on hand to erect works without asking for a bonus. E.

VANCOUVER, B. C., Oct. 13, 1897.

The Eagleville, Nev., Mines.

Sir: In looking over the general mining news of your valuable journal I sometimes see that notice has been taken of new strikes in some of the old camps of the State, and thought perhaps you would like to learn of a mining camp that has never attracted any attention, although it is worthy of it. The camp I refer to is Eagleville, in Churchill County, Nev., and the proof is found in actual shipments of gold and silver ores and bullion. There is one mine, or rather group of mines, that has shipped in bullion and gold ore almost $30,000. And this property has nearly 3,000 ft. of workings and is over 300 ft. deep, with plenty of ore in sight that will average $25 per ton, with most of its values in gold. There are other mines here that are now sacking ore that will run high in gold, with only 3 or 4 oz. of silver to the ton. The veins here are for the most part strong, well-defined veins in porphyry or between syenite and porphyry. There are a number of properties in different parts of the camp that have a fine showing and that have work and depth enough to place beyond doubt the fact that these veins go to the depths. But most of the work has not been done in a systematic manner, and a number of properties do not show as well as they might.

The climate is such that work can be done the year round with no deep snows or severe storms to interfere. Nevada once took front rank as a silver producer, and the day is not far distant when it will be heard from as a gold producer. This section, like a great many others in this State, has never been thoroughly prospected. W. S. BACON.

EAGLEVILLE, NEV., Oct. 12.

Russian Petroleum in England.—The first consignment of Russian petroleum to England arrived at Manchester in September. The Anglo-Caucasian Oil Company, which is developing this trade, has erected storage tanks for 40,000 tons of oil at Eccles.

Arsenic Production in Cornwall.—The Devon Great Consols mine, which is the largest producer of arsenic in Cornwall, has realized from the beginning £534,636 from the sale of arsenic and £3,463,144 from copper ore. Working expenses have been £2,500,401 and dividends £1,210,758.

The Algerian Phosphate Deposits.—Fresh phosphate beds have lately been discovered in different parts of Algeria, besides those already existing in the district of Tebessa, reports the *Chemical Trade Journal*. The administration proposed putting up for contract those beds which were considered rich enough for working, but they, at the same time, submitted to the Chambers, according to the decree of October 12th, 1895, a proposal regulating the mode of the concession. In consequence, however, of certain complications which have since arisen, no contracts have, as yet, been concluded. The three workings in the district of Tebessa produced the following tonnage during 1895: Djebel-Dyr (Crookston's concession), 66,628 tons; Djebel-Konif (Jacobsen's concession), 53,273 tons; Société Francaise (Barboutiés concession), 36,956 tons; total, 156,757 tons. During the first 10 months of 1896 the phosphates from the above works amounted to 122,037 tons.

THE KLONDIKE GOLD-FIELDS.

Written for the Engineering and Mining Journal by H. Bratnober.

I have just returned from the Klondike goldfields, where I found a very good placer mining district. The formation of the country where the gold is deposited seems to be mica schist streaked with quartz, which all carries a little gold, and it looks as though the gold was ground out of this formation by glacial action. The gold-bearing quartz seems to lie in this schist, and it is all of very low grade. This formation, as far as I was able to investigate, seems to be about 10 to 15 miles in width. On either side of this there seems to be a blocky diorite, which carries considerable quartz, and there are quartz veins running through it in every direction, but of no value.

The country is covered with moss, and frozen to bedrock, and no one knows how far beyond. There is very little wash, and especially on El Dorado Creek, where the glacier mud seems to have been frozen, and is found almost to the bedrock. In sinking to bedrock the shafts pass through this frozen dirt, and in many instances blue ice is found 2 and 3 ft. thick in strata immediately above the bedrock. In some places it is found near the surface. It is difficult and almost impossible to drift this ground in the summer season, as even by close timbering, the thawing of the ice will cause the shaft to cave in. The method of working in the winter is the same as that used in Siberia, where the ground is frozen at a great depth. Fires are built underground, where they carry a breast of 30 or 40 ft. wide, and one burning along this length will thaw in about 6 or 8 in. The thawed dirt is then taken out, and another fire built. By this method they seem to get along very well. It is the usual custom to have two shafts, unconnected, so that while they are working in one shaft the fire may be burning in the other, so that the work of extracting the dirt may be continuously prosecuted.

There will be a great deal of activity and a large amount of work done on Bonanza and El Dorado creeks this winter. Most of the ground is worked on what they call a "lay"—that is, the owner or owners of a claim 500 ft. long give a party of two or three a lease of a piece of ground to drift out, the persons who work the ground receiving one-half of the gold taken out. On the richer claims it is often drifted out for 40% of the yield. Nearly all the claims are worked under this method of leasing. Some of them are leased in sections to different parties, and the owner sits around watching the different sets of men working out his ground. By this system a great deal of Bonanza and El Dorado creeks will be drifted out this winter. As some of these claims will have four or five sets of men working on them, their output will be large next year. The dirt taken out will be washed in May, June and July. There are very few summer diggings where they can shovel into sluices; therefore there will be but little gold taken out aside from the drifting process.

Some of the claims are very rich, and the dirt will average $1 or $1.50 to the pan; that is to say, where the bedrock is shaley. They take this up for nearly 3 ft. in depth. Where there are no quartz stringers in the schist the bedrock seems to be decomposed, and is quite soft. Such claims are not of much value, except that they about pay wages. The ground is very spotted. In some instances there are rich spots where $40 or $50 a pan have been obtained, but these are only phenomenal instances. We hear a great deal about them, but we never hear anything about the poor claims.

But on the whole I consider the placers as very good diggings and a good many fortunes will be made. I estimate the output for 1898 will be in the neighbood of $5,000,000. Of course this will depend somewhat on the success of the prospectors this winter. The country will be well prospected between now and next January, which is the best time for that kind of work. It is almost impossible to get around in the hills in the summer on account of moss and swamps and the difficulty of taking along supplies. Horses cannot be used, and the prospector can only go so far as he is able personally to carry his provisions. There is very little feed or grass to be had for animals of any kind. There was more feed on the Dalton trail than in any other part of the country I traveled through. The further north one goes the less grass is found. There is an ample supply of men there to do all the work that can be furnished this winter, indeed, there will probably be some who will find it difficult to get work. Provisions will be scarce, but I do not think there will be any starvation. It will always be a difficult matter to supply that country with provisions by river transportation as the seasons are so very short and the river in many places very shallow. It is only light draft steamers that can get up to Dawson, and, on account of the passes, there is difficulty in bringing supplies down the river.

I left the Yukon River on my return August 5th. At that time a little over 1,700 people had gone down the river this season, and I dare say that the total number for the year will not exceed 2,500; and a great many of these have taken the first steamer out. If it were an easy matter to furnish provisions there would be room for a great number of people to mine in there, and the country would no doubt have a large floating population.

Hydraulic mining on the Klondike is impossible on account of the frozen nature of the country. Quartz mining will also be impossible unless the veins are very rich. Labor will always be very high, and another great drawback is the fact that all the creeks freeze up solid in the winter, and there is no running water to be found anywhere. Fuel costs $18 a cord, and labor is $15 a day, and not very good labor at that.

The sensational reports that have been so widely circulated will no doubt cause a great many people to start for that country next spring. It is estimated in Seattle and Tacoma that there will be from 50,000 to 100,000 people leave for the Yukon next year. If so, there will be a great deal of suffering and distress, and of course there will not be 10% of that number who will get in. A large percentage of those who started to go in over the Dyea and Skaguay trails turned around and came back in disgust. Some simply abandoned their outfits and walked back. I would advise only very robust young men to attempt to go into that country, and even then they should be somewhat used to that rough kind of life.

I have no doubt that other paying gulches will be discovered this winter, and for a good many winters to come. I traveled overland 300 miles from salt water to the Yukon River, and there is gold to be found over the entire distance. This indicates that there is a large gold bearing country not only in the Northwest Territory, but in Alaska as well. So no one need be in a great rush, for fear they will get left. There is enough country to last for years to meet the desire of all who wish to go there and prospect.

Generally the country is healthful. The lack of drainage makes Dawson a less healthy place than it would otherwise be. It is built on a big moss flat, and in the summer time is wet and swampy, although only a few inches of the frozen surface thaws out. If an attempt were made to drain it the ice and frozen material would melt and run off to such an extent that the houses would settle and be very much injured. The conditions are such that it would be very difficult if not impossible to properly drain it. It can readily be seen that in the absence of drainage all the filth and refuse matter remain on the ground and breed disease. This is the cause of the typhoid fever existing there this year, and I am afraid that next year it will increase. Unfortunately there are no drug stores, but I presume they will have these another year.

MINERAL PRODUCTION OF POLAND IN 1896.

According to the *Przeglad Techniczny* (*Technical Review*) there were 72 new mines opened in Poland in 1896, of which 5 were brown coal and 67 iron ore. There were 20 stone coal mines in operation during the year, which produced 223,645,005 poods (3,663,300 metric tons), an increase of 1,119,881 poods over 1895. There were 41 iron-works in operation. In 25 there were produced 13,361,925 poods of pig iron (1,775 8 8 poods more than in 1895), and 17 produced 4,751,852 poods (increase, 995 133) of wrought iron, and 4 turned out 10 372,965 poods (increase, 1,005,731) of steel. The 91 iron mines produced 18,785,900 poods of ore, which is not enough to supply the furnaces of the kingdom, so a good deal has to be brought thither from the Cherson government and from the Krivoi-Rog district. Zinc was produced by the Pod Bendzinem works, which belong to the crown, and are operated under lease by Dervis, Pomeranzow & Co., and by the Paulina works of the Sosnowice Company. The former turned out 178,832 poods and the latter 203,142, the aggregate being 74,914 poods more than in 1895. The zinc mines, which are in the hands of two parties, yielded 2,833,841 poods of calamine (silicate and carbonate), of which 1,685,300 were from the crown mines (leased) and 1,175,181 from the Boleslaw mines of the Sosnowice Company. There were 263 stone quarries in operation and 1 saltworks (at Ciechocinek), which turned out 238,074 poods of salt.

Platinum in Ontario.—The *Canadian Mining Review* reports the discovery in this Province of a deposit of sand carrying considerable quantities of platinum and an unusually large proportion of osmium and iridium.

River Dredges.—The Bucyrus Company informs us that it has received a good many inquiries for river dredges to be sent to Alaska, and is bringing out for use there a type of small dredging steamboat which will have a steel hull and will be self-propelling at a fair speed.

A Cooler for Blasting in Mines.—An ammoniacal cooler for preventing firedamp explosions is described as follows in the *Echo des Mines* and also in the *Colliery Guardian*, from which this note is taken: On introducing into shot-holes ammoniacal or hydrated salts, not explosive of themselves, their volatilization under the influence of the detonation is capable of cooling down the gases sufficiently to avoid all ignition of firedamp; and, inasmuch as the salts produce disagreeable nitrous vapors, certain inoffensive substances, rich in carbon, for preventing the formation of the nitrous vapors are added to the salts. In practice the powder or other explosive is inserted into the bottom of the shot-hole; and then, by way of tamping, a quantity of ammoniacal cooler, equal to half the weight of powder employed, is added on top of the charge, although the result would be the same if the cooler were placed on the bottom of the hole and the powder on the top. Inasmuch as the salts which constitute the cooler are hygroscopical, they are compressed into the form of cylinders, which are covered with paper carefully stuck, and coated with melted paraffin, for preserving the salts so long as the paraffined case remains intact.

The Nothberg Coke-Oven Plant.—On a visit by the members of the Aachen section of the Verein Deutscher Ingenieure to the Nothberg Colliery, owned by the Eschweiler Bergwerks Verein, Herr Welcke read a paper on the coke-oven plant of that colliery, observing that two years ago the company was induced to put up a bank of 60 ovens, with plant for recovering the by-products, on account of their affording the advantages which are thus summarized by the *Colliery Guardian:* (1) Higher yield from the small coal charged in, with equal quality of coke, while the coking is effected with complete exclusion of air. (2) Considerably higher output per oven, on account of the larger charge of small coal, from which the gases are soon driven off by uniform heating by means of gas from the outside, and (3) recovery of the valuable by-products ammonia, tar and benzol from the gases of the small coal. Against these advantages, however, must be mentioned the greater first cost and higher current expenses, with a smaller amount of heat available for firing the boilers, although the advantages predominate, so that by far the largest number of new ovens are arranged for by-product recovery. In the discussion which followed the reading of this paper, Herr Othberg stated the reasons why two different types of oven had been adopted at Nothberg. On the one hand it was considered advisable, while recovering the by-products, to utilize the gases as far as possible for firing the boilers; and from this standpoint the Ruppert oven was preferred. On the other hand, however, the question arose of employing, in addition to the Nothberg bituminous coal, the non-bituminous of the Anna Colliery, and from the latter standpoint the Otto oven recommended itself, because permitting the use of coals containing little gas, as well as the recovery of the by-products,

THE GOLD-FIELDS OF THE RAINY RIVER DISTRICT.

Written for the Engineering and Mining Journal by Horace V. Winchell.

Western Ontario, and particularly the district of Rainy River, has been for the past three years the scene of considerable exploration and development. Gold quartz has been found in a number of localities over a wide area, and much interest has been aroused among capitalists in different sections of this country and England. Various reports and articles containing more or less accurate accounts of the region have appeared in the daily newspapers and in the mining journals of Canada and the United States. The extreme western portion of the district was described by Mr. T. A. Rickard in the *Engineering and Mining Journal* for July 3d, 1897. It is my intention in this article to comment upon the salient features of the Rainy Lake and Seine River portions of this large district.

Rainy Lake forms part of the northern boundary of Minnesota. It is an irregular body of water whose extreme length is about 46 miles, its widest part about 33 miles, its area, including islands, about 350 square miles, and its elevation 1,111 ft. above tide. Seine River is one of its tributaries and lies wholly in Ontario, taking its source north of Thunder Bay, on Lake Superior. Thus the gold district is partly in Minnesota and partly in Ontario, but chiefly in the latter. The drainage basin of Rainy Lake has an area of about 16,400 square miles, and its discharge is into Rainy Lake River over a granite ledge about 25 ft. high. The water power thus created is capable of producing nearly 50,000 H. P., and constitutes one of the largest powers in the central portion of the country. Besides this there are many smaller powers on Seine River and the other river flowing into Rainy Lake.

Although gold was reported on both sides of the Canadian boundary line a number of years prior to 1893, no attempt at mining it was made until after the discovery of the Little American deposit by Geo. W. Davis in July, and the veins which now constitute the ore bodies of the Foley mine by Thomas Wiegand and Alex. Lockhart in September, 1893. Both of these mines are now equipped with stamp mills and are more or less steadily pounding out the precious metal.

The geology of this region is quite well known through the reports of the Canadian and Minnesota geological surveys. It is, therefore, somewhat surprising to read that "the Keewatin schists represent that formation to which Sir William Logan gave the name Huronian, when he discovered an unconformity between it and the underlying Laurentian. The Huronian of Canada is, therefore, the equivalent of the Algonkian of the United States Geological Survey. It is a formation already identified with some of the largest ore deposits known, for in it are enclosed the iron measures of the Vermilion, Mesabi, Gogebic, Marquette and Menominee ranges in Minnesota, Michigan and Wisconsin. Within it also are found the massive deposits of nickeliferous pyrrhotite at Sudbury and the silver mines of the Lake Superior shore."*

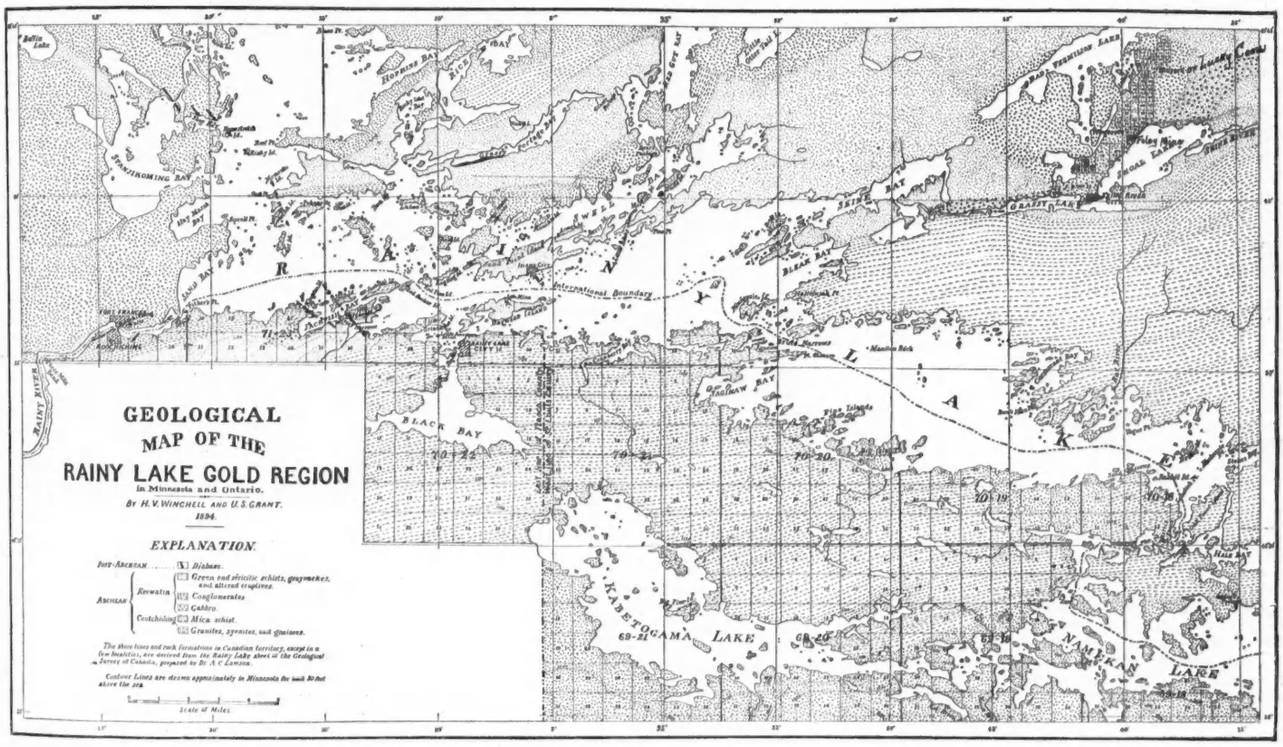
It would perhaps not be surprising if one unfamiliar with Lake Superior geology should become confused by the unfortunate superabundance of names for the same geological formation in different portions of the region. But it would really be a difficult matter to introduce greater confusion of geological nomenclature and stratigraphy into a few brief sentences than are contained in the above. To include in one horizon the upper and lower Huronian, the Animikie and Keewatin, two formations which are separated by what is called "the greatest erosion interval in geological history" must be ascribed to inadvertent and hasty writing rather than to ignorance of the true facts. A glance at any geological map published within the last ten years would show the absolute and universal unconformity between these two formations.

However it does not affect materially the facts as to richness, permanance or value of the quartz veins to find that they are all in rocks very much older than the strata or ore deposits of the Mesabi or Gogebic iron ranges or the silver mines of the north shore of Lake Superior. Gold is where you find it and the owner of a productive and permanent gold mine can well afford to be resigned, even if it does not happen to be in Archaean rocks.

The rocks of the district are various granites, crystalline mica and hornblende schists and earthy green schists, all cut by basic and acid eruptives. The granites are partly intrusive and partly gneissic, fading into the crystalline schists or having an abrupt contact with them and the other rocks where they come together. The schists surround the granite bosses, and their lamination or schistosity is in a general way parallel with the peripheries of the granite area.

As thus far developed the gold ores of this region occur in two principal classes of veins: 1. Segregated veins, and 2, fissure veins.

1. The segregated veins occur most frequently in the schists. They consist of more or less connected series of quartz lenses whose strike is generally approximately comfortable with the schistosity. These quartz lenses are extremely variable in size and in their gold contents. They are as a rule poorly mineralized and are uncertain both as to continuity and value. The quartz is dark gray in color and very tough from the presence of included chlorite. The sulphurets are mostly fine specks of iron and copper pyrites. Lead and zinc sulphides rarely occur. There are thousands of these segregated veins varying in size from an almost invisible stringer to lenses or fragments of veins 20 ft. or more in thickness and several hundred feet in length. Of these veins only those found in the earthy or semi-crystalline green schists are auriferous to any appreciable extent, and only a small percentage of those are rich enough to be worked profitably. The veins often appear to have been stretched with the enclosing rocks until they have been pulled apart. The schists would not be so broken and ruptured by this stretching as the quartz, and the latter would appear in the form of broken and discontinuous veins. They have also in some instances been subjected to a folding or thickening pressure that has in many cases thrust the lenses together again, so that they frequently overlap each other with more or less schist between them.



Too small an amount of this quartz has been milled as yet to form an estimate of the average value. In spots very rich ore is found, but it is probable that the average will be quite low, and it may not prove of high enough grade to pay for working. Those veins of segregation which occur in the vicinity of trap dikes or granitic intrusions have proven the richest. Many others have been examined without finding anything more than traces of the yellow metal.

2. The fissure veins are usually found near a contact between schists and granite or some other intrusive. They occur in both granites and schists and have a variety of strikes. At times they coincide approximately in strike with the schists and again cut across them. In the granites they strike in various directions and sometimes appear to radiate from a common center such as some area of intrusive granite or gabbro. Like the segregated veins these veins are more or less broken, and sometimes pinch out entirely. But as a rule they are much more persistent and regular.

It is not at all surprising to find that veins which occur in Archaean rocks are considerably broken, especially if they are of such great age as

*T. A. Rickard, *Engineering and Mining Journal*, Vol. LXIV., No. 1, page 6, July 3d, 1897.

these veins of the Rainy Lake Region. It is noticeable that the veins do not cut through the conglomerates of uncertain age at Shoal Lake, which lie unconformably above the formation containing the veins, and hence the veins are themselves of pre-Cambrian and perhaps Archaean age. The numerous and extensive deformations to which the earth's crust has been subjected since the Animikie or Upper Huronian period cannot fail to have profoundly affected the quartz veins which date from that period, and it would perhaps be more surprising to find that any of them had retained enough of their identity to be recognized and profitably mined.

In point of mineralization these veins appear to better advantage than the segregated veins. The quartz is brighter and lighter colored and crushes much more easily. It also carries a larger percentage of sulphurets, including considerable galenite, and some sphalerite. It is not correct to infer from this fact, however, that the gold is not so easily saved by amalgamation, for there does not seem to be much difference. The average concentrates, as a matter of fact are decidedly poor in gold, and at some mines are hardly worth saving. The gold is comparatively coarse, and even in what appear to be base ores is bright and free and plainly visible to the naked eye or with a hand glass, tucked away in the galena, blende or pyrites or lying between their crystalline laminæ. Silver occurs in the district in but small quantity, and mostly as an impurity in the gold.

The fissure veins are rather small as a rule and are not particularly high grade,* with some notable exceptions, although beautiful samples are obtained very frequently. A peculiar feature, and one of great significance for the future of the district, is the regular widening or thickening of the veins in depth. This is far from being universal, but has been observed in several instances and reported in others. Where a 20-in. vein will gradually widen to 4 or 5 ft. from the surface down to 150 ft., and the quality of the ore remain the same there is some justification for commencing explorations; for a small vein which is of too low grade to pay at the surface may very often be worked profitably if it widens so as to produce more tonnage.

As regards accessibility, climate, fuel, water, wages, cost of supplies and opportunity for acquiring properties for development, the district is all that need be desired. Summer or winter operations can be conducted at least as economically as in the average Western mining camp, and as long as wages are only $1.50 to $2 per day even cheaper than in the West. With all these advantages it seems strange that there should be so little development in a camp which has been so well advertised for two or three years as this one has been, and that the actual gold production should be so small.

One obstacle to rapid development and almost an absolute preventive of individual operation is due to the glaciated leveled topography of the region. The highest hill is not more than 150 ft. above the surrounding low land and the rock basins are all occupied by lakes and rivers. The freshness of the surface rock and its recent planing by glacial action leaves the veins just as hard and almost as unaltered at the top of the ground as they are in depth, and explains the entire absence of placer deposits. There can also be no tunnel mines, and in order to develop a property preparation must be made at the outset for steam hoisting and pumping. This is not a very great disadvantage, and would not be noticed in an old mining district that had made a reputation and was known to be rich in depth, but it is sufficient to retard the development of a new district.

Another obstacle has been the high prices put upon prospects. The liberality of the Ontario mining laws has made it possible for men of small capital to secure possession of large tracts of land† at from 25c. to $2 per acre, without being required to develop them. Having exhausted their resources in the purchase of land, or not caring to explore it, these speculative land proprietors have in many instances prevented the development of large areas by asking as much for a piece of wild land as a good mine is worth. Some sales have been made at these foolish prices, but not to experienced mining men, and the district has been abandoned by many would-be investors because of the absurd notions of the owners of prospects as to their value. It may be, too, that the history of gold mining in similar rocks in Minnesota and Michigan has prevented many in the Lake Superior region who would otherwise have taken an interest from doing so. And the further fact that the very men who have made failures of gold mining in Michigan were early and enthusiastic workers in the new region, may not have helped matters.

Worse than high prices and far more damaging to the district than any difficulties of accessibility or development have been the ignorance and inexperience of the prospectors, promoters and mine owners who have attempted to develop it. But for these drawbacks gold mining on Lake of the Woods would undoubtedly have been on an established basis several years ago, and the movement would undoubtedly have extended to Rainy Lake. Mistakes made more than a decade ago resulted in the failure of two or three companies at Lake of the Woods, where it was at that time supposed the ores were refractory and that costly plants were required to treat them. In addition to this, those early companies were led astray by the *ignis fatuus* of new processes and thus committed double suicide. Several years of idleness necessarily followed the set-back received by these failures.

It was extremely unfortunate for the Rainy Lake district that it was located so far from any other gold mining region, and was therefore first visited, explored and developed by novices. The prospector of the West has had a training peculiarly adapting him to his occupation, but the prospectors, mine and mill superintendents, as well as the majority of the so-called "experts" of this region, were mainly men who never saw the inside of a mine or a stamp-mill and had never sampled a quartz vein before they attempted to operate them here. There are notable exceptions, of course, but they are only exceptions, and are mostly late arrivals. The usual number of fakirs has also made an appearance here, but they have not done one-quarter the damage that has resulted from incompetence.

The situation at present is something as follows: Thousands of acres of land surveyed and purchased for mining purposes, much of which is not worth 10c. a county for gold mining, not possessing even a quartz outcrop. And yet in many instances stock companies have been organized and money paid in for the purpose of developing these absolutely worthless locations. I have seen shafts and pits sunk in black jasper, in flinty argillite, in pure granite, in quartzite and in ordinary green schists, none of which would show a color in a pan or assay half a dollar a ton. Worse even than this has been the construction of modern stamp mills to treat such "ores."

Hardly a property in the region that is now equipped with a mill had been developed sufficiently to tell whether a mill was needed or could be worked profitably before it was ordered and erected. Out of six stamp mills that were built before this summer only one was located where it ought to be. In some cases the mill actually could not be operated for lack of water, while in other instances lack of ore or difficulty in transporting it from the mine to the mill resulted in a premature shutting down.

In some instances the fault lies with the hare-brained "expert." In others the expert was all right, but the mine owners or the superintendent "knew better" and changed the plans. In most cases, however, there was no expert whatever; the grocer, lumberman, capitalist or corporation owner knowing all about such matters himself just by absorption and having put up his mill just where and when he took a notion. Two of these six mills have run part of the time during the present season. The others will require moving before they can be made useful. Meanwhile other companies are preparing to build mills or to install some new sort of experimental plant to treat their ores.

If the district survives the epidemic of costly mistakes through which it is passing it is indeed a good one. At present it is suffering severely and is not in as good repute as it was a year ago. Several other mistakes, and some of them colossal ones, have yet to be discovered and rectified before a healthy growth can set in. Much injury has been done to the district by the inflated boom articles that have been prepared by interested parties or newspaper reporters and published in the daily and weekly press. Nor are the members of the mining profession entirely blameless. The writer has seen reports by mining men of more or less repute making the most astonishing claims and statements. One property is said to be "the greatest deposit of gold ore on the face of the globe." Another Eastern expert figured a value of over $200,000 in sight in certain blocks of ore which produced about one-tenth the estimated amount when mined out. Comment on such work is needless.

That there are veins of sufficient size and value to pay for working in the Rainy Lake region there is no longer any doubt. That any money has been made there yet in actual mining is extremely doubtful. This fact, however, is not due to the low grade of the ore treated nor the difficulty of extracting the gold. With practically free-milling ore and an advantageous location as regards all the items that go to make up the cost of production, with many veins of a width of 4 or 5 ft., and some considerably larger, the cost of treatment should not exceed $7 per ton, and there are numerous lodes whose ore will average from $9 to $12. Operated on a large scale and with better transportation facilities, the cost will be reduced to perhaps $5 per ton, leaving a handsome profit on $10 ore.

But I wish here and now to repeat even more emphatically the warning which was contained in the Twenty-third Annual Report of the Minnesota Geological Survey*: "In a new district double precautions should be taken to insure against mistakes, etc." Unless better system and economy are soon put into practice and properties developed as they should be and are elsewhere, there will not be a mill or a mine in operation on Rainy Lake or Seine River in two years from date.

A New Freezing Process for Sinking Shafts.—In a new system of sinking shafts through quicksands and water-bearing strata by means of a freezing process, invented by Louis Koch, gaseous carbonic acid, ammonia, or a mixture of dioxide of sulphur, is circulated in specially constructed tubes, whereby a degree of cold of from 40° to 60° C. is generated and communicated to the ground. The freezing pipes are sunk through the bedrock, where the shaft is to be constructed, and this can be done in any direction and in any required number. Then they are connected with the condenser and the compressor, and a conduit is constructed for returning the expanded gases to the machine. The compressed gases become volatile on leaving the compressor in the connecting pipe, and take their course, directly or indirectly, as vaporous gas through apertures into the freezing apparatus, in order to enter into two separated conduits and thence into the various divisions of the apparatus and there to generate cold. The generation of cold thus takes place simultaneously and uniformly throughout the whole length of the combined apparatus.

The Volpert Brush for Cleaning Out Shot-Holes.—A device recently introduced in the Westphalian coal mines is the Volpert wire brush, for cleaning out shot-holes before introducing the charge, which is described in the *Colliery Guardian*. The brush is screwed on a shank with handle, made of wire so as to be flexible, and contained in a metal tube provided with a small chain. The brush, pressed together in its tube, is introduced by its wire shank and handle into the shot-hole, the small chain slipping freely through the hand. The tube containing the brush must be of smaller diameter than the hole, so that, when it is directed to the upper portion of the hole, at its end, there is sufficient space between the tube and the underside of the hole to prevent any dust made in drilling from getting behind it, whereas an ordinary brush, not pressed together by a tube, would push the dust before it into the end of the hole. When the brush contained in its tube has reached the end of the shot-hole, the tube is drawn backwards by the chain, whereupon the brush, no longer confined, spreads out against the end of the hole; and when it is drawn out, with a slight twisting movement, the dust is withdrawn at the same time, thus completing cleaning out the hole.

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* According to the Ontario Bureau of Mines the gold output of the Province for the years 1892-1895 inclusive amounted to $152,917. This was the yield of 18,197 tons of ore, which therefore averaged $8.43 per ton.

† In the years 1892 to 1895 inclusive, about 70,000 acres were thus leased or sold for mining purposes, and in 1896 some very large tracts, perhaps aggregating as much more, were tied up in "concessions," on an average of less than $1 per acre.

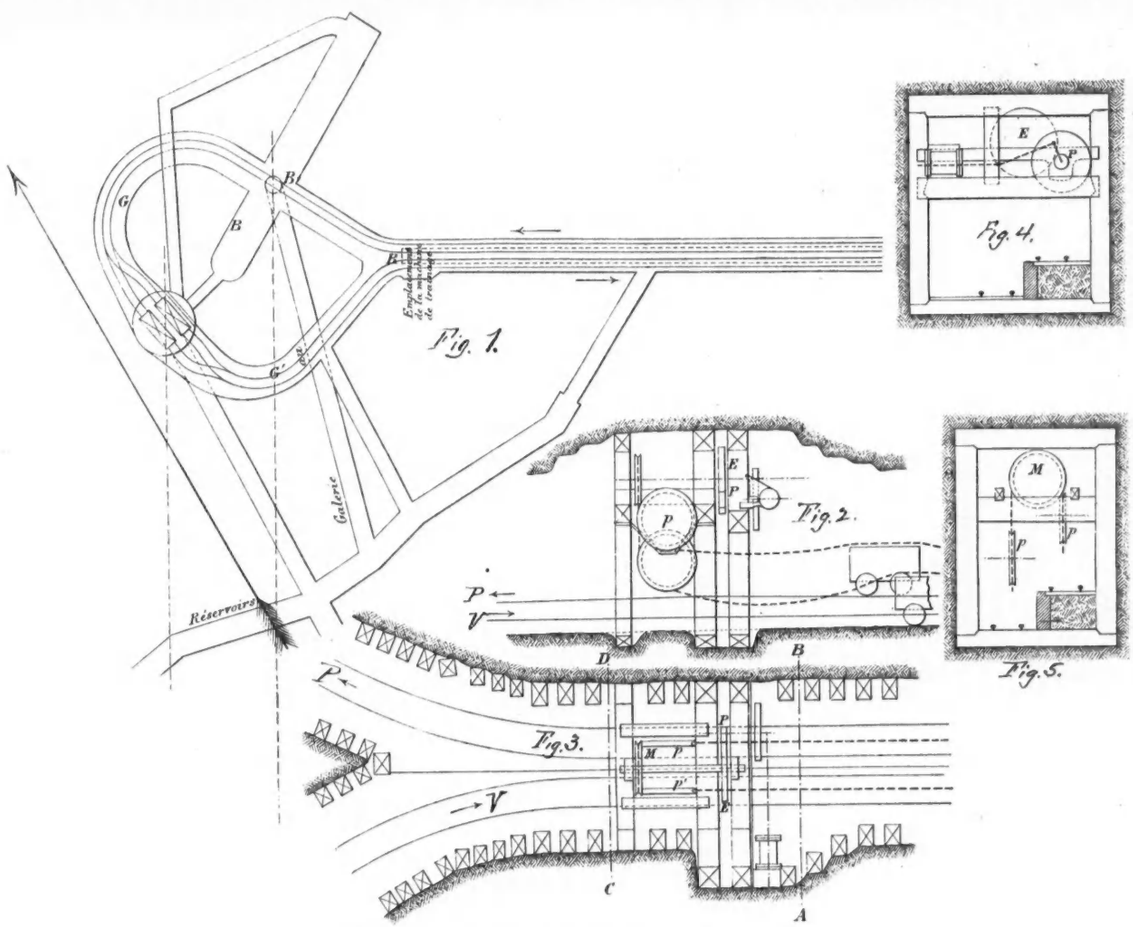
* Preliminary Report on the Rainy Lake Gold Region, by H. V. Winchell and U. S. Grant, January, 1895, pp. 87, 88.

ROPE HAULAGE AT THE BASCOUP COLLIERY, BELGIUM.

In a paper in the *Revue Universelle des Mines* for May, 1897, M. Edmund Briart describes the system of haulage in use at the St. Catherine shaft of the Bascoup colliery in Belgium, where unusual attention has been given to the perfection of the mechanical work. The system is the endless chain with Briart guides. The hoisting cages are double-deckers, and carry two mine wagons, one on each floor. The length of the haulage system is about 3,000 meters, and it was laid out on a plan adopted some time ago at the Bascoup and Mariemont collieries, but which, so far as known, has not been used elsewhere. The main gallery is very nearly straight for its entire length, has a grade of 1 : 100 and does not follow the inclination of the vein, which is somewhat irregular. The working galleries, which follow the face of the vein, enter the main gallery from different directions and the mine wagons are there operated by men or boys. They are so arranged, however, that the distances over which the cars are to be pushed are not very great, about 150 meters being the limit.

The illustration shows the arrangement of galleries at the main shaft in plan, and also the arrangement of the machinery in section. The two curved galleries G and G' in Fig. 1 carry a single track having a minimum radius of curvature of 4.50 meters. At the point R, where these track, but at different heights corresponding to the level of the two tracks, are placed the pulleys *pp*. The chain drawing the lower wagon passes over the higher pulley, then over the driving pulley M, and finally over the lower pulley to the track carrying the empty wagon. Another view of this arrangement is shown in Fig. 2 and a plan in Fig. 3.

The main driving pulley is of a pattern devised by M. Briart, and is composed of a steel center and two plates of steel, held together by bolts. The chain passes over a series of forks which are screwed into the steel center, and which can be adjusted so as to increase or diminish the working diameter of the pulley, and thus take up slack in the hauling chain to a certain extent. The steel plates serve as guides for the chain.



HAULAGE SYSTEM AT BASCOUP COLLIERY, BELGIUM.

leave the main haulage way, the mechanical haulage begins. The loaded cars reach the shaft by the line G, while the empty cars are returned by G'. The track for the loaded wagons approaching the shaft is elevated, while that for the empty cars is on a lower level. This gives a fall of about 2½% from the head of the haulage way toward the shaft for the loaded cars, and from the shaft back for the empty cars. On each side of the shaft the tracks are level for a distance of four meters, and at this point also the track is double in order to permit the alternate use of the two cages. By this arrangement only a slight effort is needed on the part of the workmen at the shaft to start the cars, gravity carrying them for the rest of the distance.

Figs. 2 and 3 show in section and plan respectively the arrangement at the point R in Fig. 1. The full wagons reach this point on the track P, which at this point is elevated, as shown again in section in Figs. 4 and 5. They return on the track V, at the lower level.

As noted above, the total length of the mechanical haulage is 3,000 meters. An engine of 20 H. P. at present is found sufficient for the traction. The engine actually in use consists of the frame, cylinder and valve motion taken from an old locomotive. It is placed on steel girders fixed in the timbering of the shaft above the track, as shown in Fig. 4. The slight grade given to the gallery, which is in favor of the loaded cars, explains the comparatively small amount of power required. In Fig. 5 is shown the arrangement of the pulleys over which the cable passes. The driving pulley M, which is placed at right angles to the direction of the haulage rope, is driven from the engine by a pinion P and spur wheel E, shown in Fig. 4. Under this pulley and parallel with the

RECENT ESTIMATES OF GEOLOGICAL TIME.

In an address made June 3d at the annual meeting of the Victoria Institute, in London, Lord Kelvin estimated the age of the earth, since it was sufficiently cooled to become the abode of plants and animals, to be about 20,000,000 years, within limits of error perhaps ranging between 15,000,000 and 30,000,000 years. This estimate, nearly agreeing with another by Clarence King from similar physical data, has generally been regarded by geologists, says Warren Upham, in the *American Geologist* for October, 1897, as too short for the processes of sedimentation and erosion, and for the evolution of floras and faunas, of which the earth's strata bear record. More probably, as ratios and computations by Dana, Walcott, and other geologists, somewhat harmoniously indicate, the duration of time since the beginning of life on the earth has been some three to five times longer than Kelvin's estimate, or from 60,000,000 to 100,000,000 years.

The larger figures imply for the dawn of life, to the development of the Cambrian and Silurian faunas, probably 50,000,000 years; thence to the end of Paleozoic time, perhaps 30,000,000 years; onward through Mesozoic time, about 15,000,000 years; and through the Tertiary era, about 5,000,000 years. The comparatively very short Quaternary era, having, in its organic evolution, as shown by the marine mollusca, no higher ratio to Tertiary time than 1:50, may, therefore, have occupied only about 100,000 years.

Tin Production at Mt. Bischoff, Tasmania.—The production in the first half of the current year was 1,186·2 long tons which was smelted from 1,723·25 tons of ore, of which 572 tons yielding 400 tons of metal were purchased from small producers. The cost of mining and dressing was 6s. 7·5d. per ton, which was 7·18d. per ton more than in the previous half-year. The cost of crushing and dressing was 1s. 1·33d. per ton. The average assay of the refined tin was 99·86%, and of the slag 5·3%.

ABSTRACTS OF OFFICIAL REPORTS.

Homestake Mining Company, South Dakota.

The report of this company for the year ending May 31st, 1897, shows that during the year there were milled a total of 395,530 tons of ore. Of this 122 780 tons were treated in the 100-stamp mill, 226,750 tons in the 200-stamp mill 21,475 tons in the Homestake mill and 24,525 tons in the Golden Star mill. The total product was 110,851 oz. of bullion, the gross value of which was $1,840,674 in gold and $13,112 in silver, making a total of $1,853,786. Deducting bullion charges—amounting to $10,285—there was left a net return of $1,843,501. To this again is to be added $45,938, the net proceeds of concentrates during the year, making a total return of $1,889,439. The average return obtained per ton of ore was therefore $4.78. The total expenditure for all purposes except dividends was $1,702,965, or an average of $4.31 per ton. Excluding payments for property, the expenses were $3.74 per ton.

The accounts show total receipts as follows: Balance on hand June 1st, 1896, $263,455; bullion account, $1,889,439; miscellaneous, $35,867; total, $2 188,761. The disbursements were as follows: Milling accounts, $424,252; mining, $910,013; blacksmith shop, foundry, tramway, etc.. $106,670; general expenses and taxes, $38,920; purchase of property, $223,109; dividends, $375,000; total, $2,077,964, leaving a balance on hand June 1st, 1897, of $110,797.

The report of Superintendent T. J. Grier says: "During the 12 months, there was added to the plant 100 stamps at the old 100-stamp mill, and a powerful twin compound condensing engine to run the enlarged establishment, giving the company two first-class mills of 200 stamps each. At the south end of the property, and on the south side of Gold Run Gulch, a new three-compartment shaft was sunk over 400 ft., and the 200, 300, and 400 levels of the mine connected with it. Over the shaft a fine steel building was erected and a very powerful pair of hoisting engines are being installed therein. A steel viaduct, 900 ft. long, was built across the gulch to connect the new hoisting works on the south side with the mills on the north side. There have been no new ore developments at the mine since last report. Everything about the works is in good condition and is running smoothly. Even with the additional stamps, we have 20 years' ore in sight."

Montana Mining Company, Limited, Montana.

The report of this company covers the half-year ending June 30th, 1897. The statement of income and expenditure at the mine shows that the total receipts for the six months were $151.382. The total expenditure was $139,678, which was made up as follows: Working expenses, $68,807; taxes, insurance, etc., $5,318; prospecting and operating No. 1 shaft, $64.889; permanent improvements, $664. There were two other items of expenditure in Montana during the half-year in addition to the above, one being $374 for legal expenses, and the other $61,844 for the tailings plant. The latter sum, with all other outlays since made on account of this plant, will be held in suspense subject to gradual redemption from the monthly profits obtained from treatment of the tailings.

The 60-stamp mill was shut down for the whole of the half-year, and the 50-stamp mill was in operation only during May and June. During the first four months the sum of $71,104 was realized from the cleanup of plates, etc., in both the mills. In May and June there were 6,820 tons of ore treated in the 50-stamp mill which yielded a total of $80,278, or an average of $11.77 per ton. The gross yield included 6,659 oz. gold, and 29,717 oz. of silver. The gold furnished 89.9% of the total yield, and the silver 10.1%. The average expenses per ton for the time the mill was run were $9.04 per ton.

The tailings plant was not in operation during any part of the half-year, owing to the late spring, the heavy rain storms and difficulty in obtaining some part of the plant from the manufacturers, which prevented its completion until after June 30th.

Development was carried on in the mine, the total progress in drifts, winzes, crosscuts and upraises amounting to 4,283 lin. ft. The connection between the 1,200 and 1,600-ft. levels south of shaft No. 2 was completed, insuring safety and better ventilation in the mine. Researches were continued at the lower level, but in June had to be suspended as a heavy and persistent influx of water was encountered, exceeding the working capacity of the existing pump. A second Riedler pump was ordered from Fraser & Chalmers, and work in the 1,600-ft. level resumed as soon as it was in place, but not until after the end of this half year.

Owing to the state of affairs at the mine and the suspension of work at the mill, it is hardly possible to give any statement of the average earnings and expenses per ton of ore worked. The development work so far as carried out has given reasonable expectation of a large tonnage of ore carrying from $10 to $12 per ton from the mine. There is also sufficient encouragement to continue the development in certain directions.

Anglo-Sicilian Sulphur Company.

In our issue of October 16th, we referred briefly to the report of this company, which now practically controls the Sicilian sulphur industry. In view of its importance, we now print this fuller statement made at the annual meeting of the company, which has just come to hand. The chairman, Mr. W. T. Brand, made the following statements to the stockholders: Our year's accounts, although they include a year's working expenses, only represent about nine or ten month's profits in Sicily, as the abolition of the export duty did not take effect until October 1st, and we could not be said to have commenced our profit-making business till then, although we had to engage and organize our staff both here and in Sicily, and expenses began to run from early in August. During our financial year in Sicily, we received 267,795 tons. This quantity would have been larger, but some of the mine owners had contracts entered into previous to those made with this company, under which they had to deliver some 50,000 tons of sulphur, and of this amount about 40,000 tons were delivered during the past financial year, leaving some 10,000 tons still to deliver. We sold and delivered during our financial year 156,017 tons of Sicilian sulphur at an average gross profit of about 8s. 6d. per ton. As regards that part of the company's business which is represented by recovered sulphur, prior to the completion of the arrangements with the United Alkali Company, they had sold for delivery through 1897, at various prices (some being lower than the contract price with this company), about 9,000 tons of sulphur, which entailed a loss to the company of between £1,300 and £1,400. But, as these arrangements were made by the organizers of this company, your directors had to accept the contracts, or else to reject the English business as a whole, which it was not thought advisable to do. Sales since may have wiped out such parts of the loss as came into the past financial year and left a profit of about £3,100 on the English business.

During the year we have entered into contracts with the principal refiners of Catania to refine sulphur for the company at a fixed remuneration per ton, the company handing to them the crude sulphur and receiving it back as refined. This business, although it will add somewhat to our expenses, will, we believe, substantially add to our profits and give us a greater control of the market. As regards the prospects for our current financial year, I think they are hopeful and satisfactory. We have already sold at various dates to December 31st a considerable quantity of Sicilian sulphur at satisfactory prices, about half of which sales are for prompt delivery prior to the present date. We have also sold up to about 14,000 tons of refined sulphur under our contract with the Catania refiners; but a part of this will, in all probability, not be delivered till after July next. We have also sold 10.000 tons of English recovered sulphur for delivery prior to December 31st next, absorbing the remainder of the make for the year 1897.

Our gross trading profits amount to £63.752 3s. 11d., which added to interest on temporary investments, etc., makes a gross profit of £68,383 2s. 6d. Our expenses in Sicily were £10,415 3s. 7d., and in London, £8,614 4s. 3d. We have written off £6,433 0s. 3d., leaving £42,920 14s. 5d. to be dealt with. Out of this we propose to pay the dividends on the preference shares, which amount to £30.129 2s. 4d., placing £2.558 6s. 5d. to the capital guarantee fund, and also placing £7,020 6s. 11d. to general reserve. Of the balance, £3,212 18s. 9d., we carried £321 5s. 10d. to the credit of the preference shareholders, and we pay 1d. per share dividend to the ordinary sharehoders.

Sir Henry Cartright remarked that at the inception of the company it was stated that it would have nominal control over 80% of the Sicilian sulphur output. From what the chairman had stated he inferred that that promise had broken down and that they had not got control over that portion.

The chairman, in reply stated that as regarded the 80% of sulphur, that was based on a total yearly output of 350,000 tons; but last year the output amounted to 400,000 tons, and the increase was principally from outside producers. The amount consigned was less than it would have been because, as he had already told them, the mine owners who had contracted with the company had previous to doing so contracted for about 50,000 tons to other people. Those contracts had to be fulfilled, and of that 50,000 tons some 40,000 tons had been delivered during their past financial year. As regarded the expenses, they certainly would not be less in the future. They had taken over the Catania business, which would mean extra expense as well as, he believed, extra profit. As to the expenses in London, they included rent, the management, and sale of the English recovered sulphur; they also included all legal expenses, directors' fees, and income-tax.

New Zealand Sulphur.—The deposits at Titeitere, about 10 miles from Rotorua, are being exploited actively. The product is bagged and exported to Auckland and Sydney.

The Petroleum Flash Point Question in England.—The London correspondent of the *Liverpool Daily Courier* says: "Relying on the opinion of a Board of Trade official who has been acting in connection with the inquiry of the Parliamentary Committee on Explosive Oils, I predict that the committee will recommend the raising of the test point to 105° Abel. Before the committee last adjourned it was rumored that they were prepared to recommend 100°, but I now hear that this point is felt to be insufficient, and the higher test approved."

South African Gold Statistics.—From the quarterly report of the State Mining Engineer for the three months ended July 31st it appears that 1,567,461 tons of quartz were mined, of which 379,068 tons were stamped and milled, while 24.364 tons passed through the dry-crushing process, making a total of 1,403,430 tons dealt with; 981.540 tons of tailings were worked and 10,212 tons of concentrates. In all 8,859 whites and 69,891 natives were employed on the mines, of whom 9 whites and 32 natives were engaged on alluvial diggings. The value of the gold won from the mills was £1,834,380, or at the rate of 26s. 7·2d. per ton, and from the chemical processes £982.795, making a total of £2.817.175, and representing an average value of 40s. 1·8d. per ton. To the value of the reef gold won must be added £918 from the alluvial diggings, which gives a total gold production of £2.818,093. On the Witwatersrand alone 1,433,141 tons were mined, from which gold to the value of £2,594,250, 40s. 4·8d. per ton, was obtained.

Acetylene Regulations in the United Kingdom.—The Explosives Department of the Home Office has recently had under consideration the question of the restrictions to be applied to the manufacture and keeping of acetylene gas, and has conducted various experiments with the object of gaining information on this matter. The results show conclusively, *Engineering* reports, that acetylene gas when under a pressure of something less than two atmospheres is violently explosive; whereas at a pressure of less than 1½ atmospheres it appears to be reasonably free from liability to explosion, provided it is not admixed with oxygen or atmospheric air. For commercial and practical purposes it is considered sufficient to allow a pressure of 20 in. of water above that of the atmosphere (roughly about 1$\frac{3}{10}$ atmospheres), and it is accordingly proposed to draw the safety line at this point, and to declare acetylene when subject to a higher pressure to be an "explosive" within the meaning of the Explosives Act, 1875. In France and Germany, the authorities have fixed the limit of danger at 1½ and 1·1 atmospheres respectively, and have imposed prohibitions or restrictions on the keeping or manufacture of the gas when it is at a higher pressure.

THE INFLUENCE OF SUDDEN COOLING ON NEARLY PURE IRON.

Written for the Engineering and Mining Journal by Albert Sauveur.*

Under the above title *Engineering* of July 6th and the *Engineering and Mining Journal* of August 21st, 1897, published an article by Prof. J. O. Arnold in which, from the results of some experiments described in his article, he draws the conclusion that "the critical thermal points Ar_2 and Ar_3 are as such without influence on the mechanical properties."

Such a view is opposed by the concordant results of the other investigators who have studied the phenomenon, and it is well worth while to examine the ground upon which Professor Arnold bases his assertion.

