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CONTENTS.

The United States Supreme Court has, it appears, reconsidered its action in the Jones mixer patent cases, and has granted the petition of the Carnegie Steel Company for a writ of certiorari to the United States Court of Appeals, in the case against the Cambria Iron Company for infringement of the patent. The action of the court leaves the case now to be finally reviewed and adjudicated by the Supreme Court, and upon its decision will depend the validity of the patent. The action of the court is somewhat unusual, but is probably taken in view of the large interests involved.

The dictum of the Idaho Supreme Court on an appeal taken in one of the Coeur d'Alene murder and riot cases, which is given in our news columns, shows a very encouraging state of public opinion. The strong language used by the court in reference to the outrages perpetrated by the Miners' Union is fully justified by the facts. The encouraging point is that the State officials should show such freedom from local influences and such determination to enforce the law. It gives assurance that such outrages as have been perpetrated in the past will not be permitted in the future, and that the law-abiding element of the community will have all the assistance and authority of the law in protecting itself from violence and mob rule. Under such conditions we may expect to see the State of Idaho and the Coeur d'Alene District advance rapidly in prosperity and take the position which great natural resources entitle them to hold.

The stockholders of the Electrolytic Marine Salts Company, which undertook to recover gold from sea water, are coming out of their little speculation better than might have been expected. It is announced that a final 6 per cent. will be paid in liquidation on December 4th, making in all 36 per cent. of the amount paid in on the stock. This result has been secured by the sale of the dock and shore property in Maine, and by the surrender by the Rev. Mr. Jernegan—founder of the company and inventor of the swindle—of a small portion of his profits. In return for this he retains a liberal balance and is left to pursue the studies of life in Paris, which he undertook when he left the company and this country, free from any annoying legal inquisitions.

By-the-way, nothing is said about the experiments which the "shrewd business men" who were directors of the company promised to conduct after Jernegan's flight, and which they were "confident would show the real value of the process." If the experiments were ever made, they have evidently shown the "real value" of the process, for the directors are very careful to say nothing about them.

We may add that the company's "plant" at Lubec, Maine, is earning money for the parties who bought it. It is not, however, turning out gold bricks, but canned sardines, having been converted into a fishery and canning factory.

The New England Gas and Coke Company is rapidly arranging for the disposal of the coke made in the by-product coke oven plant which it has established near Boston. In these works the gas made for illuminating and fuel purposes is the chief product, and the coke is really the by-product. Contracts have been made for nearly all the coke that the works can produce for some time to come. One of the most important of these is with the Boston & Maine Railroad Company, which has arranged to use coke in a large number of its locomotives, which have heretofore been using bituminous coal. It was at first thought that water-grates, like those used with anthracite, would be necessary, owing to the intense heat of combustion obtained with coke under a strong draft; but experiment has shown that good results can be obtained with the grates used for coal, the only change made being to run a steam pipe across the end of the ash pan, permitting steam to escape in jets from ¼-inch holes in the pipe. The cooling effect of the steam is sufficient to prevent failure of the grate-bars.

Several industrial establishments have made contracts for coke, and it appears that there will be no trouble in disposing of all that the company can make. In fact the demand will probably exceed the present supply.

The movement of gold from Australia to India, to which we recently referred, continues, and the shipments this year up to the middle of October have amounted to $14,100,000. The India Council has been this year accumulating a gold reserve with a view to the change in currency standards which it contemplates, and for various reasons has preferred to buy gold in Australia and send it direct to India to buying in the London market. These purchases do not directly affect the Indian treasury, since, under the regulations adopted by the Council, it has power to issue currency notes to the full amount of gold held. How much longer this movement is to continue cannot at present be ascertained.

A somewhat curious question arises as to what effect the use of gold

as a standard may have in drawing out any part of the very large quantity of the yellow metal which is believed to be hoarded in India. It is hard to gauge the native feeling; but it must be remembered that much of the hoarded gold must be held by men who are in some degree accustomed to business and have an idea of the English methods of trade. They would, as a rule, be much more likely to use their gold to make investments and to trade than the poorer people who hoard up silver. Only time can show whether any large amount of gold will make its appearance under the new regulations.

The demand for coal is as great and the prices paid for it as high as might be expected in the present condition of almost universal industrial activity in the United States. In many quarters there is a complaint of scarcity and slow deliveries, and at many mines the output is limited only by the difficulty in getting cars to carry it. The same report comes from nearly every quarter, and coal operators are getting a chance to make up for the years of sharp competition and low prices through which they have passed. The miners are realizing some share of the activity in the steady work they are getting; in addition to which increases in mining rate have already been made in some districts and will be asked for in others.

The same condition exists in Europe, and the exports of coal from Great Britain for the 10 months ending with October reached a total of 36,107,649 tons, while that taken by steamships in foreign trade was 10,093,440 tons; both figures being the highest ever reported for a similar period. France, Germany, Italy and Russia have all made unusual demands for English coal, and prices are higher than they have been for over eight years past.

It looks as if the present opportunities for opening an export trade in American coal were very good. There are two drawbacks, however, the great demand for coal at home and the high rates of ocean freights at present prevailing. Notwithstanding these, it seems quite possible that some arrangements for foreign trade can be closed if coal operators are disposed to make them.

THE CHLORATE OF POTASH EXPLOSION AT ST. HELENS.

Our readers will remember that on May 12th last a fire in one of the works of the United Alkali Company at St. Helens, England, resulted in a most disastrous explosion, killing 5 persons, injuring 20 others and doing very great damage to property. The explosion took place in a storehouse in which 156 tons of chlorate of potash were stored; and a question was at once raised as to the cause, chlorate not being usually considered as an explosive.

Under the law the accident was investigated officially by Colonel A. Ford, chief inspector of explosives, and the results of that investigation have now been published in a "Blue-book," which contains some interesting conclusions. A very full account of this explosion and the attendant circumstances, written for us by Mr. John B. C. Kershaw, appeared in the "Engineering and Mining Journal," July 1st, 1899, page 7. In this article the theory was advanced that the explosion was due to the sudden liberation of oxygen from a large mass of chlorate by the heat generated from the burning building. Potassium chlorate melts at 359° C., and the evolution of oxygen commences at 400° C. The chemical change at this temperature is represented by the following equation:

$$8\ KClO_3 = 5\ KClO_4 + 3\ KCl + 2O$$

If the temperature be increased, the potassium per-chlorate is also decomposed and the whole of the oxygen is liberated.

The evidence stated that the roof of the chlorate store burnt with great fierceness, and that a few minutes after it fell in, and just before the explosion, a white heat seemed to be attained inside the store. The whole mass of chlorate was therefore subjected suddenly to a very high temperature, and probably the greater portion of the 156 tons, at the moment of the explosion, was heated well above the point at which oxygen would be liberated. Each keg would act as a restraining force, and the simultaneous bursting of say 2,000 kegs and the liberation of 1,750,000 cubic feet of oxygen may have caused the roar and upburst of flame. That this estimate of the volume of oxygen gas liberated is not excessive can be proved by a simple calculation.

In his report Colonel Ford accepts this theory suggested by Mr. Kershaw, and attributes the explosion to the sudden liberation of oxygen as the most probable cause.

The coroner's jury, which investigated the accident at the time, made the following recommendations:

"1. That all buildings for chlorate plant should be fireproof.
"2. That all packages to contain chlorate should be fireproof.
"3. That all cooling tanks for chlorate should be of iron instead of wood.
"4. That better precautions should be taken for dealing with outbreaks of fire in chlorate works.
"5. That the amount of chlorate to be kept in any building should be limited by Government control, and that such buildings should be fireproof and isolated from the processes of manufacture."

Colonel Ford's report approves of these recommendations, with the exception that the fifth is considered unnecessary when the others are complied with. The case has excited a good deal of comment and inquiry among chemists, and the report seems a satisfactory answer to the questions raised.

THE OWNERSHIP OF ORES ALREADY MINED AND OF TAILINGS.

A correspondent asks the following question, the answer to which involves some matters of importance:

"Has there been any decision with regard to the ownership of ore removed from the mine and tailings; that is, whether they are real or personal property? In the special case to which the inquiry refers the dispute arises about tailings which, through carelessness or lack of knowledge, have been deposited outside the line of a mill site and are claimed by owners of the adjoining property."