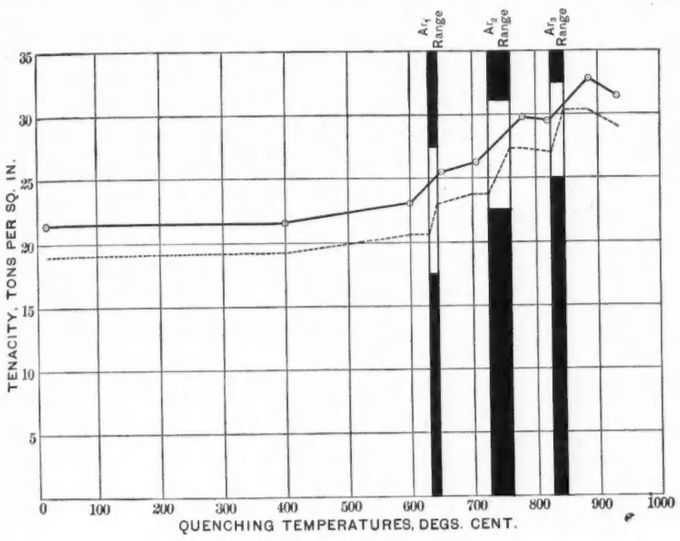


FIG. 1.

His results are tabulated below, and are shown graphically in Fig. 1.

Quenching temperature.	Tenacity.	Quenching temperature.	Tenacity.
Deg C.	Tons per sq. in.	Deg. C.	Tons per sq. in.
15	21·42	705	26·24
490	21·59	780	29·79
525	22·46	820	29·46
600	23·02	887	32·63
650	25·56	928	31·35

These are the two statements which Professor Arnold offers as conclusive evidence of the truth of his proposition. Far from supporting such proposition, it will be seen at a glance, I believe, that his figures lead to the very opposite conclusions.

Professor Arnold does not indicate the positions of the critical point Ar_1, but surely this point, which is caused by the carbon change (whatever the nature of the change) cannot be absent in iron containing as much as 0·07% of carbon. The retardation should occur somewhere between 630° and 645°C. In Fig. 1 the black areas indicate the ranges of temperatures covered by the three critical points Ar_1, Ar_2 and Ar_3.

There is but one way of interpreting these results: Up to 400° C. we have practically no increase of tenacity. From 400° to 600°, or over a range of 200°, we have a very gradual and relatively slight increase, which fact agrees with Professor Howe's results, showing that the change in carbon condition hardening to cement) lags behind Ar_1.† At 600°—a little below Ar_1—the tenacity is 23·02 tons per square inch. At 650°—just above Ar_1—it has risen to 25·56 tons, an increment of 2½ tons for an elevation of temperature of 50°. The sample quenched between Ar_1 and the next critical point shows but a slight increase of tenacity, 0·68 ton, although the quenching temperature was 55° higher. The next specimen was quenched above the point Ar_2 and shows an abrupt increase of 3½ tons in the tenacity. Between Ar and Ar_2 we find no increase; indeed, the tenacity actually decreases in this range—a further raise of the temperature induces the Ar_3 change to take place with a corresponding increase of over three tons in the tensile strength. Further elevation of temperature does not increase the tenacity—the sample quenched above Ar_3 showing, on the contrary, a marked decrease. The inference to be drawn from those figures is therefore unmistakable and is well illustrated in Fig. 1, which shows three abrupt increments of tenacity corresponding to the three critical ranges Ar_1, Ar_2 and Ar_3.

It would be reasonable to expect that if the metal had been quenched at closer intervals of temperatures, that is, just before each critical point and immediately after it, the curve representing the relation between tenacity and quenching temperature would take the appearance shown by the dotted line, thus exhibiting more forcibly the influence exerted upon the tenacity of the metal by the changes taking place during the three critical points. The same conclusions would be illustrated more strikingly yet if, instead of taking as ordinates the actual tenacities, we should treat as such the successive increments of tenacity corresponding to the various quenching temperatures. The curve would then exhibit three sharp elevations corresponding to the three retardations.

"Between 500° and 900° C.," Professor Arnold says, "the increase of tenacity is proportional to the quenching temperature." In other words, for equal increases of temperature within those limits, we find equal increases of tenacity.

In the face of his own results this is a most unwarranted conclusion, for what do they indicate? Between 525° and 600° we find an increase of tenacity of 0·56 ton, or 18 lbs. for an elevation of temperature of 1°. Between 600° and 650° C. (in this range the Ar_1 change takes place) we have an increase of 114 lbs. per degree, or over sixfold the previous increase; surely a singular proportionality. Between 650° and 705° C.—between Ar_1 and Ar_2—the tenacity increases at the rate of 28 lbs. per degree. Between 705° and 780° (here the Ar_2 change takes place) the increase is 106 lbs. per degree. Between 780° and 820°—between Ar_2 and Ar_3—instead of a proportional increase we find a decrease of tenacity (18 lbs. per degree). In the next range, which includes the critical point Ar_3, we again find an increment of 106 lbs. per degree. Finally, above Ar_3 (between 887° and 928° C.), Professor Arnold's proportional increase gives way to a decrease of tenacity.

I have plotted these figures in Fig. 2. The diagram speaks for itself—instead of a line parallel to the axis of x, which would be the result if Professor Arnold's law of proportionality were true, our curve exhibits three sharp elevations closely related to the three critical points. Here again we have good ground to suppose that if the metal had been quenched at closer intervals of temperature the retardations and increases of tenacities would be still more intimately identified.

The same figures have also been tabulated below:

Quenching temperature. Deg. C.	Position of quenching temperature with regard to critical points.	Total increase of tenacity. Tons per sq. in.	Mean increase of tenacity for an elevation of 1° C. of the quenching temperature. Lbs. per sq. in.
15..... 400..... 525..... 600.....	Below Ar_1.	1·8	7
650.....	Ar_1 occurs in this range.	2·54	114
705.....	Between Ar_1 and Ar_2.	0·68	28
780.....	Ar_2 occurs in this range.	3·55	106
820.....	Between Ar_2 and Ar_3.	−0·33	−18
887.....	Ar_3 occurs in this range.	3·17	106
928.....	Above Ar_3.	−1·28	−70

It may appear superfluous to illustrate so forcibly and in so many ways a conclusion which is so plainly written in Professor Arnold's results, but the question is really an important one. The critical points represent momentous changes in the conditions of the metal, and I believe that a true understanding of their causes and effects would lead to conclusions of industrial value. It is therefore of importance that the student of the physics of steel should not be misled.

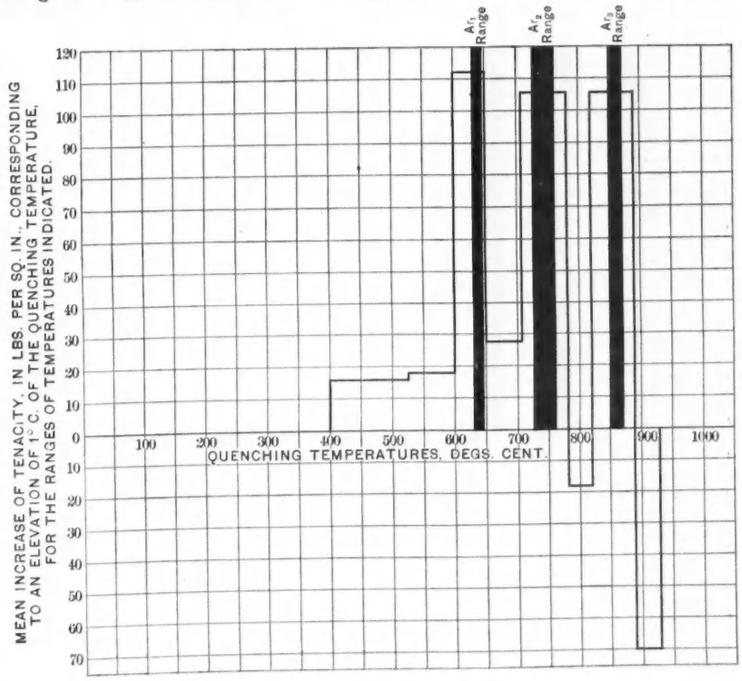


FIG. 2.

*These remarks were written before the writer had seen Professor Howe's answer to Professor Arnold, published in the *Engineering and Mining Journal* of September 25th, page 367.

† *Journal* Iron and Steel Institute, 1895, No. II., p. 258.

The relation which exists between the loss of hardening power and the retardations had been conclusively shown by Professor Howe,* through a series of carefully selected and exhaustive experiments. Professor Arnold, in the discussion of these researches, questioned the conclusions reached and, through some experiments of his own, endeavored to show that such relation does not exist. As Professor Howe pointed out in his reply,† however, Professor Arnold's results, far from opposing his own, were in complete harmony with them and strengthened his position.

In the present inquiry Professor Arnold has again failed to interpret his results rightly. I welcome Professor Arnold's experiments, as I believe every metallurgist will, because owing to his experimental skill, his thoroughness and care they carry much weight, which, however, is not thrown on the side where he would have it, but on the very opposite one. His results will establish more firmly the close relation which has been shown to exist between the retardations and the physical properties of steel.

The attempt of Professor Arnold to draw a smooth curve, and to attribute the sharp breaks corresponding to the critical points to a mere coincidence due to experimental error, will not be considered seriously by any sober-minded metallurgist.

PRODUCTION OF QUICKSILVER IN RUSSIA.

The production of quicksilver at the mines of A. Auerbach & Company, near the Nikitowka station (on the Kursk-Kharkov Railway) in the Bachmut district of the government of Ekaterinoslav, from the beginning has been as follows:

Year.	Av. yield of ore. %	Production of metal. kg.	Year.	Av. yield of ore. %	Production of metal. kg.
1887	1.00	64 062	1893	0.46	200.999
1888	0 76	164.815	1894	0 46	195 987
1889	0.51	167 109	1895	0.69	434,070
1890	0.73	292,137	1896	0 71	491,465
1891	0.80	323,865	*a* 1897	0.79	406,224
1892	0.65	342,768			

a To October 1st, 1897.

These are the only quicksilver mines in Russia. The metallurgical practice at the works, which employ the Auerbach improved Schernia furnaces, is very good, and ore yielding 0·4% of quicksilver is said to cover the cost of production.

MINING IN COLORADO.

Notwithstanding the recent decline in the value of silver the mining industry in Colorado is generally in a very prosperous condition. This may be attributed partly to the higher prices for lead and copper and the reduction in railway freights from certain districts, especially Leadville; and partly to the increased attention that is being paid to the mining of gold which nominally does not vary in price. According to the statistics collected by the Denver Chamber of Commerce with the assistance of the State Commissioner of Mines, the production of gold in Colorado showed a great increase in the first six months of the current year over the corresponding period last year.

In September the ore shipments from Black Hawk to Denver smelters amounted to 5,216 tons, against 4,832 tons in September, 1896. The local mills are running at their full capacity, and according to some reports from the district miners are having difficulty in getting their ore crushed promptly. There are 13 stamp mills in operation, with an aggregate of 570 stamps dropping, of which 480 are slow drop and 90 are rapid drop. About 700 tons of ore are crushed per 24 hours.

Improvements are being made in several of the mills. At the Hidden Treasure the management is said to be contemplating the installation of crushers and automatic feeders, which will be a decided novelty in the Gilpin County practice. The manager of the New York mill has decided to put in 75 rapid-drop stamps in place of the present slow-drop stamps, and Blake crushers will also be used in this mill. A new section of 35 rapid-drop stamps is to be added to the Bobtail mill. Work on the new mill at Perigo is progressing rapidly, while P. R. Brown, of Denver, is preparing to put the Davis mill of 10 stamps in operation.

The total shipments of ore from San Miguel County up to the end of September were 203 carloads, against 195 in the same period of 1896. The Leadville production is said to be nearly 2,000 tons per day, but this is probably an overestimate. Any way, a good deal of the product is argentiferous iron ore for the silver-lead smelters and manganiferous iron ore, of which from 150 to 200 tons per day is going to the steel works at Pueblo and Chicago. The Ibex Mining Company is reported to be shipping from 250 to 300 tons per day, while the Mahala and Maid of Erin are each credited with 150 tons. Mr. Marcus Ruthenburg is still carrying on his experiments upon the treatment of zinky sulphide ore from the Colonel Sellers mine at the old Elgin works.

The chlorination and cyanide works and stamp mills treating Cripple Creek ore crushed 24,556 tons in September against 27,122 tons in August. There were three cyanide works in operation and three chlorination works, besides several stamp mills. The average value of the ore treated by the cyanide and chlorination works was between $25 and $30 per ton. Estimating the 6,400 tons of smelting ore which were shipped at $70 per ton, the output of the district in September was $934,269, and the total for the first nine months of the year $9,035,665, which is probably somewhat above the actual production.

The milling capacity of the district is still being increased. The Brodie Gold Reduction Company is making a large extension to its plant, and the Metallic Extraction Company of Florence is also making additions. The new roasting furnaces of the Colorado-Philadelphia Works at Colorado City have been put in operation, and this company will now be in the market for a good deal more ore. The Turner Works in Arequa Gulch have, so far, only the cyanide department in operation, but it is expected that the chlorination department will be running by October 30th. The Gillette Chlorination Works were closed down nine days in September for repairs, and the new works of the El Paso Company, at Florence, were not running at their full capacity.

* Loc. cit.
† *Journal* Iron and Steel Institute, 1897, I.

Determination of Sulphur in Coal.—For determining sulphur in coal, Herr Fischer recommends, in the *Zeitschrift für angewandte Chemie*, the employment of an asbestos filter; but M. Langovoi, having found that the asbestos takes up and retains part of the sulphuric acid, proposes, for avoiding this difficulty, to substitute a platinum spring with the coils very close together.

German Iron Production.—The German Iron and Steel Union reports the production of the blast furnaces for August at 569,461 tons. For the eight months ending August 31st the total output was: Foundry iron, 711,270 tons; forge iron, 1,081,994; Bessemer pig, 371,479; Thomas pig, 2,316,291; total, 4,481,034 metric tons. This is an increase of 306,013 tons, or 7·3%, over the corresponding period in 1896; and of 682,682 tons, or 18%, as compared with 1895.

The China Clay Trade.—The depression which has existed for a long time in the paper and pottery trades has seriously restricted the demand for china clay, which is chiefly consumed in these trades, but lately there has been an improvement, due partly to an increase in the demand for paper and pottery, and partly to delays in the arrival of china clay. Better prices are looked for in the near future, but so far the increase has been only enough to cover the increase in duty on the imported product levied by the Dingley law, 50 cents per ton.

Aloe Fiber for Haulage Ropes.—Haulage ropes are generally made of steel wire, in Germany mostly of plough steel. According to a recent article in the *Zeitschrift des Vereins Deutscher Ingenieure*, ropes of aloe fiber may compete with steel, even for deep shafts. The aloe fiber is stronger and more elastic, but less flexible than Manila hemp; its chief advantage is that it becomes stronger in damp places. The ropes have to be tarred, but, in spite of this circumstance, the corresponding lengths of rope which would break by virtue of their own weight are 12,000 for aloe and 12,500 for steel. In Belgian mines haulage by means of aloe ropes is quite common; great lengths are made with decreasing thickness.

Petroleum in Algeria.—According to the *Engineer*, petroleum has been lately found in the province of Oran, Algeria, at a place called Ain-Zeft, by an Englishman, Mr. Armitage. The wells attained a depth of 415 meters, and by means of a pump, between the end of November, 1895, and the beginning of April, 1896, a total of 196 cubic meters of mineral oil was raised. The output, calculated at the commencement at 17 cubic meters a day, fell, at first quickly then gradually, to 1·35 cubic meter at the end of the experiment. The boring has been deepened, for the purpose of penetrating further into the bed, and has now reached a depth of 450 meters. The pump has not, however, since been adjusted; it is, therefore, unknown if the extra depth will exercise any influence on the output. Another well is being sunk to a depth of 100 meters on the northwest of the first one.

The Window Glass Trust.—The combination of the window glass producers of the United States, which has been under consideration for several months, was effected on October 12th by the incorporation of the American Glass Company, which has a capital stock of $1,200,000. H. Sellers McKee, of Pittsburgh, Pa., is president; E. H. Phillips, of Newcastle, Pa., secretary; J. A. Chambers, of Pittsburgh, general manager of the new company. The individual works owned by the companies which have entered this combination will continue to be operated independently, but their receipts will be lumped and the profit is to be divided proportionately among the members. The new organization intends to shut out foreign glass entirely, reduce expenses of marketing the American product and regulate the selling price. Individual brands are to be retained and as far as possible the preferences of costumers consulted.

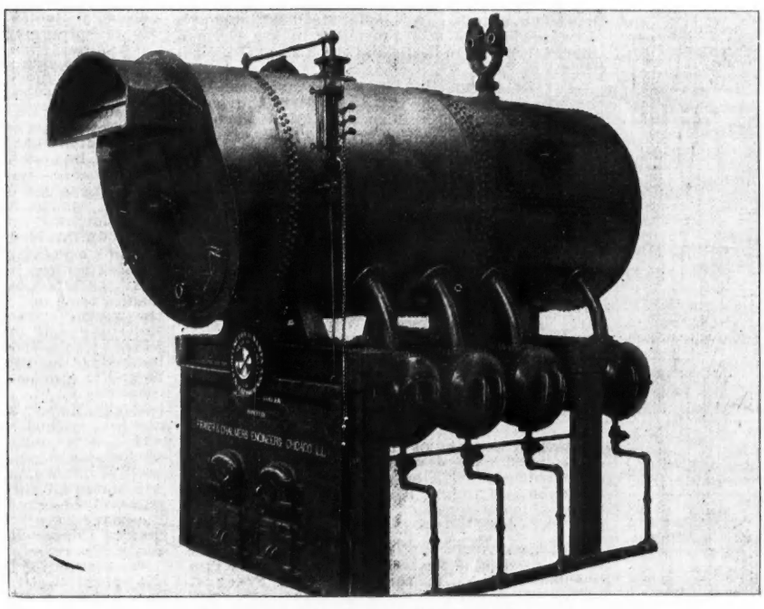
An Undiscovered Gas.—This was the title of a paper read by Prof. Wm. Ramsay at the Toronto meeting of the British Association for the advancement of Science, August 18th, 25th. He mentioned that a consideration of the periodic law and of the atomic weights of helium and argon (4 and 40) suggests that there may be another similar element with an atomic weight of about 20. Helium has been subjected to a long series of diffusions by Professor Ramsay and Dr. Collie in the endeavor to find such a substance. The gas was by this means separated into a lighter portion with a density of 1·98 and a heavier portion with a density of 2·275 (H = 1). The spectroscopic examination showed the presence of argon in the heavier portion, but no evidence of the existence of a new gas could be discovered. Such a negative result cannot, of course, be taken as proof of the non-existence of the substance sought.

Mineral Resources of Sweden.—The reason why, with its vast mineral wealth, Sweden has not made greater progress in metallurgical production is accounted for, in a report of the Belgian minister at Stockholm, by the scanty supply of coal in the country. All the pig iron is smelted with charcoal. The few collieries are situated exclusively in Scania, the most southerly province of the kingdom. The rich iron ores, which have been worked for centuries, chiefly occur in the provinces of Upland, Westmanland, Nerika, Wermland, Delarne and Gut Eikland, and the ores are greatly esteemed because they contain only infinitesimal quantities of sulphur and phosphorus. Iron ores of the greatest purity are found at Dannemora, where they are still smelted in accordance with the old Walloon method. The Grängesberg and Gellivara deposits have long been known, but their ores contain so much phosphorus that they could not serve for making Swedish iron, and are but little used in the country. It was not until the adoption of basic method that these ores were worked.

THE SEDERHOLM BOILER.

The accompanying illustration shows a type of sectional boiler which has been introduced by Fraser & Chalmers, and which, it is claimed, possesses many advantages, especially for mining plants, where economy of fuel is an object, and where the sectional boiler which can be transported in parts is often necessary. The boiler has been built to work under pressures varying from 125 to 180 lbs., and in sizes up to 350 H. P. The boiler shown in the engraving is 240 H. P., and when photographed was set up in position ready for the brick-work to be built around it. The supports, it will be seen, are quite independent of the masonry. The boiler consists of a main shell, connected by drop tubes with a number of drums, placed at right angles to the axis of the shell, and standing immediately over the grate. By this construction the main shell is protected by the drums from the direct action of the fire, while the drums being of comparatively small size can be made of thin metal, and are therefore well adapted for taking up the direct heat from the fire. Blow-off cocks are placed at each end of each drum, and by their use the collection of sediments in any quantity can be avoided.

The circulation of the water starts from the center of each furnace drum, the heated water running upward through the side tubes. In practice it is found that the circulation is continuous and rapid, so that the heating surface is kept comparatively free from steam bubbles and the danger of burning is reduced. In addition to the blow-off cocks a manhole is provided on each furnace drum so that it can be cleaned out very easily. The manhole is of standard size and the drums are of sufficient diameter for a man to work in conveniently for the purpose of removing the scale. The main boiler is provided with two manholes, one above and one below the tubes.



SEDERHOLM BOILER OF 240 HORSE POWER.

The boiler is compact in form and takes up a comparatively small floor space, considering the amount of heating surface. It also requires a very small amount of masonry, the makers claiming that it needs only about half as much as an ordinary horizontal or tubular boiler. In addition to this, the supports being entirely independent of the walls, the masonry will be free from strain, and consequently durable. It is also claimed that the form of the boiler gives an exceptionally free space for the flame, and avoids the forcing of the draft through a number of narrow spaces before combustion is complete, which is necessary in many forms of water-tube boiler. This advantage is especially marked where a poor quality of coal is used.

The boiler can be built in very large units when desired, and this, of course, reduces the expense for piping and connections and in the arrangement of flues.

The Diamond Trade of Belgium.—As a diamond market Antwerp continues to hold its place in the first rank. According to British Consular Report No. 1994, Annual Series, the value of rough diamonds imported there in 1896 was about 60,000,000 fr., and the amount expended on cutting was about 6,000,000 fr.

A New Russian Oil Field.—A new oil field has been discovered near Tonnebaja, a station of the Vladikavkas Caucasus Railway on the northern side of the Caucasus, which promises to play a great part in the Russian oil industry. Three companies are already engaged in its exploitation. The conditions are very favorable for the shipment of the product. Another new oil field has been discovered in the Dagestan district, which was recently opened by the Petrovsk-Derbent Railway. This field lies eleven miles from the port of Petrovsk on the Caspian Sea.

THE CHINESE IRON INDUSTRY.

Blast furnace No. 1, in China, was in operation from March, 1896, to the beginning of September, and was blown in again November 15th, same year, since which time it has been in regular operation. The production in 1896 was 10,983 tons. Concerning the second furnace there is no report. The third, which was built several years ago by Chinese at Kweichee, froze up at the first blowing-in, and still lies filled. The Martin steel furnaces at Shanghai and Tientsin are not yet in regular operation. The two Martin furnaces at Shanghai have a yearly capacity of 1,000 to 1,200 tons. Seventy per cent. domestic and 30% imported pig are used. The steel works at Hanyang produced 2,300 tons in 1896, of which 1,500 was Bessemer and the remainder Siemens-Martin. This information was communicated to the *Bulletin of the American Iron and Steel Association* by Gustav Toppe. References to the Chinese iron industry are also to be found in *Stahl und Eisen*, 1896, No. 4, p. 141, and No. 22, p. 934, besides numerous notes in the current volume of the *Engineering and Mining Journal*.

CONNECTING SURFACE AND UNDERGROUND SURVEYS THROUGH SHAFTS.

K. E. Weiss, in *Jahrbuch für das Berg- und Hüttenwesen im Konigreiche Sachsen*, 1896, p. 101, refers to Weisbach's method of determining the difference in direction between a line at the surface and the plane of the plumb lines, and further, that between the latter and a line underground, whereby a measurement is effected by means of a triangle, the base of which is the line joining the two plumb lines. In this triangle the three sides and the angle opposite the plummet distance are carefully measured, and calculation gives the angle that represents the required difference in direction between the plummet-plane and one of the sides of the triangle. Instead of using only one triangle at the surface and one underground, later practice has been to have two triangles in each case by interpolating a third point in the prolongation of the plummet-plane. A large number of values are thus obtained by calculation for the angles of the plummet-plane, and these are combined to give a mean result.

Weisbach advised that the connecting triangle should be made a very acute one by making the angle opposite the plummet distance that had to be measured very small. On the other hand, he deprecated making this angle too small, or what is the same thing, setting up the theodolite in or very near to the plane of the plumb lines. On this account he considered it necessary to measure with excessive care not only the angle but also the sides of the triangles.

The author, not finding this method satisfactory, obviates its objections by setting up the theodolite as nearly as possible in the plane of the plumb lines, leaving it to chance whether the station is exactly in the plane or very slightly outside it. In the former case there is no connecting triangle. Standing in the plane of the plumb lines, the observer measures the required angle directly. In the other case, there is obtained a connecting triangle in which one angle is nearly (within a fraction of a minute) equal to 180°.

In order to give the triangle the required shape, and in order to facilitate the measurement of its angles, a difficult operation, as its sides are extraordinarily small, it is advisable to employ, (1) a contrivance by means of which the mine theodolite may conveniently and safely be moved very small distances in a horizontal plane, and (2) a theodolite telescope of very short focal length. The telescope employed by the author could be used for sighting objects only 3 ft. distant, and was interchangeable with the ordinary telescope. The slide employed was adjusted by means of two screws in such a way that the theodolite could be moved for a distance of 2½ in.

PERSONAL.

Mr. A. Mathez, of Denver, has just reported on the Crocket mine at Idaho Springs for a Chicago company.

Mr. Leopold Meyer has been appointed superintendent of the Drake and Tryon mines at Angel's Camp, Cal.

Hon. J. H. Turner, Premier of British Columbia, has recently been making an extensive tour of the mining districts of the Province.

Chief Engineer A. B. Willits, U. S. N., has been ordered to Thurlow, Pa., to succeed Chief Engineer G. S. Willits as inspector of steel.

Mr. W. H. Wiley, of Idaho Springs, Colo., has just completed an examination of mining property at Cripple Creek, Colo., for an Eastern syndicate.

Dr. G. A. F. Molengraaf, professor of mineralogy of the University of Amsterdam, has been appointed State Geologist to the South African Republic.

Mr. Philip Mixsell, of Idaho Springs, Colo., has been making an examination of mines at Breckenridge, Colo., and Mercur, Utah, for some Chicago people.

Mr. T. R. Henahen, superintendent of the Newhouse Tunnel at Idaho Springs, Colo., is in Montana examining mining property for the Exploration Company.

Mr. John Y. Cole, manager of the White Bear mine at Rossland, has returned to Trail Creek after several weeks' stay in the Eastern States and Provinces.

Mr. Joseph Ladue, late of Dawson and now of New York, is in San Francisco making arrangements for machinery to be shipped to the Klondike next spring.

Messrs. John R. Toole, John Gillie and Col. A. Lambeth have returned to Montana after making a trip to Alaska for the purpose of examining some copper deposits.

Mr. T. R. Warne, late of Birmingham, England, is to have charge of the Cuprum Smelting and Refining Company's new works at Cuprum in the Seven Devils District, Idaho.

Mr. E. C. Engelhardt has been appointed superintendent of the Kilton Gold Reduction Company's chlorination works at Florence, Colo., which plant is in course of construction.

Senores Villaram and Castanon, well-known Peruvian engineers, left Lima on October 19th to join the American staff now engaged in the construction of the Hualgayoc railway.

Mr. James W. Abbott, mining engineer, formerly of Colorado and recently manager of the Ybarra Gold Mining Company, at Calmalli, Mex., is now located at Grant's Pass, Ore.

Mr. Lowthian Bell and Mr. Walter L. Johnson, of Middlesborough, England, are making a tour of the iron manufacturing and ore producing regions of this country. Mr. Bell is a son of Sir Lowthian Bell.

Gov. H. S. Pingree of Michigan has been visiting Caracas, Venezuela, for the purpose, it is said, of investigating the new gold-fields of the Guarico regions, and also of obtaining control of one or two asphalt mines in that country.

Sir Charles Tupper and party, who have been making a careful investigation of the Rossland mines, have gone to the Central Kootenay District with the intention of visiting the principal mines in the Nelson and Slocan country.

Mr. J. H. Sussman, of Boston, mining expert for the Canadian Pacific Railway Company, recently went over the principal mining locations of the East Kootenay. He is making inspections of all districts likely to be tributary to the road.

Prof. James M. Crafts has been chosen president of the Massachusetts Institute of Technology to succeed the late Gen. Francis A. Walker. Professor Crafts holds the chair of organic chemistry, but has been acting president of the Institute since the death of General Walker. He was born in Boston, Mass., in 1839, and graduated from the Lawrence Scientific School at Harvard in 1859, after which he spent four years in Germany and France studying chemistry. He received a medal of honor from the French government for his discoveries in that science. He returned to America in 1865, and after two years' teaching at Cornell University became associated with the Institute of Technology.

OBITUARY.

William L. Skidmore, a member of the firm of Jeremiah Skidmore & Sons, coal merchants, of New York, died recently, aged 75 years. Mr. Skidmore had been in the city coal trade for a number of years, and was much respected by his colleagues.

George A. Bell died October 20th in Broooklyn, N. Y., aged 73 years. He was born at Morpeth, Northumberland, England, in 1824, and came to New York in 1847, entering the employ of William Mead, with whom he remained as clerk and partner 15 years. In 1864 he became president of the New Jersey Zinc Company, and afterward joined his sons in the insurance business under the firm name of George A. Bell & Sons.

J. E. Martin died at Evansville, Ind., October 13th of tuberculosis. He was 68 years of age and was for many years connected with coal and railroad enterprises. For 27 years he was with the Evansville & Terre Haute Railroad, and for 20 years he was its president. He resigned his position while at Terre Haute, and went to Toledo, where he accepted the position of vice-president and general manager of the Ohio Central Railroad. After that he was receiver of the road until its final sale. For over 10 years he was identified with the Sunday Creek Coal Company. During his residence in Columbus he was called to the presidency of the Hocking Fuel Company, composed of different coal organizations in the Hocking and Sunday Creek Valleys.

Prof. Charles E. Colby, of Columbia University, died suddenly in New York on October 8th, aged 42 years. He was born in Lawrence, Mass., on October 18th, 1855, and came to New York in 1868. In 1877 he was graduated from Columbia College with the degrees of civil and mining engineer. Immediately upon graduating he became assistant to Dr. C. F. Chandler, professor of chemistry, and he held that place until the chair of organic chemistry was created for him in 1889. Professor Colby was known as an indefatigable worker and as a man devoted to his profession. He was a contributor to a number of scientific magazines, and compiled the papers on chemistry for Dodd, Mead & Company's encyclopedia. He was a member of the German Chemical Society in Berlin and the French Chemical Society in Paris.

Captain Peter Hogan, a civil and consulting engineer and one of the first to advocate the building of the Nicaragua ship canal, died at his home in Ballston Spa, N. Y., October 10th, in his seventy-first year. He took much interest in the preservation of the health of the great cities by planning for supplies of pure water and the disposal of sewage, and his opinions on these subjects were frequently printed in scientific journals. He constructed the Duncan Company's great stone dam across the Hudson River at Mechanicville, N. Y., in 1877-78, and since then has been engaged largely on plans for the deep sea disposal of the sewage of New York City. At the time of his death he was employed as consulting engineer in the construction of the new city buildings on Ward's Island. Captain Hogan was in the engineering department of the Reading Railroad when the Mexican war broke out, and served as lieutenant during that war.

SOCIETIES AND TECHNICAL SCHOOLS.

Western Society of Engineers.—The meeting on October 6th was devoted to a general discussion on the points of engineering interest visited during the recent trip to the East, a somewhat full description being given of the great plant of the Bethlehem Iron Works.

Civil Engineers' Club of Cleveland.—The October meeting of the club was held October 12th, President Ritchie in the chair. Mr. Frank C. Osborn was elected vice president, this office having been left vacant by the resignation of Mr Clarence M. Barber. The paper of the evening, entitled "The Mechanical Side of Steel Making," was read by Mr. John MacGeorge. The latest methods and devices for mechanically charging open-hearth steel furnaces were described and illustrated by lantern views.

Foundrymen's Association. — The regular monthly meeting was held at the Manufacturers' Club, Philadelphia, October 6th, with President Wanner in the chair, and a large attendance of members. Announcement was made of the death of member William B. Bement, the well-known head of the firm of Bement, Miles & Co., Philadelphia. A paper was read by W. C. Henderson, entitled, "A New Method for Small Steel Castings," which treated briefly of the processes used in this connection, and likewise of the difficulties usually encountered. An interesting discussion followed the reading of this paper in which several members took part. During the meeting there was considerable talk with regard to the condition of the foundry business generally and the low prices that have ruled for some time past.

Northwest Mining Association.—The second annual meeting began in Spokane, Wash., October 7th. At the opening meeting President G. B. Dennis made a long address setting forth the work done during the past year to awaken general interest in the mines of the Northwest.

At the second session, which was held on the following day, Friday, Col. N. E. Linsley addressed the convention briefly upon the subject "A National Department of Mining." President Dennis stated that the executive committee of the association had done much during the past year to bring about the creation of a department of mines, and now has the assurance that the President will recommend that Congress provide for the appointment of a secretary of a new department, to be known as that of mining, manufactures and mechanics. A resolution was passed indorsing the action of the executive committee on the subject.

W. B. Heyburn discussed the method of acquiring title to mining property. He criticised the law now governing the location of mining claims and favored a change which will make the locating more an official than a private act. The discussion which followed was animated, and many ideas as to the proper location of claims were brought out by different members.

At the morning session on Saturday the committee to whom the matter of lead quotations had been referred submitted the following resolution:

"*Whereas*, In the daily market quotations for lead there are two separate prices given, one being that of the New York Metal Exchange and the other what is known as brokers' prices, and

"*Whereas*, The margin of difference in these quotations varies widely from time to time, the least being about 10c. and the largest about 50c. per 100 lbs., thus in our opinion entailing a greater aggregate loss to the lead producer than is just and equitable;

"*Resolved*, That this association, acting in the interests of its numerous members and lead producers generally, respectfully urges the smelting and refining companies to adopt a uniform rate of 10c. per 100 lbs. under the actual New York Metal Exchange's daily quotation for lead, thus abolishing a system which is uncertain, unjust, unbusinesslike and unfair to lead producers.

"*Resolved*, That the secretary of the association be instructed to have copies of this resolution printed and forward same to all smelting and refining companies and lead producers in the United States and British America."

These resolutions were adopted, after a vigorous debate, in which G. V. Bryan, E. J. Field, J. Z. Moore and others participated.

An address from E. J. Field, manager of the Wonderful Mine, in the Slocan, was then read to the convention. He favored the organization of a fraternal and beneficiary branch of the association, claiming that such a step is necessary in order to bind the association together and assure its permanency. President Dennis stated that the association is working along a line which will ultimately result in the erection of a permanent home for the organization in the shape of a building devoted to interests of mining. At the same time movements are under way which will bring about the establishment of a home for disabled miners, as well as the organization of a beneficiary association which will care for the sick and pay indemnity for accidents.

At the afternoon session Col. C. Reichenbach made a brief but pointed address on the value of the mining industry to Spokane. L. D. Godshall, superintendent of the smelting works at Everett, Wash., was called upon to talk on the advance in methods of smelting ores. His address was a condensed treatment of the subject, during which he dwelt forcibly on the foolish waste of money in useless experiment by persons incompetent to judge the best methods.

C. L. Betts, who spent nearly two years in Alaska at the head of a party from Seattle, gave a graphic account of his experience. He said that February and March are the best times to go into Alaska, as travel in the summer is almost impossible, owing to the heavy growth of moss. He also spoke of the famous Copper River country, and asserted positively that there are no hostile Indians there.

The convention then passed a resolution indorsing the recent decision of the Department of the Interior, that marble is a mineral deposit.

The by-laws were changed to provide for one vice-president from each State and Province within the jurisdiction of the association, the same to be appointed by the President.

A committee appointed to recommend officers for the ensuing year reported in favor of the re-election of the old officials, and the report was adopted without dissent. The officers are: G. B. Dennis, president; A. P. Curry, vice-president; W. J. C. Wakefield, treasurer, and L. K. Armstrong, secretary.

The convention adjourned with the understanding that the executive committee call an extra session during the coming winter.

INDUSTRIAL NOTES.

The steel plant at Ashland, Ky., started up recently in all its departments, employing 350 hands.

The Davis & Egan Machine Tool Company, of Cincinnati, O., has an order from the Krupp Works of Essen, Germany, for a number of machine tools.

The Western Malleable and Gray Iron Company, of Port Washington, Wis., will remove its plant to Milwaukee, where a foundry and machine shop will also be built.

The furnace of the Punxsutawney Iron Company, Punxsutawney, Pa., was blown in recently. The furnace will be operated to make foundry and forge iron exclusively.

The Roane Iron Company, operating Rockwood Furnace, Rockwood, Tenn., and the Citico Furnace Company, Chattanooga, is reported to have advanced wages 10%.

The B. Atha & Illingsworth Company, of Newark, N. J., has been awarded a contract by the Navy Department at Washington, D. C., for 30 sets of forgings for 4-inch guns.

The Totten & Hogg Foundry Company, Pittsburg, Pa., has lately closed a contract with J. W.

Place & Company, bankers, of New York City, for a complete tin plant to be erected at Johnstown, Pa.

The Cambria Iron Company of Johnstown, Pa., it is said, will at once begin the erection of a large structural steel plant. The building will be 200 × 400 ft. The plant is to be put in operation by March 1st.

Reports from Steubenville, O., are that negotiations are pending to start up the Jefferson Furnace, and the prospects are that the works will resume in the near future, with Mr. George A. Dean as manager.

The Blake Steam Pump Works, of Boston, Mass., have added the largest Eberhardt's automatic gear cutter ever built for cutting spur gearing of the coarsest pitches, 100 × 20 in. face, weighing about eight tons.

At the Bellaire (O.) Steel Company's plant 63 heats a day are being made, amounting to over 500 tons of steel. The facilities of this plant will be increased shortly, as additional machinery has already been ordered.

The Carpenter Steel Company, of Reading, Pa., has taken a large contract to furnish armor-piercing projectiles for the navy. These will vary in size from 4 in. up to 13 in., the latter weighing nearly 1,000 lbs. each.

The board of directors of the Henry R. Worthington Company has declared a semi-annual dividend of 3½% on the preferred stock from its earnings, payable November 1st. Books close from October 21st to November 1st, inclusive.

A company has recently been formed in Pittsburg, Pa., to manufacture briquettes from coal slack and culm for use as fuel under patents held by H. L. Orr, of Allegheny. Thirty thousand dollars in stock has already been subscribed.

The Reeves Iron Company, of Canal Dover, O., has, after a long period of inactivity, decided upon resumption, which will give employment to at least 100 men. It is decided to open the 8-in. and 10-in. mills, and also the puddling department shortly.

Andrus S. Merritt has made a voluntary assignment for the benefit of his creditors to Charles A. Christopherson. The action has occasioned considerable surprise. Mr. Merritt and his brothers were among the earliest developers of the Mesabi iron range.

Rogers, Brown & Company, of Cincinnati, O., have leased the entire plant, furnace and ore mines of the Valentine Iron Company at Bellefonte, Pa., and will prepare for a resumption of work on November 1st. The plant has been closed down for nearly two months.

The West Leechburg (Pa.) Iron and Steel Company will erect a steel and strip mill at Leechburg, Pa. The following are the officers of the company: A. Hicks, president; J. W. Kirkpatrick, vice-president; J. L. Kirkpatrick, treasurer. The buildings will be constructed by Riter & Conley, of Pittsburg

A company has been organized to erect a fertilizer and phosphate plant in Gretna, La., on the property of the Union Oil Company. It is stated the capital stock to be invested is $100,000, and that two brick structures, 60 × 200 ft. each, will be erected, equipped with machinery of 20,000 tons annual capacity.

The Sterling Placer Company, of Chicago, at its works at Harvey, Ill., on October 16th gave an exhibition of a plant built to work the gravel on a property in Arizona. A trial run of an hour was made. The machinery consists of a steam shovel, pumps, revolving screen, inclined tables with riffles, conveying machinery, etc.

A dispatch from Philadelphia, Pa., dated October 18th, states the resolution recently passed by Select Council to submit the question of leasing the City Gas Works to a private corporation was defeated to-day in Common Council. The vote was 54 for the resolution and 64 against. The United Gas Improvement Company was interested in the deal.

The Carnegie Steel Company has recently purchased a large tract in Homestead fronting on the Monongahela River. The property includes about 60 different lots and about 40 different houses. All the latter will be torn down or removed to make room for a large freight yard and terminal for the Union Railway and the Pittsburg, Bessemer & Lake Erie Railroad.

The Stirling Metal Company has established works at Stirling, N. J., for making anti-friction metal, various grades of Babbitt metal and white brass under the formulas of Mr. J. Gray Torrey, who is general manager of the company. Dr. Herbert G. Torrey, whose high standing as a chemist and metallurgist is well known, is the company's consulting expert.

The Colorado Iron Works Company, manufacturers of mining machinery, of Denver, Colo., recently shipped to the Boston & Battle Mountain Mining Company, Victor, Colo., and to the Metallic Extraction Company, Cyanide, Colo., a carload of machinery each, while to the Westchester Mining Company, Breckenridge, Colo., it sent one 5-stamp mill, with crusher, etc.

C. C. Pinckney, of Charleston, S. C., manager and the holder of controlling interests in the Farmers' Mining Company, the Wappoo mills, the Horse Shoe mills and Magnolia Mining Company, suspended payments on October 16th. According to best information obtainable the liabilities are in the neighborhood of $200,000. Mr. Pinckney has as yet made no statement of assets.

The Porkhouse mills, operated by the Pittsburg Forge and Iron Company, have resumed after a year's idleness. Thirty-four furnaces were started and all of the departments in the mill will soon go on full turn. This is one of the largest manufacturing plants in Allegheny. The officials of the mill have had considerable difficulty in securing enough puddlers to operate all the furnaces.

Owing to the rapidly growing demand for the Lunkenheimer brass and iron specialties for steam, water, gas, oil, etc., the company has again enlarged its facilities in Cincinnati, O., by adding a four-story building, 50×50 ft., which has been fitted out for its general offices. The old quarters formerly occupied as offices are now being utilized as rapidly as possible for manufacturing purposes.

Fraser & Chalmers announce that they have for the present discontinued the branch office at Salt Lake City, Utah, and request that all correspondence should in future be addressed to Messrs. Fraser & Chalmers, Chicago. Mr. J. W. Young will continue, as heretofore, general western manager, and will endeavor as far as possible to personally visit all parts of the West.

Eight furnaces at the Ellis & Lessig Iron Works, the 60-in. mill of the Pottstown Iron Company, George B Lessig, lessee, and the puddle mill of Potts Brothers, Limited, of Pottstown, Pa., resumed operations on October 4th. Twenty-two furnaces at the Ellis & Lessig plant are now running and every department is in full operation. More men are now employed at the Pottstown Iron Company plant than for over a year.

The Wellman Steel Works, of Chester, Pa., were recently sold at sheriff's sale for $110,000. The purchase was made by Samuel A. Croser, who represented the second mortgage bonds. A few years ago the company had $500,000 of paid up stock and $600,000 worth of bonds. The present disposition of the works wipes out all the stock, all of the $283,000 of 5% third mortgage bonds and $140,000 of the second mortgage bonds.

The new North-German Lloyd steamer *Kaiser Wilhelm der Grosse*, which is thoroughly up to date in its entire equipment, has been furnished with two Temperley transporters for loading and unloading freight, coal, etc. The Lidgerwood Manufacturing Company, of New York City, is the manufacturer of this transporter. This machine is also being used on board the United States battleship *Massachusetts*.

The Dennison (O.) Rolling Mill Company will be ready to operate its plant in a month. Tack plate will be a specialty. Fine sheet steel, common, cold-rolled, pickled and cold-rolled, pickled finished and stamping steel will be its products. A new building 105 × 140 ft. in size has been erected. It will have a roll train, two sheet mills with 40-in. rolls, one soft mill, one pair cold rolls and two annealing furnaces. A Wetherill-Corliss engine will furnish the power. It is expected to add a black plate mill in the spring.

A notable addition to the already extensive electrical plant of the Niagara Falls Hydraulic Power and Manufacturing Company, in the power house at the foot of the cliff, at Niagara Falls, N. Y., will shortly be made in the form of a General Electric Company electrolytic generator, which will be the largest of its kind ever constructed. This machine will have 14 poles, and will run at 257 revolutions, giving an output of 5,000 amperes at 175 volts, or a capacity of 875 kw. It will be of the latest type and will be directly connected to the water-wheel shaft. It will be provided with a special panel switchboard with full form K equipment of instruments necessary to handle a current of 5,000 amperes.

Auguste Genin, of Mexico City, has been granted a concession by the Mexican government to establish in that republic one or two factories of blasting fulminate and of smokeless fulminate, used for all purposes. The company, which this gentleman is to organize immediately, the advices say, is obliged to spend at least $250,000. The company is to have duty free on all machinery, tools and construction material. The construction of the first factory must begin within a year, in such a place as the government may name. The most modern machines and apparatus are to be used. In the preparation of these powders no process is to be used which is already used in Mexico.

At a recent meeting in Pittsburg 36 manufacturers of black sheets unanimously adopted the following resolutions: First, that the basis of prices of sheets be established on No. 28 hot finished steel sheets; second, that the price on No. 28 hot finished steel sheets be fixed at $2.10 per 100 lbs., and for all steel sheets having one pass through cold rolls before or after annealing, the price shall be $2.15 per 100 lbs., f. o. b. mill. Terms 60 days' acceptance or cash, less 2% in 10 days from date of shipment. For other gauges prices were agreed upon as follows: No. 30, $2.40; 29, $2.25; 28, $2.10; 27, $2.05; 26 and 25, $2; 23, $1.95; 22, $1.90; 19 and 20, $1.85. A list of extras to be paid on corrugated, cold-rolled and re-annealed, pickled sheets of widths beyond 32 in. and lengths beyond 120 in. was prepared and has been sent to individual manufacturers for approval, and will become effective on acceptance by a majority. Three interests not represented at the meeting are co-operating through correspondence, and it is believed they will join the agreement reached.

The Pennsylvania Heat, Light and Power Company held its annual meeting in Philadelphia recently. The report of the president for the fiscal year ending October 1st, 1897, showed that the properties of the company were placed in first-class condition, that the interest was paid on the Edison 5% trust certificates, and that dividends were also paid on the common and preferred stock. The surplus of $146,692 at the beginning of the fiscal year has been increased to $151,892. The operating expenses had been decreased $37,505, and the net profits increased $49 309. There was expended for permanent plant and construction on the various properties, $218,750. The old directors were re-elected as follows: Martin Maloney, William L Elkins, George Philler, W. W Gibbs, George S Graham, Thomas Dolan and John Lowber Welsh About 150,000 shares of stock were voted.

TRADE CATALOGUES.

Patterson, Gottfried & Hunter, Limited, of New York, issue a very neat eight-page illustrated folder, describing the Snediker quick-adjusting screw vises, which they manufacture. These are well known as very convenient tools.

The Thurman Fuel Oil Burner Company, of Indianapolis, Ind., issues a pamphlet describing its method of using crude oil as fuel. Its burner is of the jet type, and the company has also a system of arrangement for tanks and feed pipes, which has been carefully worked out. The pamphlet is illustrated by plans for the application of the system to steam boilers, dryers, kilns and for other purposes. It includes also a paper on the general question of the use of oil for fuel.

NEW PATENTS.

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 one of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

WEEK ENDING OCTOBER 12TH, 1897.

591,433. Apparatus for Making Hollow Billets or Ingots. John Stevenson, Jr., New Castle, Pa. Combination with a hollow receptacle, of a mandrel, means for forcing the mandrel through the metal in the receptacle, a plunger arranged to enter the opposite end of the receptacle, and means for forcing the plunger inwardly so as to drive the metal over the mandrel.

591,449 Mining Machine. John Blair, Newark, Ohio. Combination with a traveling frame, means for feeding the frame forward and backward and an endless tool carrying chain movably mounted in the frame and of a series of drill-carrying shafts rotatably mounted in the frame.

591,524. Shaft or Blast Furnace. Franz Burgers, Gelsenkirchen, Germany. Patented in Luxemburg April 16,1896, No. 2,488. Arrangement of an iron ring composed of hollow outwardly-open iron segments for replacing the corresponding part of the furnace wall, which segments are fitted or adapted to the inner furnace-profile and can be provided on the inner surface with a thin fire-resisting lining while outwardly a water-pipe for supplying cooling water and for drizzling or sprinkling the same against the free and outwardly-visible segment-surface of the externally-open hollow segments is arranged in such a manner that it can be freely seen and controlled; the lower bearing flange of the segments forming a water-trough or collecting channel for regularly draining off the cooling-water, such iron ring being provided with pillars.

591,527. Process of and Apparatus for Extracting Gold from Ores. Louis C. Daumas, Paris, France. Patented in France, July 26, 1895, No. 249,204. Process consists in heating protochloride of sulphur saturated with chlorine to a temperature of 80° centigrade, mixing the pulverized ore with the same; subjecting the mass to a temperature of about 130° centigrade; filtering and heating the filtrate to about 138° centigrade; and afterwards separating the gold from the liquid by a second filtration.

591,563. Feed-Table. William H. McFadden, Allegheny, Pa. Combination of two stands of rolls arranged in the common line of feed, and a feed-table having positively-driven feeding members, arranged between the stands of rolls.

591,571. Process of and Apparatus for Electrolytic Recovery of Metals from their Solutions. Joseph W. Richards and Charles W. Roepper, Bethlehem, Pa. The process consists in first applying an electrically conductive coating to and throughout a highly-porous mass of organic substance, having an extensive internal surface and penetrable by the electrolyte; second, in depositing the metal, which is to be recovered, upon the mass thus coated, by constituting it a cathode in an electrolytic bath containing the metal in solution; and, third, in recovering the metal thus deposited, by destroying the substance by heat.

591,583, 591,584. Regulating Apparatus for Air-Compressing Engines. Thomas J. Barbour and Christian M. Hansen, San Francisco, Cal., assignors to the Risdon Iron and Locomotive Works, same place. This engine consists of a supplementary cylinder, piston, weighted lever and balanced valve, in combination with relief-valves, one at each end of the compression cylinder, and pipes establishing communication between the balanced valve and the relief-valves.

591,587. Amalgamator. Wilfred L. Brown, San Francisco, Cal. One or more tanks having curved side and amalgamating-plates, a pipe extending axially

between the lower edges of the plates having inclined perforations made therein, a vertical partition extending upwardly from the pipe, a device whereby pulp may be impelled through the angular openings of the pipe to the amalgamating-plates upon each side of the partition, and a discharge-passage leading from one of the chambers to a succeeding settling-tank.

591,694. Metallic Alloy. Charles F. Hitchcock San Francisco, Cal., assignor to the Hitchcock Metal Company, same place. The alloy consists of zinc 854 parts, antimony 05 parts, tin 08 parts, copper 002 parts and aluminum 004 parts.

591,615. Stone Channeling Machine. Abram C. Backus, Chicago, Ill. Combination with a suitable work-holding bed and a vertically-movable tool support and of a series of tools pivotally sustained from the support to vibrate in the plane of travel of the bed.

591,675. Process of Making Cyanides. Jean R Moise, Paris, France. Patented in France April 12, 1895, No. 246 587; in Belgium September 27, 1895, No. 117,636, and in England October 12, 1895, No. 19,2 1. The method consists in the production of the boride of nitrogen, by calcining a mixture of biborate of sodium and of hydrochloride of ammonium, separating the boride of nitrogen from the chlorides by treatment with boiling water having a slight addition of hydrochloric acid, and filtration afterward, making an intimate mixture of the boride of nitrogen, thus obtained with carbonate of potassium and carbon and by heating the mixture to a dark red, thereby transforming the mixture into a combination of cyanides and borates, and separating the cyanides from the borates by crystallization.

591,682. Apparatus for Amalgamating and Extracting Gold, etc., from Dry Crushed Ore. Emil L. Oppermann, London, England. Combination of an upper jacketed chamber containing a perforated pipe; a lower chamber, inclined plates therein, jets adapted to deliver mixed steam, mercury and air into the chamber.

591,696. Device for Transporting Granular or Similar Materials. Alfred Rotnenbach Zurich, Switzerland. This system comprises a plurality of storage-bins, a delivery-trough below each bin, a mechanical conveyor in the trough, a receiving-trough, a distribution-trough, mechanical conveying appliances and one or more delivery hoppers.

591,699 Automatic Blast Generator. Aaron M. Sidwell, Jr., Henderson, Tex., assignor of one-half to Samuel E. Miller and Ruben C. Burk, same place. An exterior tank capable of containing a liquid in its lower portion, an air vessel movable vertically within the tank, and having a contracted upper end, an air-inlet valve, a guide-tube, a spider rigidly holding the guide tube centrally within the air vessel, and an air-tube standing vertically from the bottom of the tank.

591,712. Plate Turner for Rolling Mills. John S. Worth, Coatesville, Pa. Combination of a platform pivoted at one side, with means for elevating the platform on the pivots, and one or more rows of driven rollers on the platform.

591,730. Process of and Apparatus for Electrolyzing. Willy Bein, Berlin, Germany. Patented in Germany, October 22d, 1893, No. 84,547; in England, November, 12th 1894, No. 21,838; in France, July 20th, 1895 No. 236,203; in Belgium, July 20th, 1895, No. 116.623; in Hungary, October 31st, 1895, No. 4,129 and in Austria, May 8th, 1896, No. 1,812. The process consists in filling an electrolytic cell by a porous diaphragm with the salt solution to be decomposed, allowing the chemically-different layers formed by the electrolysis to remain undisturbed and unaltered as long as the current is passing through the cell, then feeding fresh solution to the intermediate undecomposed layer of salt solution, and withdrawing the uppermost and lowmost layers of decomposed products at a point outside the influence of the path of the current, in such proportion as to retain a predetermined position of the respective layers and at the close of the electrolysis dividing the layers by means of interposed partitions, the partitions being mechanically impervious to the liquid.

591,753. Process of Obtaining Precious Metals by Solution. Edwin J. Fraser, San Francisco, Cal. The process consists in converting the metallic bases of the dioxide of the alkaline metals or alkaline-earth metals into sulphates, removing the metallic sulphate and using the solution in combination with a solution of cyanide of potassium and lime in the presence of the ore.

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 11th, 1897.

22,736 of 1896. J. Wood and W. W. Clark, London. Combined crushing and grading machine for ores and minerals.

1,572 of 1897. H. Leitner, London. Method of electro-depositing zinc to make battery zincs.

7,300 of 1897. F. A. Parnell, London. Steam stamps.

15,569 of 1897. T. G. Bowick, London. Dry amalgamator.

Week ending September 18th.

14,222 of 1896. A. E. Tucker and T. V. Hughes, Birmingham. Improvement in ferro-sodium fluxes.

14,223 of 1896. A. E. Tucker and T. V. Hughes, Birmingham. Alloying by mixing the alloying metal in the form of oxide or salt together with a reducing agent.

22,355 of 1896. A. L. Larsen, Christiana, Norway. Gaseous chlorination and subsequent recovery of metal and chlorine by electrolyses

23,872 of 1896. F. W. Hurd, Glasgow. Improvements in coal-cutting machines described in patent 14,124A of 1892.

Week ending September 25th.

24,702 of 1896. R. A. Hadfield and A. G. M. Jack, Sheffield. Stamp mills.

24,703 of 1896. R. A. Hadfield, Sheffield. Manganese iron alloys.

27,443 of 1896. J. S. V. Bickford, Falmouth. Percussion rock drills.

27,776 of 1896. P. Marino, Brussels, Belgium. Electrysis of metals.

28,288 of 1896. T. R. Cammy, Birmingham. Anodes for electro deposition of nickel.

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GENERAL MINING NEWS.

There were 77,625,997 lbs. of Roman, Portland and other cement imported into the United States in August, 1897, which is 32 581,363 tons less than last year. The imports for the eight months of 1897, amounted to 534,551 716 lbs., against 724,689,269 lbs. in 1896. Asphaltum was also imported during August, to the extent of 13.301 tons, which is only 51 tons more than last year. For the eight months of 1897, the imports aggregated 97,690 tons, against 67,838 tons in 1896.

ALABAMA.

CLAY COUNTY.

(From Our Special Correspondent.)

Hussey Mine.—Mr. Hussey, representing Montgomery, Ala., capital, is operating a 10-stamp mill on ore from this property, which is a quartz vein and has been quite extensively prospected. The gentleman associated has optioned several tracts of mineral property in this county, and their operations are being watched with a good deal of interest by the residents of the State generally.

Idaho Mine.—Messrs. T. H. Aldrich and T. H. Aldrich, Jr., of Birmingham, have leased for a term of years the Idaho Gold Mine from the owners, Messrs. Barr & Franklin, of St. Louis. This has been the only mine which has produced bullion regularly in Alabama during the past year. It is proposed by the lessees to increase the crushing capacity to about 70 tons per day at least, when the mine can be operated at a fair profit, although the ore is very low grade, in fact, not sufficiently high to yield any appreciable profit with the present crushing capacity, one 5-ft. Huntington mill.

CLEBURNE COUNTY.

(From Our Special Correspondent.)

It is reported that the old Dick Woods Copper mine has been purchased by a New York syndicate, and that recently a number of members of the syndicate started to visit the mine but because they were stopped in Atlanta, against which city Alabama quarantined, they were unable to fulfill the purpose of their trip, except one who defied all scares and comfort by driving overland from Atlanta to the mine, a distance of about 100 miles. The ore recently shipped to the Balbach Smelter at Newark, N. J., yielded good results. Two car-loads of first grade were shipped and there are about 1,000 to 1,500 tons of second grade ore on the dump. This will hardly pay for shipment to New Jersey but will apparently yield profit if smelted into matte and the matte shipped. The town of Heflin, located on the Southern Railroad, 17 miles from the mine, would offer inducements for the establishment of a smelting works of medium capacity.

After working quite extensively at several of the gold prospects of Alabama located in this country during the earlier portion of the year the work has generally been discontinued recently.

Miners are still engaged hydraulicking in the old Arbacoochee district, but beyond this little activity is being shown in metal mining.

JEFFERSON COUNTY.

Sloss Iron and Steel Company.—This company will probably develop extensively the brown iron-ore deposits near Leeds, 20 miles from Birmingham, and acquire additional lands in that neighborhood. At the special meeting to be held November 4th the developments will be considered. It is supposed that the cost of development will be about $150,000 to $200,000.

ALASKA.

COPPER RIVER.

(From Our Special Correspondent.)

A number of vessels are fitting out for this district. The schooner *W. S. Phelps* left San Francisco October 13th with 46 miners, and the schooner *Mary Gilbert* will soon leave with 50 more.

ARIZONA.

(From Our Special Correspondent.)

The Congress, the Fortuna and the Pearce all maintain their rate of production, and are swelling the figures of the annual yield of the precious metals in the territory.

PIMA COUNTY.

Twin Peaks.—This mine, situated about four miles from Olive camp, has been bonded by Messrs. Baxter, Irish and Ellis to Capt. J. D. Burgess. The bond is for $60,000. A small consideration was paid down and Captain Burgess agrees to pay another installment of $25,000 in three months and the balance in one year.

(From Our Special Correspondent.)

San Xavier.—The old mine, in the Sierritas, 18 miles south of Tucson, has been purchased and reopened by Mr. L. H. Manning, and is now producing large quantities of lead ore, which is shipped at the rate of 20 tons a day to the smelter at El Paso.

YAVAPAI COUNTY.

(From an Occasional Correspondent.)

Seven Stars Mining Company.—A new chapter has been opened in the history of this company, about which so much was said some years ago. It will be remembered that the company's property consisted of a lease and bond on the Hillside mine, which was owned by Messrs. Lawler & Wells, the bond being in a form usual in the West, providing for certain payments, and for the forfeiture of all money which might have been paid in if the conditions were not fulfilled. The company—or H. H. Warner, who organized and represented it—failed to comply with the terms of the deed, although the vendors extended the time for the papments. The mine itself, though only very partially developed, is believed to be a property of some value. Under the lease and bond the property finally reverted to the vendors. Some time since, under the leadership of Warner Miller, of New York, some of the stockholders of the Seven Stars Company began suit in the Arizona courts to recover the money paid, the title of the suit being Wiser versus Lawler and others. A hearing was recently had in this suit, and on its conclusion the court entered an order, the substance of which is given below, but an appeal will undoubtedly be taken in the case. The order contains six counts, of which the first dismisses the first plea of defendants. Second overrules defendants' demurrer. Third denies the defendants' motion for judgment on cross bill and answer thereto filed. Fourth, orders adjudges and decrees that Lawler & Wells have no right, title or interest in the said property, or any lien upon or equity in the same, except subject and subordinate to the rights and equities of each and every stockholder of the Seven Stars Mining Company. Fifth, decrees and orders that an accounting be made before a referee or master in chancery, to be appointed by the court, of all moneys of every nature received by defendant since May 12th, 1892, whether from H. H. Warner, or from the sale of bullion or ore. The referee or master in chancery is required to report on or before January 1st, 1898. Sixth, provides for the appointment of a receiver, who shall take immediate possession of the property, and retain and hold the same till final decree is entered in the case.

At the conclusion of the reading of the decree, attorneys for defendants made a motion for a modification of the decree as to the appointment of a receiver, and that defendants be permitted to retain possession of the mine, giving an indemnity bond of sufficient amount to secure any equities that might be found to exist to the stockholders on final decree. This motion was resisted by plaintiff's attorneys, and denied by the court. The question of the appointment of a receiver and master in chancery was then taken when at the suggestion of Geo. W. Kretzinger, the court appointed E. B. Gage as reciver, with the explicit understanding that no charges against the property shall be made for his services as such receiver. J. D. Carter was appointed as master to prepare the report and submit it to the court.

YUMA COUNTY.

(From Our Special Correspondent.)

King of Arizona.—The trial runs at the five-stamp mill of this property are very satisfactory. The quartz is free-milling and gives a clean amalgam. Several lots have been retorted and melted in the laboratory of the Arizona School of Mines. One of the latest gave a $7,000 bar, over ,800 fine.

CALIFORNIA.

AMADOR COUNTY.

(From Our Special Correspondent.)

Potazuba Mining Company.—At the last monthly meeting of the directors of this company the following officers were elected: E. C. Voories, president; W. D. Nixon, vice-president, and William T. Wildman, secretary. The shaft is now down 530 ft., and a station is being cut at the 500-ft. level, from which a drift will be run.

BUTTE COUNTY.

(From Our Special Correspondent.)

Golden Feather Channel Company, Limited.—This company, which owns the Feather River mines, the Clark & Coffee and other mines, and the 40-stamp Banner Mill, is surveying at Hengy for an immense water storage reservoir, and is also surveying a line to the North Fork of the Feather River, for the purpose of bringing water to Hengy, Morris Ravine and Oroville.

CALAVERAS COUNTY.

(From Our Special Correspondent.)

Jupiter.—This mine, on Central Hill Channel, five miles southeast of San Andreas, which has been idle ever since the disappearance of W. A. Keefer the former owner, is about to be opened by New York parties, who it is said have bought up all the interests of Keefer and those who were associated with him. A large force of men are now at work constructing a ditch and reservoir. Mrs. Dr. Newland, who claimed to own this property at one time, is said to have been bought off. The mine is reported to be a valuable one.

KERN COUNTY.

(From Our Special Correspondent.)

The shaft in the Butte Wedge mine is down 400 ft.; in the Little Butte, 350 ft.; in the St. Elmo, 200 ft.; King Solomon, 240 ft.; many others in the same district have reached a depth of over 100 ft.

METEOR.—This mine, near Randsburg, has been bonded for $25,000 by McGrew & Ellis for six months for $2,000 cash. Development work will commence at once.

LOS ANGELES COUNTY.

Shipments of oil made from Los Angeles, during the month of September, equal 12,133 tons of coal at the usual ratio of 3 bbls. to a ton. The cars sent out during the month were 160, and each contained 140 bbls. of oil, making a total of 36,400 bbls.

MARIPOSA COUNTY.

(From Our Special Correspondent.)

Arthur H. Pease, of New York; J. P. Mitchell, of Colorado; R. G. Brown, of Bodie and Whitsee; Newhouse & Ewing, of San Francisco, have been examining mines in this county. Among the mines in active operation in this county the following may be mentioned: The mine and mill, 2 miles south of Priests; Two Brothers Mine; Red Bank Mine; Crown Lead properties; Compromise Mine; Garibaldi Mine; Contention Mine; Kanaka Mine; Virginia; Merced mines; Horse Shoe Bend Group; McAlpine Mine; Deer Flat Mine; Burton Mine; Penon Blanco Mine; Whitlock Mine and mill; Karan mines; Louisiana Mine; Bondurant Mine; Bunker Hill Mine; Tyro Mine, Porter Ranch; Selleck Mine, and several others which have not been named. Almost all the owners of the above mines have agreed to take power from the Mariposa Electric Power Company on the completion of its plant.

NEVADA COUNTY.

(From Our Special Correspondent.)

CALIFORNIA.—The new mill at this mine, 4 miles west of Grass Valley, is almost completed and will be crushing rock in a few weeks. The water for power will be obtained from the North Bloomfield Company's ditch. The tunnel, which is in 1,900 ft., cuts the ledge 400 ft. below the old works, showing up some good ore. Several buildings are being erected and a road has been built to the Gaston Ridge Road.

EAGLE BIRD.—Local parties have leased this mine, at Maybert, and have commenced repairing the flume and are making other repairs before commencing operations. Before the mine shut down a year ago everything in sight was taken out, consequently a great deal of dead work will have to be done before the mine is put on a paying basis.

GOLD RIDGE CONSOLIDATED MINING AND MILLING COMPANY.—The mines of this company are located about six miles from Sierra City, partly in Nevada and partly in Sierra County. J. T. M. Kelly has brought suit to set aside an assessment of 4c. per share recently levied on the stock of the company. He alleges that the assessment was unnecessary, and forms a part of a plan and conspiracy to defraud the stockholders. The defendants in the suit are Henry Silvester, William F. McLaughlin, Albert J. Sylvester, Ira H. Chapman and George C. Snider.

PLACER COUNTY.

A fire recently destroyed the town of Iowa Hill, a mining camp having about 500 inhabitants. Two men were burned to death and several others were injured.

(From Our Special Correspondent.)

PIONEER.—At this mine, one mile northwest of Damascus, the shaft is down over 1,000 ft. showing a fine vein of ore which mills $21 per ton. Dr. W. C. Cutler, S. M. Bickford and C. W. Grosse, directors from Boston, are now on the ground examining the property preparatory to putting in an electric plant with power from the American River, two miles distant, and 20 additional stamps in the mill. About 50 men are employed at present. Fair & Davis, the former owners, realized some $150,000 for the property three years ago. The present company claims to have paid $500,000.

SAN DIEGO COUNTY.

(From Our Special Correspondent.)

SOUTHERN CALIFORNIA WATER COMPANY.—This company has stopped all work on the Morena Dam, as the city engineer in his report condemned the work as faulty, the objections being that the specifications were ignored and the dam as constructed was leaky and unsafe. The report of the engineer was sustained by the City Council.

SHASTA COUNTY.

(From Our Special Correspondent.)

EUREKA TELLURIUM COMPANY.—This property, about 2 miles from Redding, at Middle Creek Station, will soon be in the possession of the original owners, who will reopen the mines and work them on a large scale. A roasting plant will be put in and general repairs made. The vein averages about 8 ft. in width and assays over $80. The property was bonded some time since for $250,000 and has been in litigation ever since.

TRINITY COUNTY.

(From Our Special Correspondent.)

The Vitzhum Gulch, Union Hill and Dutton Creek gravel claims, all located near Douglass City although not near each other, have been sold with the ditch and water right for $100,000 to Alexander Hill, who represents English capitalists. The first payment has been made.

TUOLUMNE COUNTY.

(From Our Special Correspondent.)

MONTGOMERY.—This mine, in the East Belt, is working a large force of men sinking on the vein. At a depth of 40 ft. the ledge is 24 in. in width, and is said to mill $30 per ton in free gold. Drifting will soon be commenced. J. E. Summers is superintendent.

RAWHIDE.—At this mine, 3½ miles southwest of Sonora, the shaft is down vertically over 2,100 ft. and sinking will be continued to the 2,300-ft. level. The mill is kept running to its full capacity on fair-grade ore. A contract has been closed with the Abner Doble Company, of San Francisco, for a hydraulic installation, which will consist of three wheels, operating under 480-ft. head, and developing 600 H. P. The water will be brought from the north fork of the Tuolumne River, 12½ miles distant. The same company furnished the hydraulic apparatus for the large power plant of the Blue Lakes Water Company, which is now in successful operation in Amador and Calaveras counties. This plant consists of three 700 H. P. wheels of the steel web pattern, with bronze buckets, operating under 1,043 ft. head and developing 700 H. P. at 600 revolutions per minute.

STEWART.—This old pocket mine, on Bald Mountain, one half a mile east of Sonora, is reported sold to R. Grant and J. F. Thomason for $1,400.

COLORADO.

CLEAR CREEK COUNTY.

(From Our Special Correspondent.)

BADGER MINING COMPANY.—A Beam process mill was erected at Empire for the treatment of the ores from this company's mines, but the system was unsatisfactory and the mill closed down after treating a few tons of ore. It is claimed that the mill will be remodeled for treating the Badger mineral.

BAY STATE GOLD MINING COMPANY.—This is a Boston company with A. R. Specht, a banker of that city, at the head of the undertaking. The mine is located at Dumont, and has been under development for some time. A large quantity of mineral is now on the dump ready to be hauled to the new mill which Mr. Specht is building. Only that taken out in development has been hoisted. The mine has a large tonnage of $10 ore blocked out. The same gentleman last week began a tunnel to be driven from a point on Clear Creek to reach the many loads in Albro hill and lying beyond. It cuts the Eagle lode at a depth of 1,200 ft., and from that on generally gains depth. An air compressor is being installed to furnish air drills with power.

DORIC GOLD MINES, LIMITED.—Drifting in the tunnel of this property at Georgetown has been resumed. One of the lodes encountered is to be worked by leasers.

QUAKER MINING COMPANY.—A big body of ore has been opened in the Monte Cristo mine owned by this company at Idaho Springs and as a result the mine is to have a new plant of machinery so that the shaft can be continued to greater depth. Levels will then be driven to get under the ore body. Pittsburg capital is back of the enterprise.

SODA CREEK.—This is a new section to the south of Idaho Springs that has attracted attention during the past few months because of gold discoveries. Free gold streaks are found lying alongside of big porphyry dikes. One prospector found float of white quartz that ran 85 oz. gold per ton. The lead was not discovered.

UNITED STATES TUNNEL COMPANY.—This company has its offices in New York City, and has a proposed undertaking for reaching the great lodes in the Clear Creek Gilpin mineral belt. The tunnel has been driven for 500 ft.; it begins in Hukill Gulch. The Mixsell mill and the Turner water power at Idaho Springs are understood to be included in a consolidation. While the company is extensively advertising a sale of stock at 50c. on the dollar, the proposed plant of machinery has not yet been installed. The plans of the company are not set forth at this end although Philip Mixsell, the Idaho Springs agent, is one of the representative mining and mill men in Clear Creek County.

EL PASO COUNTY—CRIPPLE CREEK.

(From Our Special Correspondent.)

CRIPPLE CREEK GOLD EXPLORATION AND TUNNEL COMPANY.—A contract for 500 ft. of tunnel will be let October 22d by this company—better known as the Moffat Tunnel. Work to be commenced by November 1st and pushed right along. This is supposed to be the result of the recent trip to Europe of Eben Smith, one of the promoters and principal stockholders of the company. The tunnel starts in the gulch south of town, and as projected will run through Gold Hill and eventually Bull Hill, cutting some of the best veins in the district at depths varying from 250 to 1,500 ft. The tunnel as it now stands is 200 ft. in and has a considerable flow of water, which will probably be increased, materially aiding in the drainage of Gold Hill.

INGHAM.—This mine on Raven Hill has cut a dyke in the face of the tunnel that carries a fair amount of mineral. It shows a good deal of white vein, and also carries sylvanite. This is on the Jack G. Ground. The Ingham is now a steady shipper and gives good promise.

LONACONING.—Jackson and others, leasing on the Lonaconing on the west slope of Beacon Hill, and one of the Kimberly claims, cut into the Orizaba vein about two weeks since. They have now completed their ore bins and have the mine in shape for production. They have commenced taking out ore, and have about two tons on hand and will soon have a shipment ready. They have a narrow streak of 1 to 2 in. in width of exceptionally rich ore in a vein of good shipping ore. They may, however, have trouble with water.

LUCKY GUS GOLD MINING COMPANY.—This company on Bull Hill shipped a carload of ore last week taken from the shaft at a depth of 605 ft. and below. The returns from this gave $304 per ton. This mine is looking better than it ever did. The Boyle lease on the same property is also looking well. The lessees shipped 50 tons of 2 oz. ore in the month of September. The Floyd lease on the Pike's Peak vein on this property has not yet shipped ore, but a shipment is nearly ready.

RAVEN GOLD MINING COMPANY.—This property on Raven Hill is showing up well. The production last month was up to the average and may be placed at over $10,000. Valuable discoveries have been made in the Range claim which has been worked through the Gregory shaft at the 400-ft. level.

SHERIFF.—A steam plant has been placed on that portion of the Sheriff under lease to Doctor Ramey and has been started up. It will materially aid in getting out the ore on this promising property.

GUNNISON COUNTY.

COLORADO FUEL AND IRON COMPANY.—Two miners, John Pitoni and Frank Naradin, were recently crushed to death in this company's mine at Crested Butte by the falling of the roof.

(From Our Special Correspondent.)

DUBOIS TUNNEL.—The breast is in 585 ft. and still forging ahead. The Homestake is to be added to the properties being operated by this company November 1st.

MACCABEE GROUP.—A big strike of galena ore, carrying small values in gold and running high in silver has just been made on this property. The Maccabee is situated at Tolifaro, one mile north of the Hathaway Group.

MALACHITE.—Another good-looking vein of white spar and quartz has been opened up, which carries gold to the extent of $6.40 per ton, free-milling. The vein formerly developed has widened to 3 ft. and gives average returns of $17.50 per ton gold.

SUPERIOR.—John Campbell has struck a 5-ft. vein of white quartz carrying some gold.

TREMONT.—An important strike is announced, consisting of a 10-in. streak of gold ore, carrying considerable hematite and a small per cent. of copper.

HINSDALE COUNTY.

(From Our Special Correspondent.)

GOLDEN FLEECE MINING COMPANY.—This company recently announced that all unmarried employees of the Golden Fleece and the Ute & Ulay would hereafter be required to patronize the company's boarding house. The new plant of machinery at the Golden Fleece is now in working order, new men are being added and the mine will soon resume its former activity.

GOLD KING.—Messrs. Popple & Mills have completed arrangements for a resumption of work on the Gold King, and men are being added as fast as possible.

YELLOW MEDICINE.—Considerable good ore is being shipped and the force has lately been largely increased. A reduction in the wages of trammers has recently gone into effect.

YELLOWSTONE.—New machinery is being transferred to the mine and a new road has just been completed. Some 75 men are now employed breaking ore, and the force is being steadily increased.

LAKE COUNTY.

(From Our Special Correspondent.)

CATALPA-CRESCENT.—In conversation with Manager Jos. Horner, I learn that he has increased shipments from this combination again and that they are now taking out an average of 200 tons per day. Most of this stuff goes to the Illinois Steel Works. It is manganiferous iron ore of good quality. While there are enormous bodies of this character of stuff in the Catalpa-Crescent, there is much other ground where manganiferous iron exists in quantities and the increased shipments are looked upon very favorably for the benefit of the camp.

GRANITE DISTRICT.—Your correspondent has it from a mining man who has just thoroughly canvassed the Granite district that the camp never looked more prosperous than at the present time and that it will assist in swelling the Lake County output from this time on. Properties which have been idle for some time are being started up and some new shaft-houses on ground that has never been developed are to be seen. But best of all there are a number of mills to be erected and this is one thing that will assist largely in pushing forward the district. One 10-stamp mill and one 15-stamp are running night and day now, while two others, it is announced, are to be erected in the near future. One of the new mills is for the use of the New Years. Among the principal shippers are the Magenta, which is shipping 10 to 15 tons per day from a 3-in. streak and at the same time is keeping a 15 stamp mill busy with a big body of concentrating ore. The New Years is shipping about 5 to 10 tons per day all first-class ore. The Robert George is also operating and shipping from a good strike. In the Low Pass section much new work is in evidence and in several instances some finds have been made which assay $500 to the ton and some samples have run fabulously rich.

Lady Alice.—Important discoveries made in this property recently indicate that the Lady Alice will be a heavy shipper in the near future. The property is well located on Breece Hill at the edge of Adelaide Park. It is owned by Eastern parties headed by the Gaff estate. They leased it to local people who in turn are operating it under sub-lease and these are the people who at a depth of 190 ft. have opened up some nice mineral. The lessees are taking out some iron from a streak which assays 60% excess averaging $1 to $6 gold and $1 silver per ton. This stuff also gives a percentage in copper and the streak is to be thoroughly prospected in the hope of opening up a big ore chute which it is believed exists in this ground.

Weston Pass Section.—Interest in the Weston Pass section of the Leadville district is unabated and next spring promises to see a veritable boom there. While at the present time the Ruby is the only shipper, yet there is important work being done by other properties which promise to become producers, and there are a number of propositions which are to be operated early next Spring. I know of several surveyors who went over to that part of the district this week for the purpose of surveying for a number of combinations and for arranging to patent other property already located. The country is pretty thoroughly taken up and it is the opinion that Weston Pass and Breece Hill will divide the honors for a rush during 1898. The Ruby is operating on a good body of lead ore and is now shipping about 10 tons daily of ore running 50% lead and giving a low silver value.

SAN JUAN COUNTY.

(From Our Special Correspondent.)

Iowa Gold Mining and Milling Company.—The head offices of this company have been transferred from Denver to Silverton, and hereafter all business connected with the company's mines will be transacted at this point. The last monthly dividend of the company amounted to $60,000—being ½c. per share.

Iron Mask.—Negotiations are pending for the sale of this property, and if consummated the purchasers will put in a plant for sinking a 250-ft. shaft on the vein. Drifts at intervals of 80 ft. apart will also be driven.

J. J. S. Mining Company.—A contract has been let for the erection of a boarding house 18 × 48 ft. and an ore house 24 × 50 ft. at this company's prospect, on Animas Creek. A 700-ft. drift is to be driven this winter in order to open up stoping ground for next season's output. Plans for a large mill have also been called for, and the mill will be put in next spring.

Olson.—This property, near Animas Forks, was recently sold to Denver and New York capitalists for $50,000; of this, $5,000 has been paid to bind the bargain.

Red & Bonita.—A new mill will soon be in process of construction at this point, all the dimension timber being now on the ground.

Sampson and Gold King Suit.—These companies are in litigation over the location of their side lines, the Sampson having recently enjoined the Gold King from taking any more ore from the latter's tunnel until the lines are located. The case has been taken to the district court, and surveyors are now at work locating the boundaries.

Sunnyside Extension.—Arrangements are being made to do considerable work at this point during the winter, and 35 men will soon be added to the force. It is quite probable also that the mill will be run for a couple of months this fall.

Sunnyside Mill.—This plant has been shut down temporarily for repairs. The new tram, 8,300 ft. in length, has been completed and is now in running order.

IDAHO.

OWYHEE COUNTY.

De Lamar Mining Company, Limited.—The following is the return for the month of September: Crushed during the month, 4,350 tons; bullion produced in the mill, $38,780; estimated value of ore shipped to smelters, $480; miscellaneous revenue, $140; total produce, $39,400. The total expenses were $37,085, leaving a profit for the month of September of $2,315.

South Central.—About 10 men are employed at this property. The new electro-cyanide plant being installed at the Poorman mill will soon be ready for operation, when ore from the South Central will be treated. Quite a supply of ore is upon the dump.

SHOSHONE COUNTY.

Standard.—Caving is reported in the tunnel, which has interfered with the output of ore. The extent of the damage is not known.

WASHINGTON COUNTY.

(From An Occasional Correspondent.)

Probably more people have visited the Seven Devils camp and more prospecting has been done this season than ever before. Some development work has been done on the Peacock Mine by the Seven Devils Copper Company and the face of a 40-ft. open cut shows up a fine body of ore. They have also some 300 or 400 tons of good ore in the bins as the result of cleaning up some of the former workings. They have brought the machinery for their smelting works in and hope to get it in operation this fall.

The most active prospecting this season has been in the gold belt lying to the east of the copper belt; many excellent prospects have been secured and considerable work done. The veins are strong and carry fair values and with the advent of cheap transportation would afford ample encouragement for opening up. In the Hornet Creek and Hilderbrand districts the values are found largely in the iron sulphuret. Considerable development work has been done in the latter district and some capital has been interested as the result of a personal visit this past summer.

There is considerable inquiry for properties throughout the camp, which may result in changes before spring and much more active work next season.

KENTUCKY.

CARTER COUNTY.

Lexington & Carter County Mining Company.—Suit has been begun to foreclose a mortgage on this company's property, which includes about 10,000 acres of coal land.

MARYLAND.

ALLEGHENY COUNTY.

Consolidation Coal Company.—This company has drained and reopened the old Borden coal shaft at Frostburg.

MICHIGAN.

COPPER.

The managers of the Jeffs estate, at Rockland, have been exploring the south range of the old Minnesota property the greater part of the summer, and have thoroughly tested one of the many lodes in that vicinity in a number of places for about a mile in length. We believe that they have uncovered a rich stamp lode. The vein apparently runs regular and about 12 ft. in width. They hope to be in shape to commence active operations the coming spring.

Mine Inspector Josiah Hall, of Houghton County, reports that there are employed in the mines of the county 8,726 men. Less than three accidents for every 1,000 men employed resulted fatally, the total number of fatalities for the year ending September 30th being 26. The deaths reported for the Calumet & Hecla were 10 in all—three by fall of hanging wall rock, two by premature explosions, two by falling down the shafts, one by a fall of vein rock, one caught between the skip and shaft timber while riding in the skip, and one struck by a descending skip. Eight are reported for the Tamarack—two by suffocation, five by fall of vein rock, and one struck by descending cage. Two to Tamarack, Junior—one by a fall of hanging wall rock and one by a premature explosion. At the Franklin there were two; the Quincy two, the Osceola one, and the Wolverine one. Mr. Hall reports that the mines are generally well equipped, and a number of the accidents could be traced directly to carelessness on the part of the miners.

MINNESOTA.

(From Our Special Correspondent.)

Contracts for the 19-mile main line work for the Duluth & Iron Range road, from its docks northward, have been let to the Drake-Stratton Company, of Pennsylvania, and work has been begun. Three steam shovels will be employed all winter, and a very large force of men, and the entire job is to be completed by May next. The grades against traffic, going north, which is the direction of light trains, are to be reduced from 2·5% to 1·5%, and going south from 1·5 to 0·6%. The latter is, of course, the greatest gain, for it is southward that all the ore is carried, and the locomotive efficiency of the road is to be increased 75%, it is claimed, by the new line. The construction work will be quite heavy.

Right of way men are said to be in the field for Wright & Davis, the owners of the Duluth, Mississippi River & Northern road, from Duluth northerly, working toward a connection between the lake at Duluth and the company's short stretch of road over which ore from the Wright & Davis lands is now taken to the Duluth & Winnipeg line for delivery at dock. It is generally believed that the firm will build to Duluth, so as to control the haul of its ore all the way. Wright & Davis own the fee of the Mahoning mine and thousands of acres of undeveloped ore lands, and control the haul on every acre they have leased to anyone. They can reach Duluth by a road 20 miles shorter than the route now followed by the ore from this mine to the lake at Superior. It is known that their contract with the Duluth & Winnipeg for hauling ore is about to expire and that they have been negotiating for its renewal, and to those on the inside it is indicative that the work of the right of way crews out may possibly be merely to secure a favorable contract.

It is expected that the contract for the construction of the three largest lake ships for the Rockefeller fleet is to be followed in a few days by announcement of the contracts for two or three, probably the latter, to the Globe Iron Works Company, of Cleveland. This will give the company a capacity for about 900,000 tons more than it had the present season.

Shipments from Minnesota for the year are now closely approximated, at 5,500,000 tons. Of this the Duluth & Iron Range will handle about 2,600,000 tons, the Duluth, Missabe & Northern 2,300,000, and the Duluth & Winnipeg 600,000 tons. With shipments of the usual proportion from the Wisconsin lines of the Gogebic Minnesota will take first place as an iron ore-shipping State.

IRON—MESABI RANGE.

(From Our Special Correspondent.)

Lake Superior Iron Company.—The large stockpiles at the west shaft of the Burt mine, of this group, have been shipped.

Mahoning Ore Company.—Arrangements had been made to close this mine October 1st, but the company has decided to remain a shipper till November.

Mesabi Iron Mining Company.—Articles of incorporation of this company were filed at Duluth this week, with O. D. Kinney, president; Harry Roberts, vice-president; F. E. Searle, secretary, and E. Z. Griggs, treasurer. The company will operate the finds recently exploited by Captain Roberts on the Mesabi Range.

Norman Iron Company.—This company has closed work for the year, having mined 100,000 tons from its milling proposition, with 30 men at work.

Oliver Mining Company.—Since its reopening the Oliver is shipping about 5,000 tons a day, with no prospect of closing down at once. In fact it is expected to remain at work for nearly a month yet, more or less actively. The Mountain Iron mine of the same company will close down next week, with a total probably not far from 1,000,000 tons.

MISSOURI.

JASPER COUNTY.

(From Our Special Correspondent.)

Joplin Ore Market.—The weather during the past week was all right for mining operations and there was a large production with prices fairly maintained. There was a heavy demand for zinc ore and the week closed with no surplus ore left over in the district, an excellent condition for the producers at the approach of winter. There was very little change in the price of zinc ore, top grades bringing $23 per ton, at which price six cars of Joplin ore and the Springfield output was sold. The top price in the other camps was $22 per ton down to $18 per ton, according to the grade.

The pig lead market was stagnant and lead ore dropped to $26 per 1,000 lbs. delivered on Thursday. The Picher Lead Company, which always pays the top price, paid $28 per 1,000 lbs. up to Tuesday, when it withdrew from the market, causing an immediate slump in the price. Wednesday some choice lots sold for $27, but from that it dropped to $26 and closed the week at that price.

As compared with the corresponding week of 1896 the increase in the shipment was 1,111,730 lbs. of zinc ore and 529,560 lbs. of lead ore over last year's shipments and the value was $39,296 greater than the corresponding week of 1896.

Following are the sales of lead and zinc ore in the different camps for the week ending October 16th, 1897: Joplin, zinc, 1,492,630 lbs.; lead, 388,830 lbs.; value, $25,927. Carterville, zinc, 1,208,730 lbs.; lead, 293,796 lbs.; value, $19,873. Webb City, zinc, 689,490 lbs.; lead, 82,930 lbs.; value, $9,092. Galena, zinc, 3,030,000 lbs.; lead, 453,690 lbs.; value, $40,808. Aurora, zinc, 540,000 lbs.; lead, 24,750 lbs.; value, $4,810. Oronogo, zinc, 237,000 lbs.; lead, 6,080 lbs.; value, $2,770. Stott City, zinc, 205,980 lbs.; value, $2,369 Springfield, zinc, 44,000 lbs.; value, $484. Belleville, zinc, 29,370 lbs.; lead, 9,790 lbs.; value, $387. District totals for last week: Zinc, 7,387,880 lbs.; lead, 1,274,040 lbs.; value, $106,896. District totals for 42 weeks: Zinc, 275,219,410 lbs.; lead, 46,847,180 lbs.; value, $3 505,187.

Cock Robin Mining Company.—The steam concentrating plant is running steadily on rich dirt and producing weekly from 20,000 to 30,000 lbs. of lead ore and from 15 to 25 tons of zinc ore. They first commenced drifting at 95 ft. and have been taking up stopes until now they are working on the 130-ft. level with good ore in the bottom of drift. In a drill hole near the shaft they had rich zinc ore at 154 ft. This company bought the mine about eight months ago and paid $10,000 for it and built a plant on it that cost $5,000, and they have taken enough ore to pay for the mine and plant.

June Mining Company.—On the Rex tract this company has been producing lead ore only two months, and last week declared 25% dividend It opened up a large body of lead ore at 90 ft. in soft clay ground, with only enough water to wash the ore. It has a lease of 20 acres, and are sinking three more shafts.

Manhattan Mining Company.—This company has leased 40 acres of land south of Webb City and has a large double concentrating plant and two 15-lift pumps to drain the ground and furnish water for the plant. This company is drifting at 215 ft. on a 40-ft. face of jack in open ground with strong water, and will start up the plant this week to make the first turn-in.

Marion Mining Company.—On the Rex land, east of Joplin, the company is drifting at 80 ft. on a good face of lead ore in soft ground. Saturday afternoon a block of lead ore weighing 300 lbs. was hoisted out.

McKee Mining Company.—This company has two lots on the Brinkley lease on the Connor land near Webb City and has opened up a rich mine at 140 ft. The ore body has run up 30 ft. in open ground and last week with only four men they made nine tons of high grade zinc ore and 7,000 lbs. of lead ore. The ore is still running up towards the surface.

Old Orchard Mining Company.—This company has an 80-acre lease four miles west of Joplin, and recently in the pump shaft commenced to

drift at 125 ft. on a large face of ore in flint ground, and will make the first turn-in this week. There are quite a number of shafts going down on the lease, but not any of them are deep enough to strike the ore.

MONTANA.

BEAVERHEAD COUNTY.

One of the furnaces of the Hecla smelter was started up last week, a sufficient supply of lead ore having accumulated to warrant starting the fires again. The Arida, the mine from which Manager Knippenberg hopes to get an ample supply of lead ore, is located below the old Cleopatra mine, but on different vein. It is being worked by a shaft 300 feet in mountain side. Drifting is going on from each side of the shaft and development work is being pushed as rapidly as posible.

On Grasshopper Creek the work of the three dredging boats which are operating succesfully on the old diggings will soon be supplemented with that of another of larger capacity than either of those now in operation. The three which are working are the *F. L. Graves*, which is running at Bannack by electric power; the *A. E. Gaeter*, operating at Marysville, one mile below, with steam as motive force, and the *Maggie Gibson*, also a steam machine, which is excavating on Jimmy's Bar, still another mile or so below. The fourth will be set up at the mouth of the canyon, four miles below Bannack, and will also be run by steam.

CASCADE COUNTY.

William Buzzo has secured a lease on the Armington mine, near Belt. He has also contracted with the Great Falls Smelting Works to take about 50 tons of coal per day. The mine is owned by J. T. Armington and J. J. Hill, who have 1,000 acres of coal land adjoining. The main entry is in 700 ft. and shows a 5½-ft. vein of good coal.

GRANITE COUNTY.

Golden Scepter.—The sale of the Golden Scepter mine, near Quigley, in which are interested numerous Eastern capitalists, who have amounts from $25,000 upward invested, will be made under foreclosure proceedings November 6th, at Phillipsburg, for the property is in Granite County. There are judgments against the entire property amounting to $430,000, for machinery, money advanced, for wages and material and supplies and nearly everything else that could be imagined in connection with a large mining enterprise. Fraser & Chalmers have judgments amounting to between $40,000 and $50,000. Arthur D. Colburn, of Wilmington, is a judgment creditor for something like $220,000. Recently all the parties to the action agreed to a reorganization plan, by which, although the details are not made public, it is said that the creditors will receive a certain percentage of their claims in cash and the remainder in stock or bonds of the new company, except the material and labor claimants, who will receive the full satisfaction of their claims in cash. Many of the claims for labor have been purchased during the pendency of the litigation. The full name of the company was the Golden Scepter Gold Mining Company, of Wilmington, Del.

The operations at Quigley were once the talk of the State, for not only was the development of the water power of Rock Creek watched with interest by others interested in the development of power in mining, but there were elaborate arrangements for the manipulation of the large plant by electricity. The water was taken from the creek without a dam, being caught in an ox-bow and conveyed through a long flume to the power-house, where a fall of 137 ft. was obtained. The electric railway from the mill to the mine was four miles long, and the road and the mill, besides the air compressor for the drills and a light plant of 16,000 C. P., were all operated from the electrical power generated there. The new company proposes to reopen the mines and to start the machinery, which was all but ready when the beginning of the first action precipitated a series of suits by various creditors who were anxious to preserve their rights and secure prior liens upon the properties. If present plans are followed out, it is said, work will be renewed again before the opening of the next season.

JEFFERSON COUNTY.

Minah.—At Boulder, October 10th, Master in Chancery H. N. Blake, on an order of Judge Knowles, sold the property of the Minah Mining Company, Limited, to the plaintiffs in the action, who were the former owners, to foreclose a vendor's lien. The property was bid in for the amount of the judgment, there being only one rival bidder, Harry B. Palmer, of Helena, who represented a syndicate, but he only bid $3,500 for the Iron Dollar claim, which was bid in at $25,000, and $2,500 for the Annie B., which brought $10,000. The other claims were the Minah, East and West Ends, the Hillside, Iowa, Homestake and Gold Cross, for which the former owners and plaintiffs bid enough in each case to make the entire amount equal to the entire amount of the judgment.

MADISON COUNTY.

Ruby C.—A. L. Moffatt has just finished a contract for running a tunnel for the Ruby C. Company, which carries the opening on the mine to the depth of 180 ft. He will now put on an extra force of men developing the lode by crosscutting. The property is owned by James Lynch, William McDermott and other Butte parties.

MEAGHER COUNTY.

More ore is now being shipped from this district than since 1893.

Moulton.—It is rumored that the United Smelting and Refining Company have leased the Moulton mine at Milwaukee on similar terms to those under which it operated the Broadwater mine.

Tiger.—Colorado mining men have taken a 30-day option on the Tiger mine.

PARK COUNTY.

Montana Coal and Coke Company.—This company recently filed its annual report with the County Clerk, which showed a capital stock of $500,000; capital actually paid in, $300; capital paid in purchase of plant, $499,700; existing indebtedness, $96,186.85.

SILVER BOW COUNTY.

(From Our Special Correspondent.)

Alice.—At a directors' meeting in Salt Lake Utah last week, a $20,000 dividend was declared, payable October 25th. Physical condition of mine is as favorable as last year and all that prevents dividends being a monthly occurrence is the ruling price of silver. At the mine work is carried on with an increased force of miners; the force has already been increased at the Blue Wing, Magna Charta and Valdimere mines. Developments are pushed, which insures a steady supply of ore for the mills. About 100 tons of ore is hoisted daily which runs from 20 oz. in silver and $5 in gold to 100 oz. in silver and $25 in gold. The 60-stamp mill is kept steadily at work on the lower grade ores, while those running high in gold are treated at the smelters.

Anaconda Copper Mining Company.—At the Bell shaft an addition has been made to the steam plant. At the Green Mountain the new Riedler air compressor is working satisfactorily; a new 9-in. pipe line is being put in from the 1,400 to the 1,600-ft. levels. At the Never Sweat another ore shoot is being built. At the St. Lawrence one of the largest hoists in this district has recently been put in motion; it is a double 30 in. × 72 in. high-pressure engine built by the Union Iron Works, of San Francisco, is supplied with steam of 125 lbs. pressure generated in vertical steam boilers, built by John Mohr & Sons, of Chicago. A new steel head frame, 113 ft. high over all, is also completed at this mine.

Boston & Montana Consolidated Mining Company.—At the Pennsylvania mine about 60 miners have been discharged owing, it is said, to an injunction having been laid on part of the mine which the Montana Ore Purchasing Company claims. At the West Colusa the shaft is down close to the 800-ft. level, and a winze is down about 60 ft. on the vein below this level, all in good ore. Extensive additions are being made to the plant.

Butte & Boston Consolidated Mining Company.—This company is steadily developing its mines. At the East Grey Rock some good ore is being hoisted from the 500 and 1,400 ft. levels. At the West Grey Rock work is progressing on the 500 and 700 ft. levels on the old silver gold vein. At the Silver Bow the force has been reduced as the mine is rather well developed, and there is no stoping being done.

Colorado Smelting and Mining Company.—In answer to a petition made by W. V. Lawlor and Thomas Ford for an order of court to explore the workings of the Gagnon mine with a view of securing information on which to bring a suit for damages, this company offers to allow one or more competent engineers to be appointed by the court to make a survey, and that if their survey shows that any of the workings of the Gagnon mine are within 150 ft. of the plaintiff's ground the company agrees to forfeit $10,000 to the petitioners. The decision of the court was to be announced October 16th. Sinking the main shaft is in progress below the 1,500 ft. level at the Gagnon.

Comanche Mine.—The suit instituted for a quarter interest in this mine by David Upton versus Patrick Largey resulted in a verdict for the defendant. Exceptions were taken to the verdict on account of alleged irregularities among the jurors.

Montana Ore Purchasing Company.—This company has relinquished its lease and bond on the Henry George and Westlake properties. At the Nipper crosscutting is in progress on the 450-ft. level. The Glengarry and Rarus mines furnish sufficient ore for the smelter.

Parrot Copper Mining Company.—At this company's plant at Gaylord a few men are at work; it is reported that it may not be in operation for another year. It appears that the 18-mile canal constructed to furnish water for this smelter was not completed in a very satisfactory manner. This anticipated capacity is reduced from 1,000 to 600 tons per day. A rumer is in circulation that the works are about to be sold to the Boston & Montana Mining Company. At the Moscow lessees are taking out some ore which runs 8% copper and 21 oz. silver. At the Little Minah a larger engine is installed to replace the one now in use. The Parrot and adjoining claims are the most important producers owned by the company, about 500 tons being hoisted daily. At the Oro Butte some 75 oz. silver ore with $16 in gold is shipped by a party of lessees.

Speculator Mine.—At this copper mine 150 tons of first-class ore is hoisted daily, with about 50 men employed. The shaft is an incline 750 ft. deep.

NEVADA.

LANDER COUNTY.

(From Our Special Correspondent.)

Austin.—President A. C. Washington accompanied Manager Farnsworth on his visit last week, returning eastward after spending two days. Manager Farnsworth is making quite a stay while putting matters in shape for a larger production. The company is advertising for 100 miners, and though it said there are many idle in the West, good miners are hard to get hereabouts. At present the mill is not supplied with one-third the ore it can handle, while there is an abundance ready for breaking underground. The main working artery is a crosscut tunnel, course east of north, 6,000 ft. long, which crosses 38 ledges, most of them carrying good ore. Half-way in a branch drift, course west of north, 2,652 ft. long, leaves the tunnel which crosses 12 ledges. On several of these veins the perpendicular distance from the tunnel's horizon to the surface is 550 to 700 ft., and hardly any stoping is done. All water trouble is thus avoided. Throughout there are arrangements for automatically handling the ore till the final concentrate products are ready for shipping.

LINCOLN COUNTY.

(From Our Special Correspondent.)

De La Mar.—In Utah it is claimed that the Mercur has the largest cyaniding mill, or rather that it has the largest capacity, of any plant of the kind in the United States. This is an error, for while the Mercur mill is now cyaniding 250 to 300 tons per diem the De La Mar mill averages 350 tons, frequently overtopping 400 tons, in 24 hours. This huge property is a private enterprise and no particulars of the bullion yield are made public—or little else of the doings, either above or under ground. Current reports place the monthly gold product from $120,000 to $250,000 and most people here believe it is at present nearer the larger sum. Since October 1st the main shaft has reached the 1,300 ft. station, and it seems to be an open secret that at the horizon of the lowest workings ore values hold as well if not better than above. Employment is given to 450 to 500 men.

(From Our Special Correspondent.)

Boston-Nevada Copper Mining Company.—This company's matte smelter, near Yerington, began its initial campaign on September 28th. H. A. Keller, the well-known San Francisco metallurgist, and a large representation from Mason Valley, besides officers of the company, were present. Everything moved well without a hitch anywhere. On this point Mr. Keller remarked that it is unusual in smelting works of this character to have no slip or need of alteration in the plant from the start, for which the credit is mainly due to manager O. B. Hardy, who had charge of the construction work. The capacity of the furnace is 40 tons in 24 hours, producing 8 tons of matte carrying 60% copper. After sacking, the matte is hauled by wagon to Wabuska, on the Carson & Colorado Railroad, and is shipped East to be refined. It is said that the company expects to erect another furnace of equal capacity next spring. This is a West Virginia corporation, of which most of the stock is owned in Boston. W. J. Nelson, of that city, is the president.

STOREY COUNTY—COMSTOCK LODE.

Consolidated California & Virginia Mining Company.—It is officially announced that the remainder of the lot of low grade ore which was to be tested at the Kinkead mill, which remainder amounts to about 350 tons of the 700-ton lot, has been purchased by the Kinkead Mill Company for $2, net gold coin, per ton, that being the average profit per ton on the ore lately treated. It is expected that more of the low grade ore from the mine will be handled in the near future.

The latest weekly official letter says that on the 1,550 level the south drift started from the double compartment incline upraise No. 1, at a point 178 ft. on the slope above this level, has been extended 7 ft., passing through porphyry, clay and streaks of quartz assaying 50c. per ton, total length, 181 ft.; work has been stopped. East crosscut No. 2, started from this drift 100 ft. south of the upraise, has been advanced 22 ft., passing through porphyry, clay and quartz assaying 50c per ton; total length, 75 ft. A north drift skirting along the footwall has been started from the incline upraise at a point 178 ft. on the slope above the level, and advanced through porphyry 11 ft. On the 1,650 level, from incline upraise No. 1, at a point 60 ft. above the sill floor of this level, the south drift skirting along the footwall has been extended 17 ft., passing through porphyry streaked with quartz of nominal value; total length, 136 ft. From No. 2 upraise, at a point 65 ft on the slope above the sill floor, from the north drift at a point 70 ft. north from No. 2 upraise, No. 3 was carried up 30 ft., inclining to the west and passing through quartz formation assaying from $2 to $5 per ton; total height, 44 ft. On the 1,750 level, on the 11th floor north from the upraise from the west crosscut, at a point 30 ft. in from its mouth, a north drift has been advanced 27 ft., passing through quartz assaying $1 and $2 per ton. No ore was extracted from the mine during the week.