1. When in place and unworked, minerals are part of the freehold, and, as such, real estate. When separated from the freehold by artificial means, employed for that purpose, they become personalty. A separation by natural causes, or incidentally by artificial means (as when minerals are dug up in the process of agriculture, and allowed to remain in the soil) does not have this effect. Minerals thus detached remain a part of the real estate. These principles are declared by the common law, and have been sustained by numerous decisions. It will be sufficient to cite Forbes vs. Gracey (United States Reports, 94,762) decided by the United States Supreme Court in 1876.

2. The tailings or refuse of a mine are the property of the mine-owner; but if he abandon this property by casting it away, or by suffering it to go where it will, beyond the boundaries of his own land, anyone may appropriate it, if the owner does not reclaim it. If it flow upon the land of another, that other is entitled to it. This common-law principle is modified in some of the States by statutes conferring upon mine-owners the power to acquire, as by eminent domain, rights of way, and even dumping-ground for tailings. California, Georgia, Idaho, Montana and Utah are instances. But without such formal proceeding, it would doubtless be held everywhere that tailings allowed to accumulate upon private land belong to the land-owner. If the land, at the time of such accumulation, was part of the public domain, subject to the United States mining laws, it is possible that the mine-owner might have a prior right, as against a subsequent grantee of the United States, at least so far as to be entitled to reclaim and remove the tailings, before they had been actually appropriated by the land-owner. But, after such appropriation, he could not recover their value from the land-owner.

In Rogers vs. Cooney (7th Nevada, 213; 1872), where a plaintiff was found to have the possession of certain land upon which tailings were deposited, and defendant to have intruded and removed a portion of such tailings, the Supreme Court of Nevada held that plaintiff's right to the tailings was coextensive with his right to the land. In that case, the tailings had come from several quartz-mills, none of which were owned by either party.

In Jones vs. Jackson (9th Colorado, 237; 1858), the Supreme Court of Colorado practically held that when tailings are allowed to flow upon the ground of another, he becomes entitled to them. But the circumstances of this case were peculiar; and, for the complete understanding of the decision, the full text, either in the Colorado reports, as above, or in Morrison's "Mining Reports," Volume XIV., page 72, should be studied. It must suffice here to say, that the grantors of the defendants had located ground upon which the grantors of the plaintiffs had already deposited tailings, and, without formally locating or appropriating the ground, had posted a notice, stating that they claimed these tailings and intended to wash them again. The case involved the adequacy of this notice, and the ownership of the tailings deposited after, as well as before, the location of the ground by the defendants. The decision affirms the judgment rendered in favor of the defendants by the court below.

It appears from the general trend of these decisions, that while refuse or tailings belong to the owner of the mine, he is bound, in general, to retain them within his own land, and that, if he allows them to escape, his subsequent ownership of them will depend upon the ownership of the land upon which they accumulate. If it is public land, he may, by suitable proceedings, acquire the right to occupy it with his tailings, and any subsequent appropriator of the land would take it under the condition of that easement. If it is private land, he may, in certain States, obtain that right under statutory provisions, the constitutionality of which, however, is not beyond question. Thus, in Consolidation Channel Company vs. Central Pacific Railroad Company (51st California, 269; 1876), a proceeding by the mining company, under Section 1,238, Subdivision 5, of the California Code of Civil Procedure, to have railroad

land condemned for the purpose of a flume and tailings-dump, was defeated on the ground that the proceeding was unconstitutional, as taking property for private uses. This decision apparently invalidates the provision of the Code under which the proceeding was taken. But the fundamental controlling principle is, that, in the absence of modifying statutory or other conditions, the tailings belong to the owner of the land on which they lie; in other words, they have become, as part of the freehold, real estate, exactly as the material of a land-slide would be.

The foregoing statement does not comprise any consideration of questions as to damage from tailings. The party whose land is overflowed by tailings has a remedy in law by suit for damages, and a remedy in equity by a bill for a restraining injunction. In case the ownership of the tailings were of more value than the injury suffered by their presence, he would doubtless fail to recover damages at law. Whether his equity proceeding would be likewise defeated under such circumstances, is less clear, for equity takes cognizance of other than pecuniary considerations. A man may protest, for instance, against the flooding of his home and grounds by auriferous sands, even though their marketable value would be thereby increased; and a court of equity would not consider this increase of value as justifying the wrong, but would protect him by injunction, even though he might not be able to establish in law a pecuniary damage. Indeed, this is one of the chief functions of equity jurisdiction—to prevent or remedy wrongs which cannot be estimated in money, or repaired by payments of money.

We do not understand the question of our correspondent to involve considerations of this class; and we trust that the reply we have given will cover the case for him and for others. At the same time, we must take the liberty of adding that our advice to any person seriously interested in such a case as our correspondent states, would be that he should consult a good lawyer, laying before him all the facts, rather than rely upon mere general summaries, such as the one here given. The proverb, "Circumstances alter cases," is emphatically true of law-cases; and whoever reads the decisions above cited, and the many others bearing, at one point or another, upon the same subject, will have new occasion to realize its truth. R. W. R.

NEW PUBLICATIONS.

"Report on the Geology of the Area Covered by the Seine River and Lake Shebandowan Map Sheets." Being Part H of the "Annual Report" of the Geological Survey of Canada. By William McInnes. Ottawa; Government Printer. Pages, 66; with map and illustrations. Price, 20 cents.

This report, which is one of the excellent series prepared and issued by the Geological Survey of Canada, covers portions of the Rainy River and Thunder Bay districts in Western Ontario, a region which is now attracting considerable attention from prospectors and others. It is a region of lakes and rivers, with promise of future value as a mining country. Iron ore is widely distributed through the Keewatin belts of the region, and extensive deposits of high-grade ore have been located in the Atikokan and Matawin ranges, which will doubtless be of great economic value in the future. Magnetites and hematites have been to some extent proved by exploration. Gold has has been found and several promising mines have been opened, chiefly in the Seine River District. Other ores which have been found include copper in the form of chalcopyrite, galena and zinc-blende. Granite and limestone suitable for building stones abound; feldspar is abundant in several localities, and mica has been found, though not in paying quantities thus far. The monograph is a concise and excellent one, containing much valuable information.

"A Preliminary Report on a Part of the Clays of Georgia." Being Bulletin No. 6A of the Geological Survey of Georgia. By George E. Ladd. Atlanta, Ga.; State Printer. Pages, 204; illustrated.

The State of Georgia has a great variety of clays, and many of them are of economic value, though only a small part of them has been thus far utilized. To describe what has been done in developing and making valuable these resources and to indicate on what lines further work can be carried on is the object of this report.

Chapter I. of the book treats of the general characteristics and special values of clays, while Chapter II. gives methods of seeking and testing clays. Chapter III. describes the clays of the Fall Line Region of South Georgia. Chapter IV. gives a comparison between Georgia clays and other well-known clays of the United States. An appendix gives an extensive bibliography of books and monographs on Georgia clays and on clays generally. The greater part of the book is taken up by Chapter III., the Fall Line belt including an extensive region in which are found many descriptions of clay of economic value; while on this belt are located a large part of the existing clay industries of the State.

Dr. Ladd has given us an excellent report, which will be of much value to the people of the State, as well as to investors from elsewhere who wish to locate industrial establishments.

"Hand-book of Practical Hygiene." By D. H. Bergey. Easton, Pa.; the Chemical Publishing Company. Pages, 164. Price, $1.50.

This is intended to be a convenient hand-book for the use of students in the sanitary analysis of air, water, soil and the principal food materials, and in testing the ventilation of buildings. The author has carried out his purpose very well, giving us in a concise form a great deal of information which is needed, not only by students, but by many others who have not always the time or opportunity to go through the more elaborate treatises on the subject. It is also a very good preparatory treatise for those who wish to extend their researches. As a rule only the more simple and ready methods in use are given; while under food analysis we find enough to permit the detection of the common forms of adulteration.

After a brief general introduction on the subject of hygiene, the book is divided into five parts: I. Ahmospheric Air. II. Water. III. Soil. IV. Sanitary Analysis of Foods. V. Ventilation and Heating. It is well arranged, and is generally concise and clear in its descriptions and directions. In some places it seems almost too concise; but the subject is a extensive one, and probably it has been difficult to keep the book within the limits of size set. A couple of pages of bibliography, giving works to which the student could refer for more extended information, would be a welcome addition. Generally the book is an excellent one, which should be generally used by students and others interested in hygiene.