Crown Point Mining Company.—The weekly official letter says: "No work has been done in the face of the south drift on the seventh floor of the 800-ft. level raise since last report. The week has been occupied in grading and repairing the main south drift on the 800-ft. level, of which we have

completed 350 ft., and have put in a track floor set preparatory to upraising from it to connect with the end of the seventh floor drift. A night shift will be put on to expedite the connection. The raise will have to be put up about 37 ft."

SIERRA NEVADA MINING COMPANY.—The latest weekly official letter says that in the Sierra Nevada mine Layton tunnel workings)the south drift started on the pay streak at a point 22 ft. east from the bottom of the winze is now out 47 ft; extended 17 ft. during the week; face in porphyry and clay. On the 900-ft. level of the Union shaft workings the west crosscut No. 4 started from the north lateral drift at a point 100 ft. north of west crosscut No. 3, and 350 ft. north from the Sierra Nevada shaft, has been advanced during the week 31 ft; face in porphyry with a seepage of water.

NEW MEXICO.

GRANT COUNTY.

Work has been done to some extent on the large alum deposits on the Gila River, and these together with those of gypsum and soda can probably be made to pay by proper railway facilities.

BAYARD SMELTING AND MINING COMPANY.—This company, whose mines are in the Central Mining District, made its first shipments of ore on October 16th.

HANOVER.—The old Hanover copper mine, under the management of N. S. Berray, is still shipping 30 tons of ore per day from development work. When stopes are fully opened this mine will have a large producing capacity. The survey for the branch railroad, three miles in length, from San Jose to this place, has been completed, and it is probable the contract for grading will soon be let.

LEAD KING.—On this mine, belonging to U. E. McDaniels, M. J. Cox has a lease and is taking out good pay ore, which is shipped to the El Paso smelter. Six or eight men are employed on this property.

SURPRISE.—This old mine, now relocated by Cotton & McDaniels, is being steadily worked. Ten men are employed and good pay ore is produced.

OHIO.

WASHINGTON COUNTY.

On October 4th there was consummated the biggest deal in the Marietta oil field for many months. The purchase was made by B. F. Snebondy, of Cleveland, O., from Buckley & Bisseanty, and consists of 450 acres in the Big Run pool, upon which there are 14 wells, producing 500 bbls. per diem. The price is said to have been $120,000.

OREGON.

DOUGLAS COUNTY.

BLACK REPUBLICAN.—This mine comprises 200 acres, being three-fourths of a mile on four parallel veins, which have been partially prospected and developed by tunnels and cuts to a depth of 180 ft. The ore assays from 3% copper, up to $2 to $12 and 50c. to $1 in silver. The veins are from 4 to 30 ft. in width, widening with depth, and increasing in richness. The property is located southeast of Roseburg, about 9 miles from the railroad.

GOLD BLUFF.—The new Griffin mill for this mine, near Riddles, will soon be in place. It is claimed that over $90,000 worth of ore is in sight ready for the mill. The mill was purchased from Fraser & Chalmers, of Chicago. The owners of the property are P. J. Jennings, A. J. Brownlie and other Chicagoans.

JOSEPHINE COUNTY.

DELAMATER.—This mine of 30 acres, including the Coon Skin high bar of 40 acres and the Oak Grove claims of 100 acres on the Illinois river opposite the mouth of Deer Creek and just below the mouth of Josephine Creek, were recently purchased by I. O. Lohman, of Oakland, Cal., for $4,100. The vendors were A. B. Hopkins, George Bour and Victor Bour. The properties will be equipped and operated under the superintendence of F. E. Birge, of Medford.

PENNSYLVANIA.

ANTHRACITE.

DELAWARE, LACKAWANNA & WESTERN.—Attorney Melvin I. Corbett for this company recently filed caveats against the applications for river warrantry made in Luzerne County and recently served citations on parties making the applications. The hearing will take place before the board of property in Harrisburg on November 18th next.

KASKA WILLIAM.—An explosion of mine gas occurred at this colliery, near Middleport, recently, killing Patrick Sweeny, John Boner and John Malto. The injured are Peter Paul, Patrick Doyle and William Rice.

SOUTH CAROLINA.

The phosphate industry is not active at present. There are only four companies now producing river rock, the Farmers', on Dales Creek; the Beaufort, on Battery Creek; the Empire, at Old Custom House Point, and Reed's, at Brick Yard. They are operating, all told, five dredges and produce an average of about 8,000 tons per month. The Empire is operating exclusively by hand picking. Of the present product about one-half is going abroad, the Farmers' Company shipping the greater part of it. This company is loading a ship with about 3,000 tons for Japan. The last reduction of royalty has put the miners in a better position and the prospects for the industry next year are thought to be good.

SOUTH DAKOTA.

PENNINGTON COUNTY.

(From Our Special Correspondent.)

CASTLE CREEK DISTRICT.—Prospecting is being actively carried on in this district and reports are generally favorable. Blair & Almsburg, the original owners of the Holy Terror, who have a bond upon one of these properties, are down about 40 ft., and are said to have a vein several feet in width, which runs well in gold and is free milling.

GOLDEN SLIPPER.—Work has been resumed upon this Spring Creek property after a shut-down of several months. Tom Reed, one of the owners, discovered what appears to be a new chute upon the surface, some distance south of the shaft, and a drift is being run from the shaft to catch this new body of ore.

HARNEY PEAK TIN MINES.—These properties still remain in the possession of the Receiver, Dr. A. R. Ledoux, of New York, pending the suit brought by the English stockholders. The personal property of the company was recently levied upon by the treasurer of Pennington County for something like $10,000 of past due taxes, but on application to Judge Carland, of the United States Circuit Court, the sale was adjourned until a hearing can be had as to the validity of the taxes. The matter comes up in the Federal Court at Sioux Falls, October 19th.

HOLY TERROR.—The workings of this mine have now reached a depth of 500 ft., and the ore upon this level is said to be very rich. This rumor is confirmed by the fact that the company, which has been under heavy expense for development for a year past, recently declared its second dividend of 3c. per share, amounting to $9,000. A new hoist capable of working to a depth of 1,500 ft. has recently been put in. Extensive prospecting is also being done from the 500-ft. level with a diamond drill. The Holy Terror is now the deepest shaft upon any gold property in the Southern Hills, and the permanence and value of the ledge augurs well for the future of deep mining in the Keystone District.

J. R.—Application has been made for patent upon this property. The new shaft 170 ft. in depth taps the vein by a crosscut 425 ft. below the apex. The vein was 3 ft. wide at the surface, 6 ft. wide at 180 ft. and at the 425 ft. level it shows a width of 44½ ft. While the values are not so high at the levels as at some points above, the ore prospects in the pan for the whole width. In some places the values range as high as $30 per ton free milling. Both walls are free and perfect with a well defined gouge on each. The hanging wall is of slate and the foot of quartzite. It is evidently a true fissure vein and one of the best defined yet opened in the Southern Black Hills. Sinking will soon be resumed in the shaft and prosecuted until it cuts the vein on its incline. At no time since the pay shoot was lost near the 200-ft. level, after yielding over $60,000, has the outlook for a producing mine been so favorable. In some portions of the workings rich specimen rock is found, and over $20 was pounded out recently in a mortar as a result of some 10 hours' work.

KEYSTONE.—Operations have been suspended upon this property for several months, pending the effort of Col. Cecil Morgan and other English investors to float a proposition in London for the purchase of the Keystone and adjacent claims. The option was extended for 30 days from October 1st, and it is said that Colonel Morgan will go East at an early date to purchase machinery. It is proposed to make a large increase in the number of stamps at this mill, and to erect a smelter works for the purpose of reducing the concentrates.

SUNNY SIDE.—The mill upon this property, which was shut down for some three months while the incline was being sunk another 100 ft., was started up this week upon ores from the new level. At 260 ft. a drift was run some 70 ft. to the ore chute and stoping is now in progress. The ore is said to run high and the outlook for future operations is favorable.

TENNESSEE.

HAMILTON COUNTY.

CHICKAMAUGA COAL AND COKE COMPANY.—The 200 new coke ovens at Chattanooga are nearly completed, and 50 of them went into blast recently; the others will be lighted as soon as they are finished.

UTAH.

(From Our Special Correspondent.)

The Utah mining situation remains unchanged—as silver moves up lead drops; six weeks ago the reverse happened. Outside of lead ore the supply coming to local smelters is very light. Last week's lead silver bullion shipments eastward were the year's record breaker, while this week's total is still larger. Lead is in high favor, though the drop Friday last to $3.75, brokers' quotations, was a sore disappointment. So far as concerns this State the lead yield cannot be further augmented without considerable development. Meanwhile smelter charges have a higher lead percentage; in some instances a third of what goes into the stocks is lead. It is the seeming impossible which constantly happens.

Many mining companies, through ignorance or negligence, are doing business without perfecting their corporate entities, by failing to file their articles of incorporation with the Secretary of State. Some think that filing this statement with the clerk of the county in which the property is situate is all sufficient. The law relative to corporations provides otherwise, and neglectful companies may save annoyance and expense by attending to this oversight with as little delay as possible, otherwise their corporate rights cannot be protected. A case in point is at hand, where the *Engineering and Mining Journal's* representative was written to for information of an alleged Utah company, of which there was no record in the Secretary of State's office, and the reply was brief: "There is no such incorporated company." The officers of the company knew this was not true, though after considerable trouble they found their error, and it was a costly one.

SHIPMENTS FROM SALT LAKE.—During the week ending October 16th there were sent East 40 cars, or 1,454,191 lbs. lead-silver bullion; 62 cars, or 849¾ tons, lead silver ore.

JUAB COUNTY.

(From Our Special Correspondent.)

TINTIC RECORDS.—Recorder Blanchard has given up the records of this mining district and they were in the possession of the county recorder, at Tooele, on Monday, October 18th. The plan of contesting the law on this point is practically abandoned. It is now proposed to take the necessary steps to have a record of all claims kept in the district for convenience of reference.

TINTIC SHIPMENTS.—For the week ending October 16th the following lots of ore were forwarded: Humbug, 1 car; Eureka Hill, 4 cars; Centennial Eureka, 1 car; Swansea, 3 cars; South Swansea, 9 cars; Gemini, 13 cars; Dragon Iron, 8 cars of hematite for flux.

AJAX.—The uncovering of a 4-ft. seam of good copper on the 300 level is reported. Some 70 tons are in the bins. After the annual meeting next Monday, it is expected the price will be increased and deep exploration inaugurated.

BULLION-BECK.—A test lot of two cars, or 40 tons, low grade, carrying 10 to 20 oz. silver and 5% lead, is being treated at the Sioux mill. Should the outcome prove altogether satisfactory a pan amalgamation annex will be immediately installed in the Bullion-Beck concentrating mill. There is a store of mineral of this character, and the perplexing point is the best method of securing the values.

EMERALD.—Report of a strike, which is made to assume an air of importance, is going the rounds of local papers. When run to earth it seems that a seam of iron oxide running $4 to $6 in gold is exposed at two points. While this is preferable to compact country rock, and is a change which may prove a valuable leader to paying products, it does not warrant the enthusiasm it appears to have aroused.

FOUR ACES.—A plan is on foot to make the stock assessable. There is a debt of $5,000 due October 15th, secured by the shares of the original promoters, on which a 30-day extension is obtained. So soon as the legal requirements will permit it is proposed to levy an assessment sufficient to pay all indebtedness and supply means for further development.

GALENA.—Hitherto, or until last week, no ore was found below the 350 level. At 500 ft. a body of heavy lead-silver mineral is just broken into which gives good promise.

GRAND CENTRAL.—On the 800 level the gold chute has opened as favorably as anywhere above. The surprise of the week is the cutting of a lead-silver ore body, 2 to 8 ft. thick, at a depth of 740 ft., said to carry 400 oz. silver—the first silver discovery in this ground.

MAMMOTH.—It has just been made known that September was the most profitable month of the season. Not only was the grade of the crude ore much higher than for months, but the mill has also made a better saving. The earnings were sufficient to nearly pay the recent indebtedness.

TREASURE HILL.—By the time this is in type the pump will be installed, all trouble from water, proably, at an end and exploration to cut the anticipated copper ore body again under way.

MILLARD COUNTY.

(From Our Special Correspondent.)

LAKE BONNEVILLE WATER AND POWER COMPANY.—Secretary of State J. T. Hammond, State Engineer Willard Young and others of the State Land Board are making a general examination of the feasibility of the Lake Bonneville irrigation scheme and also investigating the merits of certain protests filed against the company, the most important being that of the White Mountain Reservoir Company. Mr. Young is to remain for some days to look into the engineering features of the enterprise. It is here given out that all protests will be amicably adjusted and that the Lake Bonneville Company will begin construction within a month on one of the large reservoirs. An examination of bedrock foundation for the dam is now in progress. Representatives of the company state it is the intent to supply electric power to the mines of Tintic in May, 1898, in spite of the delays hitherto met with.

PIUTE COUNTY.

(From Our Special Correspondent.)

BLUE BIRD.—The lower tunnel is in 200 ft., and a crosscut is being driven to the ledge. Another car of $150 gold rock was shipped last week.

CRYSTAL.—An uncovering of galena and carbonates is the latest happy news from Cottonwood Canyon, which is attracting renewed attention to the Crystal. The shoot is 3 ft. thick and appears to

be widening; values are over 50% lead and 40 oz. silver. The concentrating mill will be ready for its trial run next month. Plant consists of a Dodge crusher, Bradley Chilean mill, two Hodge jigs, two vanners and a Wilfley table—capacity 30 tons. Power, electric, supplied from Cottonwood Creek. Since Superintendent Thomas Ferguson took charge of the exploration, at the opening of the season, there has been almost a steady improvement underground.

DALTON.—An assessment of ½c. was levied last week, delinquent November 15th. Of the 500,000 shares, about 160,000 are in the treasury, so the assessment will furnish $2,000 for development. Though no find of moment was made the past season, adverse criticism cannot be entered of expensive or careless management. President O. R. Young has just visited the mine. Recent exploration shows the vein as well marked as ever, which is all that is to be said.

SEVIER.—It is said that a project is on foot whereby the control of the company will be taken from President Lammersdorf. Those opposed to him find fault with his management of the exploration.

SALT LAKE COUNTY.

(From Our Special Correspondent.)

ZELNORA MINING COMPANY.—Incorporation articles were filed with the Secretary of State on October 15th. Capitalization, $100,000; shares $1; stock assessable, though no single assessment is to exceed 5% of the capital stock. Principal office, Salt Lake; annual meeting, second Thursday in October. Directors for the first year are: Charles S. Vadner, Samuel J. Paul, W. S. Giesey, Eleanor E. Davis, all of Salt Lake; Emanuel Ranch, of Bingham. Realty consists of the Argentine lode, patented, in the West Mountain mining district.

SUMMIT COUNTY.

(From Our Special Correspondent.)

ONTARIO.—A local paper caused a sensation by the canard that the Ontario Company's annual meeting was held last week in San Francisco, that Superintendent R. C. Chambers was to retire and that this property and the Daly would soon resume active mining. The Ontario annual meeting is in December, while other points of the story are no more truthful. It would not be worth while to mention the incident, as the facts have already appeared in these columns, had it not been given wide publicity. Mr. Chambers has just returned to Salt Lake and states: "I think we shall keep a small force at work on the Ontario indefinitely, to prevent caving and to see that everything is secure. Very likely we will mine some of the shipping ore, perhaps enough to pay expenses, but the mill must necessarily shut down, for we cannot produce bullion at any profit with silver below 75c. an ounce."

TOOELE COUNTY.

(From Our Special Correspondent.)

DE LA MAR'S MINES.—Manager Cohen reports delay in receiving the structural steel for the mill and shaft-house. By October 20th it is promised that it will roll in as rapidly as it can be unloaded and handled, till all is delivered. The September pay-roll was $12,000 and freight and other expenditures at Mercur make the total for the month $30,000.

DOUGLAS & DAYTON.—The shaft is nearing 500 ft., and will be extended to 1,200 ft., to cut La Cigale vein. The ground is below the Omaha apex, and, since the ruling on this litigation will probably be a a part of same property, without further legal warfare. This shaft will open a store of choice stoping backs, provided values hold as in the upper part of the ore zone. Indications point to extensive explorations throughout the West Dip throughout the winter.

GEYSER-MARION.—Until quite recently the upper gold zone has supplied all the cyaniding products and the lower one is a new development—the reverse of what occurred in the Mercur ground. In other words, the lower zone is properly the Mercur vein and is showing an average thickness of 10 ft., with higher and more uniform values than in the upper, or original Marion gold ledge. The topography of the ground makes the lower zone cover a greater area than the upper. A criticism can be made of the mill equipment; the tanks are wood, old and leaky, and things are run very much on the hit-or-miss, hope-for-the-best order. Notwithstanding all this, the last shipment of cyanides carried over $9,000 gold, the most valuable yet made—but that ought not to be satisfactory while a higher percentage of saving is readily obtainable.

GLENCOE.—Under direction of Col. E. A. Wall, prospecting is under way, and, it is said, will be continued throughout the winter. Mineral showing $4 gold is uncovered.

NATHALIE GOLD MINING COMPANY.—Incorporation articles were filed with the Secretary of State on October 12th. Capitalization, $200,000; shares, $1; 50,000 shares set apart for treasury purposes; stock assessable. Principal office, Salt Lake; annual meeting, first Monday in June. Officers and directors are: Charles P. Hough, president; Nat M. Brigham, vice-president; William H. Irwin, treasurer; David S. Murray, secretary; George Y. Wallace, all of Salt Lake. The Realty consists of Golden Zone No. 1, Sego Lily No. 1, Alton and M. & C. Fraction lode claims in Camp Floyd mining district.

OVERLAND.—Published reports of a plan to build a mill soon are authoritatively denied.

SEALS GROUP.—Adjoining the Brickyard on the north is the Seals tract, on which development is restarted, with A. Murphy in charge.

VIRGINIA.

MONTGOMERY COUNTY.

BRUSH MOUNTAIN.—Mr. Jesse T. Hill, manager of these coal mines, is quoted as saying that a good-sized force of men are at work on the 100 new coke ovens, and it is expected to have them burning before long. The output of the new plant will be about 150 tons of coke a day. A small force of men will be employed at the ovens, however. To turn out the 150 tons of coke a day will necessitate the consumption of about 30 tons of coal daily. We are now raising about 1,000 tons of coal daily.

WASHINGTON.

SNOHOMISH COUNTY.

The German mining expert E. Haber has commenced work on the group on Troublesome Creek, on which he recently secured options. Fourteen tons of provisions have been purchased and sent in and two camps have been established. One of these will be in charge of William Booth, of Snohomish, and the other under J. N. Scott, of Everett. The deal includes some ten or twelve claims, among them being the Daisy, Great Scott and Minnie groups. The present owners are Messrs. Denney, Hawks, Prater, Scott, Clemans, Struve, Allen, Hughes and McMicken.

WISCONSIN.

ASHLAND COUNTY.

A discovery is reported of native copper on Bad River at the junction of Tyler's Fork. The location is in township 45, range 2 west. It is believed to be a continuation of the Ontonagon copper range. Some work was done in that vicinity about 40 years ago.

GRANT COUNTY.

Herman Gilmore, of Platteville, has opened up a fine vein of lead in his mine near Fairplay. Miners are working claims around here more than usual.

WYOMING.

ALBANY COUNTY.

(From Our Special Correspondent.)

The Albany placer mines have recently been bonded by Mr. Breitung. For the last six weeks he has had a large force of men at work testing the ground and making preparation for extending development in the spring.

The Douglas Consolidated placer mine has been sold to an eastern syndicate, which is making preparation for next spring. This company is putting in a hydraulic lift to handle the tailings in the flat portions of the mine.

FREMONT COUNTY.

(From Our Special Correspondent.)

ATLANTIC CITY.—There are four companies in this vicinity operating leaching tanks on crude ore and tailings. The capacity of the four is about 40 tons per 24 hours. The ore and tailings are being worked very cheaply and the returns vary from $2 to $4 per ton net.

CARISSA.—This mine, the oldest gold mine in Wyoming, has made a good record this fall. Only a short time ago they shipped a retail of 295 oz. gold that will assay better than 900 fine, and the mill has more ore than it can crush. The present ore shoot is about 40 ft. wide and the ore yields nearly $40 per ton on the plates. A Salt Lake company has made partial arrangements to purchase the property, and it may change hands any day.

OREGON BUTTES PLACER.—The New York company which bonded this property did not make their second payment. The great trouble is in securing water to work the dry ground. It has been estimated that the ditch and pipes necessary would cost upward of $300,000.

LARAMIE COUNTY.

(From Our Special Correspondent.)

HARTVILLE IRON MINES.—Although the ore from these mines has to be hauled by wagon 12 or more miles to the railroad and then shipped 225 miles to Denver, the mines are in constant operation. The production varies from 100 to 200 tons per day, but so far they cannot supply the demand.

UINTA COUNTY.

(From Our Special Correspondent.)

P. J. Quealy, formerly manager of the Rock Springs Coal Company's mines, has recently opened up a large mine near Ham's Fork. He had equipped the mine with machinery capable of handling 1,000 tons of coal in 10 hours. This new mine will furnish fuel for the Oregon Short Line and also furnish a great deal of coal for Anaconda and Butte. The coal is high grade and will sell in close competition with the Rock Springs coal.

FOREIGN MINING NEWS.

AUSTRALASIA.

QUEENSLAND.

Mr. P. F. Sellheim, under secretary for mines, reports that the total yield of gold reported for July was 61,974 oz., and for August 63,113 oz. For the eight months ending August 31st the total production was 486,358 oz. gold, of which only 17,900 oz. came from alluvial or placer workings. The total quantity of ore crushed and treated was 444,651 tons, from which there was obtained 468,458 oz. of gold, the average shown being 1·5 oz. per ton.

WESTERN AUSTRALIA.

The total gold exports reported for the nine months ending September 30th were 451,037 oz. This shows an increase of 257,632 oz., or 133 2/3% over the corresponding period last year, and of 280,649 oz., or 164·3/3% over 1895.

CANADA.

BRITISH COLUMBIA—BOUNDARY CREEK.

(From Our Special Correspondent.)

The presence of Heinze's railway survey parties between Trail and Penticton gives a firmer assurance of early railroad construction for Boundary Creek.

ANACONDA.—Mr. E. M. E. Munns, manager of the Powys Company, has started work on the Anaconda group. This group they have bonded on the report of Alfred Woodhouse. The claims are undeveloped properties containing high grade copper and gold values.

B. C.—The shaft is now down 60 ft. There is not a pound of waste rock on the dump. The very poorest ore so far found will run 5% copper. So far this is the banner copper property in British Columbia. Permanent quarters are being put up.

BRANDON & GOLDEN CROWN COMPANY.—This company has placed an order with the Ingersoll Rock Drill Company for a 50-H. P. locomotive boiler, a 30-H. P. Lidgerwood hoist and a No. 7 Knowles pump. Work on the shaft has been discontinued awaiting arrival of plant. The tunnel is now in 190 ft.

IRONSIDES & KNOT HILL.—The new mining plant has just started up. Some more machinery has been ordered to be placed on the Knot Hill. The management has bonded the adjoining claim, the Victoria, for $10,000.

LAST CHANCE.—A double compartment vertical shaft is being sunk to reach the vein at about 200 ft. This property belongs to the Boundary Creek Mining Company.

MOTHER LODE.—A contract has been let for the continuance of the winze and for 50 ft. of cross-cutting.

SKYLARK.—Mr. Rueger has been stoping ore in the Skylark and now has about 70 tons of that rich silver gold ore in his ore house. This ore runs from 200 to 300 ozs. of silver and 1 oz. of gold per ton.

SUNSET & CROWN SILVER.—Some fine ore has been reached in one of the crosscuts. These properties adjoin the Mother Lode. They have been under bond to W. L. Hogg of Montreal; bond expires October 19th. The manager has been instructed to take up the bond, the amount of which is $16,500.

BRITISH COLUMBIA—EAST KOOTENAY.

(From Our Special Correspondent.)

The principal event of mining interest in this portion of British Columbia is the sale of the North Star mine to an English company for $1,000,000. The past season has been a very active one with the prospectors and many hundreds of locations have been made, of which not more than 10% can hope to materialize into mines. The stamp mill erected on Ferry Creek is now giving satisfactory results, but was worked for some time before it proved a successful gold saver. The object of building it was that it should be used as a custom mill, but when mine owners sent ore that they knew carried gold and got unsatisfactory returns they lost faith in it to such an extent that lately it has had very little custom work to do.

KOOTENAY CONSOLIDATED COMPANY.—This company is getting its claims on Bennison Creek, McMurdo district, opened up to start getting out ore in the spring. The company intends putting up a concentrator and building a tramway to cost $100,000. The ore from the two claims owned by the company has given assays of from a quarter ounce up to seven ounces in gold, besides good values in silver, lead and copper.

ST. EUGENE.—Development is proceeding on the St. Eugene mine, silver-lead proposition on Moyie Lake, and the property will be a shipper as soon as the Crow's Nest Pass Railway is completed.

BRITISH COLUMBIA—NELSON DISTRICT.

(From Our Special Correspondent.)

ABE LINCOLN.—The management of this company is building a road to the shaft. Development work is being prosecuted with a small force.

FERN GROUP.—The new 10-stamp mill recently installed by the company is reported to be working well and a great saving has been effected. The average of each stamp is 3 tons per day, making the present daily capacity 30 tons. It is the intention of the manager, Mr. F. C. Innes, to add 20 stamps, giving a capacity of 60 tons daily. The present output of this mine is 40 tons per day. This can at any time be increased. The number of men employed is 30, but this will be increased to 42. Enough ore has been blocked out in the mine to keep the mill running for two years. The new tramway, which is 2,800 ft. long, is working well; the round trip is made in 10 minutes and 2½ tons of ore are delivered each trip.

PILOT BAY SMELTING WORKS.—It is not known when these works will blow in under the new management.

BRITISH COLUMBIA—TRAIL CREEK DISTRICT.

(From Our Special Correspondent.)

SUNSET NO. 2.—This mine was formally opened on Monday, October 5th. It is the property of the Canadian Gold Fields Company, Limited. The wheel connecting with the throttle was turned by Miss Adams, daughter of the superintendent, and simultaneously with the response of the steam whistle the company's ensign was run up the flagstaff, and the seven-drill Ingersoll compressor went into operation. About 250 invited guests were present. Speeches were made by the Mayor of Rossland and others. Refreshments were provided by the management, and an examination of the tunnel shafts and surface showing of the property was made. These consist of a tunnel 75 ft. in length, a shaft some distance above it down 63 ft., with only an intervening distance of 90 ft. from the end of the tunnel to the bottom of the shaft, and a drift running westwardly 75 ft.; another shaft some distance south of the main tunnel and about 60 ft. deep; another small shaft near the last-mentioned, on ledge No. 3, about 40 ft. deep, besides the initial work of a second tunnel and numerous cuts and a systematic stripping of the ledges. The present building improvements consist of a frame office 24 ft. square, a compressor building 52 × 26 ft., a boarding house 24 × 48 ft., and a bunk house 24 × 36 ft. The work has been in charge of Howard C. Walters, chief managing director; Mr. Adams, superintendent, and Mr. McMillan, treasurer. The present work of the management will be directed toward the further development through the main tunnel.

WHITE BEAR.—Recently on this property a very promising lead was opened up. This is a parallel ledge to the one on which operations have heretofore been carried on. The vein averages about 11 ft. wide. Work in the main shaft is to commence immediately.

NOVA SCOTIA—CAPE BRETON.

CAPE BRETON COPPER COMPANY.—Late dispatches from the Coxheath mine say: "The new strike at the Coxheath copper mine on October 7th is in the south crosscut from No. 1 shaft. At 161 ft. from the shaft a strongly defined 3-ft. vein was encountered, with good foot and hanging walls, dipping south about 20°, with patches of yellow and purple ore the entire width of the drift. The strike of this new find is about the same as that of B vein in No. 2 shaft, 1,100 ft. to the west of No. 1, but it is not yet certain that it is the extension of B vein and, as the heading still shows specks of copper ore, the crosscut will be driven further south."

EUROPE.

SPAIN.

RIO TINTO COMPANY, LIMITED.—The following circular has been issued from the London office under date of October 7th: "Your directors beg to submit to you a brief interim report upon the company's operations during the current year. The deliveries of pyrites under existing contracts continue to be satisfactory, and are at about the same rate as during last year. The production of copper in precipitate and regulus at the mines continues without interruption, and the manufacture of refined copper at Cwmavon shows an increase over last year. The enhanced price of copper during the year has produced a corresponding increase in the company's profits, while the economical working of every department has been maintained. Your directors have now to declare, out of the estimated year's profits, a half year's dividend of 2s. 6d. per share on the 5% preference share, and an interim dividend of 20s. per share on the ordinary shares, both free of income tax, and payable November 1st."

MEXICO.

There were issued during the half year ended June 30th, 1897, 1,025 title deeds to mines, covering about 9,335 claims—the best showing in many years. In the half year ended January 1st, 1897, there were only 908 title deeds issued which covered 7,099 claims. In the second half of 1895-96 1,844 title deeds were issued, covering 7,966 mining claims. The total number of title deeds issued from the first half year of 1892-93 up to the second half of 1896-97 was 6,279, covering 48,238 mining claims.

MEXICO.

IXTAPANDEL ORO MINING COMPANY.—The property of this company is in the mining district of Valle del Bravo, and consists of a number of claims covering a tract about 10,500 by 2,000 ft., on which there are a number of quartz veins which have been to some extent opened up by old workings. These include shafts, crosscuts and tunnels. Recent developments by the present company indicate the existence of a large body of free-milling gold ore of moderate grade. It is proposed to work this on a large scale. The property includes a water power which is sufficient for all probable requirements. The property has been examined by Mr. E. Renshaw Bush, of New York. The headquarters of the company are in New York, the directors being John C. Kelley, T. M. McCarthy, Francis J Herron, Daniel F. Lewis and John McNamee, of New York; John B. Hoefgen, of East Liverpool, O.; Julio Franck, of the City of Mexico. The officers are: President, John C. Kelley; treasurer, T. M. McCarthy; secretary, Francis J. Herron; superintendent and engineer, Alexander F. Miller.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, October 22.

Statement of shipments of anthracite coal (approximated) in tons of 2,240 lbs., for the week ending October 15th, 1897, compared with the corresponding period last year:

	1897. Week.	1897. Year.	1896. Year.
Pennsylvania Railroad.....	93,537	2,788,818	2,825,765

PRODUCTION OF BITUMINOUS COAL in tons of 2,000 lbs. for week ending October 15th, and for years from January 1st, 1897 and 1896.

Shipped East and North:	1897. Week.	1897. Year.	1896. Year.
Allegheny, Pa.....	53,6o7	1,915,476	1,822,696
Barclay, Pa.....	*	32,075	35 547
Beech Creek, Pa.....	61,9*0	2,950,166	2,316,438
Broad Top, Pa.....	9.220	360.138	302.279
Clearfield, Pa.....	77,124	2,006,681	79,953
Cumberland, Md.....	†86,101	3,013,870	2,753,245
Kanawha, W. Va	†76,775	3,004,541	2,895 210
Phila. & Erie.....	920	188.641	62,119
Pocahontas Flat Top.....	*	*	*
Totals.....	365,790	13,471,588	12,873,899

Shipped West:	1897. Week.	1897. Year.	1896. Year.
Monongahela, Pa.....	32,972	888,818	1,001,320
Pittsburg, Pa.....	33,902	1,515,615	1,499.663
Westmoreland, Pa.....	52,399	1,724,342	1,488,721
Totals.....	119,273	4,128,775	3.992,704
Grand totals	485,063	17,600,363	16,866,603

Production of coke on line of Pennsylvania Railroad for the week ending October 15th, 1897, and year from January 1st, 1897, in tons of 2,000 lbs.: Week, 103,226 tons; year, 3,633,322; year to corresponding date in 1896, 3,159,145 tons.

‡ For week ending October 7th. † For week ending October 9th. * Returns not received.

Anthracite.

Generally speaking, the trade is dull, prices are low, and the movement of coal to consumers shows a considerable falling off. At present large quantities of coal are being shipped to Western cities to be stocked up for the winter, but even these shipments have been retarded by the lack of transportation facilities owing to the continued heavy movement in grain. Vessels from Buffalo are scarce, and in consequence of this rates have been advanced to 40c., which is double that ruling a few weeks ago. To Duluth, Minn., however, vessel rates are still 20c., as suitable tonnage of iron ore boats on the return trip can always be secured. There will be more or less dissatisfaction in regard to transportation within the next few months, as is usually the case when the coal operators cannot secure the necessary box and other cars to ship their coal.

It is evident that the coal operators are shipping more coal than the market can conveniently get away with, especially at this time, when climatic conditions are so much to their disadvantage, since we have had very mild weather all along. The outlook for frost in the vicinity of New York seems beyond prophecy, but in the far Northwest we understand snow has fallen, which has caused a fairly good demand for coal in that section. In the New England States the same condition rules as in New York, and stocks of coal in dealers' hands in Boston, Providence and like cities are limited. A few days' frost in these places would undoubtedly cause the dealers to come into the market to replenish their holdings.

A short time ago the retail dealers in Brooklyn advanced prices 25c. per ton, and it is said they are now trying rather hard to realize this. It is noteworthy that these retailers are always advancing their prices when the wholesale quotations are receding, and when the latter trade issues a new "circular" the Brooklyn dealers will offer their coal at a concession. This may go on for a time, but eventually a reaction will take place, and the large consumer will go to the wholesale dealer for his coal, leaving the retailer to think over his method of financiering.

The major portion of the demand this week was for steam sizes of coal, stove, chestnut and broken being rather inactive. In almost every case where a sale was effected prices had to be shaded and the basis for quotations on desirable business appears to be the June circular.

The producing interests continue in their extravagant way of mining coal, as was shown in the output for September, which amounted to about 4,350,000 tons. The total output for the nine months will therefore reach 28,530,000 tons, which compares with 30,000,566 tons in 1896 and 32,202,856 tons in 1895. It had been said earlier in the year that 38,000,000 tons of coal would suffice for the annual production, but it seems now as though the producing interests were of a different opinion, and it is certain that they will feel the effect of their injudicious over-production. Over-production means low prices and consequently increased losses, and the companies have already realized the truth of this. At the present rate of mining there will be a material increase in the output of coal this year, and as the demand will be lessened owing to the use of gas by householders and others, a good part of the coal taken out of the mines the remainder of this year will be on hand during the early part of 1898 should there be no restriction. This state of affairs is sure to be detrimental to the operators inasmuch as it will be the means of again breaking prices, when a new start ought to be taken. Already many of the companies are realizing that they will have to compete pretty closely with the other producers in order to dispose of their present holdings, to say nothing of the coal that is being mined. Sales agents are doing considerable figuring on the business that is offering, but try as they will they cannot avoid making some concession in price to the buyer, especially when they desire to keep his trade.

Stocks of coal at tidewater are large and diminish slowly. For instance, one large interest shipping to New York harbor has 39,000 tons of coal stocked at the present time. Of this amount about 17,000 tons are of small sizes. On October 9th the same company had 53,000 tons of coal at that port, of which 27,000 tons were of the smaller sizes. The others who store coal at the harbor shipping ports have proportionately large amounts from which they are drawing comparatively little. These stocks are increasing regularly, and the only opening for some of the operators to dispose of their coal at present seems to be in the West.

The list prices established in July are as follows: Broken, $4; egg and chestnut, $4.25; stove, $4.50 per ton alongside New York.

Bituminous.

There is little change to report in the Eastern seaboard soft coal trade; it is quiet and prices are being shaded in several instances. Consumers are inquiring perhaps for a little more coal than last week, but the business that is resulting from these orders is not very large. There is some talk of a scarcity of coal at certain points, but the depletion has not been great enough to advance prices. The New York consumers have not drawn much coal from their supplies. The trade in the far East is fairly good. More demand also comes from the Sound ports. In the New York harbor trade business is of a routine character and what business has been done was to fill immediate wants. The all-rail trade continues active with prices ruling stronger. Transportation from mines to tide continues to be rather satisfactory to the trade, although we hear of some embargoes.

The coast wise vessel market was in pretty fair condition this week, and freight rates are easier. The current rates from Philadelphia are as follows: To Boston and Salem, 65c.; Portland, 65@70c.; Providence, New Bedford and the Sound, 55c.; Wareham and Portsmouth, 70c.; Lynn, 75@80c.; Newburyport, 80c.; Dover, 90c.@$1 and towages; Saco, 85@90c. and towages; Bangor, 75c.; Bath, 70@75c. alongside; Gardiner, 70@75c. and towages. Five and 10c. above these rates are asked to the lower ports.

Buffalo. Oct. 21.

(From Our Special Correspondent.)

The anthracite coal trade has not varied in any way since last report; demand is light at unchanged quotations. The weather has been quite mild. Dealers in bituminous coal report a quiet market with price list unchanged. Supply is ample for all requirements of the trade and assortment on hand good.

Lake freights on coal are the same as last week; movement a trifle heavier. Vessels have been far in excess of the quantity of coal offered for shipment for several days. The receipts of anthracite coal by railroads are not at all adequate for the tonnage offered.

The shipments of coal from Buffalo westward by lake from October 10th to 16th, both days inclusive, aggregated 89,322 net tons, distributed as follows: 45 680 tons to Chicago, 24,780 tons to Milwaukee, 1,972 tons to Duluth, 580 tons to Toledo, 1,300 tons to Racine, 1,250 tons to Sault Ste. Marie, 2,300 tons Gladstone, 2,800 tons to Manitowoc, 620 tons to Port Stanley, 600 tons to Windsor, 750 tons to Green Bay, 450 tons to St. Clair, 2,250 tons to Detroit and 3,722 tons to miscellaneous ports. The rates of freight were 40c. to Chicago, Milwaukee, Sault Ste. Marie, Port Stanley, Gladstone, Green Bay, Menominee and Manitowoc, 45c. to Racine, 35c. to St. Clair, 30c. to Portage and Windsor, 20c. to Toledo, 20@30c. to Detroit and 25c. to Duluth and Washburn.

Navigation for several days was much impeded on Lake Erie and the Niagara River by the heavy smoke which has prevailed in this section of the United States and Canada in consequence of the fires devastating the forests in every direction. Rain fell yesterday and has continued for many hours; already the change has affected the atmosphere hereabout, and it is to be hoped that damages by fire in the forests have reached the limit.

Chicago. Oct. 20.

(From Our Special Correspondent.)

Anthracite.—Hard coal has been in rather better demand, presumably because of the near approach of winter. Sales have been rather larger than for some time and the average dealer is really beginning to see that he will need a larger supply of coal than he now has or has had for a number of months. Business from out of the city has improved somewhat and considerable coal is beginning to move in that direction. There is plenty of anthracite coal in town and as lake navigation will not close for a few weeks yet there will be a large supply brough in before navigation closes. Prices on hard coal ar

yet weak though there are more indications of strength than for some time past.

Bituminous.—Soft coal is being bought in a moderate way, sales of the week having footed up a fair week's total. Manufacturing enterprises are more in evidence in the market and the large office buildings are beginning to look about for their usual winter supply. There is a much better supply in and about Chicago of soft coal and there is no evidence of any scarcity whatever. Prices are quite firm and are apparently growing a little stronger with each week.

Pittsburg. Oct. 22.

(From Our Special Correspondent.)]

Coal.—The Ohio River is down to extremely low water; even on the slack water steamboating is carried on with considerable difficulty. The talk now is all about arbitration, but there appears to be some difficulty about getting arbitration as some of those appointed refuse to serve as it is a thankless job and it will be difficult to give satisfaction. The river men are divided on the question; some of the operators still express opposition to the plan. There are others, however, who have notified the arbitrators that they are more determined than ever to have the trouble settled on an equitable and fair basis. If this cannot be done, they say they might just as well go out of the coal mining business. The history of the trade for the last quarter of a century is not very rosy. The railroad operators are straining every nerve to make up for time lost during the summer. Demand from the southwest is heavy. Railroads have great difficulty in providing transportation. Prices are without quotable change.

Connellsville Coke.—Trade continues on the boom, and it looks now as if the active list of ovens is going to run over 16,000, the former high water mark. Nearly 1,000 ovens were fired last week, and the outlook is favorable to a big list this week. Some plants were short of water, and reduced production proportionately. The estimated production of the region for the week amounted to 142,064 tons, an increase of 153 tons. Summary for the week shows 14,440 ovens in blast with 4,212 ovens idle; 922 ovens were fired last week, but did not make much coke.

A much larger shipment will be turned out this week. In the running order of the 14,440 ovens in blast last week, 7,341 ovens made six days; 5,441 ovens five days; 390 ovens four days; 65 ovens three days; 1,172 ovens two days. The coke shipments from the region were 8,344 cars against 8,635 cars the week previous, a decrease of 291 cars. Shipments were as follows: To Pittsburg, 3,235 cars; to points west, 3,910 cars; sent east, 1,199 cars; total, 8,344 cars. Coke advanced 25c. a ton.

The Pittsburgh & Connellsville Coke Company is applying for a charter. The company holds a lease of 25,000 acres of land in Allegheny and Westmoreland counties, which it intends to develop for coking purposes. The coal seam is 100 ft. below ground and a shaft has been in operation at Black's Run for a number of years. Eastern capital is backing the enterprise.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Oct 22, 1897

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending Oct. 23, 1896.		Week ending Oct. 22, 1897.		From Jan., '96.	From Jan., '97.
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
Anthracite.	26	15,150	21	14,859	1,012 166	631,612
Coke...	81	94,659	127	183,059	6,203,454	5,779,507
Charcoal...	24	6,750	20	4,750	245,305	178,257
Totals	131	116,550	171	202,650	7,460,929	6,589,376

A period of quiet seems to have settled upon the iron market. The rush is over and, while business is good, there are no further signs of the boom which some people have been looking for. Orders for finished material have generally been placed for some months ahead, and the mills have arranged for their supplies of raw material for a corresponding time. The negotiation for contracts for next year's delivery is now in order, and the usual discussion between furnacemen and steel makers on the one hand and mill men on the other is going on. The former, as a rule, are in no hurry to quote prices for 1898, and are not inclined to make concessions. While almost everyone anticipates a good business there is much uncertainty as to prices, and buyers do not see their way clearly enough to warrant them in paying any considerable advance. It is quite probable that for several weeks to come we shall see a waiting market—not an unusual condition at this time of year.

Poor crops and consequent restriction of buying power; the long and stubborn strike of the machinists in Great Britain, and to some extent political uncertainties also, have affected trade in Europe, and a falling off in the iron market is beginning to be perceptible there. The French and German works have, to some extent, been supported by orders for ships and war material, but in England and Belgium work has began to grow somewhat slack. This has an effect on our export business.

NOTES OF THE WEEK.

The output of steel in Great Britain for the six months ending June 30th, is reported at 2,350,927 long tons, the amount being the greatest ever reported for a half year.

It is understood that the Bethlehem Iron Company has submitted to the Navy Department an offer to sell its armor plate plant to the United States government. It is said that the Carnegie Steel Company will also offer its armor-plate plant for sale in the same way.

Coal and iron ore shipments through the Sault Ste. Marie Canal, from the opening of navigation to October 31st, was as follows: Anthracite coal, 362,171 tons, against 297,582 tons in 1896, and 257,042 tons in 1895; bituminous coal, 1,145,822 tons, against 2,045,740 tons in 1896, and 1,471,102 tons in 1895; iron ore, 8,589,702 tons, against 6,810,765 tons in 1896, and 6,574,495 tons in 1895.

The Carnegie Steel Company has, it is stated, made arrangements with the firm of Dikeman & Chabot, of Rotterdam, to represent the company in Holland. Mr. J. J. M. Chabot, of this firm, who has been visiting this country, has already placed a considerable order for steel plates and structural material. Holland is not an iron-making country, though its consumption is large. Its supplies have been drawn from Germany and Belgium chiefly.

New York. Oct. 22.

The iron market during the past week has settled into a more quiet condition than has existed since the beginning of the upward movement. Prices in some directions have continued to advance, but the gain has been so slight as to be hardly noticeable, while in all other departments quotations are held at last week's prices.

Several fair-sized contracts have been closed during the week, among which we note the structural material for the Bronx Park Botanical Gardens, which will require about 700 tons; the Board of Education Building, requiring 1,200 tons; New York Sugar Refining Building at Long Island City, 1,000 tons; and the boiler house of the Havemeyer Building in Brooklyn. The export business noted during the week consists of a 2,000-ton order of bridge material for Canada and an increase of the bridge material order for Japan, noted in our last issue from 400 to 4,000 tons.

The general conditions of local business warrants our predicting steady prices for some time, as most mills have taken orders for enough business to keep them running.

Pig Iron.—The pig iron market continues firm with steady prices. Nothing out of the usual run of business has occurred to effect this market, except a scarcity of gray forge in some districts, which has kept the price for that material very stiff. Quotations are: Northern No. 1 X Foundry, $11.75@$12 per ton; No. 2 X foundry, $11.25@$11.50; No. 2 plain, $10.75@$11, gray forge, $10.50; Southern No 1 Foundry, $11@$11.25 per ton; No. 2 Foundry, $10.75@$11; No. 1 soft, $11@$11.25; No. 2 soft, $10 75@$11; gray forge, $10@$10.25; Basic, $10.50@$10.75. All prices are for tidewater delivery.

Cast-Iron Pipe.—Steady inquiries and orders placed have kept business in good condition with firm prices.

Spiegeleisen and Ferro-Manganese.—Domestic material continues in possession of this market at unchanged prices. Quotations are: Spiegeleisen, 20%, $19@$19.50; ferro-manganese, 80% domestic, $45.50@$46, delivered at buyer's mill.

Steel Billets and Rods.—Steady demand and firm prices are the features of this market. Quotations are $17.50@$18 for billets at tidewater and $22@$22.50 for rods at mill.

Merchant Iron and Steel.—The high prices asked have put a damper on buyers' interest, which has served to reduce the amount of business transacted during the past week. Quotations are: Common bar, 1@1·05c.; refined, 1·10@1·15c.; soft steel bars, 1·15@1·20c.; steel hoops, 1 30@1 35c.; steel axles, 1 40@1·60c.; tire steel, 1·15@1 20c.; spring steel, 1·35@1 40c.; links and pins, 1 50@1·60c.; cotton ties, 58c. per bdl. at mill.

Plates.—The market has stiffened so much during the past week that dealers are asking an advance of $1 a ton over last week's figures. We quote for universal mill plates 1·17½@1·20c. For steel plates prices are: Tank, 1·20@1·25c., boiler shell, 1·30@1·35c.; flange, 1·40@1·50c.; firebox, 1·60@1·75c., and 2·25@2 50c. for locomotive firebox, according to quality. Charcoal iron plates are 2·25c. for shell, 2·75c. for flange and 3·25c. for firebox. Rivets are 2·25@2·50c. for iron and 1·75@1·85c. for steel. Prices are for tidewater delivery in large quantities.

Structural Iron and Steel.—A number of fair-sized orders placed during the past week has caused a very firm feeling to be manifest in this market. Prices are unchanged, but extremely steady. We quote for angles, 1·20@1·25c.; tees, 1·35c.; channels, 1 25c. The price of beams, New York delivery, is 1·25c. for ordinary sizes, 1·35c. for 20-in., and 1·35c. for 24-in., carload lots.

Steel Rails and Rail Fastenings.—A steady improvement in tone has been noticeable during the past week, with prices unchanged. Quotations for steel rails are $20 per ton for standard sections, and $23 for girder rails. Lighter rails are figured on by reliable concerns as follows: 16-lb., 20-lb., 25-lb., 30-lb. and 35-lb., $22; 40-lb, and 45-lb., $20 f. o. b. mill.

In rail fastenings a marked improvement can be noted during the week, confirmed by an advance of 5c. along the entire line. Tidewater quotations for rail fastenings are: Angle bars, 1·25@1·30c.; spikes, 1 55@1·60c.; bolts, square nuts, 1·85@ 1·90c.; hexagon nuts, 1·95@2c.

Wrought Iron Pipe.—The market has been erratic during the past week, but toward the close it brightened up and fair prices were secured.

Nails.—Wire nails continue in good demand at unchanged prices. Carload lots are quoted at $1.45@$1.50 f. o. b. mill, and $1.65 on dock at New York. Smaller quantities from store are quoted at $1.70. Cut nails showed a slight improvement in the amount of business done at unchanged prices. Base quotations for carload lots are $1.33 delivered at New York; $1.31 at Philadelphia; $1.35 at Boston; $1.30 at Baltimore; $1.33 at Albany, and $1.27½ at Buffalo. Small lots at New York are quoted at $1.43@$1.45 from store.

Old Material.—The demand for old material continues very good with steady prices. Quotations are: Iron T-rails $11@$12.50 per ton; scrap steel rails, $9@$10, and relayers, $13.50@$15; hammered car axles, $15@$16; No. 1 wrought scrap iron, from yard, $10@$11, and from railroad $11.50@$12 50 per ton, all f. o. b. cars; car wheels, $9@$10 per ton, delivered at buyers' works; machinery cast scrap, $9@$10 per ton; wrought pipes and tubes, $7.50@$8, delivered, New York; wrought turnings, $8@$8.50 per ton; cast borings, $6.50@$7; burnt iron, $5 50@$6.50, delivered at mill.

Birmingham, Ala. Oct. 18.

(From our Special Correspondent.)

The conditions of the iron market are very similar this week to those which have prevailed for some weeks. The makers are holding for the following scale of prices: No. 1 Foundry, $7.75 per ton at furnace; No. 2 Foundry, $7.50; No. 3 Foundry, $7.25; No. 4 Foundry and Gray Forge, $7; No. 1 Soft, $7.75; No. 2 Soft, $7.50. There have not been any large sales made by the makers, and about the only movement of iron in any quantity has been that resold by the speculators. Some of this may have changed hands at prices slightly below those quoted, but despite this the market has not shown any weakening tendencies.

Coal mining in this district is very active. Nearly all the mines worked full time during the present week. No other advances in wages have been made since those recently recorded. Although some of the most radical agitators are attempting to persuade the men to make a demand for an advance regardless of the recently signed contract, yet the operators do not feel any uneasiness, because they believe that the leaders who signed the contract on behalf of the miners are sufficiently conservative and honorable to advise that such contract be lived up to.

About 200,000 tons of Alabama iron represent the quantity which has been shipped for export since the trade was begun. In this connection it is interesting to note that Dr. Richard Roechling, general manager of important works in Germany, who visited this district a few days back, expressed the belief that our export trade was really only a makeshift, and that as soon as the price in his country fell, the trade would prove unprofitable to our iron makers. In discussing this subject with one of the leading operators in the district who is also very conservative in his statements, he remarked that when the export of iron began he was of about the same opinion as the German iron-master, but that he had since studied the matter carefully and figured out the possibilities of the district. The fact was that Middlesboro iron had not fallen below 40s. per ton within the past five years and that the freight from Middlesboro to Liverpool was 8s. 9d. per ton, which would make the cost in Liverpool 48s. 9d. per ton, or about $10.70. As our iron is being sold at a profit below that figure, he believed the trade would be in future a desirable one, except at those times when the demands by our domestic trade were large and the price high.