"Alaska and the Klondike." By Angelo Heilprin. New York; D. Appleton & Company. Pages, 312; illustrated. Price, $2.

Books on the Klondike have been issued in abundance since the region became famous, but most of them have been only of slight value, and were, indeed, written only to meet a temporary demand. Prof. Heilprin is a trained observer and traveler of wide experience; he has seen all sorts of wild countries from the tropics almost to the poles. As a seasoned explorer he makes comparatively light of the difficulties of the White Pass and other approaches to the Yukon Region. Admitting the serious obstacles to the inexperienced adventurer, or even to the prospector whose work has hitherto been in more temperate countries, he ascribes most of the suffering and even death which followed the first rush to the Klondike to the folly of many who undertook the journey without proper preparation, with very little knowledge of what they had to expect, and with inadequate supplies. The trouble was also much increased by the rush, the overcrowding of the trails and the attempt of so many to push forward regardless of others.

The description of conditions as found at Dawson and elsewhere is very interesting. Some exception may be taken to the geological theories put forward; but there are many valuable hints on methods of prospecting and working the placers. In the general description of the country and its climate and geography, it is clear and interesting.

Prof. Heilprin has certainly given us a very entertaining and readable work, as well as much valuable information. The book is profusely and very handsomely illustrated, chiefly by reproductions of photographs.

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.

"Annual Report of the Chief of Engineers, United States Army, 1899." Washington, D. C.; Government Printing Office. Pages, 683.

"Tenth Biennial Report of the Bureau of Labor Statistics of the State of Illinois." David Ross, Secretary. Springfield, Ill.; State Printers. Pages, 272.

"The A 1 Universal Commercial Electric Telegraphic Code." By W. Clauson-Thue. New York; the American Code Company. Pages, 1,240. Price, $7.50.

"Proceedings of the Lake Superior Mining Institute, Fifth Annual Meeting, 1898." Houghton, Mich.; published by the Institute. Pages, 60; illustrated.

"The Wider View; a Search for Truth." Collected and Edited by John Monroe Dana. New York and London; G. P. Putnam's Sons. Pages, 258. Price, $1.50.

"A Century of Copper: Part I. Statistics." By Nicol Brown and Charles Corbett Turnbull. London; Effingham Wilson. Pages, 30. Price (in New York), 90 cents.

"Association des Maitres de Forges de Charleroi; Rapport General sur la Situation de l'Industrie Metallurgique en 1898." Charleroi, Belgium; published for the Association. Pages, 320.

"University of the State of New York: State Library Bulletin—Legislation No. 10, January, 1899." Melvil Dewey, Secretary. Albany, N. Y.; Published by the University. Pages, 168. Price, 25c.

"Fisheries in the Contiguous Waters of the State of Washington and British Columbia." Bulletin No. 423, United States Commission of Fish and Fisheries. By Richard Rathbun, Washington; Government Printing Office. Pages, 96; illustrated.

"Report of the Tests of Metals and Other Materials for Industrial Purposes, Made with the United States Testing Machine at Watertown Arsenal, Mass., during the Fiscal Year Ending June 30th, 1898." Washington; Government Printing Office. Pages, 704; illustrated.

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 will only 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.

The Palmer Mountain District, Washington.

Sir: The present year has been an important one in the Palmer Mountain District, which is situated in the northern central portion of Okanogan County, and is about 40 miles square in extent, comprising three organized mining districts, Salmon, Gold Hill and Wannacut Lake. In the latter is Palmer Mountain, which has given the district prominence. Unfortunately, in many good mining districts in which rich strikes are made, the general public gets only the reports of extremely high-grade assays and mill runs, and no effort is made to get as near as possible the average value of the ores throughout the district, and

their general characteristics. The writer has put in most of the present year in going over the district to obtain, if possible, reliable information regarding the country and the work going on, character of the ore and its average values. Generally speaking, gold-bearing quartz predominates, although in certain portions of the district—Mount Ellmeham and Whisky Hill—high-grade lead and silver ore are in evidence to such an extent that with proper development they will furnish all such ore needed to smelt the gold concentrates. Still Palmer Mountain is, strictly speaking, a gold producer, and just now the most important elevation in the district, so that perhaps the following tests of surface and underground ores will serve at least to give a fair idea of the average values.