It must be remembered that if this district should introduce further economies, such as the use of by-product coke ovens, coal-cutting machinery, the construction by the companies of lines of private railroad and the possible reduction in freight rate to tidewater by barging either down the Warrior or the Mississippi Rivers the cost price of making and shipping iron and steel can be further reduced. But in the older iron centers where such economies have been in practice, and where the mining of coal and iron ore is increasing in cost, the minimum expense of making iron and steel has already been reached, and the tendency in future must be toward an increased cost, while with us it is in the other direction.

Buffalo. Oct. 20.

(Special Report of Rogers, Brown & Co.)

The tone of the iron market continues good. Sales have been heavier both for early and extended delivery. Prices have been firm and the recent advance very well maintained, although several small odd lots of foundry iron have been sold in this territory at special prices, made to dispose of stock not up to the required quality for regular orders. While some furnaces are quoting on a somewhat higher price basis, yet the prices mentioned below can be taken as a fair average. We quote for cash f. o. b. cars at Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $11.25; No. 2 strong foundry coke iron, Lake Superior ore, $10.75; Ohio strong softener No. 1, $11.75; Ohio strong softener No. 2,

$11.25; Jackson County silvery No. 1, $14; Southern soft No. 1, $11.75; Southern soft No. 2, $11.35; Niagara malleable, $10.75.

Chicago. Oct. 20.

(From Our Special Correspondent.)

Pig Iron.—Both Northern and Southern furnaces have had only moderate buying of pig iron during the past week. There are few large sales reported, the biggest of the week being one of 1,500 tons Northern iron. Prices are very firm, and on deliveries beyond the first of the new year 25c. extra is being asked by a number of the furnaces. Quotations are: Lake Superior charcoal, $12.50@$13; local coke foundry No. 1, $11.50@$12; No. 2, $11@$11.50; No. 3, $10.50@$11; local Scotch foundry No. 1, $11.50@$12; No. 2, $11@$11.50; No. 3, $10.50@$11; Southern coke No. 1, $11@$11.25; No. 2, $10.60@$10.85; No. 3, $10.35@$10.60; Southern No. 1, soft, $11@$11.25; No. 2 soft, $10.60@$10.85; Jackson County silveries, $12.50@$14.50; Ohio strong softeners, $12@$12.25; Alabama car wheel, $16@$17; Coke Bessemer, $11.50@$12.

Bar Iron.—The sales of bar iron during the week were on a par with those of the preceding week, the car-builders still continuing to buy rather heavily. Prices remain firm and are: Common iron, 1·15@1·20c.; guaranteed, 1·15@1·25c.

Structural Material.—Business for the week has been very good, though no large business is reported. There are at the present time a number of fair-sized contracts awaiting action, and it is expected some of them will develop within the next couple of weeks. Prices are firm and are: Beams and channels, 1·30@1·35c.; tees, 1·30@1·40c.; angles, 1·20@1·25c.; plates, 1·20@1·25c.

Steel Rails.—Business in standard sections remains light. No very large orders have been taken. Rails are quoted $20.50@$22.50, Chicago.

Billets and Rods.—The local mills are not anxious for orders on either billets or rods, being full up for the rest of the year. In consequence the week has been quiet. Billets are quoted $18@$18.50, and rods, $25.50@$26.

Cleveland, O. Oct. 20.

(From Our Special Correspondent.)

Iron Ore.—The chief interest in the iron ore trade at present attaches to the effort to rush down all the ores which have been sold. The rush, however, does not enable the vessel-men to raise the carrying rates, which was the expectation some time ago. The prices paid for the transportation of ore remain at 55c. from Escanaba, 60c. from Marquette, and 65c. from Ashland and the head of Lake Superior. During the past week some small lots have been sold, both of Bessemer and non-Bessemer, but the transactions do not amount to anything large. The prices paid for the ores are based on the figures agreed upon at the opening of the season. Considerable trouble is being experienced in finding dock room for some of the ore brought down from the head of the lakes, but this condition is alleviated somewhat by the fact that there is a heavy movement of ores to the furnaces.

Pig Iron.—A light trade has been transacted in pig iron during the past week. A number of sales have been made, but the aggregate is comparatively small. The market is quite strong, the prices of the past two or three weeks prevailing. Following are the quotations: Lake Superior charcoal $13.25; Bessemer, $10.50@$10.75; No. 1 foundry, $10.75@$11; No. 2, $10.25@$10.50; No. 1 Ohio Scotch, $11.15; No. 2, $10.65; gray forge, $9.75@$10.

Pittsburg. Oct. 21.

(From Our Special Correspondent.)

Business in all departments indicates a healthy condition of trade; there seems to be no let up. The October production of pig iron showed a large increase over the preceding month; at the same time the increase in consumption is large. Furnaces at all points, many of which have been idle for years, have either fired up or are preparing to do so. There is plenty of work under contract for the remainder of the year, so that attention is now chiefly directed toward next year's prices.

A very large business is expected and it is of great importance that correct estimates of cost should be made. There is considerable uncertainty on this point, and until producers can settle this matter with a fair degree of safety they will not care much about entering into engagements about long deliveries. It is not easy to dispose of this phase of the situation, as there are a good many conflicting elements to be taken into consideration. The first is that production is already very large, and the second is that prices have already had sufficient advance to make the business attractive, and that the output may in consequence be still further and perhaps unduly increased. Many well informed parties contend that prices at present are far below what we may expect.

Finished Material.—For next year sheet bars the market was both firm and active, the demand still increasing; last week 8,950 tons were disposed of at a further advance; prices ranged from $18.75@$19.75, prompt delivery commanding the highest price.

For muck bars prices are firm and advancing; the offerings for some time were light; strong neutral advanced to $19.50, being the highest price for some time.

The purchase of rails by the Pennsylvania Railroad and the sales to Japan have improved the demand for steel rails and increased values to $20.

Steel and iron pipe are very firm; the mills have about all the contracts they can supply for the present. The late advance was about 8%.

Finished material generally is firm and active, and all mills are busy.

Latest.—At the close of the market the demand for Bessemer pig was less active. The heavy sales for weeks past will supply the market for a short time. The general situation is very satisfactory, however, as there is considerable urgency to secure prompt deliveries. Bessemer pig, Pittsburg delivery, is $10.50@$10.75; Valley furnace iron, $9.90@$10, according to delivery. Mill iron is very firm, with light offerings and sales at $9.85@$9.90. Billets are very firm; range of prices, this year's delivery, $16.85@$17.50. Sheet bars are firm, with sales at $19.25@$19.75. Muck bar advanced 25c.; billet ends, 50c.; skelp iron, grooved, advanced 2½c.; steel sheared, 2½c. also.

COKE SMELTED, LAKE AND NATIVE ORE.

Tons.	Cash.
5,000 Bess., O., N., V..	$ 9.75
5,000 Bess., No., D., V.	9.85
5,000 Bess., N., D., V....	9.90
3,000 Bess., L. 3 m., V.	9.85
3,000 Bess., O., N., P..	10.65
3,000 Bess., N., D., P..	10.75
3,000 Bess., N., D., V..	9.85
2,000 Bess., O., N., P..	10.75
1,000 Bess., spot, Val..	10.00
1,000 Mill Ir., O., N., P..	10.00
1,000 Bess., Nov., P....	10.75
1,000 Bess., Oct., P....	10.75
800 Bess., pro't, P....	10.75
500 Mill Ir., spot, P..	9.75
500 Bess., Oct., V....	9.95
300 No. 2 F., P.	10.50
300 Mill Ir., O., N., V.	9.85
300 Bess., Oct., P....	10.75
200 Bess., pro't, P....	10.75
200 No. 2 F., P.....	10.65
200 No. 1 F., P.....	11.25
150 No. 2 F., Nov., P.	10.35
50 Bess., spot, P....	11.00

BLOOMS, BILLETS, SLABS.

1,500 Bill., O., N., D. M	$16.40
1,200 Bill., O., N., M...	17.50
1,000 Bill., N., D., W..	16.25
1,000 Bill., O., Mill....	16.40
850 Bill., O., Mill....	17.35
800 Bill., O., Mill....	17.00
500 Bill., O., Mill....	16.50
500 Bill., O., Mill....	17.35
500 Bill., O., Mill....	17.75
300 Bill., O., Mill....	16.65

SHEET BARS.

2,200 Delivered, Pitts..	$19.35
2,000 Delivered, Pitts..	19.75
1,000 Delivered, Pitts.	19.50
1,000 Delivered, Pitts.	18.75
1,000 Delivered, Pitts.	18.75

SKELP IRON.

Tons.	Cash.
850 Delivered, Pitts.	$19.00
600 Delivered, Pitts.	19.15
500 Delivered, Pitts.	18.75

SKELP IRON.

3,000 Sh'd, Pitts...	$1.37½ 4 m.
1,000 W. G., Pitts...	1.25 4 m.
500 N. G., Pitts....	1.25 4 m.

SKELP STEEL.

800 Sh'd, Pitts....	$1.20 4 m.
600 Sh'd, Pitts.....	1.10 4 m.
500 Sh'd, Pitts....	1.10 4 m

MUCK BAR.

1,000 Neutral, Pitts....	$19.75
1,000 Neutral, Pitts....	19.25
500 Neutral, Pitts....	19.75
500 Neutral, Pitts....	19.60

STEEL WIRE RODS.

1,200 Delivered, Pitts.. $24.00

BLOOMS, BILLETS, BAR ENDS.

500 Billet ends, P.... $12.00

OLD RAILS.

1,000 I. R., gr., Pitts..	$15.00
500 S. R., gr., Pitts...	11.00
200 I. R., gr., Pitts.....	15.00
100 S. R., gr., Pitts.....	11.00

SCRAP MATERIAL.

500 W. S., net, P....	$13.00
300 W. S., Net, P.....	13.00
300 O. C. W., gr., P..	11.00
250 C. S., gr., Pitts,...	9.00
100 W. T., gr., Pitts...	7.50
100 C. B., gr., Pitts...	6.25

CHARCOAL.

100 No. 2 F., Pitts...	$15.00
50 Cold Blast, Pitts.	21.00
50 No. 2 F., Pitts...	15.25
50 No. 2 F., Pitts...	15.25
50 Cold Blast, Pitts.	21.50

Philadelphia. Oct. 22.

(From Our Special Correspondent.)

Pig Iron.—The market has been quieter this week than any one anticipated and there is less to say than usual. In fact, the relaxation along all lines is something of a surprise to a good many and their explanations do not intelligently explain it. The movements in pig iron have been irregular. All kinds, even basic and iron low in phosphorus, have been selling, but buyers of Bessemer are now waiting to see. The sellers of both No. 1 and No. 2 X foundry have sold about all they are anxious to let go at $12 and $11 respectively, and would like to get the much quoted price of $12.50 and $11.50 for such brands as are now available. The foundrymen are doing a better business all around, but they tell us that what holds them back is the lack of evidence of a big winter demand. They all say it will come, but as it is not yet in sight, they hold back. The demand for ordinary forge is better than for best, perhaps because standard grades are pretty well sold up at $10.50.

Steel Billets.—There is a better prospect for big sales of steel billets in the early winter than for any other raw product. The usual early delivery quotation is $18.75 and for winter $19@$19.50. As to late deliveries there is not much doing at present, though agents of Western makers claim the business is all their way, and that prices will be stronger.

Merchant Bar.—Bars continue active, and all kinds from common to special steel bars are meeting with fair sale and at prices which show no weakness. The mill owners, however, are pushing their solicitations for business rather urgently, especially where large orders are to be had, and other things being equal this points to lower prices

Nails.—Less is being done in nails, though there is no outward weakness.

Skelp.—The skelp mills have not added any to their business.

Pipes and Tubes.—A good body of work is on the books and there is not much more business in sight. Manufacturers are not cutting prices to induce it to come their way before it is ready.

Merchant Steel.—The week has been quieter in merchant steel, but the actual use of steel is greater, if our informants size up the situation correctly.

Plate and Tank.—Business has fallen down to smaller orders. There is a good deal in the aggregate, but it comes in small lots. The rumors of big enterprises that will require large quantities of plate grow in strength, and our manufacturers live in weekly expectation of some big business, which will rescue quotations from impending weakness. Tank is 1·15c.; flange, 1·25c.

Structural Material.—The fact that mills continue to run full explains the situation. Business is not falling off, but it has not reached the expectations indulged in in September. Agents who keep track of possibilities assure us it is to come. Angles are 1·20c.; beams and channels, 1·30c. Western mills have snatched fewer orders of late out of our fingers.

Steel Rails.—There is no business to report.

Old Rails.—Several lots of old iron rails have been sold, and more will be sold in a few days. The effect is to advance prices. A good many are taking advantage of the chance to let them go.

Scrap.—All kinds of scrap are quite active, and good prices are being realized.

Cartagena, Spain. Sept. 30.

(Special Report of Barrington & Holt.)

Iron and Manganiferous Ores.—During the month 11 cargoes of iron ore, three of manganiferous and one of 60% magnetic iron ore, were shipped from this port. With the usual high freights at this time of the year, very little ore is now being shipped, and it will probably be two or three months before freights will allow of any large quantity being moved. There is general dissatisfaction in Spain at the action of the company to which the Spanish government has sold the explosives monopoly, that company having raised the prices to the maximum allowed by the government, or about 40% more than the cost before September 1st. The miners of this sierra about a fortnight ago held a meeting to protest against this increase as being detrimental to the mining industry and appointed a committee of the principal miners to represent them. This committee has addressed a letter to the various mining centers of Spain, inviting them to unite in urging on the government the necessity in the interest of the mineral industry of the country of a considerable reduction of these increased prices for mining explosives. Iron ore quotations are as follows: Ordinary 50% Portman ore, 5s. 9d.@6s. 2d. per ton; special low phosphorus, 6s. @6s. 8d.; special iron ore, 7s.; specular iron ore, 60% iron and guaranteed under 0·03 phosphorus, 9s. 6d.; magnetic ore, 10s. 9d. per ton. For manganese ore we quote: No. 1, 20% iron and 20% manganese, 14s. 6d. per ton; No. 1 B, 25% iron and 17% manganese, 11s. 6d.; No. 2, 30% iron and 15% manganese, 10s.; No. 3, 35% iron and 13% manganese, 9s. per ton.

METAL MARKET.

NEW YORK, Friday Evening, October 22, 1897.

Gold and Silver.

Price 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.
16	4.84¼	27⅜	58⅝	.454	20	4.84¼	27⅜	59¼	.451
18	4.84¼	27⅝	58¾	.455	21	4.84¼	27⅛	58⅝	.451
19	4.84¼	27⅜	58¾	.455	22	4.84¼	27⅛	58⅛	.451

Owing to scarcity of spot silver the price has been forced up to 27⅝d.; at this price buyers were satisfied and the refusal of the English government to co-operate with France and the United States will doubtless induce speculative sales for lower prices.

The United States Assay Office in New York reports the total receipts of silver at 126,000 oz. for the week.

Average Monthly Prices of Silver

In New York and London, per ounce Troy, from January 1st, 1897, and for the years 1896 and 1895.

Month.	1897. London. Pence.	1897. New York. Cents.	1896. London. Pence.	1896. New York. Cents.	1895. London. Pence.	1895. New York. Cents.
January	29·74	64 79	30·69	67·13	27·36	59 62
February	29·68	64·67	31·01	67·67	27·47	59 90
March	28·96	63·06	31·34	68·40	28·33	61 36
April	28·36	61·85	31·10	67·92	30·39	66 01
May	27·86	60·42	31·08	67·85	30·61	66 75
June	27·58	60·10	31·46	68·69	30·47	66 61
July	27·36	59·61	31·45	68·75	30·48	66 75
August	24·93	54·19	30·93	67·34	30·40	66 90
September	25·66	55·24	30·19	65 68	30·54	67 64
October	.....	.....	29·68	65·05	30·82	67 42
November	.....	.....	29·46	64·98	30·79	67 47
December	.....	.....	29·70	65·24	30·40	66 47
Year	.....	.....	30·67	67·06	29·53	65·28

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.

Gold and Silver Exports and Imports

At all United States ports, September, 1897, and years from January 1st, 1897 and 1896:

	Coin and bullion. Exports.	Coin and bullion. Imports.	In ores. Exports.	In ores. Imports.	Total excess, Exp. or Imp.
GOLD					
Sept.	$54,787	$4,244,383	.....	$433,318	I. $4,623,314
1897..	32,501,498	13,027,703	$95,948	3,535,833	E. 16,023,911
1896..	56,874,846	64,888,856	114,201	1,330,290	I. 9,260,099
SILV.					
Sept.	4,572,594	646,548	.....	2,225,690	E. 1,700,356
1897..	42,337,460	7,571,201	259,330	16,097,670	E. 18,927,919
1896..	46,475,041	8,454,637	564,842	13,241,585	E. 25,343,661

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 22d, 1897, and for years from January 1st, 1897, 1896, 1895, 1894:

Period.	Gold. Exports.	Gold. Imports.	Silver. Exports.	Silver. Imports.	Total Excess, Exp. or Imp.
We'k	$5,000	$5,589,092	$865,703	$90,487	I. $4,808,876
1897..	48,132,162	13,085,633	32,433,113	1,928,627	E. 65,551,615
1896..	40,433,918	62,092,756	31,601,581	3,307,737	E. 6,634,996
1895..	58,675,902	27,343,252	31,801,102	1,447,419	E. 61,646,333
1894..	85,319,346	15,209,340	29,605,168	1,445,185	E. 97,269,989

The gold exported for the week, this year, went to the West Indies; the silver to London. Of the gold imported $971,353 came from Germany, $2,709,307 from England, $1,500,000 from France, and the balance, together with the silver, came from Central and South America and the West Indies.

FINANCIAL NOTES OF THE WEEK.

Business shows a fair amount of improvement, the most favorable sign being an increase reported in loans and other transactions from nearly all the interior cities. The movement of currency from New York has been rather lighter, as there has been less demand for such shipments, the interior banks being generally well provided.

There have been no gold shipments from Europe to the United States this week. At present it is understood that New York is loaning a good deal of money on sterling bills, as this is a profitable operation just now. There were $2,000,000 in gold received at San Francisco from Australia this week.

The Currency Commission has been in session at Washington all the week, but adjoins October 16th, until November 2d, when it is hoped that a report will be completed.

A dispatch from London, October 20th, says that on that day "Lord Salisbury sent to Ambassador Hay the reply of the British government to the proposals of the American Bimetallic Special Commission headed by Senator Wolcott. It is a diplomatically worded note. His Lordship says that the government of Great Britain is not able to reopen the India mints at present. He regrets the inability to accede to the proposals of the American Commissioners, Great Britain having as great an interest as the United States and France in securing a stable par exchange for gold and silver and an enlarged use of silver. In these circumstances, continues Lord Salisbury, the British government does not see the desirability of an international monetary conference, but will be pleased to consider any other practical suggestions from the United States.

"Lord Salisbury incloses with the note a copy of the statement of Sir James Westland, head of the Financial Department of India, which was under discussion at the meeting of the Cabinet Council last Saturday, and which takes strong grounds against the reopening of the India mints."

The statement of the United States Treasury, on Thursday, October 21st, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

	Oct., 14.	Oct. 21.	Changes.
Gold	$149,975,655	$151,411,118	I. $1,435,463
Silver	13,952,969	14,296,394	I. 343,425
Legal tenders	43,597,265	40,262,584	D. 3,334,681
Treasury notes, etc	14,676,132	10,875,994	D. 3,800,138
Totals	$222,202,021	$216,846,110	D. $5,355,911

Treasury deposits with national banks amounted to $17,563,254, a decrease of $190,122 during the week.

The amounts and descriptions of specie shipped from San Francisco in the first nine months of the year compare as follows:

	1896.	1897.
Silver bars	$4,445,396	$4,208,052
Mexican dollars	4,302,444	6,100,983
Peru sols	113,817	71,320
Silver coin	532,900	239,939
Gold bars	42,461	.....
Gold coin	11,250,361	19,131,416
Gold dust	3,970	2,495
Total	$20,691,327	$29,954,205

The total gold this year was $19,133,911; silver, $10,620,294. Most of the gold was coin shipped to New York. The destinations of these shipments this year were: Hongkong, $5,072,313; Shanghai, $2,263,030; Japan, $1,742,270; India, $1,310,488; Honolulu, $415,522; Tahiti, $3,300; Central America, $18,200; Mexico, $760; New York, $18,898,322.

The foreign commerce of the United States, as reported by the Bureau of Statistics of the Treasury Department for the nine months ending September 30th, was as follows:

	1896.	1897.
Exports	$666,061,890	$746,388,535
Imports	522,088,289	588,749,142
Excess, exports	$143,973,601	$157,639,393
Add excess of exports, gold		16,033,911
" " " silver		18,927,919
Total apparent balance		$192,601,223

The gold and silver movement in detail will be found in the usual place, at the head of this column.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending October 16th gives the following totals, comparison being made with the corresponding weeks in 1896 and 1895:

	1895.	1896.	1897.
Loans and discounts	$504,320,300	$456,139,300	$589,117,000
Deposits	531,924,100	453,695,200	616,079,600
Circulation	14,131,100	20,521,100	15,866,700
Reserve:			
Specie	61,851,900	59,136,400	94,886,700
Legal tenders	86,509,300	66,198,500	73,747,700
Total reserve	$148,361,200	$125,334,900	$168,634,400
Legal requirement	132,981,025	113,423,800	154,019,900
Surplus reserve	$15,380,175	$11,911,100	$14,614,500

Changes for the week, this year, were increases of $46,500 in circulation, $938,200 in specie, $26,400 in legal tenders, and $1,129,000 in surplus reserve; decreases of $2,614,100 in loans and $657,600 in deposits.

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:

Banks.	1896. Gold.	1896. Silver.	1897. Gold.	1897. Silver.
N.Y. Asso	$59,136,400	.....	$94,886,700	.....
England	180,495,890	.....	159,278,345	.....
France	388,608,346	$246,275,499	392,125,800	$241,440,800
Germany	204,770,000	.....	192,941,650	.....
Austro-Hun.	145,690,000	63,675,000	191,276,500	62,137,500
Netherlands	13,170,000	33,915,000	13,145,000	33,895,000
Belgium	19,815,000	.....	20,648,600	.....
Spain	42,640,000	51,905,000	45,135,000	53,085,000
Italy	61,490,000	11,445,000	62,645,000	12,385,000
Russia	443,485,000	.....	596,350,000	.....

The returns for the Associated Banks of New York are of date October 16th; the Bank of Italy, August 31st; the Bank of Russia, September 16-28th; the Banks of Spain and the Netherlands, October 2d; the others are of date October 21st. 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 the year up to October 7th are reported by Messrs. Pixley & Abell's circular as below:

	1896.	1897.	Changes.
India	£3,251,078	£4,461,356	I. £1,210,278
China	574,413	284,013	D. 290,400
The Straits	545,686	318,467	D. 227,219
Totals	£4,371,177	£5,063,836	I. £692,659

Arrivals for the week this year were £203,000 in bar silver from New York, and £26,000 from Chile; a total of £229,000. Shipments for the week were £87,500 in bar silver to Bombay.

Indian exchange has fluctuated within very narrow limits, the rates varying from 15·56 to 15·69d. per rupee. Shipments of silver have been again larger, and have, to some extent, taken the place of bills.

Prices of Foreign Coins.

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

	Bid.	Asked.
Mexican dollars	$ .45	$ .46½
Peruvian soles and Chilean pesos	.40½	.43
Victoria sovereigns	4.84	4.88
Twenty francs	3.83	3.87
Twenty marks	4.73	4.77
Spanish 25 pesetas	4.77	4.80

Other Metals.

Copper.—Again business has been restricted, and the market has been rather disappointing. Manufacturers are evidently not very anxious to make new purchases, while most of the larger producers maintain their former prices. This, however, cannot be said of all of them, and what sales have been made were at rather lower values. Lake copper can be obtained at 11½c.; electrolytic in cakes, wire-bars or ingots at 10·75c., and cathodes at 10·50c., but even at these lower figures not much business took place. Casting copper is nominal at 10¾@10½c. The copper and brass mills are very busy, but wire makers report a falling off of orders. Production for the first nine months of the year has not been as large as was anticipated, but still shows an increase of about 5% over that of last year.

The g. m. b. market in London opened irregular, but in the main does not show much change. The opening prices were £48 3s. 9d.@£48 5s., but afterward considerable business took place at £48 2s. 6d., and at the close the quotations are £48 5s.@£48 7s. 6d. for spot and £48 10s.@£48 12s. 6d. for three months prompt. It will be noticed that the difference between spot and futures, which for some time past has stood at 7s. 6d., has been reduced to 5s., which would indicate that there is not much spot copper on the market. For refined sorts rather lower prices were accepted, and at the reduced prices quite a large business was done. We quote: English tough, £49 15s.@£50 5s.; best selected, £50 10s.@£51; strong sheets, £58 5s.@£58 15s.; India sheets, £56 10s.@£57; yellow metal, 4⅞d. The visible supplies for the first half of October show an increase of 1,300tons.

Tin.—The market remains quiet but steady, and deliveries continue at rather a satisfactory rate. We quote for spot and October 13¾@14c., and for futures 14@14¼c.

In London a large business was done during the week at very steady rates, and for once there were but small fluctuations in prices. At the close values are about the same as last week, £63@£63 2s. 6d. for spot, and £63 10s.@£63 12s. 6d. for three months prompt. For the first nine months of the year shipments from Australia and the Straits Settlement show an important falling off, and the visible supplies are becoming still smaller.

Lead.—The unsettled conditions reported last week continue, and a further break in prices took place, although not to the same extent as that reported last week. Toward the end there is somewhat more steadiness in the market, and evidently the desire to sell on the part of refiners has to a certain degree abated. The market closes quiet at 3·90c. In St. Louis the market is reported to have been dull and quiet, with transactions in desilverized at 3·77½c., and common at 3·75c.

In London the market remains dull, with Spanish lead freely offered at £13 7s. 6d.@£13 10s., and English lead 5s. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is firm, but very dull. Common is 3·75@3·77½c.; corroding, 3·80@3·82½c. Neither buyers nor sellers are making any strenuous efforts to trade. The market might safely be said to be in a state of innocuous desuetude.

Spanish Lead Market.—Messrs. Barrington & Holt write from Cartagena, Spain, under date of September 30th as follows: Argentiferous lead in England having risen considerably in the early part of the month, and then having fallen 11s. 3d. per ton, but afterwards recovering itself 10s., the local quotation for pig lead on wharf has consequently risen and fallen, but owing to the high exchange in London has kept high, the average quotation for the month being 76·19 reales per quintal of lead, against 70·95 reales for the previous month, which, taking exchange on London at 33·24 pesetas per £1, is equivalent to £12 16s. 6d. per long ton, f. o. b. Cartagena. Silver averaged 13·38 reales per oz., a rise of 0·23 reales over August. Exports of pig lead from this port in September were as follows:

Imports and Exports of Metals.

Port.	Week, Oct. 14. Expts.	Week, Oct. 14. Impts.	Year, 1897. Expts.	Year, 1897. Impts.
***New York.**				
Aluminum, boxes	554	.....	3,172	.....
Antimony ore...short tons	.....	.....	.....	1,479
" regulus...casks	.....	.....	.....	471
Brass, old.....short tons	37	.....	559	160
Copper, fine.....long tons	$1,629	60	41,193	6,052
" ore ....long tons	.....	1,508	.....	8,024
" matte.... " "	.....	.....	5,295	271
" sulphate " "	.....	.....	4,686	.....
Ferro-chrome.... " "	.....	5	.....	10
Ferro-mangan'se " "	.....	.....	3,014	52
Iron ore..... " "	.....	.....	.....	19
" old..... " "	.....	.....	52	.....
" pipe..... " "	.....	.....	185	.....
" pig, bar, rod " "	250	100	11,282	3,446
" pyrites..... " "	.....	.....	.....	7,670
Lead, antimonial " "	.....	.....	.....	100
" bullion..... " "	$1,130	368	30,304	58,343
Manganese ore.. " "	.....	.....	.....	5,388
Nails..... " "	.....	.....	781	.....
Nickel..... " "	5	.....	1,118	115
Rails, old..... " "	.....	.....	11,151	.....
Spiegeleisen..... " "	32	.....	15,387	11,658
Steel billets, rods. " "	.....	739	15,692	16,833
Tin..... " "	.....	$150	1,216	8,849
" dross..... " "	30	.....	171	.....
" and black plates, boxes	.....	12,272	.....	274,383
Zinc .....long tons	.....	.....	3,193	.....
" dross..... " "	28	.....	458	.....
†§Baltimore.				
Brass scrap.....long tons	.....	.....	9	.....
Chrome ore..... " "	.....	.....	21	5,511
Copper, fine..... " "	444	.....	33,041	.....
" sulphate " "	.....	.....	1,779	.....
Ferro-manganese " "	.....	.....	3,455	385
Ferro silicon..... " "	.....	.....	.....	231
Iron ore..... " "	.....	8,133	.....	218,035
" pig, bar, etc. " "	427	.....	3,960	2,970
" pipe..... " "	34	.....	286	.....
Lead..... " "	.....	.....	120	500
Manganese..... " "	.....	1,325	247	15,084
Rails, steel..... " "	1,451	.....	4,451	.....
Spiegeleisen..... " "	.....	.....	.....	1,831
Steel..... " "	254	.....	4,922	4,030
wire.....bundles	.....	285	.....	11,618
Tin.....long tons	.....	.....	.....	5,744
" and black plates, boxes	.....	.....	.....	19,687
Zinc.....long tons	.....	.....	.....	48
" dross..... " "	.....	.....	135	.....
††Philadelphia.				
Antimony.....casks	.....	.....	.....	2,712
Chrome ore.....	.....	.....	.....	500
Copper ore.....long tons	.....	3,600	.....	16,579
Ferro-manganese " "	.....	74	.....	122
Iron ore..... " "	.....	3,100	.....	153,802
" pig..... " "	.....	.....	.....	50
" pyrites..... " "	.....	.....	.....	4,550
Manganese ore.. " "	.....	5,093	.....	41,673
Tin..... " "	.....	55	.....	666
" and black plates, boxes	.....	.....	.....	47,677

*New York Metal Exchange returns. †From our Special Correspondent. †† Week ending Oct. 16. § Week ending Oct. 21.

1,682,055 kilos to Marseilles, 1,651,702 kilos to London, and 1,128 290 kilos to Newcastle, a total of 4,462,047 kilos. In addition to these there were exported 550 tons of blende to Antwerp, 20 tons of galena and 3,237 kilos of silver to Marsella.

Spelter.—There is no change to report, and the trade is freely supplied from first hands at 3.95@4c. St. Louis, and 4.15@4.20c. New York.

In London the market shows a slight advance of good ordinaries to £17 15s. and specials to £17 17s 6d.

Antimony.—We quote Cookson's: 7¾@8c.; Hallett's, 7¾@7½c.; Japanese 7¼c., and U. S. Star 7½c.

Nickel.—Business is moderate, but no change in prices can be reported. We quote for ton lots 33½@36c. per lb., and for smaller orders 35½@38c. London prices are 14@16d. per lb., according to size of order. The London price is about on a parity with New York, allowing for the duty of 6c. per lb.

Platinum.—Prices are firm at $14@$15 per oz. New York. The London quotation is 55s.@56s. 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, 51c., 55c. and 56c. per gram. Wire and foil are 52c., 53c. and 54c. per gram.

Quicksilver.—The New York price continues at $37.50 per flask. The London price is £6 15s., with £6 15s. quoted from second hands also.

The exports of quicksilver from the United States in August, 1897, amounted to 55,660 lbs., a decrease of 53,740 lbs., as compared with the same month in 1896. For the eight months of 1897 the exports were 513,499 lbs. less than in 1896, when they amounted to 1,190,481 lbs. There are no imports to be reported.

The Minor Metals.—Quotations are given below for New York delivery:

Aluminum:		Bismuth, ₱ lb.	$1.50@$1.80
No. 1, 98% ingots, ₱ lb.	37@42c.	Phosphorus, ₱ lb.	50@55c.
No. 2, 94%, " "	31@34c.	Tungsten ..... ₱ lb.	70c.
Ingots, scrap, "	30c.	Tungstic acid.....	45c.
Rolled sheets, "	46c. up	Ferro-tungsten, 6%	60c.
Alum.—Nickel, "	35@40c.		

Variations in price depend chiefly on the size of the order.

Average Monthly Price of Metals

In New York, for the years 1897 and 1896; in cents per pound.

Month.	Copper.		Tin.		Lead.		Spelter.	
	1897.	1896.	1897.	1896.	1897.	1896.	1897.	1896.
Jan.....	11·75	9·87	13·44	13·02	3·04	3·08	3·91	3·75
Feb.....	11·92	10·64	13·59	13·44	3·28	3·19	4·02	4·03
March ..	11·80	11·03	13·43	13·30	3·41	3·14	4·12	4·20
April....	11·48	10·98	13·34	13·34	3·32	3·07	4·13	4·07
May.....	11·03	11·15	13·44	13·54	3·26	3·03	4·21	3·98
June	11·11	11·67	13·77	13·59	3·33	3·03	4·21	4·10
July.....	11·11	11·40	13·89	13·63	3·72	2·96	4·32	3·97
August .	11·16	10·98	13·80	13·49	3·84	2·73	4·26	3·76
Sept.....	11.30	10·66	13.98	13·15	4.39	2·77	4. 18	3·60
October .	.....	10·66	.....	12·94	.....	2·80	.....	3·72
Nov.....	.....	11·23	.....	13·09	.....	2·96	.....	3·99
Dec	.....	11·28	.....	12·96	.....	3·04	.....	4·14
Year ..	.....	10·88	.....	13·29	....	2·98	...	3·94

CHEMICALS AND MINERALS.

(For current prices of chemicals, minerals and rare elements see page 510.)

New York. Oct. 22.

Heavy Chemicals.—This market shows no new features this week, excepting that bleaching powder is being inquired for in rather a good way, but there is a scarcity in the supply of this article. Deliveries continue to be made on old contracts for the majority of the heavy chemicals, and prices are unchanged. We understand makers of cyanide of potassium are sold ahead for the next six months. This article is quoted at 27@29c., according to quantity. We quote: Caustic soda, 60%, $2.10@$2.20 per 100 lbs. Alkali, domestic, 58%, 65@67½c. for 50-ton lots and over, and 70@80c. for smaller quantities: 48%, $1@$1.20 for jobbing lots. Foreign, 72½@77½c. Carbonated soda ash, 90@95c. per 100 lbs., for 58%, basis of 48%. Bleaching powder prime brands, $1.85@$2.00; Continental F brand, $1.85@$1.90; other brands, $1.70@$2 per 100 lbs. Bicarb. soda, English, 1·75@2c. per lb.; American, bulk, $1.50@$3.50 per 100 lbs., according to brand. Sal-soda, English, 75@80c. per 100 lbs.; American, 65@70c. per 100 lbs. Chlorate of potash, $9.37½@$9.75 per 100 lbs.

Acids.—The market is fairly active, at unchanged prices. Quotations are per 100 lbs. in New York and vicinity, in lots of 50 carboys or over as follows: Acetic acid, commercial No. 8 (in barrels), $1.40@$1.50; in carboys, $1.50@$1.65; redistilled, 28%, in bbls., $1.70@$1.80; in carboys, $1.90@$2.05. Muriatic acid, 18°, 75@85c.; 20°, 85@95c.; 22°, $1.15@$1.25, according to make and quantity. Nitric acid, 36°, $3.50@$4; 40°, $4@$4.50; 42°, $4.50@$5.50. Oxalic acid, 8? ex-dock and $7.25 ex-store. Mixed acids, according to mixture. Sulphuric acid, 66°, 70@85c. in carload lots, 10@15c. higher for small quantities. Chamber acid, 50°, $6@$6.50 per ton at factory. Blue vitriol, $3.62½@$3.75, according to grade and order.

Brimstone.—Business with first hands is dull, and prices are $21 per ton for best unmixed seconds on spot, and $1 less for thirds. There was another arrival this week with 1,200 tons. The total imports from January 1st, to October 1st amounted to 94,000 tons against 80,000 tons last year.

Fertilizing Chemicals.—Business has been small in volume this week at steady prices. We quote: Sulphate of ammonia, gas liquor, $2.17½@$2.20; bone, $2.10@2.15 per 100 lbs. Dried blood, high grade Western, $2.25@$2.30 per unit New York; $2 per unit f. o. b. Chicago. Azotine, $1.65@$1.70 basis New York. Concentrated phosphate (30% available phosphoric acid), 57½c. per unit. Acid phosphate, 13%@15%, av. P_2O_5, 55@60c. per unit at sellers' works in bulk. Dissolved bone black, 17%@18% P_2O_5, $16@$16.50 per ton. Acidulated fish scrap, $9.50@$10, and dried scrap $18@$18.50 f. o. b. fish factory. Tankage, high grade, $16.25@$16.50 per ton, f. o. b. Chicago; concentrated tankage, $1.55 per unit, f. o. b. Chicago; New York, $21; low grade, $13@$13.50. Bone tankage, $19@$20; ground bone, $21@$23. Bonemeal, $19.50@$22.50.

Sulphate of Potash: 90%, New York and Boston, $1.99½; Philadelphia, Baltimore and Norfolk, $2.01: Southern ports, $2.03.

Double Manure-Salt: Quotations for 48@49%, less than 2½% chlorate, are 1·01@1·01½c., to arrive, and 1·02@1·03c. on spot: basis of 48%. High grade, 90@98% sulphate of potash, 1·96½@2·00½c. to arrive; basis of 90%. In bulk 24@36%, 56½@37½c. per unit phosphate acid.

Muriate of Potash: We quote: New York and Boston, 1·75@1·78c. Philadelphia and Norfolk, 1·76@1·79½c.; Charleston, Savannah, Wilmington and New Orleans, for 80@85% basis of 80%, 1·78½@1·81c. in lots of 50 tons and upward.

Kainit.—Invoice weights, as taken at port of shipment, per ton of 2,240 lbs., testing 12·4% actual potash, equivalent to 23% sulphate of potash, $8.80@$8.90.

Nitrate of Soda.—The combination dissolved on October 16th, owing to the starting up of the new *oficinas*. In consequence of this the nitrate market has become weak and quotations are $1.62½ per 100 lbs. for spot, $1.60 for near-by and $1.57½ for future shipments. It is intimated that a new combination will probably be organized on a different basis from the late one. A cable received on October 18th from the coast gives the following estimates: Sailings for Europe during October, 2,800,000 quintals; loadings November 1st, 900,000 quintals; sailings for the United States, October, 250,000 quintals; loadings, November, 100,000 quintals. Stocks have been reduced in the United States on account of heavy deliveries from store on contracts, but there is more than enough nitrate coming to fill the ordinary demand for the next six months.

NOTES OF THE WEEK.

The monthly summary of the Bureau of Statistics gives the following imports and exports of the United States in 1897:

Articles.	August.		Jan.-August.	
	Quantities.	Value.	Quantities.	Value.
Imports:				
Bleach. pod wder..lbs.	6,410,893	$83,087	66,834,901	$396,802
Fertilizers (guano, phosphates, etc.)....	.....	83,479	.....	594,011
Potash, chlorate..lbs.	333,526	24,263	5,301,925	385,647
" muriate... "	5,977,473	93,611	46,643,650	715,287
" nitrate... "	2,369 4·4	39,598	12,744,864	241,587
" other..... "	2,339,079	58,467	15,948,915	401,354
Soda, ash ..... "	5,714,118	40 338	107,064,141	804,872
" caustic..... "	1,837,1·8	32.273	47,991,065	821,544
" nitrate.....tons	13,942	434,400	60,849	1,93 ,442
" sal..... ....lbs.	1,255,01·	4,861	12,139,460	50 921
" other salts.. "	663,139	7,951	2,429,264	37,886
Sulphur .....tons	14,165	235,350	95,186	1,675,328
Exports:				
Acids.....	.....	8,660	.....	68,826
Fertilizers.....tons	49,696	430,386	392,083	3,796,464
Pot and pearl ashes..... .....lbs.	6,649	309	364,113	14,532

Besides the above-mentioned exports there were re-exported foreign chemicals and fertilizers to the amount of $55,205 in the eight months of this year, against $58,411 in the same period of 1896.

Liverpool. Oct. 13.

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

Trade in chemicals is rather restricted at present, but there does not appear to be any accumulation of stocks at makers' works, and, as a rule, prices are well maintained. Soda ash is in somewhat of a peculiar position, buyers being unable to fill orders for ammonia soda, as makers state they are fully sold for balance of this year and cannot at present entertain any fresh business. Quotations are therefore, quite nominal and for tierces may be called about as follows: Leblanc ash, 48%, £4@£4 5s.; 58%, £4 10s.@£4 15s. per ton, net cash. Ammonia ash, 48%, £4@£4 2s. 6d.; 58%, £4 5s.@£4 7s. 6d. per ton, net cash. Bags are 5s. per ton under price for tierces. Soda crystals keep firm, the price for barrels ranging from £2 7s. 6d. to £2 17s. 6d. per ton, less 5% as to export market, and 7s. less for bags. Special quotations for American business.

Caustic soda is in moderate supply and prices are well supported. We quote nearest spot range as follows: 60%, £6 5s.@£6 10s.; 70%, £7 5s.@£7 10s.; 74%, £8 2s. 6d.@£8 5s.; 76%, £8 15s.@£9 per ton, net cash.

Bleaching powder is slow and easier at about £6 7s. 6d.@£6 12s. 6d. per ton, net cash, for hardwood packages, as to market.

Chlorate of potash is inactive, at 3¾d. per lb. for any position.

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 dull, and lower, at about £8 5s.@ £8 7s. 6d. per ton, less 2½%, for good gray 24@25%, in double bags f. o. b. here as to quality.

Nitrate of soda is quiet, at £7 15s.@£7 17s. 6d. per ton, less 2½%, for double bags f. o. b. here as to quantity and quality.

Carb. ammonia, lump, 2¾d.@3d. per pound; powered, 3d.@3¼d. per pound, less 2½%.

MINING STOCKS.

Complete quotations will be found on pages 506, 507 and 508 of mining stocks listed and dealt in at:

Aspen.	Helena.	London.
Baltimore.	Los Angeles.	Mexico.
Boston.	New York.	Paris.
Cleveland.	Philadelphia.	Rossland.
Colo. Springs.	Pittsburg.	Shanghai.
Denver.	Salt Lake.	Valparaiso.
	San Francisco.	

New York. Oct. 22.

Trading in mining stocks here is dormant, and prices generally showed little fluctuations during the week. Of the Comstocks, Best & Belcher sold at 90c.; Consolidated California & Virginia at $1.40, against $1.50 at the opening last week; Gould & Curry at 45c.; Mexican at 40@55c., against 60c. on October 9th; Savage at 40c., against 55c. two weeks ago. There was also some selling of Crown Point at 65c., which is 20c. less than the opening of last week.

In the California group Standard Consolidated ruled at $1.60, which is a falling off of 20c. since October 14th. Brunswick sold at 14c., against 10c. last week. The Colorado stocks have made up the greater part of the business transacted, and of the Cripple Creek contingent, Anaconda opened at 45c. and closed at 47½c., against 44c. last week. There were numerous sales recorded of the cheaper Cripple Creek stocks as dealt in on the Mining Exchange. Of the other Colorado stocks Mollie Gibson sold at 19c., which is the lowest price since September 3d last; Golden Fleece opened at 55c., and receded to 45c. at the close; Annetta sold at 46@46½c., and Miami (a tunnel proposition) at 40¼@41c.

Ontario of Utah sold at $4.50 on the Stock Exchange, a price which is $2.50 less than the opening quotation last week.

Horn Silver of Utah is again above the $1.50 level, and the last sale was recorded at $1.55. A dividend will probably be paid by this company in the near future.

The Lower California stock, Fortuna, sold at $11.12½@$11.25. This company's expenses last month amounted to about $1,200, and its net earnings to $10,456. The last dividend, amounting to $10,000, was paid on September 29th.

Yukon, the Canadian stock on the Mining Exchange, has receded to 10¾c. this week.

Boston. Oct. 21.

(From Our Special Correspondent.)

The market the past week has been dull, but with a gradual improvement in prices throughout the list. In the early dealings there was some liquidation, which kept prices unsettled, but this soon gave way to buying orders, and since then prices have been steady and with a strong tendency upward. Butte & Boston, which closed last week at $24, declined to $22½, but rallied on good buying to $26¼ to-day, the highest price since October 9th. Centennial sold at $14, recovered gradually to $19½, but was a little off to-day, selling at $18¼ and closing at $18¾. Old Dominion, after selling at $23, advanced to $25, and held firm until to-day, when it sold off to $24½. Kearsarge was dull but steady at $19½@$20¾, closing at $20¼. Osceola advanced from $37½ to $40¼ and closed there. Franklin sold in small lots at $20@$21. Atlantic touched $23 early in the week, sold up to $25 and back to $24.

Boston & Montana dropped from $143 to $139¾, recovered to $145, and sold ex-dividend at $141½@$143½. Calumet & Hecla sold at $450, and to-day advanced to $467½. Quincy declined from $113 to $109, but later regained the loss, and sold $2½ better at $115½. Tamarack declined $2 to $130, then advanced to $135, with sales to-day at that price. Tamarack, Jr., advanced from $16 to $16½, and Wolverine from $15¾ to $16¼. Tecumseh on good reports from the mine advanced from $4 to $4¼, losing the advance in later dealings. Arnold sold at $4 and Allouez at $1, dealings in both being very light. Humboldt sold at 15c.

The gold stocks have not been very active, but have had an upward tendency. Pioneer advanced from 85¾ to $6½ on good reports. Santa Ysabel advanced to $14¼, losing the fraction. Merced declined from $7½ to $6¼, and Gold Coins was steady at $2.

3 P. M.—After the noon hour prices were both strong and weak. Boston & Montana sold up to $144, but dropped to $143. Centennial declined to $18⅛. Butte & Boston sold at $26½ and declined to $25⅜. Osceola sold at $40, Quincy at $115¾ and Wolverine at $16⅜. Tamarack declined $1 to $134. Pioneer was in good demand at $6⅞.

Cleveland. Oct. 20.

(From Our Special Correspondent.)

As the date approaches for the closing of the mines for the season interest begins to lag in the mining stock market in this city. Prospective investors offer $1 more per share for Minnesota and $5 more for Pittsburg & Lake Angeline. There is some of the latter-named stock on the market at present, but it is held at $5 above the offered price of the buyers.

Los Angeles, Cal. Oct. 12.

(From Our Special Correspondent.)

The trading on the exchange this past week has been characterized by the rapid advance in Magganetta, strengthening of Pacific Consolidated, and a better feeling all along the line in all stocks excepting the Wedge property. This property is still on the down shoot; prospects are not exceedingly fine for its improvement; reports from the mine are as good as ever, but the quotations still hang low. That it will eventually recover to 10 or 15c. no one doubts, but when that better turn will come is the problem that at present confronts most of the brokers on the floor. Magganetta is in good ore and is looking splendidly; therefore it will undoubtedly advance to the neighborhood of 5c. Rumors from the Pacific Consolidated Company advise that there will be a shipment of ore from this property in the near future.

Sales have not been as heavy as we had hoped in our new quarters, but still there is good legitimate trading. The call-room is now fitted up with a ladies' gallery and there is every facility for trading.

Salt Lake City. Oct. 16.

(From Our Special Correspondent.)

Not only are there few outside orders received for Utah mining shares, but local trading seems to be nearing an end. With few exceptions there is no support behind the usual trading list and almost any stock can easily be pushed down. So far has this depression gone that several of the brokers are desirous of closing the exchange for an indefinite period. A meeting is called for Monday next to act on this proposition, which promises to be a lively one, as the brokers are divided in opinion. Should the determination be made to do away with the daily call, the plan seems to be to have a committee of three, who will each day give out the ruling quotations. For a long time most of the sales were made off the exchange and the regular call now simply emphasizes the prevailing stagnation, so perhaps it is as well to do away with it. More particularly is this true under the elastic rules, or practices, governing the exchange.

Ajax is credited with a new ore find, which is opportune, as the annual meeting takes place on Monday. Samuel McIntyre has instituted a suit to compel the directors to deliver to the company 44,000 shares, alleged to be held by Henry M. Ryan, Frank Knox and W. S. McCornick, claiming fraud in the manner in which they were first placed in the name of Henry M. Ryan. The outcome of the annual meeting is awaited with interest. For weeks the stock has been dormant.

Alice, of Montana, a Utah company, chiefly owned by Walker Brothers, Bankers, at Salt Lake, declared a $20,000 dividend on Wednesday, payable October 25th, making $40,000 paid in 1897, with the prospect of another in December. The stock is closely held and is rarely quoted; there are several lots owned in Boston and elsewhere in the East.

Bullion-Beck and Centennial-Eureka, in spite of stopping production, apparently remain nearly unchanged, though there are signs of lack of strength in the former. South Swansea has posted a dividend of 5c., or $7,500, payable October 21st; the mine is said to show better than recently, yet shares are lower. South Swansea is about as last week. Emerald reports a new find, but the stock fails to respond. Four Aces is arranging to levy an assessment to pay pressing indebtedness and secure funds for further exploration. It sold to-day for 1¼c. Buckeye did business this morning at 4c., and its friends are sanguine of the future. Grand Central and Lower Mammoth continue to be the two most promising of the newer Tintic stocks.

Chloride Point, one of the most recent stocks of the Mercur region, is growing in favor. It sold to-day at 37c. The property is steadily improving. Mercur dropped off several points in the middle of the week, though it recovered to-day. Geyser-Marion also fell away and closed lower than on last Saturday, notwithstanding the last shipment of cyanides was the best ever sent from the mill, and the management states that the next dividend will not be postponed. Northern Light is again on the down grade.

Silver King shows the most positive strength of any stock on this market. There are several orders, and the bid is advanced to $14.50. Daly West is slowly but firmly moving upward, and there are more and more intimations of the mine soon resuming operations. Anchor holds its annual meeting on Monday, as does Creole, another Park City company, considerable stock of which is held abroad. Ontario and Daly present no new features. Dalton has levied an assessment of ½c., payable November 15th.

Inquiries are made about the Highland Boy at Bingham. The stock thus far is a stranger on this market, and most of it is believed to be held in London. As for the mine, it has every sign of proving a large and regular producer, and the management at this end is excellent.

San Francisco. Oct. 16.

(From Our Special Correspondent.)

It has been rather a varied week, opening very quietly, with a little spurt of activity in the middle, and then a gradual decline to a rather weak close. The contrast between the recent spurt and the weakness now shown is well expressed in the following summary from the *Report* of to-day: "Crown Point, Belcher, Yellow Jacket and most of the other Comstocks, were at their highest in October 6th, just 10 days ago. Comparing the top prices on that date with the lowest this morning, the extent of the decline is shown as follows: Belcher, from $2.15 down to 51c.; Crown Point, $1.65 to 64c.; Yellow Jacket, $1 to 55c.; and the other Comstocks as follows: Alpha, 23 to 11c.; Alta, 29 to 16c.; Andes, 35 to 29c.; Best & Belcher, 84 to 54c.; Bullion, 15 to 10c.; Caledonia, 55 to 33c.; Challenge Consolidated, 71 to 40c.; Chollar, 81 to 63c.; Consolidated California & Virginia, $1.75 to $1.35; Consolidated Imperial, 4 to 2c.; Confidence, $1.40 to $1.20 (30c. assessment added); Exchequer, 7 to 5c.; Gould & Curry, 70 to 37c; Hale & Norcross, $1.25 to $1.15; Justice, 49 to 32c.; Kentuck, 11 to 7c.; Mexican, 64 to 45c.; Occidental Consolidated, $1.70 to $1.10; Ophir, $1.25 to 90c.; Overman, 29 to 15c.; Potosi, 45 to 51c. (25c. assessment added); Savage, 68 to 40c.; Segregated Belcher, 26 to 12c.; Sierra Nevada, $1.25 to 90c; Union Consolidated, 66 to 44c.; Utah Consolidated, 30 to 18c."

According to the sworn statements filed as of date October 1st, the following companies report having had balances on hand at that date, with all expenses paid for September: Alpha Consolidated, $6,527; Andes, $8,011; Alta, $532; Best & Belcher, $3,144; Bullion, $4,328; Caledonia, $1,128; Challenge Consolidated, $1,414; Consolidated Imperial, $530; Consolidated New York, $1,215; Crown Point, $2,948; Confidence, $678; Exchequer, $941; Gould & Curry, $724; Hale & Norcoss, $3,445; Julia Consolidated, $2,628; Justice, $4,443; Kentuck Consolidated, $1,450; Mexican, $12,144; Overman, $4,389; Occidental Consolidated; $1,328; Ophir, $13,602; Savage, $10,692; Silver Hill, $453; Sierra Nevada, $12,121; Segregated Belcher, $357; Standard Consolidated, $40,426; Syndicate, $946; Union Consolidated, $5,961; Utah Consolidated, $1,666.

The following mining companies report having had an indebtedness October 1st, 1897: Belcher, $7,498; Chollar, $17,804, less unsold bullion valued at $7,222; Consolidated California & Virginia, note at bank for $1,500 less $463 cash on hand; Lady Washington, $1,413; Potosi, $6,275; Silver King, $480.

The Star of Plumas Mining Company, of Plumas county, has levied an assessment of 25c. per share, delinquent November 20th.

The Teirakoff Consolidated Mining Company, of Amador county, has levied an assessment of 1c. per share.

At the fifteenth annual meeting of the Stock and Bond Exchange of San Francisco, on Monday, the following officers were re-elected: President, John Perry, Jr.; vice-president, Edward, Pollitz; chairman, R. G. Brown, and treasurer, Daniel Meyer. Charles Sutro, Jr., was elected vice-chairman in place of A. L. Langerman. Edward Barry, who has served as secretary of the Exchange since its organization, resigned, and Henry D. Woolfe was appointed his successor, under salary. There was an increase in the amount of business for the 12 months ended on September 19th of $2,507,038 over the preceding year. The total cash transactions in stocks and bonds were $13,078,371, being an increase in stocks of $1,464,264, and in bonds of $1,042,774. The shares of stock sold increased 83,068, and of bonds 986,100. The showing was very satisfactory to the executive committee.

London. Oct. 13.

(From Our Special Correspondent.)

West Australians continue to occupy most of the attention of the Stock Exchange, and many members are deserting the other sections of the mining market. This continued increase in the size of the West Australian seccion has been taken advantage of by the promoters to publicly and privately disseminate information of a pleasing character so that bidding is pretty brisk and quotations advance. Practically the Kalgurli District is the center of interest, for all the big mines are situated there. Of these Great Boulders, Ivanhoes, Kalgurli Gold and Lake View Consols attract the most attention, and judging by the returns, there is substantial reason for a boom. Both in London and in the Australian Colonies there has hitherto been much skepticism about West Australia as a mining country, but this unbelief is showing signs of giving way before the figures of production. At all events in city circles it is beginning to be felt that the future of West Australia is not all promoters' talk.

In the South African section quietness has ruled and there have been several disturbing features. It is true that the figures for the gold production of the Rand for September showed another record, 262,150 oz., as compared with 259,603 oz. in August, which was itself a record, but the effect of these figures was inappreciable. The increase in the output was distributed pretty evenly among the various mines, and there were one or two slight decreases. The only fall worth notice was in Geldenhuis Deep, where the figures receded from 9,335 oz. in August to 8,677 oz., and the figures for August were lower than those of July. The contents of the ore at this deep level are diminishing. From inquiries made in various quarters it appears probable that several other deep level mines will be in operation on a large scale by the New Year, so that we may expect the output to go on increasing for some time.

The disturbing influences referred to above have been, firstly, the reported illness of Mr. Rhodes, which caused a serious fall in Chartered, and secondly, the continued conflicting reports about the mining reforms in the Transvaal. First came the report that the Attorney-General of the Transvaal had pronounced an opinion in favor of the abolition of the dynamite monopoly. Afterward came a denial that any such opinion had been given or asked for. Then came recommendations from a sub-committee of the Raad in favor of reforms, and on top President Kruger announces that reforms won't be considered at all until after the presidential election in the new year. The average man in the city asks how he is to be expected to cultivate the South African market with all this chopping and changing. This morning there is news that Mr. J. B. Robinson has refused to grant any more loans to the Transvaal government until the reforms are granted, but there is nothing to prove the correctness of this report.

The Indian section has attracted attention this week partly owing to the increased return of the Mysore mine, but more from the events in connection with Coromandel and Ooregum. As regards Coromandel, I have several times referred to the intention of the directors to issue new capital. At the time the public first got word of this intention there were plenty of people who said that the mine was not turning out so good as expected and that the new capital was required for developments and prospecting. This, however, was not the case, for the manager's report proves conclusively that there are very large bodies of ore in sight and that it would well pay to develop them and increase the milling capacity. The directors have taken his advice and have decided to raise £37,500 more. This they will do by creating 15,000 more shares and disposing of them at £2 10s. each to existing shareholders. The existing shares at present stand at about £3 10s. so that shareholders are sure to take up the new issue. The total capital will thus be increased from £120,000 to £135,000. The Ooregum on the other hand is in a far from satisfactory condition, for the ore has been growing gradually poorer for some time; the mine has recently been thoroughly examined by the manager of the Champion Reef, and he reports that though the rock at present is too barren to repay, there are indications that at lower levels the value will increase again. He, therefore, recommends development work to be pushed forward and that the profits from treating the payable ore now in sight should be devoted to this work instead of to the payment of dividends.

Very little has been heard of American, Canadian or Klondike companies this week. An illustrated article in one of the monthly magazines by Mr. De Windt on the "Route to Klondike," has presented so vividly to the English reader the difficulties of the way, that few will be disposed to venture money on these schemes in the future. This article has had far more effect than the ordinary newspaper warning, for it is by an acknowledged authority, and the photographs were taken by him before the boom arrived and they are quite genuine.

Apart from the West Australian boom, most attention is attracted to the Mount Lyell District. Another new company has come out, this time the copper mines of Mount Lyell West, Limited, with a capital of $400,000, to acquire and work the blocks west of the great Mount Lyell. This is a reconstruction of a company of somewhat similar name which has been in existence a few years. Very little development work has been done as yet, and the future is of course problematical, the promoters relying chiefly on the great Mount Lyell's performance. The capital is far too high.

The boom in West Australians has been taken advantage of to bring out a new company to smelt ores at Fremantle, West Australia. This is the West Australian Smelting Company, Limited, with a capital of £350,000. Besides erecting a smelter it is intended to acquire lead mines, so that West Australian ores may be treated locally instead of being sent to South Australia as at present. Among the directors are Mr. J. S. MacArthur, of the MacArthur-Forrest process, and Mr. Wittenoom, Minister of Mines of West Australia.

Paris. Oct. 10.

(From Our Special Correspondent.)

The mining stock market has shown this week no features of special interest, and one can hardly say much of matters here, except that in nearly all directions prices have been good and the demand for stocks undiminished.

The only weak point seems to be in copper; there are certain indications of a diminished demand for the metal and possible lower prices. This has not yet affected the quotations for the copper shares, which still continue high. In the other metals, such as lead and zinc, demand is still good and prices have fluctuated little.

The Société Française de Charbounages du Tonkin reports its production for the nine months ending with September at 96,143 tons of coal, and 26,408 tons of briquettes; an increase of 17,284 tons of coal and 16,154 tons of briquettes. The company is enlarging the plant at its Hongay mines, and finds a ready sale for its output in the East. AZOTE.

MEETINGS.

Anchor Mining Company, annual meeting at the office in Park City, Utah, on November 17th, at 10 o'clock a. m.

STOCK QUOTATIONS.

NEW YORK.‡

Name of Company.	Location.	Par val.	Oct. 16. H.	Oct. 16. L.	Oct. 18. H.	Oct. 18. 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
Alamo	Colo	1	03⅝		03¼	03¼			03⅜		03¼	.03¼	.03⅛		10,800
Alice	Mont.	25			.40										100
Anaconda	Colo.	1			.45						47½				800
Annetta	"	1	.46		.46⅛	.46	.46				.46½		.47		1,100
Argentum-Jun.	"	5													
Barcelona	Nev.	5													
Belcher	"	100													
Best & Belcher	"	100									.60				200
Brunswick	Cal.	1			.14										500
Cannon Ball	Colo.	1			.007	.006			.006	.006	.007	.006	.008	.007	41,500
Chrysolite	"	100													
Comstock T.	Nev	100													
Com. T. bonds	"	100													
Con. Cal. & Va.	"	100	1 40												200
Con. Imperial	"	100													
Creede & C. C.	Colo.	1	.05		.05		.05		.05						2,400
Cripple Cr. Con.	"	1	.08⅝	.08⅛	.08⅛	.08¼			.08⅛	.08	.08½	.08	.08¾	.08⅛	23,600
Crœsus	"	1													
Crown Point	Nev.	100							.65						300
Deadwood	S.Dak	25													
Elkton	Colo.	1													
Fanny B	"	1													
Father de Smet	S.Dak	100													
Favorite	Colo.	1													
Fortuna	Cal.	10	11 25		11.25	11.13	11.25				11 13		11.25		740
Garfield Gr'se.	Colo.	1	.04⅛		.04				.04						2,000
Gold Cliff	"	1													
Gold Coin	"	5													
Golden Fleece	"	1			.55				.45						500
Gold Magnet	"	1	03⅝	.03⅝	.04	03⅛			.03¾	.03			.04	.03⅜	50,350
Gould & Curry	Nev.	100									.45				.00
Hale&Norcross	"	100													
*Homestake	S.Dak	100		37.75		38.50		38.50		38.55		38.50			
Horn Silver	Utah	25									1.55				100
Iron Silver	Colo.	20													
Isabella	"	1			25¼	.28	.27		.26	25⅛	26½	26	.26½	.26⅛	14,600
Jack Pot	"	1													
Jefferson	"	1	.05⅝	.05⅛	06¼	06			06¼	.06	06	.05⅝	06¼	.06	20,800
Justine	"	1	008	.005	.005	.003			.004	.004	005	.004			57,800
King & Pembr'e	Ont.	10													
Lacrosse	Colo.	10													
Leadville Con.	"	10													
Little Chief	"	50													
Mexican	Nev.	100	55						.40						500
Miami	Colo	1	40⅛		.41	40⅛			41	.40¼	.41		41		1,500
Mollie Gibson	"	5							.19						100
Moulton	Mont	5													
Mt. Rosa	Colo.	1	.09						.09						1,100
New Haven	"	1													
Old Gold													.009	.008	9,000
Ontario	Utah.	100					4 50								180
Ophir	Nev.	100													
Pharmacist	Colo	1	.11	.09⅜	.10		.11		.10	.09⅜	.10	09½	.10	.09⅛	15,100
Phœnix Con.	Aris.	100	.05												400
Plymouth	Cal	50													
Portland	Colo.	1													
Potosi	Nev.	100													
*Quicksilver	Cal.	100	3.00	1.00	3.00	1.00	3.00	1.00	3.00	1.00	3 00	1 00			
* do. pref.	"	100	11.00	7.00	11 00	7.00	11.0	7.00	11.00	7 0	11.00	7 00			
Red Mountain	Colo.	5													100
Rocky Mtn.	"	1			.17	.16			.16				.11½	.14	5,000
Savage	Nev.	100					.40								200
Sentinel	Colo.	1							.004	004	.004	004			5,000
Sierra Nev.	"	100													
Small Hopes	"	20													
*Specimen	"	1													
Standard Con.	Cal.	100									1.60				300
Syndicate	"	100													
Union	Colo.	1													
Union Con.	Nev.	100													
Utah	Colo.	5													
Waldorf	"	1	.12⅛		.13				.12				.11⅛		4,600
Work	"	1	04½	.04	.04⅛	.04			.04⅛	.04	.04	.03¾	.04	.03¾	31,500
Yellow Jacket	Nev.	100													
Yukon	Can.	1	.14⅛	10⅜									.11		29,000

COAL AND INDUSTRIAL STOCKS.

Name of Company.	Location.	Par val.	Oct. 16. H.	Oct. 16. L.	Oct. 18. H.	Oct. 18. 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
*American Coal	Md.	25	140	120	140	119	140	119	140	119	140	120			
*Col. C.& I. Dev	Colo.	100	1	¾	1	¾	1	¾	1	¾	1	¾			
Col. Fuel & I.	"	100			22¼	21¾	23⅜	22⅛	23¾	23⅛	24	23	23	22¾	2,200
Col.& H C.& I.	Ohio.	100							6½						100
*Con. Coal	Md.	100		38		38		38		38		38			
*Edison E.I of B	N. Y.	100		110		110		106		106		105			
do. E.I. of N.Y	"	100					125				125				421
General Elec.	"	100	34	33⅞	34⅛	33¾	34⅞	34¼	35⅜	34¾	35¼	34⅜	34¾	34	4,070
Illinois Steel	Ill.	100					45								100
*Maryland C. pr	Md.	100	45	40	55	40	55	40	55	40	55	40			
*Minnesota Ir.	Minn.	100	60	56⅛	60	56⅛	57½	56⅛	60	57	60	59¾			5,300
National Lead	N. J.	100	34	33⅛	35	34¼	35⅝	34¾	35⅞	35⅝	36¾	36	36	34¾	
*New Central C	Md.	100	8	6	8	6	8	6	8	6	8	6			
New N.S.& D.D.	Va.	100													
Oregon Impr.	Ore.	100													
*Penns'lv'nia C	Pa.	100	370	340	370	340	370	340	375	340	370	340			
Penn. Steel	"	100													
*Standard Oil		100	337	335	337	335	340	338⅛	340	339	340	339			
Tenn.C.,I.&R.R.		100	27¼	27	27⅞	27	28⅛	27¾	29⅜	28⅝	29⅜	27	28⅜	27⅛	15,591
Worth. Pump	N. Y.	100													
*Worth P., pref	"	100	95	91	95	91	95	91	95	91	95	91			

‡Official quotations. New York Stock Exchange, mining, 630 shares; other stocks, 27,781 shares; Consolidated Stock and Petroleum Exchange, mining, 11,340 shares; Mining Exchange, 291,000 shares. Total shares sold, 330,751. * Bid and ask quotations.

PHILADELPHIA, PA.†

Name of Company.	L'ca-tion.	Par Val'e	Oct. 14. H.	Oct. 14. L.	Oct. 15. H.	Oct. 15. L.	Oct. 16. H.	Oct. 16. L.	Oct. 18. H.	Oct. 18. L.	Oct. 19. H.	Oct. 19. L.	Oct. 20. H.	Oct. 20. L.	Sales
Cambria Iron.	Pa.	50	38 00		37 50	35.50	37 00	36.25	37.88	37 50	37 88		37.50	37 00	910
Choc.&Glf.Ctfs	I T.	50	8 00		8.00		8.00		8 50		8.50		8 75	8.50	1,720
Conn'ls.Gas C	Pa.	5													
Hunt &Br.Top	"	50													
" pref	"	50	47.00												20
Penn.Gas Coal	"	50													
*Pa.S'ltMfg.Co	"	50		100		100						100		100⅛	
Penna. Steel	"	100	20.00	19.88	19 00	18 00	17.50	15 00	17.50	17.00	18.00	17 00	16 00	13.00	3,243
" pref.	"	100			35.00	30 00			33 00		33.00	30 00	28.50	26 63	659
UnitedGas Im.	Can.		84 24	83 75	84 00	82 00			85 88	84.75	86.50	85 50	85.00	85 75	13,980
Welsb.of Can	"	5	1.75												150
Welsb.Com'l	Pa.	100													
" Com.pr	"	100							69.00						1
" Light	"	100	45 25		45.75	45 00	45.00		45.00	44.75	45 00				995
West. Coal	"	50			48.50										32

† Official quotations Philadelphia Stock Exchange. * Bid and ask quotations. Total sales, 21,710.

PITTSBURG, PA.*

Oct. 20.

Name of Company.	Loca-tion.	Par val	Bid.	Ask.	Name of Company.	Loca-tion.	Par val	Bid.	Ask.
Allegheny	Pa.	$100	53		N.Y. & C. Gas Company	Pa.	$50		
Carborundum	"	100			Peoples' Natural Gas	"	50		
Chartiers Valley	"	100			Peoples' Pipeage	"	25	13½	14½
Enterprise Mining	Colo.	5			Pennsylvania Gas	"	50		6½
Lustre Mining	Mex.	10			Philadelphia Gas	"	50	21⅛	21¾
Mansfield Coal	Pa.	50			Silverton Mining	Colo.	10		
Manufact. Gas	"	50			Wheeling Gas	W.V.	50		17

* Official quotations Pittsburg Stock Exchange.

BOSTON, MASS.‡

Name of Company.	Loca-tion.	Par val.	Oct. 15. H.	Oct. 15. L.	Oct. 16. H.	Oct. 16. L.	Oct. 18. H.	Oct. 18. L.	Oct. 19. H.	Oct. 19. L.	Oct. 20. H.	Oct. 20. L.	Oct. 21. H.	Oct. 21. L.	Sales.
*Ætna Con., q.	Cal	5		4.25		4.25		4 25		4.25		4.25		4.25	
Allouez, c.	Mich.	25			1.00				1.00		1 00				600
Anaconda, c.	Mont.	25													
Arnold, c.	Mich.	25	4 00				4.00						3 88		275
Atlantic, c.	"	25	23.50	23.00	23.50	23.00					25.00	24 00			315
Bonanza	Colo.	10													
Bost. & C.C., g.	"	1													
†Bost.&Mon,gsc	Mont.	25	143	139⅜	141	140½	143⅛	141	145	143⅛	143	141⅛	144	142½	5,887
Butte & Bost., c	"	25	23.50	22 75	23 75	23 38	25 00	23 75	25.00	22.25	25.88	25.00	26.25	25.25	12,815
Cal. & Hecla, c	Mich.	25	450		450		450		450		465	450	467½	465	157
Catalpa, s l	Colo.	10													
Centennial, s.	Mich.	25	15 00	14 13	15.50	14 00	17.00	15 50	19 25	17 50	19.50	18 75	19.00	18.13	11,860
Central, c.	"	25													
CopperFallsMg.															
Crescent		10													
Dominion Coal	N. S.	100	22.50	22 00	22.00		22 13	21.75	24.25	22.50	24.25	23 75	23 88	23.63	9,615
do. pref.	"	100			105		105		105				105¼	105	85
Franklin, c	Mich.	25	20 00						21.00	20.00					390
Gold Coin, g	Colo.	5	2 00		2.00		2.00		2.00				2.00		4,125
Humboldt, c	Mich.	25	.15												500
Illinois Steel	Ill.	100							45 00	44 50	45 00	44 50	45.00		300
Kearsarge, c.	Mich.	25			19.25				20 00	19.75	20.75	20.25			550
Lake Sup. Iron.	"	25													
Merced, g.	Cal.	15	7.50	6.50	6 25		6 50		6 25		6.50	6.25	6.50		1,400
*Napa Con., q.	"	7		6.50	8.50	6.50	8.50	6.50	8.50	6.50	8 50	6.50	8 50	6.50	
New Idria Mg.	"	5													
Old Dominion,c	Ariz	2	24 00	23 00	24.00	23.25	24.25	23 63	25 00	24.25	25 00	24 25	24.50	24 25	11,540
Osceola, c.	Mich.	25	37 50						39 75	38.75	40 00		40 25	40.00	859
Pioneer, g.	Cal.	10	6 00	5 75	5.75		6 13	6 00			6.25	6 00	6.50	6.25	1,690
Quincy, c.	Mich.	25	113		112		110		110	109	113	110	116	115	650
Ridge, c.	"	25													
San. Ysabel, g.	Cal.	5	15.00	12.75	13.00	12.00	14.25	14 00	14.00		14.00				329
Tamarack, c.	Mich	25	132	130	130		13.		130⅛	130	155	130	135	134	387
Tamar'ck,Jr.,c.	"	25	16.00				16 25		16.25		16.50				337
Tecumseh, c.	"	25			4.25	4 00	4.63	4.38	4 38		4 38		4.13	4.00	2,150
Wolverine, c.	"	25	16 50	15.75	16 00		16 50	16 38	16.50		16 50	16.00	16 75	16.50	1,400

‡ Official quotations Boston Stock Exchange. * Bid and ask quotations. † Ex-div. Total sales, 68,246.

BALTIMORE, MD.*

Week ending Oct. 21.

Name of Company.	Loca-tion.	Par value	Bid.	Ask.	Name of Company.	Location.	Par value.	Bid.	Ask.
Atlantic Coal	Md.	$10			Howard C.&C	Md.	$5		
Big Vein Coal	"	10			Newburg Orrel C.	"	25		
Consolidation Coal	"	100	39	40½	Silver Valley	N. C.	5		
Georges Creek Coal	"	100							

*Official quotations Baltimore Stock Exchange.

CLEVELAND, O.*

Name of Company.	Par value.	Oct. 20. Bid.	Oct. 20. Ask.	Name of Company.	Par value.	Oct. 20. Bid.	Oct. 20. Ask.
Aurora	$25		$4	Lake Superior	$25	$23	$25
Chandler	25	$37	40	Minnesota	100	59	60
Cleveland-Cliffs	100	30	35	Pittsburg & L'ke Angeline	25	75	80
Jackson	25			Republic	25	10	11

*From our special correspondent.

ASPEN, COLO.

Oct. 15.

Name of Company.	Location.	Capitalization.	Par value.	Quotations. Bid.	Quotations. Ask.
Agnes C	Manitou, Colo		$1.00		
Alta Argent	Aspen "	$2,000,000	1.00	$0.02¾	$0.03
Argentum-Juniata	" "	2,600,000	2.00	.21	.21⅝
Aspen Contact	" "		5.00		.11
Aspen Deep	" "		1.00	.01⅜	.02
Aspen Mining and Smelting	" "	2,000,000	10.00	1.10	1 15
Bangkok-Cora Bell	Leadville "	600,000	1.00	.02	.02⅜
Best Friend	Aspen "		1.00	.01⅛	.01⅝
Bi-Metallic	" "		1.00	.00⅞	.01¼
Bushwhacker	" "	2,000,000	1.00	.02¾	.03
Della S. Consolidated	" "	1,000,000	1.00	.10	.12
Gold Valley Placer	" "		1.00	.00⅝	.00⅞
Homestead	Rapid City, S. D.			.05	.05⅛
Ingersoll	Neihart, Mont			.01½	.01⅜
Little Annie	Aspen, Colo			.01	.01¼
Mineral Farm Consolidated	" "		1.00	.01	.01¼
Mollie Gibson Consolidated	" "	5,000,000	5.00	20⅛	.21
Roaring Fork	" "	3,000,000	1.00		.02
Sheep Mt Tunnel	" "	2,000,000	1 00	01⅛	01⅝
Smuggler	" "	1,000,000	1.00	.51	.55
Tenderfoot Consolidated	" "	2,000,000		.00⅛	.00¼
Union Leasing & Mg	Leadville, Colo	500,000	1.00		

COLORADO SPRINGS, COLO.‡

Name of Company.	Par val	Oct. 11. H.	Oct. 11. L.	Oct. 12. H.	Oct. 12. L.	Oct. 13. H.	Oct. 13. L.	Oct. 14. H.	Oct. 14. L.	Oct. 15. H.	Oct. 15. L.	Oct. 16. H.	Oct. 16. L.	Sales.
Alamo	$1	03⅝		.03⅝		.03⅝		.03½	.03⅝	03⅝				9,000
Anaconda	5									46		.48	.46	1,140
Arg'ntumJ	2			.20⅛		.25	.20¾	20¾		21¼		2 ⅝	.20⅝	6,952
Banner	1									.01⅛				1,000
Bob Lee	1													
Cr. & C. C.	1			.04⅝		04¼								1,500
C. C. Con.	1	.09	.08⅞	09⅛	.09	.09⅜	.09	09		.08⅞		09	.08¾	18,500
Currency	1													
Des Moines	1	.02				.02								6,700
Elkton	1	1 00	.97¾	.98¾	.98	.97¾	.95¾	97⅛	.95¼	98½	.97⅛	.95⅞	90⅝	89,300
El Paso G.	1							.23½	.23⅛			.23⅛	.23	40,200
Fanny R.	1	19⅝	.17⅞	.19⅛	17					.17⅛	.16⅞			24,500
Favorite	1													
Findley	1	.01	.00⅝											5,000
Gold. Fl'ce	1			.52¼	.43			.61	.54⅛	.56¼	.55¼	.57⅛	57	8,595
Hayden	1							.008		.008				13,000
Ingh'mCon	1					.20				.20	.19¾	.20⅜	.19⅛	3,600
Isabella	1	.24¾				.25¼	.25⅛	.25⅛	.25⅞	.25¾	.25⅛	.26⅛	.26	35,100
do.stamp	1													
Jack Pot	1							06	.05⅜	05⅞		.06	.05⅞	6,500
Lillie	1			.63⅛	.62					.65		.65⅛	.64	2,925
Magnet R.	1					01⅛								3,000
Marion	1													
Matoa	1											.10⅛		1,000
Mollie G.	5	.21½		.22¼	22¼			.21⅞	.21⅜	22	.21	.21⅛	.20	9,530
Moon-A'c'r	1					.93		93⅛	.93	.94	93⅛	.94¼	94	2,350
Mt. Rosa	1							.08						2,000
NewHaven	1	01⅜		.01⅝										3,000
Oriole	1													
Pharmacist	1	.10⅛				.10				.10⅛		.10⅜	10	3,500
Pilgrim C	1			02¼										4,000
Portland	1	.73⅜	73½			.73½						.74⅛	.74	12,600
Silver Gold	1													
Specimen	1													
Theresa	1							.07⅛		.07⅝				2,000
Trachyte	1	01⅜												1,000
Union	1	.20		19⅞	.19⅜	19⅛	.19⅛			.19⅛	19	18⅞	18⅜	35,000
Work	1			.04⅛	04⅜	.04⅜	.04¼			.04¼	.04⅛	.04⅜	.04⅜	11,500

‡ Official quotations Colo. Springs Mining Stock Association. Total shares sold, listed, 363,172; unlisted, 155,700.

STOCK QUOTATIONS.

DENVER, COLO.‡

Name of Company.	Par val.	Oct. 11. H.	Oct. 11. L.	Oct. 12. H.	Oct. 12. L.	Oct. 13. H.	Oct. 13. L.	Oct. 14. H.	Oct. 14. L.	Oct. 15. H.	Oct. 15. L.	Oct. 16. H.	Oct. 16. L.	Sales
*Acacia	$1	.03⅛	03½	......	......	.03⅛	.03⅝	......	......	.02	.03¼		......	......
*Adcie C.	1		008	105	.08	......			.008	......	......	......	......	......
Ætna	1	003	.003¼	003¼	......	0 3	......	.02⅝	......	003	......	0.3	...	37,000
*Alamo	1	.03	04	03⅜	.03¾	......	.03¾	.03	.03⅝	.03⅝	.04	.03½	......	......
Anac'da G.	1	.44½	......	.45⅛	......	.45	47	.45	.45¾	45½	43	.45	46	500
*Aola	1	.01	01⅛	......	......	.01	.01¼	......	......	.009⅛	......	.009	......	......
*Arcadia C.	1	......	......	......	......	......	......	.03	.03⅜	......	......	.03⅛	......	......
Arg. J.	1	.19	.22½	.23	......	.19½	21	.8½	.20½	19½	......	.19⅛	......	100
*Bangkok	1	......	......	......	......	.01⅜	......	01⅜	......	......	......	......	......	......
*Bankers	1	......	......	......	......	......	......	......	......	05⅛	......	.05½	......	......
*Ben Hur	1	03¼	03½	......	......	.03½	.04	......	......	.03	.04	......	......	......
*BigJohnny	1	.002¼	.003	......	......	.002¼	.0.3	......	......	......	......	002½	.003	......
Big Six	1	......	......	.07⅛	......	07	......	.08	.12	.07⅛	.10	.07¼	......	43
*Blue Jay	1	......	......	......	......	......	......	......	......	......	......	.08¾	......	......
*Bob Lee	1	.004	.005½	.005	.005½	.0.5	.005⅛	......	......	0 5	.006	005	005⅛	......
Bost &C.C.	1	......	......	......	......	......	......	......	......	003⅛	......	.003	.004	1,000
Bradley P.	1	......	......	......	......	.002⅜	.003	......	......	......	......	......	......	3,000
Cannon B.	1	004½	.005⅛	.005	......	004¾	.005⅛	.005	005¾	.005⅛	......	.005	.006	5,000
Champ'ne.	1	.002	.0 5	.002¼	......	.002	......	.002	......	......	......	.001¾	......	18,000
Chimb'raz'.	1	003⅛	......	......	......	......	......	......	......	......	......	......	......	......
*C. C. Imp.	1	001¼	.001⅛	.001½	.002	.001⅛	......	......	......	.001⅛	......	.001¾	.002	......
*Colo.C.&M.	1	.02	.02⅛	.01¼	.02⅛	......	......	.01⅛	.02⅛	.01⅞	.02⅛	......	......	......
Colo Giant.	1	.007½	.008¾	.008	.008¾	.008	.010	.008½	......	.008	......	.007¾	......	5,000
Copper Mt.	1	......	......	......	......	......	......	......	......	......	......	......	......	......
*C K. & N.	1	......	......	.009½	01	.009½	.010½	......	......	.009½	.01⅛	.009½	......	......
Cr. & C. C.	1	......	......	......	......	......	......	......	......	......	......	......	......	......
C. C. Con	1	.08⅜	.09⅛	......	......	.09½	......	.08⅝	.09	.08⅝	.09¼	.08¾	.09⅛	1,000
*Defender	1	.002½	.003	......	......	.002½	.005	......	......	......	......	......	......	......
*Dictator	1	......	......	......	......	......	......	......	......	......	......	.00⅛	.001½	......
Elkton	1	......	.99		99⅛	.95⅛	.96½	91⅛	97	.96½	......	.95⅛	.96½	1,000
*Fanny B.	1	......	......	......	......	......	......	......	17	......	......	......	......	......
Finance	1	.003¼	.003¾	.003	.003⅛	.003¼	......	.003	.003⅛	.003¼	.003⅛	.003	.003¼	11,000
*Garf. Gr.	1	......	......	......	......	......	......	04	.04¾	.04½	.05	04	.04⅞	......
Gene Field.	1	.002	.002¾	.002¼	......	002¼	.002½	002¼	002½	002⅛	......	.002⅛	......	18,000
*Geo Wash.	1	.002⅛	......	......	......	......	......	......	......	......	......	.002	......	......
Gold Coin	5	......	......	......	......	......	......	......	......	......	......	......	......	1,000
Gold Field	1	.001¾	......	.001⅛	......	.001⅛	.001½	.001⅛	001¾	......	......	.001½	001⅛	2,000
G. Fleece	1	.38	......	.46	.51½	55	.56	.66	......	.60	......	59	62	6,600
G Queen.	1	......	......	.002	......	.001¾	......	......	......	001⅛	.001¾	.001½	001¾	16,900
*G. Smith	1	......	......	......	......	002¼	......	.002⅛	.003	.002⅛	.003¼	.002¾	......	......
GoldStand.	1	.03⅛	.03⅛	.03¼	.03⅛	.03⅜	......	03⅛	.03⅞	.03⅜	.03⅛	.03⅛	.03⅛	1,200
Gregory	1	.006⅜	.007	.007¼	.008	007	......	.007¼	008½	.009¼	.010	.008⅜	.009¼	46,800
" Leasing	1	......	......	......	......	.01⅛	......	.01⅜	.01⅝	.01⅛	.02	.01⅜	......	500
*Hecla	1	.00⅜	.001¼	.00⅛	......	......	......	00¾	.001¾	......	......	.00¾	.002	......
*Henrietta.	1	.002	......	......	......	......	......	002¼	0.3⅛	......	......	.002	.005	......
*Illinois	1	.004½	005¾	......	......	.005	.005¼	......	......	005	.005¼	.004¾	.005	......
Insley	1	......	......	......	......	.003	.003¼	......	......	......	......	006	.003⅛	2,000
Internat'l	1	......	......	.03⅜	......	......	......	......	......	......	......	......	......	1,000
Iron Clad	1	.03¾	.04	.03⅞	......	.03⅜	.04⅛	03⅞	.04¼	......	......	......	......	1,000
Isabella	1	......	......	.25	......	.25	26⅛	25	.2 ¾	......	......	.25½	26⅛	300
*Jack Pot	1	.05½	.05¾	.05½	.05¾	.05⅛	.05¾	.05⅛	.06⅛	.05⅜	06	.05⅛	.06⅛	......
Jefferson	1	......	......	......	......	......	......	......	......	......	......	......	......	......
J. Blanche.	1	.12½	.13	.13¼	......	.14	......	15	.15⅛	15	......	.15	......	13,000
Justine	1	.001¼	......	.001½	.001¾	.001⅛	......	.001¾	.002	.002	......	.002	......	59,000
Kimberly	1	.03⅛	......	......	......	......	......	.03	05	......	......	......	......	1,000
Ladessa	1	......	......	.002	.004	.003	......	.002¾	.003	.001⅛	.002½	.002	.003	1,000
Lily	1	......	......	.58	.60	62½	.70	.63	......	64	.68	64⅛	......	2,000
Linc. Boy	1	......	......	......	......	......	......	.00½	.001	00¼	......	00½	001	500
*L. Dorritt	1	......	......	......	......	......	......	......	......	......	......	.001⅛	.0 3	......
*Magnet R.	1	......	......	.01	.02	.01⅛	.01¾	......	.01¾	......	......	.01¼	.01⅝	......
*Milliona're	1	......	......	......	......	......	.002	......	......	.002	......	......	......	......
Mollie Gib.	5	21	22½	.20½	.24	.22½	......	.21	......	.25	.20½	.23	.20	400
*Moon-A	1	.92¼	......	......	......	.92	.95	.87½	......	96	.92	......	95½	......
*N. Zealand	1	.05¾	......	.05¾	.07	.05⅜	07	05½	.06⅛	.06½	.05⅛	.05⅛	06¼	......
Old Gold	1	.008¼	.008½	.008⅛	......	.007¾	.009⅛	007⅜	......	.008⅛	......	008¼	......	52,000
Ophir	1	.13	.15	......	......	.14	......	......	......	......	......	......	......	200
*Orient.	1	......	......	......	......	......	......	......	......	......	......	00⅛	.03⅜	......
*Peoples.	1	.02¼	......	.02¼	02⅝	......	......	......	......	......	......	.02⅛	02⅝	......
*Pharmac't	1	.10⅛	10⅜	......	......	......	......	......	......	.10⅛	.09⅛	......	......	......
*Pilgrim	1	......	......	......	......	......	......	......	......	.003	.003¼	.003	......	......
Pine Creek	1	.005¼	.005⅛	.005¼	.005⅜	.005¼	.005⅛	005¼	......	.005¼	......	.005	......	8,000
Portland	1	......	......	......	......	......	......	.72⅜	76	.72	......	......	......	5,000
Puritan	1	......	......	......	......	.002½	.002⅜	002¾	......	.001¼	0.3	002	......	2,000
Q. Victoria	1	.002	002¼	001¾	.002½	.002	002½	......	......	.002	......	002	.002½	1,000
*Reno	1	01⅝	01⅞	.01⅝	.01⅞	......	.01⅞	......	......	01⅝	.01⅞	.01⅝	.01¾	......
*Royal Age	1	......	......	......	......	......	......	......	......	......	......	.001⅛	003	......
Santa Fe	1	......	......	......	......	......	......	.001	.001⅛	.0 1	......	.001	......	11,000
*Senator	1	......	......	......	......	......	......	......	......	.00¾	.001	......	......	......
Sentinel	1	001⅜	.002	.001¾	0 2	002	.002¼	.002	......	.001¾	.002⅛	......	......	19,000
Seven Hills	1	......	......	......	......	.004¼	......	.004½	......	.004¼	005	.004½	......	5,000
Smuggler	1	......	......	......	......	......	......	......	......	50	......	.50	.55	100
Tamarack	1	01⅛	......	......	......	01⅜	......	.01⅜	......	.01⅜	.01⅝	.01⅛	......	8,000
*Three H's	1	......	......	......	......	.002¼	003	......	......	.002¾	......	.002¼	.003	......
Union Gold	1	......	......	.20	......	......	......	.18	.20	17¾	.19⅛	......	......	1,000
*V'nity Fair	1	.001	.001⅛	......	......	......	......	.001	......	.001	......	......	......	......
Va M.	1	......		......		......	......	......	......	02	03	.02¼	.02⅝	3,000
*W. Cr. Con	1	......	......	......		......	......	......	......	.00¼	......	......	......	......
Wh. of F.C.	1	.004⅜	.005	.004½	.004¾	......	......	......	......	.004	......	......	......	3,000
Work	1	......	......	......	......	......	......	......	......	......	......	......	......	......

‡Official quotations Colorado Mining Stock Exch. *Bid and ask. quotations. Total shares sold, 414,243.

HELENA MONT.* Week ending Oct. 14.

Name of Company.	Location.	Company's office.	Par value.	Bid.	Asked.	Shares sold.	Price.
Am.Dev.&M.Co.	Mont. & Idaho	St. Paul, Minn., &Gib'ville,Id.	$1	$0 90	$1.10	......	......
Bald Butte	L. & Cl'ke Co.	Helena, Mont.	1	2 00	2 50	1,350	$2.25
Bi-Metallic	Granite "	St. Louis, Mo.	5	......	......	......	......
Combination	" "	" "	10	......	......	......	......
Con.T.&P'rm'n.	Cœur d'Alene	Burke, Id.	5	.30	.40	2,000	.30
Diamond Hill	Jefferson Co.	Glasgow St.	5	......	3.50	......	......
Helena & Frisco	Cœur d'Alene	Helena, Mont.	5	7.50	9 00	......	......
Iron Mountain.	Missoula, Idaho	" "	10	.15	.20	......	......
Merrill (Gold)	Jefferson "	Butte "	1	......	......	......	......
Ontario	DeerLodge "	Helena "	1	......	......	......	......
Yellowstone	Meagher "	" "	5	.10	.12½	2,000	.11½

* Special Report of Samuel K. Davis. Total shares sold, 5,350.

SAN FRANCISCO, CAL.*

Name of Company.	Location.	Par. value.	Oct. 15.	Oct. 16.	Oct. 18.	Oct. 19.	Oct 20	Oct. 21.
Alpha Con.	Nev.	100	.13	.11	.12	......	12	10
Alta	"	100	.17	.16	.15	......	.15	.14
Andes	"	100	.31	.28	.28	......	29	.28
Belcher	"	100	54	.53	.42	......	.76	.53
Best & Belcher	"	100	.57	.51	.49	......	.53	.48
Bullion	"	100	.10	.10	.08	......	09	.08
Caledonia	"	100	.36	.30	.30	......	.30	20
Challenge	"	100	.42	40	.35	......	.41	.34
Chollar	"	100	.65	.63	.60	......	.62	.55
Confidence	"	100	1.25	1 65	1.29	......	1 20	1 00
Con. California & Virginia	"	100	1.30	1 35	1.30	......	1 30	1.30
Cons. Imperial	"	100	.02	.01	.02	......	.02	02
Cons. New York	"	100	......	......	......	......	......	......
Crown Point	"	100	67	.70	.63	......	.61	.42
Exchequer	"	100	.04	.02	.02	......	.02	.03
Gould & Curry	"	100	.39	.38	.36	......	.37	.34
Hale & Norcross	"	100	1.15	1.15	1.10	......	......	1.20
Julia	Colo.	100	......	......	02	......	......	.02
Justice	Nev.	1	.33	32	.31	......	.32	.28
Kentuck Con	"	100	.07	.06	.06	......	.06	.06
Lady Wash. Con	"	100	......	......	......	......	......	......
Mexican	"	100	.43	.44	.41	......	.46	.42
Occidental Con	"	100	1.10	1 10	1 40	......	1.30	1 30
Ophir	"	100	.93	.96	.92	......	95	.95
Overman	"	100	15	.15	.14	......	.16	.14
Potosi	"	100	.52	.52	.48	......	.55	.47
Savage	"	100	.46	.41	.40	......	.44	.40
Scorpion	"	100	......	.05	......	......	......	.04
Sierra Nevada	"	100	.98	.88	.81	......	.83	.83
Silver Hill	Cal.	100	.06	......	.05	......	.06	.05
Standard	Nev.	100	1.80	1.80	1.75	......	1.60	1.60
Union Con	"	100	.45	.43	.35	......	.44	.40
Utah Con	"	100	.20	.16	.15	......	.17	.16
Yellow Jacket	......	100	.59	59	.52	......	59	47

* Official telegraphic quotations, San Francisco Stock Exchange.

LOS ANGELES, CAL.*

Name of Company.	Location.	Par val.	Oct. 2. H.	Oct. 2. L.	Oct. 4. H.	Oct. 4. L.	Oct. 5. H.	Oct. 5. L.	Oct. 6. H.	Oct. 6. L.	Oct. 7. H	Oct. 7. L.	Oct. 8. H.	Oct. 8. L.	Sales
*Amargosa	Cal.	$1	......	......	......	.22	......	......	......	19	......	20	.24	.21	......
*Brown Dake	Ariz.	1	......	......	.05	......	05	......	......	......	......	......	......	.05⅛	......
C'llG.M&M.Co.	..	...	......	......	......	......	01½	.01¼	01¼	......	......	......	.01⅛	......	5,000
Fast Amargosa	Colo.	1	......	......	.007	.007	......	.006	......	.005	.008	......	......	......	10,000
Gold Bug	......	1	......	......	.019	.008	.01	008	009	......	.008	......	.009	.008	19,000
Iron Mt.	......	......	......	......	......	......	......	......	......	......	......	......	.01¼	......	10,000
Ivy Group	Colo.	......	......	......	......	......	......	......	......	......	......	......	.20⅛	.20	600
Laguna	Cal.	2½	......	......	......	......	......	......	......	......	.07½	......	......	......	1,000
*Little Butte	"	1	......	......	......	.18	......	18	......	.19	......	.18	......	.20	......
Lucky Star	......	......	......	......	.007	......	.005	......	005	......	.005	......	.006	......	9,000
Magganetta	Cal.	1	......	......	02⅜	......	.02⅜	.02⅜	.02⅜	.02⅜	0.⅜	......	.03	......	9,000
Mohawk-Acton	Colo.	2	......	......	......	.01⅛	0 ½	.01¼	.01½	.01¼	.02	.01¼	.01⅛	.01⅛	42,000
Old Dominion	......	1	......	......	02¼	......	.03	01	......	......	......	......	02	......	2,000
Pacific Con.	Cal.	1	......	......	.01½	.01⅜	01½	01⅜	.01⅜	......	01½	.01⅜	.01½	.01⅜	82,000
Portland	Colo.	1	......	......	......	......	.67½	67	......	67½	......	......	......	......	1,000
Rand Mtn	Cal.	1	......	......	.02	.01¼	.01¾	.01¼	02	.01¼	.02	......	02	.01⅛	7,000
Sunset	......	......	......	......	......	......	.05	......	......	......	......	......	......	......	1,000
Val Verde	Cal.	1	......	......	02¼	.01¾	.02¼	.01¾	.01⅞	......	.02	......	01¾	......	1,400
Wedge	"	1	......	......	.03½	.03¼	.03	......	.03	......	.03	.02⅜	.02⅝	......	6,000

§ Official quotations, Los Angeles Mining and Stock Exchange. * Bid and ask quotations. Total sales, 206,000 shares.

SALT LAKE CITY, UTAH.* Week ending Oct. 16.

Stocks.†	No. of shares	Par val.	Bid.	Asked.	Stocks.†	No of shares	Par val.	Bid.	Asked.
Ajax	300,000	$10	$0.23	$0.40	Homestake	400,000	$1	$0.00¾	$0.02
Alliance	100,000	1	......	......	Horn Silver.	400,000	25	.90	1.50
Anchor	150,000	10	.40	......	Little Pittsburg	400,000	5	......	......
Annie	250,000	1	......	......	Lucky Bill	120,000	2½	......	......
Bogan	125,000	10	......	......	Malvern	600 000	2½	......	......
§Brick Con.	500,000	1	......	.70	Mammoth	400,000	5	1.30	1.35
Bullion-Beck & Ch.	100,000	10	3 00	4 00	Mercur	200.000	25	7 00	7.50
Buckeye	500 000	1	......	.04	Northern Light	400 000	5	.50	.55
Centennial Eureka	30,000	50	18.00	30.00	Omaha	800.000	2	.19	.26
Dalton	100,000	5	......	.02	Ontario	150,000	100	3.75	......
Dalton & Lark	2,500,000	1	03	.12½	Opex	300 000	1	......	......
Daly	150,000	20	85	1.05	Richmond-An.	500,000	1	......	......
Daly West	75,000	20	3.00	6 00	Sacramento	1,000,000	5	.22	26
‖Dexter	200,000	5	1.40	1.70	Silver King.	150,000	20	14 50	16.00
Eagle	150,000	1	......	.04	Sunbeam	250 000	1	.00⅛	03
Emerald	100,000	1	......	......	Sunshine	250,000	10	.21	.35
Four Aces	250,000	1	.01	.01½	Swansea	100,000	5	1.10	1.75
Galena	100,000	10	.55	.65	South Swansea	150 000	1	.97½	1 05
Geyser-Marion	300 000	5	1.12½	1 17½	Tetro	300,000	1	......	......
Grand Central	250,000	1	......	1.10	Utah	100,000	10	.50	80

*From Our Special Correspondent. † Utah companies. § Mines in Vanderbilt, Cal. ‖ Mines in Tuscarora, Nev.

ROSSLAND, BRITISH COLUMBIA.* Oct. 13.

Name of Company.	No. of shares.	Par value	Selling price.	Name of Company.	No. of shares.	Par value.	Selling price.
Abe Lincoln	......	......	$0.10	Le Roi.	500,000	$5	$7.50
Alberta	1,000,000	$1	.07	Lily May	1,000,000	1	.18
Big Chief	1,000,000	1	.07	Mayflower	1,000,000	1	.12
Big Three	3,500,000	1	05	Monita	750,000	1	.12
Blue Bird	600,000	1	.05	Monte Cristo	1 000 000	1	.20
Butte	1,000,000	1	.05	Morning Star	1,000,000	1	.05
Caledonia Con	1,000,000	1	......	Noble Five	1,200,000	1	.22
California	2,500,000	1	.05	Novelty	1,000,000	1	......
Cariboo	800,000	1	.50	O. K	1,000,000	1	......
Colonna	1,000,000	1	.15	Palo Alto	500,000	1	......
Commander	500,000	1	.12	Poorman	1,000,000	1	.08
Coxey	......	1	15	Rambler Con	1.000,000	1	38
Delaware	1,000,000	1	10	Reco	1,200 000	1	1 75
Deer Park	1,000,000	1	.12	Red Eagle	1,000,000	1	.08
Dundee	......	1	.50	Red Mt.View	1,000,000	1	......
Evening Star	1,000,000	1	.11	RosslandDevelop.Co.	1,000,000	1	......
Giant	2,750,000	1	08	Rossland R. Mtn	500,000	1	.25
Golden Drip	500,000	1	.08	Rossland Star.	1,000 000	1	.12
Great Western	1,000,000	1	.08	St. Elmo.	1,000,000	1	.10
Hattie Brown	1,000,000	1	.07	St. Paul	1,000 000	1	.05
Homestake G. Mg. Co	......	1	.05	Silver Bell	1,000,000	1	.05
Iron Colt	......	1	.12	Silverine	500,000	1	.05
Iron Horse	1,000,000	1	.10	Slocan Star	500 000	1	2.60
Iron Mask	500 000	1	.35	Sunset	......	1	......
Ivanhoe	1,000,000	1	.05	Virginia	500,000	1	......
I. X. L.	1,000,000	1	.08	War Eagle Con	2 000,000	1	.90
Josie	700 000	1	.30	White Bear.	2,000,000	1	18
Jumbo	500 000	1	.80	Wild Horse	......	1	.10
Keystone	......	1	20	Yale	1,000,000	1	......
Kootenay, London	1,000,000	1	08				

* From Our Special Correspondent.

MEXICO. Week ending Oct. 5.

Name of Company.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Prices. Closing.
Alianza	Hidalgo	12,800	......	......	$5	$5
Amistad y Concordia	"	9,600	$2.75	......	25	26
Angustias	Guanajuato	2,400	30.00	......	780	770
Arevalo y Anexas	Hidalgo	......	10.00	......	300	200
Asturiana y Anexas	Zacatecas	2,500	10.00	......	350	300
Barradon y Cabras	Durango	2,400	......	......	300	300
Bartolome deMedina	Hidalgo	2,000	3.00	......	80	100
Cabezon y An	Zacatecas	2,400	......	......	30	30
Candelaria de Pinos.	"	2,500	......	......	150	160
Candelaria dePanuco	"	1,200	......	......	20	20
Candelaria deChalch	"	1,600	......	......	80	80
Capuzaya	Durango	2,400	......	......	160	120
Carmen	Hidalgo	1,100	7.75	......	400	350
Castellana y SanRam	Tepic	2,448	3.00	......	100	80
Cerro Colorado	Chihuahua	15,000	......	$1.00	10	10
Cinco Senores y An.	Guanajuato	2,000	30.00	......	985	980
Concepcion y Anexas	S. Luis Potosi	2,700	......	......	250	260
El Oro	Guanajuato	500	......	......	60	40
Esperanza y An	Mexico	3,000	10.00	......	1,600	1,300
Guadalupe	Guanajuato	10,000	2.00	......	150	180
Huautla	Santa Ana	4,000	1.00	......	80	100
Luz de Borda	Michoacan	4,000	......	......	40	40
Luz de Maravillas	Hidalgo	1,100	......	......	180	200
Pabellon	"	1,000	27.89	......	180	150
Palma	Zacatecas	2,400	......	......	200	150
Purisima de los Com.	"	2,400	......	......	5	5
Real del Monte	Hidalgo	2,554	20.00	......	950	900
Refugio y Va	"	12,800	......	......	6	8
Restauradora	Durango	10,000	......	......	60	60
Rosario y Anexas	"	4,800	......	......	50	50
San Francisco	Hidalgo	3,000	4.00	......	280	270
S. Ped. Chalchihuites	"	1,000	2.00	......	80	100
San Rafael y Anexas	"	1,200	20.00	......	925	900
do. free stock.	"	1,200	14.00	......	380	400
San Rafael del Oro	Hidalgo	3,000	......	......	25	20
Sta. Maria de la Paz	S. Luis Potosi	2,400	10 00	......	730	745
Sirena	Durango	2,400	3.00	......	100	80
Soledad	Hidalgo	960	7.50	......	350	400
Sorpresa	"	960	5.00	......	250	250
Trinidad	Guanajuato	2,000	......	......	35	40
Tlauzingo	Puebla	2,400	......	......	40	27
Union	Hidalgo	2,000	8.00	......	270	260
Zaragoza	"	1,100	......	......	15	15
Zomelahuacan (gold)	Vera Cruz	5,000	......	......	100	100
Zona Min. de Pozos	Guanajuato	2,400	......	1.50	10	15

NOTE.—In most of the older 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. Many newer companies have a nominal par value, usually $50 or $100. Prices are in Mexican dollars.

STOCK QUOTATIONS.

LONDON.

Oct. 8.

Name of Company.	Country.	Authorized capital.	Par value. £ s. d	Last dividend. Amt. s.d.	Last dividend. Date.	Quotations. Buyers £ s. d.	Quotations. Sellers £ s. d.
Alaska-Mexican, g	Alaska	£200,000	1 0 0	0 4.8	July, 1897	1 5 0	1 10 0
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	5 5 0	5 10 0
†Anaconda, c., s	Montana	6,000,000	5 0 0	5 1¾	May "	6 5 0	6 10 0
Cariboo Goldf., pref., g	British Col	100,000	1 0 0	......	......	15 0	1 0 0
Chiapas, g., s., c	Mexico	252,500	1 0 0	......	......	5 0	7 0
De Lamar, g., s	Idaho	400,000	1 0 0	1 0	Nov., 1896	4 6	5 6
Doric, g	Colorado	125,000	5 0	......	......	2 6	3 0
Elkhorn Priority (New), s	"	87,500	1 0 0	1 0	Sept., 1896	5 0	10 0
Golden Feather, g	California	200,000	1 0 0	......	......	2 0	8 0
Golden Gate, g	"	80,000	1 0 0	......	......	2 6	3 0
Golden Leaf, g	Montana	350,000	1 0 0	......	......	6	1 0
Grand Central, g., s	Mexico	250,000	1 0 0	2 0	Dec., 1896	15 0	17 6
Hall Mines, c., s	British Col	250,000	1 0 0	......	......	1 15 0	1 17 6
Lillooet, F. R. & Car., g	" "	300,000	1 0 0	......	......	10 0	12 6
Montana, g., s	Montana	660,000	1 0 0	0 6	June, 1896	3 6	4 6
Palmarejo, g., s	Mexico	800,000	1 0 0	......	......	6	1 6
Plumas-Eureka, g	California	281,250	2 0 0	0 6	Oct., 1896	1 3	3 9
Richmond, g., s., l	Nevada	270,000	5 0 0	1 0	Dec., "	6 3	8 9
Sierra Buttes, g	California	245,000	2 0 0	0 6	Apr., "	1 5	3 9
Central Chile Copper	Chile	225,000	1 0 0	......	......	1 3	3 9
Colomb. Hydraulic, g	Colombia	75,000	1 0 0	1 0	July, 1895	3 9	6 3
Copiapo, c	Chile	200,000	2 0 0	1 6	June, 1897	1 15 0	2 0 0
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Sept., "	2 3 9	2 6 3
Santa Anna, g	Brazil	150,000	1 0 0	......	......	5 6	6 6
St. John del Rey, g	"	600,000	1 0 0	0 6	July, 1897	19 0	1 0 0
Tolima A., s., g	Colombia	70,000	5 0 0	5 0	" "	3 10 0	3 15 0
Tolima B., s., g	"	30,000	5 0 0	5 0	" "	2 10 0	3 0 0
Libiola, c	Italy	250,500	5 0 0	2 0	Sept., 1897	2 2 6	2 7 6
Mason & Barry, c., sul	Portugal	630,000	3 0 0	3 6	May, "	2 17 6	3 2 6
Rio Tinto, c	Spain	812,500	2 5 0	17 6	" "	24 16 3	24 18 9
" " pref	"	812,500	2 5 0	......	......	6 0 0	6 10 0
Tharsis, c	"	1,350,000	2 0 0	7 0	April, 1897	6 2 6	6 7 6
Bayley's United, g	W. Australia	155,000	5 0	0 4	Dec., 1894	3 5	3 9
†Broken Hill Prop., s	N.S. Wales	384,000	8 0	1 0	Aug., 1897	2 6 3	2 8 9
Great Boulder, g	W. Australia	175,000	1 0 0	4 0	Sept., "	9 16 3	9 18 9
Harquahala, g., s	"	300,000	1 0 0	0 6	Nov., 1894	6	1 0
Hauraki, g. s	New Zealand	40,000	2 6	0 6	Apr., 1897	5 9	6 3
Kapanga, g	"	250,000	1 0 0	b.&rt	May, 1896	5 0	5 6
Lake View Consols, g	W. Australia	250,000	1 0 0	......	......	10 0 0	10 2 6
Menzies Gold Reef, g	"	175,000	1 0 0	2 0	June, 1896	1 3	2 6
Mt. Lyell Min. & R., l., c	Tasmania	900,000	3 0 0	4 0	Sept., 1897	15 5 0	15 10 0
‡Mt. Morgan, g	Queensland	1,000,000	1 0 0	0 6	" "	3 17 6	4 0 0
Waihi, g	New Zealand	160,000	1 0 0	2 0	" "	4 12 6	4 17 6
" (New)	"	160,000	1 0 0	......	......	3 2 6	3 7 6
Waitekauri, g	"	150,000	1 0 0	1 0	June, 1897	1 15 0	2 0 0
Wentworth, g., s	N. S. Wales	500,000	1 0 0	1 0	Apr., 1896	10 0	12 6
White Feath. Rew., g	W. Australia	80,000	1 0 0	......	......	17 6	1 0 0
Champion Reef, g	Colar Fields	220,000	10 0	3 6	Aug., 1897	4 16 3	4 18 9
Coromandel, g	"	180,000	1 0 0	1 0	Feb., "	3 11 3	3 13 9
Mysore Gold, g	"	250,000	10 0	3 0	June, "	5 5 0	5 7 6
Nundydroog, g	"	220,000	1 0 0	2 6	" "	4 5 0	4 7 6
Ooregum, g	"	145,000	1 0 0	0 6	July, "	2 17 6	3 0 0
" pref., g	"	120,000	1 0 0	2 6	" "	3 11 3	3 13 9
British S. Af., chartered	So. Africa	3,500,000	1 0 0	rts.	Jan., "	3 15 0	3 17 6
Cape Copper, c	"	600,000	2 0 0	2 6	June, "	2 8 9	2 11 3
City & Suburban, g	Transvaal	1 360,000	4 0 0	4 0	July, "	5 15 0	5 17 6
Con. Deep Level, g	"	200,000	1 0 0	6 0	Aug., "	4 0 0	4 5 0
†Crown Reef, g	"	120,000	1 0 0	16 0	May, 1897	12 7 6	12 12 6
De Beers Con., d.	"	3,950,000	5 0 0	£1	July, "	28 12 6	28 15 0
Durban Roodepoort, g	"	135,000	1 0 0	3 0	Sept., "	6 12 6	6 17 6
Ferreira, g	"	90,000	1 0 0	30 0	July, "	20 10 0	21 0 0
†Geldenhuis Est., g	"	200,000	1 0 0	3 0	Apr., "	4 12 6	4 15 0
Geldenhuis Main Reef, g.	"	150,000	1 0 0	2 0	June, 1896	13 9	16 3
Goldfields Deep, g	"	600,000	1 0 0	rts.	July, 1897	8 2 6	8 7 6
Henry Nourse, g	"	125,000	1 0 0	10 0	" "	8 17 6	9 2 6
†Heriot (New), g	"	115,000	1 0 0	5 0	" "	8 2 6	8 7 6
†Jagersfontein, d	Orange Fr. St	1,000,000	5 0 0	6 0	Apr., "	8 15 0	9 0 0
Langlaagte Estates, g	Transvaal	500,000	1 0 0	3 0	July, "	4 2 6	4 5 0
Matabele G. Reefs, g	So. Africa	160,000	1 0 0	......	......	4 5 0	4 10 0
Namaqua, c	Cape Colony	200,000	2 0 0	3 0	July, 1897	2 2 6	2 7 6
Primrose (New), g	Transvaal	300,000	1 0 0	4 0	May, "	4 1 3	4 3 9
‖Rand Mines, g	So. Africa	400,000	1 0 0	......	......	30 7 6	30 12 6
Rhodesian Exp., lands, etc.	"	100,000	1 0 0	rts.	Aug., 1897	6 10 0	6 15 0
Robinson, g	Transvaal	2,750,000	5 0 0	7 0	July, "	7 17 6	8 0 0
Sheba, g	"	1,075,000	1 0 0	1 0	Oct., "	2 12 6	2 15 0
Sim. & Jack (New), g	"	5,000,000	5 0 0	2 0	Aug., 1895	3 13 9	3 16 3
Wemmer, g	"	80,000	1 0 0	5 0	July, 1897	8 12 6	8 17 6

† Dividend pending. ‡ Ex-dividend. ‖ Rights pending.

PARIS.*

Week ending Oct. 8.

Name of Company.	Country.	Product.	Capital Stock. Francs.	Par value. Fr.	Divs. last year. Fr.	Prices. Op'ning. Fr.	Prices. Closing. Fr.
Acieries de Creusot	France	Steel mfrs	27,000,000	2,000	80.00	2,030.00	2,050.00
" " Firminy	"	" "	3,000,000	500	85.00	2,045.00	2,045.00
" " Fives-Lille	"	" "	12,000,000	500	35.00	915.00	900.00
" " la Marine	"	" "	20,000,000	500	37.50	1,155.00	1,205.00
" " Longwy	"	" "	....	500	35.00	870.00	870.00
Anzin	France	Coal	....	....	190.00	5,395.00	5,600.00
Biache-St. Vaast	"	Steel	....	1,000	160.00	3,690.00	3,690.00
Bully Grenay	"	Coal	....	500	80.00	2,825.00	2,835.00
Boleo	Lower Cal.	Copper	....	500	93.50	1,930.00	1,940.00
Briansk	Russia	Coal & Iron	....	....	....	1,250.00	1,230.00
Bruay	France	Coal	3,000,000	400	800.00	31,000.00	30,985.00
Callao	Venezuela	Gold	32,200,000	125	....	3.50	3.70
Cape Copper	S. Africa	Copper	....	50	1.50	61.00	62.00
Champ d'Or	"	Gold	....	25	....	32.00	34.00
Courrieres	France	Coal	600,000	300	160.00	1,825.00	1,814.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.68	730.00	728.00
Denain-Anzin	France	Steel	....	500	20.00	639.00	688.00
Dombrowa	Russia	Coal	....	500	12.50	565.00	565.00
Donetz	"	Steel	....	....	....	942.50	922.50
Dourges	"	Coal	....	1,000	250.00	13,550.00	13,800.00
Dynamite Centrale	France	Explosives	....	500	12.50	460.00	475.00
Epinac	"	Coal	....	2,500	....	600.00	610.00
Fraser River	Brit. Col'mb	Gold	....	....	....	13.50	12.50
Huanchaca	Bolivia	Silver	....	125	5.00	43.0	43.00
Huta-Bankowa	Russia	Iron & steel	....	....	....	4,330.00	4,212.50
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	104.00	105.00
Lagunas	Chile	Nitrates	....	125	12.50	60.00	61.00
Laurium	Greece	Zinc & lead.	16,300,000	500	40.00	675.00	675.00
Lautaro	Chile	Nitrates	....	125	....	117.00	117.00
Malfidano	Italy	Zinc	12,500,000	500	40.00	1,055.00	1,060.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	12.00	672.50	677.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	791.00	790.00
Napthe Baku	Russia	Petroleum.	....	....	....	481.00	482.00
Napthe, Le	"	"	....	....	....	2,600.00	2,650.00
Napthe Nobel	"	"	....	....	....	389.00	359.00
" " parts	"	"	....	....	....	7,400.00	7,100.00
Nickel	N. Caled'nia	Nickel	12,720,000	500	30.00	280.00	270.00
Paccha-Jazpampa	Chile	Nitrates	....	....	....	15.00	15.00
Penarroya	Spain	Coal, etc.	....	500	65.00	2,075.00	2,086.00
Rebecca	Colo'do, U.S.	Gold	....	....	....	3.00	3.00
Rio Tinto	Spain	Copper	40,625,000	125	27.65	626.00	629.50
" " preferred	"	"	40,625,000	125	....	155.00	154.00
Rive-de-Gier	France	Coal	....	....	....	18.50	21.00
Robinson	S. Africa	Gold	....	125	12.50	204.00	203.00
St. Etienne	France	Coal	....	....	17.00	395.00	396.00
Saint Elie	Fr. Guiana	"	4,000,000	25	....	25.00	25.00
Salines de l'Est	France	Salt	....	500	20.00	280.00	280.00
Salines du Midi	France	" etc.	....	500	40.00	870.00	880.00
Sels Gem. de la Rus. Mer	Russia	" etc.	....	....	25.00	545.00	545.00
Tharsis	Spain	Copper	....	50	8.75	164.50	167.00
Vicoigne-Neux	France	Coal	....	1,000	700.00	21,675.00	21,800.00
Vieille Montagne	Belgium	Zinc	9,000,000	80	20.00	582.00	590.00

*From our special correspondent.

VALPARAISO, CHILE.*

Aug. 28.

Name of Company.	Location.	Capital paid.	Sh. Val. paid up.	Last Dividend.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat, silver	Chile	$3,300,000	$100	1 per cent.	$19	$20	$2[illegible]
Caracoles, silver	"	315,000	100	5 "	......	......	......
Huantajaya (mine) silver	"	1,000,000	100	13 "	2	2¼	2¼
Huanchaca, silver	Bolivia	8,000,000	25	4 "	20⅛	2[illegible]	20¼
Oruro, silver	Chile	800,000	200	....	210	215	210
S. Agus. de Huanta, silver	"	1,500,000	100	2½ per cent.	......	......	......
Todos Santos, silver	"	2,000,000	100	1 "	5	6	7
Agua Santa, nitrate	"	3,000,000	50	7 "	127	129	128
Antofagasta, nitrate	"	2,000,000	200	....	111	112	112
Huantajaya (mill) nitrate	"	600,000	100	5 "	......	......	......
Maderas, coal	"	460,000	92	....	......	......	......
Union, nitrate	"	2,100,000	200	....	35	38	35

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

SHANGHAI, CHINA.*

Sept. 10.

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 1.00
Punjom Mg., Ltd.	"	59,349	4	4	Jan., 1897	.20	" 4.20
do. pref	"	3[illegible]	1	1	" "	.50¼	" 1.10
Raub A'lian G. Mg.	"	200,000	£1	13s. 10d.	June, 1896	.22	" 14.60
Sheridan Con. M. & M.	Colorado, U.S.	2[illegible],000	Taels 100	Taels 100	....	....	" 2.50

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

DIVIDENDS.

Name of Company.	Current Dividends. Date.	Current Dividends. Am't.	Paid since Jan. 1, 1897.	Total to date.
*Aetna Con. Q.	......	......	$70,000	$110,000
Alaska-Mexican	......	......	36,000	209,031
Alaska-Treadwell	......	......	150,000	3,175,000
Alice	Oct. 25	20,000	60,000	1,055,000
American Gold	......	......	30 000	273,000
Anaconda	......	......	1,500,000	3,750,000
*Anchoria-Leland	......	......	51,000	84,000
Arizona Copper	......	......	48,000	......
Atlantic Copper	......	......	40,000	740,000
*Bald Butte	......	......	7,500	512,500
*Big Seven	......	......	3,060	......
Big Six	......	......	2,500	5,000
Boston & Montana	......	......	1,350,000	6,275,000
Bullion Beck	......	......	170,000	2,117,000
*Bunker Hill & Sullivan	Oct. 4	15,000	30,000	324,000
Calumet & Hecla	" 1	1,000,000	4,000,000	50,850,000
Cariboo	......	......	32.000	156,965
Centennial Eureka	......	......	98.000	2,010,000
Central Lead	......	......	12,000	12,000
Champion	......	......	34,000	103,700
Charleston	......	......	10,000	150,000
Coronas	......	......	4,500	9,500
Daly	......	......	37,500	2,925,000
Deadwood Terra	......	......	80,000	1,320,000
Della S.	......	......	10,000	60.000
Dutch	Oct.	7,500	7,500	22,500
Elkton Con	" 20	30,000	200,000	361,960
El Paso	......	......	5,393	5,393
Florence	......	......	18,030	132,530
*Fortuna	......	......	90,000	130,000
Galena	......	......	5,000	71,000
Garfield-Grouse	......	......	12.000	24,000
Geyser-Marion	Oct. 1	9,000	45,000	45,000
Gold Coin	......	......	45,000	150,000
Golden Fleece	......	......	6,000	569,480
Gwin	......	......	12,000	12,000
Hecla Con	......	......	30,000	2,175,000
*Highland	Oct.	20,000	200,000	3,424,918
*Holy Terror	......	......	18,000	18.000

Name of Company.	Current Dividends. Date.	Current Dividends. Am't.	Paid since Jan. 1, 1897.	Total to date.
*Homestake	Oct. 25	62,500	$343,750	$6,431,750
Hope of St. Louis	" 1	10,000	80,000	722,252
Idaho	......	......	80,000	152,000
*Iowa Gold	Oct. 9	5,000	20,000	65,000
*Iron Mountain	......	......	5,000	497,500
Isabella	......	......	67,500	270,000
Kearsarge	......	......	40,000	160,000
Last Chance	......	......	20,000	40,000
*Le Roi	......	......	300,000	575,000
Mercur	Oct. 20	25,000	225,000	825,000
Merrimac	......	......	9.400	9,400
Mont. Ore Pur. Co.	Oct. 20	40,000	160,000	640,000
Moon-Anchor	" 1	12,000	24,000	48,000
*Morning Star	......	......	168,000	558,000
Napa Con	Oct. 1	20,000	60,000	870,000
*New Idria Quicksilver	......	......	20,000	20,000
*N. Y. & Honduras Rosario	Oct. 20	15,000	150,000	832,5 0
Ontario	......	......	90,000	13,445,000
Osceola	......	......	100,000	2,172,500
*Pennsylvania	......	......	15,5 0	20,750
*Portland	......	......	270,000	1,133,000
Princess	......	......	5,000	45,000
Quincy	......	......	800,000	9,470,000
Rambler-Cariboo	......	......	40,000	40,000
Reco	......	......	150,000	187,500
Sacramento	......	......	15,000	22,000
Silver King, Utah	Oct. 7	37,500	375,000	1,237,500
Slocan Star	......	......	50.000	350,000
South Swansea	Oct. 21	7,500	52,500	59,960
Standard Con.	" 20	17,000	37,000	3,751,868
Swansea	" 11	5,000	40,000	61,500
Tamarack	......	......	180,000	4,950,000
Utah	......	......	2,000	175,000
Victor	......	......	60,000	765,000
Western Mine Enterprise	......	......	6,000	12,000
Totals	......	$1,353,000	$12,547,573	$131,026,079

Note.—This table does not give all the dividends paid by mining companies, as it is impossible to obtain a complete list of dividends declared. Many companies are close corporations and refuse to give the information. Readers of the *Engineering and Mining Journal* will confer a favor on the publishers if they will notify the *Journal* of any errors or omissions in the above table. * September dividend paid.

ASSESSMENTS.

Name of Company.	Location.	No.	Dlnq.	Sale.	Am.
Alaska	Utah	2	Oct. 9	Nov. 1	.00½
Alamo	"	1	" 16	" 16	.0½
Alpine	"	1	" 9	Oct. 29	.00¼
Alta	Nev	57	" 6	" 27	.10
Andes	"	44	" 4	" 25	.10
Argentine	Utah	....	" 20	Nov. 10	.00½
Belcher	Nev	56	" 21	" 11	.20
*Caledonia	"	47	Nov. 10	Dec. 2	.10
Chollar	"	44	Oct. 7	Oct. 28	.25
Confidence	"	29	" 15	Nov. 5	.30
Con. Imperial	"	39	Nov. 2	" 23	.01
*Dalton	Utah	....	" 15	....	.00½
*Eagle	Ore	....	" 10	Dec. 1	.01½
Eureka Con. Drift	Cal	10	Oct. 16	Nov. 6	.03
Hale & Norcross	Nev	111	" 28	" 18	.10
Lucky Bill	Utah	26	" 6	Oct. 26	.01½
*Montreal	"	..	Nov. 10	Dec. 10	.00½
Morgan Sil	"	1	" 8	" 6	.10
New Southern Cross	"	....	" 5	" 1	.01
*North Star	"	....	" 10	Nov. 30	.00½
Potosi	Nev	48	Oct. 13	" 4	.25
Rainbow	S. D.	11	" 23	" 13	.002
Selby	Cal	1	" 20	" 13	.15
Silver Hill	Cal	35	" 12	" 5	.05
Snowflake	Utah	....	" 26	" 26	.01
Undine	"	....	" 30	" 20	.01

* New assessment.

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	*				110,000	Sept..	1897	.10
3	Alaska-Mexican, g	Alask	1,000,000	200,000	5					209,031	April.	1897	.10
4	Alaska-Treadwell, g	Alask	5,000,000	200,000	25	*				3,175,000	April.	1897	.37½
5	Alice, g. s	Mont.	10,000,000	400,000	25	*				1,015,000	April.	1897	.05
6	American Gold, g. s. l	Colo..	3,000,000	300,000	10	*				273,000	Aug..	1897	.02
7	Anaconda Copper	Mont.	30,000,000	1,200,000	25					3,750,000	May..	1897	1.25
8	Anchoria-Leland, g	Colo..	600,000	600,000	1	*				84,000	Sept..	1897	.01
9	Argentum Juniata, g. s. l	Colo..	2,600,000	1,300,000	2	*				39,000	July..	1895	.03
10	Aspen Mg. & S., s. l	Colo..	2,000,000	200,000	10	*				900,000	July..	1894	.10
11	Atlantic, c	Mich.	1,000,000	40,000	25					740,000	Feb..	1897	1.00
12	Aurora, l	Mich.	2,500,000	100,000	25	*				700,000	April.	1896	.50
13	Bald Butte	Mont.	250,000	250,000	1	*				482,500	May..	1897	.08
14	Bangkok-Cora Bell, s. l	Colo..	600,000	600,000	1	*				107,310	July..	1896	.01
15	Belden, F. E., m	N. H.	500,000	100,000	5	*				217,000	Jan..	1896	.04
16	Big Six, g. s	Colo..	500,000	500,000	1					5,000	April.	1897	.00½
17	Bi-Metallic, g. s	Mont.	5,000,000	200,000	25	*				1,630,000	June.	1898	.10
18	Boston & M. Cons., g. s. c	Mont.	3,750,000	150,000	25	*				6,375,000	Aug..	1897	3.00
19	Bullion, Beck & Champ	Utah.	1,000,000	100,000	10	*				2,117,000	Mar..	1897	.50
20	Calumet & Hecla, c	Mich.	2,500,000	100,000	25					49,850,000	July..	1897	10.00
21	Caribou	B.C..	800,000	800,000	1					156,965	May..	1897	.02
22	Centen'l-Eureka, g. s. l. c	Utah.	1,500,000	30,000	50	30,000	Mar..	1889	1.00	2,010,000	Mar..	1897	1.00
23	Central, c	Mich.	500,000	20,000	25	100,000	Oct..	1861	.65	1,970,000	Feb..	1891	1.00
24	Central Lead, l	Mo..	400,000	4,000	100	*				12,000	Aug..	1897	1.00
25	Champion, g. s	Cal..	340,000	34,000	10					103,700	Aug..	1897	.25
26	Charleston, p. r	S. C..	1,000,000	10,000	100	*				150,000	Feb..	1897	1.00
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	5,048,130	Sept..	1897	.25	3,898,800	Feb..	1895	.25
30	Coptis, g. s	Nev..	10,000,000	100,000	100					77,000	Feb..	1895	.01
31	Dalton & Lark, s. l	Utah.	2,500,000	2,500,000	1					87,500	Aug..	1896	.00½
32	Daly, s. l	Utah.	3,000,000	150,000	20					2,925,000	Mar..	1897	.25
33	+Deadwood-Terra, g	S. D..	5,000,000	200,000	25	*				1,320,000	June.	1897	.40
34	De Lamar, g. s	Idaho	2,000,000	400,000	5	*				2,250,000	Oct..	1896	.25
35	Della S	Colo..	1,000,000	1,000,000	1					60,000	Jan..	1897	.10
36	Doe Run, l	Mo..	500,000	5,000	100						April.	1897	.50
37	Elkhorn, s	Mont.	1,000,000	200,000	5					1,212,000	June.	1895	.06
38	Elkton Cons., g	Colo..	1,250,000	1,250,000	1					306,960	July..	1897	.02
39	Enterprise, g. s	Colo..	2,500,000	500,000	5	*				825,000	May..	1893	.25
40	Florence, s	Mont.	2,500,000	500,000	5	*				132,530	May..	1897	.01
41	Franklin, c	Mich.	1,000,000	40,000	25					1,240,000	Jan..	1894	2.00
42	Galena, g. s. l	Utah.	1,000,000	100,000	10					71,000	Jan..	1897	.05
43	Garfield-Grouse, g	Colo..	1,200,000	1,200,000	1	*				24,000	Dec..	1896	.01
44	Geyser-Marion, g	Utah.	1,500,000	300,000	5					36,000	July..	1897	.03
45	Gold Coin, g. s	Colo..	1,000,000	200,000	5	*				150,000	Aug..	1897	.05
46	Golden Eagle, g	Colo..	1,000,000	1,000,000	1	*				10,000	Sept..	1896	.01
47	Golden Fleece, g. s	Colo..	600,000	600,300	1	*				569,179	Feb..	1897	.01
48	Gold & Globe, g	Colo..	750,000	750,000	1					51,625	July..	1897	.00½
49	Granite Mountain, g. s	Mont.	10,000,000	400,000	25	*				12,130,000	July..	1892	.20
50	Gt. West'n Quicksilv., q	Cal ..	5,000,000	50,000	100					388,366	Nov..	1893	.10
51	Harquahala, g	Ariz.	1,500,000	300,000	5					126,000	Nov..	1894	.12
52	Hecla Cons., g. s. c. l	Mont.	1,500,000	30,000	50	*				2,175,000	Feb..	1897	.50
53	Helena & Frisco, s. l	Idaho	2,500,000	500,000	5	*				475,000	Aug..	1896	.04
54	Highland, g	S. D..	10,000,000	100,000	100					3,244,918	Feb..	1897	.20
55	Homestake, g	S. D.	12,500,000	125,000	100	200,000	July..	1878	1.00	6,368,750	Sept..	1897	.25
56	Hope, s	Mont.	1,000,000	100,000	10	*				702,252	Aug..	1897	.10
57	Horn-Silver, g. s. c. sp. l	Utah.	10,000,000	400,000	25	*				5,130,000	Jan..	1896	.12½
58	Idaho	B. C..	500,000	500,000	1					152,000	Mar..	1897	.05
59	Iowa, g	Colo..	1,000,000	1,000,000	1					60,000	Sept..	1897	.00½
60	Iron Mountain, s. l	Mont.	5,000,000	500,000	10	*				497,500	Sept..	1897	.01
61	Iron Silver, s. l	Colo..	10,000,000	500,000	20	*				2,500,000	April.	1889	.20
62	Isabella, g	Colo..	2,250,000	2,250,000	1					270,000	June.	1897	.00½
63	Kearsarge, c	Mich.	1,000,000	40,000	25	190,000	Oct..	1887	1.00	160,000	Aug..	1897	1.00
64	Kennedy, g	Cal ..	10,000,000	100,000	100					1,796,000	Aug..	1895	.48
65	Last Chance, s. l	B.C..	500,000	500,000	1	*				40,000	Jan..	1897	.04
66	Leadville Cons., s. l	Colo..	4,000,000	400,000	10	*				316,000	Feb..	1893	.03
67	Le Roi	B.C..	500,000	500,000	5					575,000	Sept..	1897	.10
68	Little Chief, s. l. i. o	Colo..	10,000,000	200,000	50	*				820,000	Dec..	1890	.05
69	Maid of Erin, g. s. c. l	Colo..	3,000,000	600,000	5	*				740,000	Nov..	1895	.02
70	Mammoth, g. s. c	Utah.	10,000,000	400,000	25	*				1,150,000	Nov..	1896	.05
71	Mayflower Gravel, g	Cal ..	1,200,000	60,000	20					166,897	Dec..	1895	.10
72	May-Mazeppa Con., l. s	Colo..	1,000,000	1,000,000	1	*				170,000	Oct..	1891	.03¾
73	Mercur, g	Utah.	5,000,000	200,000	25	*				775,000	Sept..	1897	.12½
74	Mimosta Iron, l	Minn.	16,500,000	165,000	100	*				3,240,009	July..	1896	1.50
75	Mollie Gibson, s	Colo..	5,000,000	1,000,000	5	20,000	Jan..	1891	.02	4,080,000	Jan..	1895	.05
76	Monitor, g	S. D..	2,500,000	250,000	10					45,000	Oct..	1890	.03
77	Montana, Ltd., g. s	Mont.	3,300,000	660,000	5	*				2,890,637	Oct..	1895	.06¾
78	Montana Ore Purchas'g	Mont.	1,000,000	40,000	25	*				600,000	July..	1897	1.00
79	Moon Anchor Gold, g	Colo..	600,000	600,000	1	*				36,000	Aug..	1897	.01
80	Moose, g	Colo..	600,000	600,000	1					186,000	Jan..	1896	.01
81	Morning Star, g	Cal ..	240,000	2,400	100	70,800	Feb..	1887	.75	558,000	Sept..	1897	8.00
82	Mt. Rosa, g	Colo..	1,000,000	1,000,000	1					30,000	Oct..	1896	.00½
83	Napa, q	Cal ..	700,000	100,000	7	*				850,000	July..	1897	.20
84	New Elkhorn	Colo..	1,500,000	300,000	5					72,000	Sept..	1896	.24
85	New Guston, g. s. c	Colo..	550,000	110,000	5	*				1,198,120	Oct..	1892	.25
86	New Hoover Hill, g	N. C..	300,000	120,000	2.50	*				22,500	Dec..	1885	.20
87	New Idria Quicksilver	Cal ..		100,000						20,000	Sept..	1897	.10
88	N.Y. & Hon. Rosario, s. g	C. A..	1,500,000	150,000	10	*				817,500	Sept..	1897	.10
89	North Star, g	Cal ..	2,000,000	200,000	10	20,000	June.	1885	.02	450,000	June.	1893	.50
90	Nugget, g	Colo..	1,000,000	1,000,000	1	*				10,000	Jan..	1895	.00½
91	Ontario, s. l	Utah.	15,000,000	150,000	100					13,445,000	June.	1897	.10
92	Osceola, c	Mich.	1,250,000	50,000	25	*				2,172,500	July..	1897	1.00
93	Pacific Coast Borax, b	Cal ..	2,000,000	20,000	100					422,500	July..	1893	1.00
94	Parrot, c	Mont.	2,300,000	230,000	10	*				1,656,122	June.	1897	.06
95	Pennsylvania Cons	Cal..	5,150,000	51,500	100	14,000	Feb..	1892	.05	20,750	Sept..	1897	.05
96	Pharmacist, g	Colo..	1,200,000	1,200,000	1					80,000	Jan..	1893	.01
97	Portland, g	Colo..	3,000,000	3,000,000	1	*				1,133,000	Sept..	1897	.01
98	Princess, g	Colo..	1,000,000	1,000,000	1					45,000	Feb..	1897	.00½
99	Quincy, c	Mich.	2,500,000	100,000	25	*				9,470,000	Aug..	1897	4.00
100	Rambler-Cariboo	B.C..	1,000,000	1,000,000	1					40,000	April.	1897	.02
101	Reco, s. l	B.C..	1,000,000	1,000,000	1					187,500	May..	1897	.50
102	Reed National, s	Colo..	500,000	500,000	1	*				45,000	Dec..	1890	.01
103	Robinson Cons., s. l	Colo..	10,000,000	200,000	50	*				585,000	Mar..	1886	.05
104	Running Lode, g. s. l	Colo..	1,000,000	1,000,000	1	*				27,000	June.	1893	.00½
105	Sacramento, g	Utah.	5,000,000	1,000,000	5					22,000	Mar..	1897	.00½
106	St. Joseph, l	Mo..	2,500,000	250,000	10						Mar..	1897	.15
107	Silver King, g. s. l	Utah.	3,000,000	150,000	20	3,000	Jan..	1897	.02	1,102,500	Sept..	1897	.25
108	Slocan Star	B.C..	1,000,000	2,000,000	0.50					350,000	Mar..	1897	.05
109	Small Hopes, s	Colo..	5,000,000	250,000	20	*				3,275,000	Mar..	1896	.10
110	Smuggler Union, g. s	Colo..	5,000,000	50,000	100					150,000	Oct..	1896	1.00
111	South Swansea, s. l	Utah.	150,000	150,000	1					52,460	July..	1897	.05
112	Standard Cons., g. s	Cal..	20,000,000	200,000	100					3,737,868	Mar..	1897	.10
113	Swansea, s. l	Utah.	500,000	100,000	5					56,500	Aug..	1897	.05
114	Tamarack, c	Mich.	1,500,000	60,000	25					4,950,000	June.	1897	3.00
115	Tom Boy, g	Colo..	2,000,000	200,000	10	*				410,000	Mar..	1896	.20
116	Union, g	Colo..	1,250,000	1,250,000	1					73,000	June.	1896	.01
117	Union Leasing	Colo..	500,000	500,000	1					340,000	July..	1895	.04
118	Utah	Utah.	1,000,000	100,000	10	*				175,000	Feb..	1897	.02
119	Victor, g	Colo..	1,000,000	200,000	5	*				765,000	Mar..	1897	.10
120	War Eagle	B.C..	500,000	500,000	1	32,500	Dec..	1894		187,000	Oct..	1896	.06
121	Western Mine Enterp	Mont.	559,999	500,000	1	*				£ 12,000	Mar..	1897	.10

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	.01½
2	Ajax, g	Colo..	1,000,000	1,000,000	1				
3	Alice, g. s. c	Colo..	5,000,000	5,000,000	1	*			
4	Alliance, g. s. l	Utah.	100,000	100,000	1	200,000	Dec..	1895	.10
5	Alpha Cons., g. s	Nev..	10,500,000	105,000	100	273,250	Aug..	1897	.10
6	Alta, s	Nev..	10,080,000	108,000	100	3,601,800	June.	1897	.05
7	American, c	Idaho	5,000,000	500,000	10	*			
8	¶ American Belle, g. s. c	Colo..	2,000,000	400,000	5	*			
9	¶ Anaconda, g	Colo..	5,000,000	1,000,000	5				
10	Anchor, g. s. l	Utah.	1,500,000	150,000	10	580,000	Aug..	1893	.20
11	Aola, g	Colo..	1,000,000	1,000,000	1	*			
12	Argonaut Cons., g. s	Colo..	1,000,000	1,000,000	1	*			
13	Belcher, s. g	Nev..	10,400,000	104,000	100	1,348,820	Aug..	1897	.10
14	Belle Isle	Nev..	10,000,000	100,000	100	240,271	July..	1896	.10
15	Ben Hur, g	Colo..	900,000	900,000	1				
16	Blue Bell, g	Colo..	500,000	500,000	1	*			
17	Blue Jay Cons., s. l	Utah.	2,000,000	400,000	5	4,750	July..	1893	.004
18	Bob Lee, g	Colo..	1,200,000	1,200,000	1	*			
19	Boston & Crip. Creek	Colo..	200,000	200,000	1				
20	Bullion, s. g	Nev..	1,000,000	100,000	100	3,050,000	June.	1897	.10
21	¶ Bunker Hill & S., s. l	Idaho	3,000,000	300,000	10				
22	Burlington, g. s	Cal..	10,000,000	100,000	100	3,000	May..	1896	.03
23	Butte & Boston Con., c	Mont.	2,000,000	200,000	10				
24	Butte Queen, g	Cal..	1,000,000	100,000	10	16,000	Feb..	1893	.10
25	Calumet, g	Colo..	1,400,000	1,400,000	1	*			
26	Centennial, c	Mich.	2,000,000	80,000	25	220,000	April	1897	1.00
27	Central North Star, g	Cal..	1,000,000	100,000	10	10,000	July..	1893	.10
28	Challenge, s, g	Nev..	5,000,000	50,000	100	805,000	June.	1897	.10
29	Choliar, g. s	Nev..	11,200,000	112,000	100	2,038,400	June.	1897	.15
30	¶ Chrysolite, s. l	Colo..	10,000,000	200,000	50	*			
31	Cleveland Cliffs, i	Mich.	5,000,000	50,000	100	*			
32	Columbine, g	Colo..	1,000,000	1,000,000	1	*			
33	¶ Confidence, g. s	Nev..	2,496,000	24,960	100	1,644,462	April.	1897	.30
34	Cons. Imperial, g. s	Nev..	5,000,000	50,000	100	2,082,500	Mar..	1897	.01
35	Creede & C. C., g	Colo..	800,000	800,000	1				
36	CrippleCreekCons., g	Colo..	2,000,000	2,000,000	1				
37	Crip. Cr'k Gold Expl'n	Colo..	1,800,000	1,800,000	1				
38	Dante, g	Colo..	1,250,000	1,250,000	1	*			
39	Denver City, s	Colo..	5,000,000	500,000	10	*			
40	Denver Gold, g	Colo..	300,000	60,000	5				
41	Dickens-Custer, g. s	Colo..	2,100,000	420,000	5				
42	¶ Enterprise, g	Colo..	800,000	800,000	1				
43	¶ Eureka Cons., g. s. l	Nev..	1,000,000	50,000	20	567,500	Feb..	1897	.25
44	Eureka Con. Drift, g	Cal..	500,000	500,000	1	150,000	Aug..	1897	.02
45	Exchequer, g. s	Nev..	10,000,000	100,000	100	725,000	Dec..	1896	.05
46	Favorite, g	Colo..	1,200,000	1,200,000	1	*			
47	Free Coinage, g	Colo..	1,000,000	1,000,000	1	*			
48	Galena, l. s	Idaho	500,000	500,000	1				
49	Gold Belt, g. s	Utah.	500,000	500,000	1	3,012	July..	1896	.00½
50	Golden Age, g	Colo..	1,000,000	1,000,000	1	*			
51	Golden Dale, g	Colo..	2,000,000	2,000,000	1	*			
52	Golden Fleece Grav. g	Cal..	130,000	130	1000	56,260	Mar..	1897	2.00
53	Gold Flat, g	Cal..	1,000,000	100,000	10	13,000	Aug..	1893	.03
54	Gold King, g	Colo..	1,000,000	1,000,000	1	*			
55	¶ Gold Rock, g	Colo..	1,000,000	1,000,000	1	*			
56	Gold Standard, g	Colo..	1,000,000	1,000,000	1	*			
57	Gould & Curry	Nev..	10,800,000	108,000	100	4,872,000	June.	1897	.20
58	¶ Hale & Norcross, g. s	Nev..	11,200,000	112,000	100	5,809,200	Sept..	1897	.10
59	Head Cent. & Tr., g. s	Ariz..	2,000,000	200,000	10	22,824	Mar..	1892	.03
60	Hidden Treas., g. s	Cal..	20,000	20,000	1	1,000	Nov..	1893	.05
61	Humboldt Cons	Colo..	2,000,000	2,000,000	1				
62	Idaho Co., Ltd., g	Idaho	100,000	1,000	100	*			
63	Idlewild, g	Cal..	1,000,000	100,000	10	*			
64	Jack Pot, g	Colo..	1,250,000	1,250,000	1				
65	Jackson, l	Mich.	300,000	12,000	25	*			
66	Justice, g. s. c	Colo..	500,000	500,000	1	*			
67	Keystone, g	Colo..	1,500,000	1,500,000	1	*			
68	Lacrosse, g	Colo..	1,000,000	100,000	10	*			
69	Matoa, g	Colo..	5,000,000	1,000,000	5				
70	Mayflower, g	Colo..	1,000,000	1,000,000	1	*			
71	Merced, g	Cal..	1,500,000	100,000	15	200,000	July..	1896	2.00
72	Mexican, g. s	Nev..	10,080,000	100,809	100	3,124,400	Sept..	1897	.20
73	Milwaukee, s. l	Idaho	500,000	500,000	1				
74	Modoc Chief, g. s. l	Idaho	1,000,000	200,000	5	4,375	Jan..	1892	.00½
75	Monarch, g	Colo..	1,000,000	1,000,000	1				
76	¶ Mt. Diablo s	Nev..	5,000,000	50,000	100	145,000	Nov..	1896	.10
77	Mutual, g	Colo..	500,000	500,000	1				
78	New Gold Hill	N. C..	1,750,000	350,000	5				
79	New Viola, s. l	Idaho	750,000	150,000	5	*			
80	North Banner, g. s	Cal..	1,000,000	100,000	10	21,794	Oct..	1896	.02
81	¶ North Belle Isle, s	Nev..	10,000,000	100,000	100	523,074	July..	1896	.10
82	Occidental Cons., g. s	Nev..	10,000,000	100,000	100	483,652	Sept..	1897	.10
83	Original Keystone, s	Nev..	10,000,000	100,000	100	250,000	Mar..	1892	.10
84	Oro Cache, g. s	S. D..	1,250,000	250,000	5	6,250	July..	1893	.00½
85	Orphan Bell, g	Colo..	1,000,000	1,000,000	1				
86	Overman Silver, g. s	Nev..	1,152,000	115,200	100	4,200,080	May..	1897	.10
87	Peer, s	Ariz..	10,000,000	100,000	100	215,000	July..	1894	.05
88	Peerless, s	Nev..	10,000,000	100,000	100	410,000	July..	1894	.05
89	Pine Hill, g	Cal ..	1,000,000	100,000	10	30,000	July..	1897	.05
90	Potosi, g. s	Nev..	11,200,000	112,000	100	2,044,000	April.	1897	.20
91	Princess, g	Colo..	1,000,000	1,000,000	1				
92	Puritan, g, s	Colo..	1,500,000	150,000	10	*			
93	¶ Quicksilver, pref., q	Cal ..	4,300,000	43,000	100	*			
94	¶ " com., q	Cal ..	5,700,000	57,000	100	*			
95	Quincy, c	Colo..	3,000,000	300,000	10				
96	Red Mountain, s	Colo..	300,000	60,000	5	22,500	Mar..	1891	.12½
97	Reward, g	Cal..	64,000	64,000	1	57,280	Aug..	1897	.02
98	St. Mary, c	Mich.	1,000,000	40,000	25	4,000	July..	1895	.05
99	Savage, g. s	Nev..	11,200,000	112,000	100	1,073,800	May..	1897	.20
100	Seg. Belcher & M., g. s	Nev..	10,000,000	100,000	100	345,000	May..	1897	.05
101	Sevier, g. s	Utah.	1,250,000	250,000	5	50,000	April.	1897	.04
102	Silver Age, g. s. l	Colo..	2,000,000	200,000	10	*			
103	Silver Hill, s	Nev..	10,800,000	108,000	100	1,998,000	Sept..	1897	.05
104	¶ Silver King, s	Ariz.	10,000,000	100,000	100	279,858	June.	1897	.25
105	Silver Queen, c	Ariz.	5,000,000	200,000	25	*			
106	Silver State, g	Colo..	700,000	700,000	1	*			
107	Siskiyou Con., s	Cal ..	2,000,000	200,000	10	44,000	June.	1896	.01
108	Specimen, g	Colo..	1,200,000	1,200,000	1				
109	¶ Temonj, g	Colo..	1,000,000	1,000,000	1				
110	Tombstone, g. s. l	Ariz	12,500,000	500,000	25	*			
111	Tornado Con., g. s	Nev..	100,000	100,000	1	*			
112	Union Con., g. s	Nev..	10,000,000	100,000	100	2,565,000	May..	1897	.20
113	Utah Cons., s	Nev..	10,000,000	100,000	100	486,722	Aug..	1897	.25
114	Victory, g. s	S. D..	1,250,000	250,000	5	2,625	Nov..	1896	.00½
115	Virginia M. Cons., g	Colo..	1,000,000	1,000,000	1				
116	Waterloo, g	Cal..	2,000,000	200,000	10	30,000	Aug..	1893	.15
117	West Granite Mt., s	Mont.	500,000	100,000	5				
118	¶ Whale, g. s. l	Colo..	500,000	500,000	1	*			
119	Wolverine, c	Mich.	1,500,000	60,000	25	180,000	Mar..	1895	1.00
120	Work, g	Colo..	1,250,000	1,250,000	1				
121	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.
¶Bodie, Bulwer and Mono transferred to Standard Cons., January, 1897. ¶Dividends have not been paid in several years.

NOTE.—This table is corrected up to October 1. Correspondents are requested to forward changes or additions so as to reach us before the end of each month.

RARE ELEMENTS, CHEMICALS AND MINERALS—CURRENT PRICES.

NOTE.—This table is revised up to October 12th. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable.

CHEMICALS AND MINERALS.

These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts.

	Cust. Meas.	Price.
Abrasives—		
Carborundum, grains, f.o.b. Niagara Falls	lb.	$0.15@$0.16
Corundum, N. C.	"	.07@.10
Chester	"	.04½@.05
Emery, Turkish flour	"	.03@.03½
Grains	"	.04½@.05½
Naxos flour	"	.03@.03½
Grains	"	.04½@.05½
Chester flour	"	.03@.03½
Grains	"	.04½@.05½
Peekskill flour	"	.01½
Grains	"	.02½
Pumice Stone, powdered	"	.01½@.02
Lump	"	.05@.12
Rotenstone, ground	"	.02½@.03
Lump, according to quality	"	.05½@.12
Rouge	"	.17@.30
Acids—		
Acetic, chem. pure	"	.06@.07
Benzoic, English	oz.	.07
German	lb.	.50@.55
Boracic Am. refined crys.	"	.08
Powdered	"	.08½
Carbolic, cryst. in bottles	"	.24@.25
In drums	"	.18@.19
In tins	"	21@24
Chromic, com'l	"	.25
Chem pure	"	.35
Hydrochloric, c. p. (in carboys)	"	.10@.12
Hydrofluoric XX	"	.05
X	"	.15
Best	"	.25
Phosphoric, English, st. p	"	.24
Sulphuric, c. p. (in clys.)	"	.10@.12
Tartaric, cryst	"	.31½@.32
Powder	"	.32@.32½
Alcohol—94%	gal.	2.29@2.33
Refined wood, 95%	"	.65
" " 97%	"	.70
" " purified	"	1.20@1.50
Alum—Lump	100 lbs.	1.65
Ground	"	1.75
Porous	"	2.00
Chrome, com'l	"	3.50
Aluminum—		
Chloride, pure cryst	lb.	1.00
Oxide, hydrated	"	.20
Sulphate, com'l	"	.01¼@.01¾
Pure cryst. (retail)	"	1.00
Ammonia—		
Aqua (in carboys), 16°	"	.03¼
18°	"	.04@.05
20°	"	.05¼@.05¾
26°	"	.06¼@.06¾
Ammonium—		
Bromide, pure	"	.52@.53
Carbonate	"	.07¼@.07½
Chloride, granulated	"	.05@.07
Chem. pure	"	.10½
Muriate, gran. (100%)	"	.03½
Gray	"	.04½
Nitrate, white, pure (99%)	"	.09
Sulpho-cyanide	"	.25
Chem. pure	"	.35
Antimony—		
Glass	"	.35@.45
Needle, lump	"	.05½@.05¾
Powdered	"	.05¾@.06
Oxide	"	.10@.20
Pentasulphide	"	.20
Sulphide, powdered	"	.06
Sulphuret	"	.06
Argols—Red (30%)	"	.05¼@.06¼
(50%)	"	.09@.09½
(80%)	"	.16@.16½
Arsenic—		
White, powdered	"	.05¼@.05½
Red, Saxony	"	.07½@.08¾
Silesian	"	.07¼
Asbestos—Board	"	.02¾
Fiber, long	sh. ton	20.00
Medium	"	30.00@40.00
Short	"	16.00@25.00
Pipe covering, magnesia	lb., av. size	sq. ft. .11
Asphaltum—		
Cuban, prime	lb.	.04@.05
Hard	"	.01¾@.01½
Trinidad, refined	"	.01½@.01¾
Bermuda, refined, f.o.b., South Amboy, N. J.	sh. ton	45.00
Egyptian, refined	lb.	.05@.06
Barium—		
Carbonate, lump	lg. ton	30.00
Powdered	lb.	.02¼
Chloride, com'l	100 lbs.	1.60@2.00
Chem. pure cryst	lb.	.05
Nitrate	"	.05½@.06
Nitrite, com'l	"	.05¾
Oxide	"	.18
Barytes—Crude	lg. ton	7.75@10.00
American, No. 1	"	13.00@14.00
Refined	"	15.00@16.00
Foreign, best grade	sh. ton	18.00@20.00
Bauxite—Georgia, f.o.b. cars, New York	lg. ton	5.00@7.00
Benzole—90%	gal.	1.00@1.10
Bismuth—		
Nitrate, cryst	oz.	.15
Oxide, hydrated	lb.	2.65
Bitumen	"	.04½
Bone Ash	"	.02½@.03½
Borax—American, refined, crystal	"	.05
Concentrated	"	.04¾
Bromine—		
Com'l, at works	"	.43
Cadmium	"	2.75
Sulphide	"	3.25
Calcium—		
Acetate, brown	100 lbs.	75@.80
Gray	"	1.25@1.30
Carbonate, ppt	lb.	.10
Chem pure	"	.75
Calcium—	Cust. Meas.	Price.
Phosphate, ppt	lb.	.20
Sulphite	"	.07
Carbide, prepared	"	.01@.03
Cement—		
Portland, Am., 400 lbs.	bbl.	1.80@2.00
Foreign	"	1.75@2.50
"Rosendale," 300 lbs.	"	.75
Sand cement, 400 lbs.	"	1.85
Ceresine—Yellow	lb.	.10½@.11½
White	"	11½@.13
Chalk—		
Com'l, lump	100 lbs.	.30
English, ppt	lb.	.05
French, lump	sh. ton	10.00
Powdered	lb.	.00@.01¼
Charcoal—		
Animal	"	.02@.03¼
Clay, China—At works, Pa., low grade	sh. ton	6.00
Medium grade	"	7.50
Best grade	"	8.50
Fire, ground	lg. ton	4.00@5.00
Chlorine—		
Liquid	lb.	.25
Chrome Ore—		
(50% chrome) ex ship	lg. ton	25.00
Oxide	lb.	.28@.60
Cobalt—Carbonate	"	1.50
Nitrate	"	1.30
Oxide, standard	"	1.76
Extra	"	2.25
Sulphate	"	.85
Copperas	"	.57½
Copper—		
Acetate, com'l	"	.16@.20
C. p. cryst. (retail)	"	.50
Carbonate	"	.16@.25
Chloride	"	.25
Nitrate, crystals	"	.35@.40
Oxide, black	"	.15
Red	"	.20
Sulphate, com'l	"	.03½@.03¾
Chem. pure	"	.10
Explosives		
Judson R.R. powder, by carload	"	.10
"Rackarock"	"	.25
Dynamite, (40% nitro-glycerine)	"	.20
(50% nitro-glycerine)	"	.23
(60% nitro-glycerine)	"	.27
(75% nitro-glycerine)	"	.36
Glycerine, for nitro (32 2-10° Be.)	"	.11
Nitro-Benzole	"	.14@.15
Feldspar—		
At Trenton, N. J	lg. ton	5.50
Flint—(See Silica).		
Fluorspar—Domestic, Lump	"	7.00
Gravel	"	7.00
Crushed	"	7.50
Ground	"	12.00
Extra fine ground	"	13.50
Foreign	"	8.00@12.00
Fuller's Earth		
Lump	100 lbs.	.75
Powdered	"	.80@1.00
Gilsonite—		
Utah	sh. ton	60.00@75.00
Gold—		
Chloride, pure cryst	oz.	14.75
Oxide	"	28.00
Graphite—		
(See Plumbago).		
Gypsum—		
American, ground	sh. ton	4.25
English	"	14.00
French	"	16.00
Iodine—Crude	lb.	2.55
Resublimed	"	3.05
Iron—		
Chromate, powdered	"	.05@.10
Muriate	"	.05
Nitrate, com'l	"	.01¼
Pure	"	.03¾
Oxide	"	.03
Scale	"	.01@.03
Sulphide (antimony slag)	"	.05@.06
Kaolin—(See Clay, China).		
Kryolith	"	.08½
Lead—		
Acetate, brown cryst	"	.05¼
White, cryst	"	.07¼
Chromate	"	.30@.45
Nitrate, com'l	"	.05½@.06
Chem. pure (retail)	"	.35
Lime—		
Building, about 250 lbs.	bbl.	.75@1.00
Fertilizing	"	.50@.75
Chemical marble	"	1.00@1.25
Hydrated	lb.	.02@.03
Flour	"	.01½
Magnesite—Lump	lg. ton	7.00@10.00
Calcined	sh. ton	25.00
Powdered	lg. ton	30.00
Calcined	sh. ton	40.00
Magnesium—		
Metallic, ingots (Ger.)	kg.	6.66@6.90
Powdered (Ger.)	"	7.14
Ribbon or wire (Ger.)	"	9.76
Carbonate	lb.	.01¾@.02
Chloride, com'l	"	.05
Manganese—		
Crude, powdered, 70@75%	"	.01¼@.01½
75@85%	"	.01½@.02½
85@90%	"	.02½@.03¼
90@95%	"	.03¼@.05½
Carbonate	lb.	.16@.20
Chloride	"	.04@.05
Oxide	"	.01@.05½
Peroxide, pure (90%)	"	.02½
Sulphate, powdered	"	.25
Pure cryst	"	.60
Marble—		
Flour	sh. ton	8.00
Mercury—		
Bichloride	lb.	.57@.59
Bisulphate	"	.59
Red, ppt	"	.78
White, ppt	"	.82
Mica—	Cust. Meas.	Price.
Ground	lb.	.03@.04½
Sheets, according to size and quality	"	
Mineral Wool—Rock	"	.01¾
Slag	"	.01¼
Nickel—		
Oxide, black, No. 1	"	.90
No. 2	"	.45
Green	"	.45@.80
Oils, Mineral—Black, reduced 29 gr. 25@30°	gal.	.07@.07½
Black reduced 29 gr. 15 cold test	"	.07½@.08
Black reduced 29 gr. zero	"	.10½@.11½
Black reduced summer,	"	.06@.06½
Smith's Ferry, 35@34 gr.	"	.07½@.08½
West Virginia, nat'l 29 gr	"	.22@.24
Stock, dark steam ref.	"	.07½@.12½
Dark, filtered	"	.10½@.15½
Light "	"	.12½@.14½
Extra cold test	"	.20½@.24½
Gasoline, 86°	bbl.	13.00@14.00
88°	"	15.00@16.00
90°	"	18.00@19.00
Neutral filtered, lemon, 33@34 gr.	gal.	.12½@.18½
White, 33@34 gr.	"	.20½@.22½
Wool grade, 32 gr.	"	.10½@.14
Bloomless, .2@34 gr.	"	.12½@.18½
Naphtha, crude, 68@72°	bbl.	5.50
70°	"	6.00
Petroleum, refined, bulk	"	3.25
Paraffine, high viscosity	gal.	.20@.26
23½@24 gravity	"	.12@.13
28@32 gravity	"	.08¾@.09¾
25 "	"	.11@.12
Red No. 1	"	.11@.11½
No. 2	"	.10½
Ozokerite—Imported	lb.	.07½@.08½
Paints and Colors—		
Blanc Fixe	"	.02¼@.02¾
Benzine, Samatra	"	.35@.40
Marbled	"	.27@.28
Chrome, green, com'l	"	.05@.08
Green, extra	"	.15@.25
Chem. pure	"	.30@.40
Yellow, com'l	"	.15@.20
Common	"	.10@.12
Chem. pure	"	.30@.35
Lampblack—Com'l	"	.03@.05
Refined	"	.08@.10
Calcined	"	.10@.20
Fine spirit	"	.20@.30
Litharge, American	"	.05½
English flake	"	.06¾@.07
Metallic, brown	sh. ton	18.00@20.00
Red	"	18.00@20.00
Ocher, Rochelle	lb.	1.10@1.20
American	sh. ton	8.00@17.00
Golden	lb.	.02½@.04
Dutch washed	"	.02¼@.03½
French "	"	.01@.01¼
Orange mineral, Amer.	"	.07
English	"	.08@.08½
French	"	.10½
German	"	.08@.09½
Paris green, in bulk	"	.11@.12
Red lead, American	"	.05½
Foreign	"	.06½
Shellac, No. 2, Orange	"	.16@.17
T. N.	"	.16
A. C. Garnet	"	.18
Bleached	"	.17
V. S. S. & S. O. S.	"	.20
Triangle G	"	.22
V. S. O	"	.22
D. C	"	.24
Turpentine, spirits	gal.	.30¾@.30¾
Ultramarine	lb.	.03@.25
Vermilion, Amer. lead	"	.14@.16
Quicksilver	"	.52@.55
Chinese	"	.70@.75
English, imported	"	.60@.65
Artificial	"	.10@.20
White lead, Am., dry	"	.05¼
In oil	"	.05½
Foreign, dry	"	.04¾@.07½
In oil	"	.04½@.05
Whiting, common	100 lbs.	.35@.40
Gilders	"	.45@.55
Zinc white, Amer., dry	lb.	.03¾@.04½
Antwerp, red seal	"	.05¾
Green seal	"	.06¾
Paris, red seal	"	.06¾
Green seal	"	.08
Palladium—		
Metallic (Ger.)	grm.	.77
Black (Moor)	"	.71
Pearl Ash	lb.	.04⅞@.05
Pitch—Coal tar	gal.	.08
Platinum—		
Bichloride	oz.	9.00
Plumbago—American, pulverized, f. o. b., Providence, R. I.	sh. ton	20.00@40.00
Lump	"	10.00
German, lump	100 lbs.	.95
Pulverized	lg. ton	16.50
Ceylon, crude	lb.	.01½@.04½
Pulverized	"	.02@.05
Potash Alum		
Caust c. pure white	"	.10
(76@78%)	"	.05@.06
(90%)	"	.06@.07
Potassium—		
Metallic, in Germany	kg.	18.56
Acetate (retail)	lb.	.30
Bicarbonate cryst	"	.06@.06½
Bichromate	"	.12@.14
Bromide	"	.42
Carbonate	"	.05½@.07
Cyanide (98@100%)	"	.28@.29
Ferricyanide, red, com'l	"	.36@.38
Chem. pure	"	1.25
Ferrocyanide, yellow, com'l	"	.14½
Chem. pure	"	.75
Iodide, bulk	"	2.35@2.40
In bottles	"	2.45@2.65
Nitrate, double refined	"	.05
Chem. pure cryst	"	.05@.07
Potassium—	Cust. Meas.	Price.
Permanganate, pure cr.	lb.	.19@.20
Chem. pure	"	.34
Sulphide, com'l	"	.16
Chem. pure	"	1.00
Pyrites—Rough kiln, Am., iron (50%)	unit	.10@.12
Smalls	"	.08@.10
Spanish, high grade, cupreous	"	.11@.12
Spanish, high grade, non-cupreous	"	.13@.15
Iron, smalls	"	.12½@.14
Washed pyrites	"	.10@.11
Quartz—(See Silica).		
Sal Ammoniac—White	lb.	.05¾@.06
Gray	"	.05¼
Salt—Domestic	sh. ton	4.40@5.20
Saltpeter—Crude	lb.	.03@.03¾
Silica—Precipitated	sh. ton	12.00
Ground quartz	"	8.00
Lump quartz	"	3.00@4.00
Silver—Chloride	oz.	.75@.90
Cyanide (retail)	"	1.00
Nitrate	"	.36@.37
Oxide	"	1.10
Sulphide (retail)	"	1.00
Slate—Ground	lb.	.02@.03
Sodium—Metallic	"	.75
Acetate	lb.	.03¼@.06
Chem. pure, fused	"	.30
Bichromate	"	.09@.10
Bisulphite, com'l dry	"	.07
Bromide	"	.47@.48
Carbonate	"	.01
Chlorate, cryst	"	.11¼
Hyposulphite, crystals, prime white, Ger.	100 lbs.	2.00@2.25
Granulated	"	2.50
Molybdate, pure (retail)	oz.	.50
Nitrite	lb	.07½@.07¾
Phosphate, gran. pure	"	.03@.03½
Crystal	"	.04
Silicate, p. cryst. (retail)	"	1.10
Com'l, lumps	"	.05
Sulphate, pure	"	.10
Sulphide	"	.02@.03
Tungstate, com'l (retail)	"	.35
Pure	"	.50
Strontium—		
Carbonate, precipitate	"	.13@.14
Nitrate	"	.07¼@.07½
Sulphur—Flour	100 lbs.	1.65@1.75
Roll	"	1.60
Sublimed	"	1.90
Pure, precipitated	lb.	.12
Chloride	"	.20@.35
Talc—American	100 lbs.	.40@.60
French	"	.90@1.50
Italian	sh. ton	20.00@35.00
Tellurium—Metal, c. p.	100 grms.	14.28
Powder	"	9.52
Tin—Chloride	lb.	.11@.13
Crystals	"	.09¾@.09½
Oxide, chem. pure	"	.25
Protoxide	oz.	.25
Suboxide	lb.	.30@.45
Tripoli—Prepared	sh. ton	12.00
Uranium—Oxide	lb.	4.00
Zinc—Carbonate	"	.18
Chloride, gran	"	.06@.08
Dust	"	.08
Sulphate	"	.02¾@.03
Zirconium—Oxide (ref.)	oz.	.85
Oxide, hydr. (retail)	"	.66

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Argon—Spectrum (N.Y.)	tube.	$5.00
Barium—Amalgam	grm.	1.19
Electrol	"	5.71
Beryllium—Powder	"	6.42
Crystals	"	9.52
Boron—Amorphous, pure	"	.62
Crystals, pure	"	1.79
Calcium—Electrol	"	4.28
Cerium—(N. Y.)	lb.	42.00
Chromium—Fused	100 grms.	5.95
Com'l pure powder	kg.	1.90
Chem. pure cryst	grm.	.24
Cobalt—(98@99%)	kg.	5.47@5.71
Pure	"	30.94
Didymium—Powder	grm.	4.28
Erbium	"	3.57
Gallium	grain	6.15
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	6.42
Crystals	"	9.52
Helium—Spectrum (N.Y.)	tube.	6.00
Indium	grm.	4.05
Iridium—Powder	"	1.25
Fused	"	1.31
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Lithium	"	2.38
Molybdenum—Com'l (95%)	kg.	2.86
Fused, electrol	100 grms.	15.47
Niobium—Chem. pure	grm.	3.81
Osmium	"	.88
Rhodium	"	3.57
Rubidium—Pure	"	4.76
Ruthenium	"	1.49
Selenium—Com'l powder	kg.	30.94
Sublimed powder	"	40.46
Sticks	"	33.32
Silicon—Amorphous	"	23.80
Crystals, pure	100 grms.	13.09
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	4.28
Thallium	kg.	29.75
Thorium	lb.	9.00
Titanium	grm.	.71
Uranium	"	.60
Vanadium—Fused	"	1.43
Wolfram—Com'l (95@98%)	kg.	.95
Fused	100 grms.	15.47
Powder, pure	kg.	4.76
Yttrium	grm.	3.33
Zirconium—Com'l	kg.	119.00
Pure	grm.	.71

ALPHABETICAL INDEX TO ADVERTISERS.

(—) Indicates every other week or monthly advertisements.

CLASSIFIED LIST OF ADVERTISERS.

Air Compressors and Rock Drills.
American Diamond Rock Drill Co.
Bullock, M. C., Mfg. Co.
Burleigh Rock Drill Co.
Clayton Air Compressor Works.
Colorado Iron Wks. Co
Davis, F. M., Iron Works Co.
Ingersoll-Sergeant Drill Co.
Fraser & Chalmers.
Laidlaw-Dunn-Gordon Co.
N. Y. Diamond Drill Co
Norwalk Ir. W'ks Co.
Philadelphia Eng. Wks., Ltd.
Rand Drill Co.
(See Diamond Drills.)

Amalgamators.
Bucyrus Steam Shovel & Dredge Co.
Colorado Iron Works Co.
Fraser & Chalmers.
Gates Iron Works.

Amalgam Plates.
Western Plating and Mfg. Co

Anti-Friction Metals
Besly, Chas. H., & Co.
Chester Steel Cast. Co.
Illinois Sm. & Ref. Co.

Architects and Builders.
Berlin Iron Bridge Co.
Pollock, Wm. B. & Co.

Assayers' and Chemists' Supplies.
Ainsworth, Wm.
Baker & Adamson.
Baker & Co.
Becker, Christian.
Bullock & Crenshaw.
Chur, Walter.
Denver Fire Clay Co.
Eimer & Amend.
Fair Drug & Assay Supply Co.
Fuerst Bros. & Co
Henry Heil Chem. Co.
McCandless Chemical Laboratory.
Penn Sm. & Ref. Wks.
Penna. Salt Mfg. Co.
Roessler & Hasslacher Chemical Co.
Sargent, E. H., & Co.
Solvay Process Co.
Stand'd Fire Brick Co
Taylor, John, & Co.
Troemner, Henry.
Western Chemical Co

Attorneys, Corporation.
Curtis, Smith.
McColl & Hamilton.

Babbitt's Metal.
Besly, Chas. H., & Co.
Illinois Sm. & Ref. Co.

Bankers and Brokers.
Azulay & Co.
Bennison, Wm., & Co.
Bonbright, W. P. & Co.
Breitung, E. N.
Dabney & Parker.
Dignowity & Co. C. L.
Grant, E. R.
Handy & Harman.
Hedburg, Eric.
Peery & Lowe.
Smith, C. H. & Co.
State Trust Co.
Timmis & Clapp.

Belting.
Hendrie & Bolthoff Mfg. Co.
Jeffrey Mfg. Co.
Link Belt Machinery Co.
New York Belting & Packing Co., Ltd.

Belt Lacing.
Bristol Co.

Blasting Caps.
Metallic Cap Mfg. Co.

Blasting Batteries, Caps and Fuse.
Lau, J. H. & Co.
Macbeth, James & Co
Metallic Cap Mfg. Co.

Boiler, Compound.
Dearborn Drug & Chemical Co.
Parsons, J. H., Chemical Co.

Boilers.
Colorado Iron Wks. Co
Davis, F. M., Iron Works Co
Denver Eng. Wks. Co.
Fairbanks, Morse & Co
Fraser & Chalmers.
Pollock Wm. B., & Co.
Billin, Chas. E. & Co.
Philadelphia Eng. Wks., Ltd.
Risdon Iron Works.
Stilwell-Bierce & Smith-Valle Co.
Lamberts Hoisting Engine Co.
(See Machinery.)

Brattice Cloth.
Besly, Chas. H. & Co

Brick Machinery.
Freese, E. M., & Co.

Bridges.
Berlin Iron Bridge Co.
Gillette-Herzog Mfg Co (See Machinery.)

Brimstone Apparatus.
White, Edw. F.

Carbons
New York Diamond Drill Co.
Lexow, Theodor.

Chain and Link Belting (See Belting.)

Chemical Engineers.
Dunbar, R., & Son.

Chemicals
Baker & Adamson.
Bullock & Crenshaw
Eimer & Amend
Fair Drug & Assay Supply Co.
Fuerst Bros. & Co.
Henry Heil Chem. Co.
Penn. Salt Mfg. Co.
McCandless Chemical Laboratory.
Roessler & Hasslacher Chemical Co.
Sargent & Co., E. H.
Solvay Process Co.
Western Chemical Co.

Chemical Plumbers.
Vollmer & Beaton.

Coal.
Berwind-White Coal Mg. Co.
Castner & Curran
Consolidation Coal Co.
Davis Coal & Coke Co.
Maryland Coal Co.
Potts, F. A., & Co.
Stickney, Conyngham & Co
Ward & Olyphant.

Coal Cutters (See Machinery).
Ingersoll-Sergeant Drill Co.
Jeffrey Mfg. Co.
Link Belt Machinery Co.

Coal Washing Machinery.
Jeffrey Mfg. Co

Compressed Air Shop Tools.
Clayton Air Compressor Works.

Compressors.
Clayton Air Compressor Works.
Ingersoll-Sergeant Drill Co.
Laidlaw-Dunn-Gordon Co.
Norwalk Iron Works Co.
Rand Drill Co.

Concentrators, Crushers, Pulverizers, Separators, Etc.
Allis Co., Ed. P.
Blake, Theo. A.
Bradley Pulverizer Co
Colorado Iron Works.
Davis, F. M., Iron Works Co.
Denver Eng. Works Co.
Fraser & Chalmers.
Frue Vanner Concentrator.
Gates Iron Works.
Hendrie & Bolthoff Mfg. Co
Krupp, F.
Link Belt Machinery Co.
McCully, R.
Raymond Bros. Impact Pulv. Co.
Stedman Foundry & Mach. Co.
Surman, J. L., & Co.
Walburn-Swenson Co. (See Machinery.)

Contractors. See Machinery.

Conveying Belts.
Robins Conveying Belt Co.

Copper Dealers and Producers.
American Metal Co
Arizona Copper Co
Atlantic Mining Co.
Balbach S. & Ref. Co.
Baltimore Cop. W'ks.
Bath, H., & Son
Bridgeport Copper Co.
Canadian Copper Co.
Copper Queen Mg. Co.
Detroit Cop'r Mg. Co.
Elliott's Metal Co., Ltd
James & Shakspeare.
Lambert's Wharf. Co.
Lewisohn Bros.
Mountain Copper Co.
Orford Copper
Pass, C., & Son, Ltd.
Penna Salt Co.
Phelps, Dodge & Co.
Saunders, Fielding & Bond.
Vivian, Younger & Bond.

Corrugated Iron
Berlin Iron Bridge Co

Crucibles, Graphite, Etc.
Baker & Co.
Denver Fire Clay Co.
Dixon, Jos. Crucible Co.
Standard Fire Brick Co.
Stedman's Foundry & Machine Works.

Cyanide.
Fuerst Bros. & Co
Roessler & Hasslacher Chemical Co.

Cyanide Potash.
Fuerst Bros. & Co.
Roessler & Hasslacher Chem. Co.
Williams Mfg. Co.

Diamonds.
Lexow, Theodor

Diamond Drills.
American Diamond Rock Drill Co.
Bullock Mfg. Co., M. C.
Lexow, Theodor.
Sullivan Machinery Co.
(See Air Compressors and Rock Drills.)

Draughtsmen.
Young, Wm. R.

Drawing Materials.
Alteneder Theo. & Son
Besly, Chas. H., & Co.
Buff & Berger.
Gurley, W. & L. E.
Keuffel & Esser Co.
Lietz Co
Mahn & Co.
Saegmuller G. N.
Wittstock, P. & R.
(See Engineering Instruments.)

Dredges.
Bucyrus Steam Shovel & Dredge Co.
Lamberts Hoisting Engine Co.
Marion Steam Shovel Co.

Dryers.
Brown, Horace F.
Cummer & Son Co.
Denver Eng. Wks. Co.
Dunbar, R., & Son.

Dump Cars
Colorado Iron Wks. Co.
Davis, F. M., Iron Works Co.
Denver Eng. Works Co.
Hendrie & Bolthoff Mfg. Co.
Hunt Co., C. W.
Fairbanks, Morse & Co
Fraser & Chalmers

Educational Institutions.
Arizona School of Mines.
Chicago School of Assaying.
Columbia University.
Columbian University.
International Correspondence School
Lehigh University.
Mass. Inst. of Technology
Michigan Mining School.
University of Arizona.

Electrical Batteries
Macbeth, James, & Co.

Electrical Machinery and Supplies
Besly, Chas. H., & Co.
Chicago Edison Co.
Denver Eng. Wks. Co.
General Electric Co.
Jeffrey Mfg. Co.
Lamberts Hoisting Engine Co.
Link Belt Mach. Co.
Okonite Co., Ltd.
Repauno Chem. Co.
Westinghouse Elec. Mfg. Co.
Weston Electrical Instrument Co.

Elevators, Conveyors and Hoisting Machines.
Brown Hoist. & Conv. Mach. Co.
Caldwell, H. W., & Co.
California Wire Wks.
Cooper, Hewitt & Co.
Colorado Iron Wks. Co
Davis, F. M., Iron Works Co.
Denver Eng. Wks. Co.
Fraser & Chalmers.
Hunt, C. W., Co.
Jeffrey Mfg. Co.
Lambert Hoisting Engine Co.
Link Belt Mach Co.
Nelsonville Foundry & Machine Co
Roberts Mfg. Co.
Vulcan Iron Works.
(See Wire Rope Tramway and Machinery.)

Emery Wheels
Besly, Chas. H. & Co.
New York Belting & Packing Co. Ltd.

Engineers, Chemists, Metallurgists
See Directory Pages 4, 5 and 6.

Engineers' Instruments and Supplies.
Alteneder, T. & Son.
Brandis, F. E. Sons & Co
Buff & Berger.
Bullock & Crenshaw
Fauth & Co.
Gurley, W. & L. E.
Keuffel & Esser Co.
Lietz Co.
Mahn & Co.
Saegmuller, G. N.
Wittstock, P. & R.

Engines.
Bullock, M. C. Mfg. Co
Colorado Iron Wks. Co
Davis, F. M., Iron Works Co.
Fairbanks, Morse & Co.
Fraser & Chalmers.
Hercules Gas Engine Works.
Lambert Hoisting Engine Co.
Lidgerwood Mfg. Co.
Philadelphia Eng. Works, Ltd.
Risdon Iron Works.
Stilwell-Bierce & Smith-Valle Co
Tod, William & Co.
Union Iron Works.
Union Gas Engine Co.
Weber Gas and Gasoline Engine Co.
Webster, Camp & Lane Mach. Co.
(See Machinery.)

Excavators
Bucyrus Steam Shovel & Dredge Co.
Marion Steam Shovel Co.
Vulcan Iron Works.

Fire-Brick and Clay
Chur, Walter.
Denver Fire Clay Co.
Standard Fire Brick Co.

Fluorspar.
Fuerst Bros. & Co.

Furnaces
Billin, Chas. E. & Co.
Brown, Horace F.
Denver Fire Clay Co.
Hoskins, Wm.
Moore, S. L., & Son Co.
Pollock, W. B. & Co
Sargent & Co., E. H.
(See Machinery.)

Fuses.
Ingersoll-Sergeant Drill Co.
Macbeth & Co.

Gas Engines.
Hercules Gas Engine Works
Union Gas Engine Co.
Weber Gas and Gasoline Engine Co.

Gas Works
Pollock, Wm., B. & Co. | Wood, R. D.

Gauges, Recording, Etc.
Bristol Co.

Gearing
Besly, Chas. H., & Co.
Chester Steel Cast. Co.
Denver Eng. Wks. Co.
Fraser & Chalmers.
(See Machinery.)

Grease, Graphite, Etc.
Besly, Chas. H., & Co.
Dixon, Jos., Cruc. Co.
Fuerst Bros. & Co.

Heavy Machinery.
Colorado Iron Works Co.
Davis, F. M., Iron Works Co.
Denver Eng. Works Co.
Fraser & Chalmers.

Hose, Rubber, Etc.
New York Belting & Packing Co. Ltd.

Injectors.
Jenkins Bros.
Lunkenheimer Co.

Insulated Wires and Cables
Okonite Co., Ltd.

Insurance Companies.
Hartford Steam Boiler Inspect'n and Ins Co
Mutual Life Insurance Co.

Iron Ore.
Spanish-American Iron Co.

Lead Burners.
Vollmer & Beaton.

Lead Linings for Chlorination Tubs.
Raymond Lead Co.

Link Belting. (See Belting
Link Belt Machinery Co.

Locomotives.
Burnham, Williams & Co.
General Electric Co.
Hunt, C. W. Co.
Porter, H. K., & Co

Lubricators.
Detroit Lubricator Co.
Lunkenheimer Co.

Machinery.
Dealers in Mining, Milling and Other Machinery
Allis, Edw. P., & Co.
American Diamond Rock Drill Co.
Bacon, E. C.
Besly, Chas. H., & Co.
Billin, Chas. E. & Co.
Blake, T. A
Bradley Pulverizer Co.
Bullock, M. C., Mfg. Co
Caldwell, H. W., & Co.
Colorado Iron Works.
Davis, F. M., Iron Works Co.
Denver Eng. Wks. Co
Fairbanks, Morse & Co.
Fraser & Chalmers.
Gates Iron Works.
Gillette-Herzog Mfg Co
Hammond, Mfg. Co.
Hendrie & Bolthoff Mfg. Co.
Hodge, C. J.
Ingersoll-Sergeant Drill Co.
Jeffrey Mfg. Co.
Jessop, W., & Sons, Ltd.
Lambert Hoisting Engine Co.
Lidgerwood Mfg. Co.
Krupp, F.
McCully, R.
Mecklenburg Ir. Wks.
Mine & Smelter Supply Co.
Moore, Sam. L. & Son.
Montgomery, J. H. Mach. Co.
Nelsonville Foundry & Machine Co.
New York Diamond Drill Co.
Norwalk Iron Wks. Co.
Philadelphia Eng. Wks., Ltd.
Pollock, Wm. B., & Co.
Rand Drill Co.
Raymond Bros Impact Pulv. Co.
Roberts Mfg. Co.
Risdon Iron Works.
Stedman Fdy. & M. Co.
Snow Steam Pump Co
Stearns-Roger Mfg. Co.
Sullivan Mach'ry Co.
Surman, J. L., & Co.
Tod, Wm., & Co.
Union Gas Engine Co.
Union Iron Works.
Vollmer & Beaton.
Vulcan Iron Works.
Walb'rn-Swens'n Co.
Webster, Camp & Lane Mach. Co.
Westinghouse Elec. Mfg. Co.
Williams Mfg. Co.

Manganese Steel.
Taylor Iron & Steel Co.

Metal Dealers
American Metal Co.
Am. Zinc-Lead Co.
Baker & Co.
Bath, Henry & Son.
Besly, Chas. H., & Co
Bridgeport Copper Co.
Elliott's Metal Co., Ltd.
Eureka Co.
James & Shakspeare
Johnson, Matthey & Co
Lambert's Wharf. Co.
Lewisohn Bros.
Mathison Sm'lting Co.
Matthiessen & Hegeler Zinc Co.
Montana Ore Purchasing Co.
Orford Copper Co.
Pass, C., & Son, Ltd.
Phelps, Dodge & Co.
Picher Lead Co.
Raymond Lead Co.
Spanish-American Iron Co.
Stern, Julius & Co.
Tod, William, & Co.
Vivian, Y'nger & Bond.

Metallurgical Works and Ore Purchasers' Processes
Amer. Zinc Lead Co.
Baker & Co
Balbach Sm. & Ref. Co.
Baltimore Copper Wks.
Bridgeport Copper Co.
Canadian Copper Co.
Colorado Iron Wks. Co
Con. Kas. City S. & R. Co.
Denver Eng. Wks. Co.
Elliott's Metal Co., Ltd.
Fraser & Chalmers.
Matthiessen & Hegeler Zinc Co.
Ledoux & Co.
Montana Ore Purchasing Co.
Orford Copper Co.
Pennsyl. Salt Mfg. Co.
Ricketts & Banks.
Russell Process Co.
Walburn-Swenson Co.

Mine Cars
Colorado Iron Works Co.
Denver Eng. Wks. Co.
Fairbanks, Morse & Co. Co,
Gillett & Herzog Mfg.
Hendrie & Bolthoff Mfg. Co
Hunt, C. W., Co.
Mfg. Co.
Nelsonville Foundry & Machine Co.
(See Machinery.)

Mine, Mill and Smelters' Supplies.
Davis, F. M., Iron Works Co.
Denver Eng. Wks. Co.
Gates Iron works.
Lamberts Hoisting Engine Co.
Roessler & Hasslacher Chemical Co.
(See Machinery.)

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.
Isabella Gold Mg. Co.
Smuggler-Union Mg. Co.

Nickel.
Canadian Copper Co.
Orford Copper Co.

Ore Cars.
Colorado Iron Works Co.
Gillett & Herzog.

Ore Roasters
Brown, Horace F.
Colorado Iron Works Co.
Cummer, F. D., & Sons Co.
Dunbar R., & Son.

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

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

Perforated Metals.
Aitchison, 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.
Lamberts Hoisting Engine Co.

Pipes
Billin, Chas. E. & Co.
Fairbanks, Morse & Co
Pollock, Wm. B. & Co.
Wyckoff, A., & Sons.

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

Plumbago (See Graphite.)

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

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

Pumps
Billin, Chas. E. & Co.
Cameron, A. S., Steam Pump Works.
Clayton Air Com. Wks.
Denver Eng. Wks. Co.
Fairbanks, Morse & Co.
Fraser & Chalmers.
Jeanesville Iron Wks
Snow Steam Pump Co
Stilwell-Bierce & Smith-Valle Co.
Tod, Wm., & Co.
Worthington, H. R.

Pyrites:
Fuerst Bros. & Co.

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.
C., C. C. & St. L.
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.
Southern R. R.
U. P. D. & G. R. R.

Railroad Supplies and Equipment.
Burnham, Williams & Co
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.
Phelps, Dodge & Co.

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

Scales.
Fairbanks, Morse & Co.

Screens.
Aitchison, R., Perf. Metal Co
Colorado Iron Works Co.
Denver Eng. Wks. Co.
Fraser & Chalmers
Gates Iron Works.
Harrington & King Perforating Co.
Link Belt Machinery Co.
Ludlow-Saylor Wire Co. (See Machinery
Tyler, W. S., Wire Works Co.

Second Hand Machinery.
Robertson, J. L. & Son.
Robinson & Orr.

Shoes and Dies
Chester Steel Cast. Co
Chrome Steel Works.
Colorado Iron Wks. Co
Crescent Steel Co.
Denver Eng. Wks. Co.
Fraser & Chalmers
Gates Iron Works.
Hodge, C. J.

Shovels (Steam).
Bucyrus 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.
Gillette-Herzog Mfg Co
Mathison Smelting Co.
Orford Copper. Co.
Penna. Salt Mfg. Co.
Penn Smelting and Refining Works.
Phosphor-Bronze Smelting Co.
State Ore Smelting Co

Steam Pipe Casings.
Wyckoff, A., & Son.

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

Sulphur Apparatus.
White, Edward F.

Tanks.
Billin, Chas. E. & Co.
Colorado Iron Works Co.
Denver Eng. Wks. Co.
Fairbanks, Morse & Co.
Gates Iron Works.
Williams Mfg. Co.

Telegraph Wires and Cables
Okonite Co., Ltd.,

Telephones.
Stromberg-Carlson Tel. Mfg Co.

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
American Impulse Wheel Co
Leffel, Jas., & Co.
Pelton Water Wheel Co.
Stilwell-Bierce & Smith Valle Co

Valves
Eddy Valve Co.
Fairbanks Morse, & Co
Jenkins Bros.
Lunkenheimer Co
Powell, Wm., Co.

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.
American Impulse Wheel Co.
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.

Wire Cloth.
Aitchison, R., Perf. Metal Co.
Harrington & King Perforating Co.
Tyler, W. S., Wire Works Co.

Windmills.
Fairbanks, Morse & 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 & ()
Ropeway Syndicat L't'd
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.
Ropeway Syndicate Steel.
Vulcan Iron Works

Wood Water Pipe.
Wyckoff, A., & Son.

POSITIONS VACANT

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Inquiries from employers in want of Superintendents, Engineers, Merallurgists, 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.**

1546 WANTED—CHEMIST AND METALlurgist with especial experience in working zinc ores, as well as erection and management of plant for that purpose. State previous experience. Address ZINC, ENGINEERING AND MINING JOURNAL.

1547 WANTED—A THOROUGHLY COMpetent mining engineer, who has had experience in Alaska, and desires to join an exploring expedition that will start for the Yukon on March 1st, 1897. Address ALASKA ENGINEERING AND MINING JOURNAL.

1548 THERE IS A VACANCY ON THE staff of the ENGINEERING AND MINING JOURNAL. Applicants should have had experience in mining and in editorial work. Address EDITOR, ENGINEERING AND MINING JOURNAL.

1550 ACID MAKER WANTED BY A large Southern fertilizer factory located in South Carolina. Applicants must be sober, reliable, with good ability to handle labor, burn lead and obtain best yield sulphuric acid. Address, stating family, salary expected and references, B. F., ENGINEERING AND MINING JOURNAL.

1551 WANTED—A THOROUGHLY PRACtical and competent mining engineer; one who understands assaying and surveying; must have a practical knowledge of placer mining; to go with large prospecting party to Alaska next March. Best of references required. Address G. No. 26, ENGINEERING AND MINING JOURNAL.

1552 WANTED—COMPETENT MAN TO take charge of a mill and cyanide plant in a high and healthy part of South America, 40 miles from navigation. State experience, references and salary required. Address J. E. B., ENGINEERING AND MINING JOURNAL.

1553 WANTED, ASSAYER—AN EXPERIenced assayer and chemist, familiar with gold mill work, and with at least some acquaintance with cyanide process, is wanted at once for a healthy region in South America; elevation 3,000 feet. Address, giving full experience, salary expected and references, SUCCESS, ENGINEERING AND MINING JOURNAL.

SITUATIONS WANTED.

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

A MINING ENGINEER, AGE 26, DESIRES position; has energy, executive ability, experience in management and direction of large forces of men and familiar with business methods. Thorough assayer, chemist and bookkeeper. Address THOROUGH, ENGINEERING AND MINING JOURNAL. No. 18,094, Nov. 6.

COMPETENT MAN DESIRES POSITION AS foreman or assistant superintendent; 16 years' experience on California and Alaska ores; amalgamating, concentrating and assaying; references. Address E. NEWBERG, Mills College, California. No. 18,112, Nov. 6.

MINING ENGINEER, TECHNICAL EDUcation, age 30, desires position; nine years' experience in responsible positions in the West; thorough assayer, surveyor and bookkeeper; references from all former employers. Address E. M., ENGINEERING AND MINING JOURNAL. No. 18,127, Nov. 20.

A MINING ENGINEER, ENERGETIC, TECHnical education, experienced in the management of men, 10 years' practice in charge of mines, desires position as manager or superintendent; speaks Spanish; excellent references. Address FILON, ENGINEERING AND MINING JOURNAL. No. 18,097, Nov. 6.

MANAGER OR MINE SUPERINTENDENT of extended experience, just returned after two years of successful operating in Central America, desires position with a strong company, either in prospect development or in established mining. Is a good organizer and fully posted as to details in mining both in the Northern countries and in the tropics. Best of testimonials and references. Address EXPERIENCED, ENGINEERING AND MINING JOURNAL. No. 18,108, Nov. 20.

WANTED—POSITION AS ASSAYER OR mill man; eight years' experience; first-class references; is fair draughtsman; understands amalgamation and concentration; will go anywhere; would take charge of small mill and do the assaying. Address WADE, ENGINEERING AND MINING JOURNAL. No. 18,109, Nov. 27.

WANTED—POSITION AS MANAGER OR Superintendent of Mine by a mining and metallurgical engineer of 18 years' experience, graduate of technical college; Rocky Mountain region preferred. Address W. M. C., ENGINEERING AND MINING JOURNAL. No. 18,116, Oct. 30.

A MINING ENGINEER WITH A SUCCESSful record is open to an engagement as superintendent and manager; in the prime of life; full references given; can organize and manage men, and is thoroughly posted in designing and operating machinery and in all construction. Address "RECORD," ENGINEERING AND MINING JOURNAL. No. 18,117, Oct. 30.

WANTED—POSITION AS SUPERINTENDent or assistant of chemical works by chemist having several years' practical experience in the manufacture of commercial acids, etc., etc. Address EXECUTIVE, ENGINEERING AND MINING JOURNAL. No. 18,119, Nov. 13.

CHEMIST AND ASSAYER, WITH TECHnical education, age 27, formerly chemist for a large smelter, desires position with a mining, milling or smelting company; speaks Spanish; best references. Address M. R. K., ENGINEERING AND MINING JOURNAL. No. 18,125, Nov. 27.

POSITION AS SUPERINTENDENT OF machine shops, mechanical engineer or head draughtsman, wanted by competent man, with executive ability, familiar with shop and office work, with extensive experience in iron and steel plants, mining machinery, ore and rock handling machinery, elevators-conveyors, steam and hydraulic machinery and structural work. Address ALL-AROUND MAN, ENGINEERING AND MINING JOURNAL. No. 18,124, Oct. 30.

YOUNG MAN OF GOOD HABITS, ALERT and intelligent, graduate in practical chemistry, desires position in metallurgical laboratory. Address CUPRUM, ENGINEERING AND MINING JOURNAL. No. 18,126, Nov. 6.

EXPERT MINING ENGINEER, ASSOC. M. Inst. C. E., open to appointment. Properties examined or mines managed; 20 years' experience in England, France, Colorado and Mexico; milling gold and silver ores, concentration, lead, copper and coal mining, surveying and assaying. Excellent testimonials and references. Address EXPERT, ENGINEERING AND MINING JOURNAL. No. 18,123, Dec. 4.

$7,800 GIVEN AWAY TO PERSONS making the greatest number of words out of the phrase "Patent Attorney Wedderburn." For full particulars write the National Recorder, Washington, D. C., for sample copy containing same.

CONTRACTS OPEN.

GRADING.—Office of the Commissioners, D. C., Washington, D. C.—Sealed proposals will be received at this office until 12 m., November 10th, 1897, for grading Baltimore and Twentieth streets and Kenesaw avenue and Park road. All necessary information can be obtained at this office.

ELECTRIC LIGHT.—Sealed bids will be received at the City Hall, in Somerset, Ky., until 10 a. m., on December 13th, 1897, to light the streets of said city by means of electricity, and to furnish commercial lights by electricity to the citizens thereof. Said bids will be awarded to the highest and best bidder, the right to reject any and all bids being reserved. Full information can be had by application to the Mayor or City Clerk.

WATER WORKS.—Bids will be received by Toms River Water Works, Toms River, N. J., until 5 o'clock p. m., Monday, November 8th, for furnishing materials and constructing a system of water works, comprising the following quantities: 3½ miles of 4 to 8-inch pipe, 36 hydrants, 24 valves, 1 40 H. P. boiler, 1 500,000 gallon compound duplex pump, 1 stand-pipe, or 50,000-gallon tank on tower. Bids will be received for entire work or any part.

CAST-IRON PIPE.—Sealed bids will be received by the Commissioner of City Works of the city of Brooklyn, at his office in said city, until 12 o'clock m., Thursday, November 4th, 1897, for furnishing and delivering cast-iron water pipe and special castings, to wit: 10 tons 4-in. cast-iron water pipe; 20 tons 5-in. cast-iron water pipe; 90 tons 8-in. cast-iron water pipe; 780 tons 16-in. cast iron water pipe, and 50 tons special castings. Amount of deposit, $1,000. Amount of surety, $10,000. Forms of proposals, specifications, drawings and further particulars may be obtained at the office of the Water Purveyor, Room 37, Municipal Building. Proposals must be accompanied by a certified check upon a national or state bank in the city of Brooklyn or in the city of New York, drawn to the order of the Commissioner of City Works, for the sum of one thousand ($1,000) dollars; in case the party or parties to whom the contract is awarded shall neglect or refuse to enter into contract, this amount will be retained as liquidated damages for such neglect or refusal. The checks of the unsuccessful bidders will be returned to them. Proposals must be accompanied by an undertaking in writing, with two sureties, each of whom shall qualify as to his responsibility in the sum of $10,000, who shall be owners of real estate in the city of Brooklyn in their own right in the amount of the surety, and shall have held the same at least one year prior to the time of becoming such surety; that if the contract be awarded to the party or parties proposing, they will become bound as his or their surety for its faithful performance. In lieu thereof the bond of an approved surety company doing business in the State of New York will be accepted. The Commissioner of City Works reserves the right, with the consent of the Mayor, to reject any or all bids or to accept such bid or bids, or to negotiate with any bidder for an amended proposition as in his judgment will best serve the interests of the city of Brooklyn. Proposals to be endorsed "To the Commissioner of City Works" (specifying work). The said proposals will be publicly opened and announced on the 4th day of November, 1897, at the hour of 12 o'clock M.; provided that the Commissioner of City Works, or his regularly appointed deputy, is present. In case of the absence of both, then on the first day thereafter when either is present.

STEEL PIPE LINE.—Sealed proposals will be received by the Board of Water Commissioners, at their office in the City of Albany, N. Y., until Tuesday, November 16th, 1897, at 11 o'clock a. m. of that day, for Water Filtration Plant Contract, No. 2, consisting of about 7,950 ft. of 48-in. steel pipe, and appurtenances laid complete. Plans may be seen and specifications, form of proposal, bond and contract obtained, after November 3d, at the office of the Board of Water Commissioners, No. 25 Quackenbush Street, Albany, N. Y., and the office of Allen Hazen, Chief Engineer, No. 57 Lumber District, Albany, N. Y., and St. Paul Building, New York City. Each proposal for said work shall be accompanied by a certified check upon a state or national bank established in the city of Albany, or in the city of New York, for $5,000 payable to the order of the Chamberlain of the city of Albany. The checks deposited by the unsuccessful bidders will be returned by the Board of Water Commissioners. The amount of the check deposited by the successful bidder will be forfeited in the event that said person shall fail within the time hereinafter set forth to execute the formal contract and deliver the bond hereinafter required. A bond in the sum of $30,000 will be required to be executed by the contractor with two sufficient sureties, freeholders within this state, or at the option of the Board of Water Commissioners, by an incorporated surety company, duly authorized to execute the same. All proposals for the work must be addressed to the Board of Water Commissioners of Albany, N. Y., and shall have endorsed on envelope "Proposals for Water Filtration Plant, Contract No. 2." The person or persons to whom the work may be awarded will be required to execute the contract with the bond required for the faithful performance thereof above described within ten days of the date of award of contract. Work shall be commenced as soon as practicable after the award of contract, and completed on or before the 15th day of April, 1898. The right is reserved to reject any or all bids.

[(*Continued on Page* 21.)

LANDS AND MINES FOR SALE.

DIVIDENDS

ISABELLA GOLD MINING COMPANY.
COLORADO SPRINGS, COLO., June 10, 1897.
DIVIDEND NO. 11.
A dividend of ONE-HALF CENT PER SHARE ($11,250) has been declared, payable June 25th, 1897, to stockholders of record June 15th, 1897.
The stock transfer books will be closed June 15th, 1897, at 3 o'clock p. m., and will be reopened on the morning of June 26th, 1897.
PERCY HAGERMAN,
Vice-President and Treasurer.

THE DIRECTORS OF THE FORTUNA GOLD Mining and Milling Company have this day declared their regular consecutive monthly dividend, No. 4, of 10 cents per share, payable October 28th, at the company's office, 66 Broadway. Books close October 28th, open November 1st. B. L. HARDING, Treasurer.

MISCELLANEOUS WANTS.

CONTRACTS OPEN.

Continued from Page 20.

MACADAMIZING.—Sealed bids or proposals will be received at the Court House, in Somerville, N. J., on Wednesday, November 17th, 1897, at 11 a. m. for macadamizing two roads in Somerset County, N. J. For details apply to JOSHUA DOUGHTY, JR., County Engineer.

ARTESIAN WELL.—Sealed proposals will be received by the City Council of the city of DeKalb, Ill. at the City Hall, until eight o'clock p. m., November 17th, 1897, for boring a deep well. Proposals to be addressed to E. A. Porter, City Clerk, and endorsed "Proposals for Well." A certified check for two hundred ($200) dollars on a solvent bank doing business in the state of Illinois, made payable to the Mayor of the City of DeKalb, must accompany each bid as a guarantee that bidder will enter into contract and furnish proper bond of $5,000 within 15 days of award of contract. All bids to be made on blanks furnished by the City Clerk. Specifications, instructions to bidders and forms of proposals can be obtained at the office of the City Clerk. The right is reserved to reject any and all bids.

PUMPING MACHINERY.—Sealed proposals will be received at the office of the Commissioners of Water-Works of the City of Cincinnati, O., until 12 o'clock noon of Tuesday, November 30th, 1897, for the construction, delivery and erection of three self-contained vertical triple-expansion crank-and-fly-wheel pumping engines, each of thirty million (30,000,000) U. S. gals. capacity in 24 hours, and boilers adequate in capacity for the operation of the three engines, in accordance with plans and specifications on file in the office of the Chief Engineer of the Commissioners of Water-Works. The same to be paid for as stipulated in the form of contract for the performance of the above work, and which form of contract is on file in the office of the Commissioners of Water-Works. Copies of the specifications, form of proposal, forms of bonds and form of contract can be procured by application to the Chief Engineer. Proposals must be accompanied by general plans and specifications sufficient to fully and distinctly show and describe the proposed pumping machinery, boilers and their connections, as required by the specifications. Bidders must enclose their bids in sealed envelopes, and deposit the same with the Clerk of the Commissioners of Water-Works, before Tuesday, the 30th day of November, 1897, at 12 o'clock, m., and such sealed envelopes must have endorsed thereon the nature of the bid and the name and address of the bidder. Each bid shall be accompanied with a bond in the sum of $10,000, signed by two sureties, for acceptance of the contract, if awarded by the Commissioners of Water-Works; or the bidder may deposit with the Commissioners of Water-Works, in lieu of such bond, a certified check or bank certificate of deposit, payable to the order of the Commissioners of Water-Works, or cash equal in amount to the bond as above required. Bidders must furnish satisfactory evidence of their ability to build the class of engines required. Bidders must use the printed forms, as none other will be received. The Commissioners of Water-Works reserve the right to reject any and all bids.

WATER AND LIGHT PLANT.—Sealed proposals will be received by the President and Board of Trustees of the Town of Hobart, Ind., at the office of the Town Clerk, until 6 p. m., November 2d, 1897, for the construction of a system of water-works and an electric light plant, complete, in accordance with maps, plans and specifications therefor, now on file with said Town Clerk. That with the sealed proposals there shall be openly filed, with said clerk, copies of franchises for said water-works and electric light plant, to be granted by said town, reserving the right to the Town of Hobart a legal leasehold interest, and final ownership. The successful bidder will take and assume all municipal and corporation bonds. All proposals to be accompanied by a certified check, made payable to the Treasurer of the town of Hobart, Ind., for the sum of one thousand ($1,000) dollars, as a guaranty of good faith, and to be forfeited to said town in the event of failure to carry out the provisions of such proposals, if accepted.
All proposals will be addressed to the Hon. President and Board of Trustees, care Mr. Chas. O. Johnson, Clerk, Hobart, Ind., sealed and delivered to said clerk, or or before the time stated above, and marked "Proposals for Water-Works and Electric-Light Plant." The Board reserves the right to reject any and all proposals. Information may be had at the office of the Town Clerk, Hobart, Ind., and at the office of GEO. CADOGAN MORGAN, Engineer, No. 1012 New York Life Building, Chicago.

SEWERAGE SYSTEM.—Sealed proposals for constructing a complete system of sewerage in the City of Savannah, Ga., will be received by the Committee on Drainage until 12 o'clock noon, Eastern time, November 15th, 1897. The right to reject any or all bids is reserved. The work will consist approximately of forty miles of pipe sewers with all necessary appurtenances. Completer plans and specifications are now in course of preparation, and will be ready for inspection by contractors proposing to bid for the work, at 12 o'clock noon, Eastern time, November 1st, 1897, at the office of the City Engineer, Savannah, Ga. Address COMMITTEE ON DRAINAGE, Care of Clerk of Council, Savannah, Ga.

TREASURY DEPARTMENT, Office Supervising Architect, Washington, D. C.—Sealed proposals will be received at this office until 2 o'clock p. m., on November 16th, 1897, and opened immediately thereafter, for all the labor and materials required for the boiler plant, steam heating and ventilating apparatus, water supply, filtering and fire protection system, basement floor, etc., for the U. S. Appraisers' Warehouse, New York, N. Y., in accordance with drawings and specifications, copies of which may be had at this office or the office of the Superintendent of said building, at New York City. The right is reserved to reject any or all bids or to waive any defect or informality in any bid, should it be deemed in the interest of the government to do so. Proposals must be enclosed in envelopes, sealed and marked "Proposals for Boiler Plant, Heating, Water Supply, etc., for the U. S. Appraisers' Warehouse, N. Y.," and addressed to the SUPERVISING ARCHITECT.

PUMPING MACHINERY.—Sealed proposals will be received by the Mayor and Board of Aldermen of the City of Asheville, N. C., until 3 o'clock p. m., November 12th, 1897, for furnishing and setting up at the pumping station on Swannanoa River, the following described pumping machinery. One (1) Horizontal Triple Expansion, Direct Acting, Duplex, Condensing Engine, capable of delivering one and one-half million (1,500,000) gallons of water in twenty-four (24) hours against a total head of 198 pounds per square inch; and one (1) Boiler of sufficient power to drive the pumping engine at its full capacity. Specifications can be had on application to the City Engineer.

SEWERS.—Sealed proposals will be received by the Board of Public Works of the city of St. Joseph, Mich., until 2 p. m., November 9th, 1897, for the construction of about eleven thousand (11,000) lineal feet of sewer. Plans and specifications can be seen at the office of the city clerk of St. Joseph, Mich., or at the office of the consulting engineer, A. V. Powell, Room 615 Chamber of Commerce, Chicago, Ill.