The Palmer Mountain Gold Mining and Tunnel Company owns 44 contiguous locations on the southern slope of Palmer Mountain, running from its base to the summit, and has for the past three years been engaged in running a tunnel, to be 6,500 ft. in length when completed. Through the central portion of this tract of over 800 acres, some 30 parallel ledges come to the surface, which this tunnel is intended to cross. They are now in 2,425 ft., and have crossed 15 veins, varying in width from 5 to 42½ ft., and at from 100 to 1,000 ft. vertical depth. Of the 15 crossed only 7 show on the surface. Recently David H. Brown, for the past 10 years analytical chemist and expert for the Canadian Copper Company, visited Palmer Mountain and selected 51 samples from the surface of the 44 locations and a large number from the 15 veins in the tunnel. The result of his test gave $16.02 in gold on the surface and $27.97 gold in the tunnel, average values of all the samples.

The Golden Zone Company, on Mount Chapacca, an elevation with only a small valley between it and Palmer Mountain, some 14 miles from the tunnel, has developed its property by 4 tunnels, one above the other, of from 350 to 600 ft. in length. As the mountain is very precipitous, they have attained all of 800 ft. depth. The former manager states that the ores average $30 in gold.

The Bull Frog Company has 50 locations on the northwest portion of Palmer Mountain; the deepest workings are not quite 100 ft. in a shaft and about 200 ft. in a tunnel. They not long since cyanided 11 tons of ore from various locations, the assay value of which was $19.50, and got a return of $17.50 gold, and $1.25 was contained in the solution. This property is five miles distant from both the Palmer Mountain tunnel group and the Golden Zone.

The Okanogan Free Gold Mines, Limited, 20 miles from the Palmer Mountain tunnel, and on an adjoining mountain (Krueger), have several hundred feet of tunnels, several shallow shafts, the greatest depth 180 ft. They have recently installed a 10-stamp mill with plates and Wilfley concentrating tables. They claim on their first run to have saved 60 per cent. or more of the value in concentrates. The ore could not have been of less than $22 average value. To the above tests can be added the record of a year's mill run from ore from the Black Bear, the first quartz location ever made on Palmer Mountain, which exceeded $24 in gold, and no concentrates were saved.

While, as in the instance of the Bull Frog, the ore was easily cyanided with slight loss, in general the opinion of the best experts is that a milling method combined with concentrating machinery will be best adapted to treatment of the ores. It is also conceded that the amount saved on the plates will pay all expenses of mining, milling and general development where conditions are fairly good, leaving the concentrates at least as the profit for mining.

John I. Booge.

Palmer Mountain, Wash., Nov. 12, 1899.

ELECTROLYTIC SHARPENING OF FILES.—According to the London "Electric Review," it occurred recently to Mr. S. Cowper-Coles that the cutting edges of files might be readily sharpened by dissolving off electrically a thin and even film of the steel. A large number of experiments were made for the purpose of determining the best conditions. The effects of various current densities and electrolytes upon the cutting edges of the files were recorded by means of impressions taken on lead foil, and also by taking micro-photographs. Another method for recording the results obtained was to take gutta-percha molds from which electrotypes were produced. Current densities were tried varying from 1 to 500 amperes per square foot, and with variations of time from 5 minutes to 60 hours. A large number of electrolytes were also experimented with, including cyanide of potassium, ferric chloride, ferric sulphate, and solutions of sulphuric acid of different strengths; the best results were obtained with a solution of ferric chloride with high-current densities.

MAGNALIUM.—Dr. Ludwig Mach, says London "Engineering," has successfully alloyed aluminum with magnesium, and thereby obtained a compound which can be worked like brass and which is lighter still than aluminum. These two metals are fitted for union. Their densities are: magnesium, 1.75; aluminum, 2.75; they both melt at 800° C., and their dilatations amount to 0.023 and 0.027 millimeter to 1 mm. and to 1° C. The metallurgical properties depend upon the composition of the alloy. A 10 per cent. magnesium alloy resembles zinc, a 15 per cent. alloy is like brass, and a 25 per cent. like a compound bronze. The alloys can be soldered, it is stated, though that point does not appear to be fully settled, keep well in dry and damp air and give good castings. The well-known scientific instrument maker, Fuess, speaks favorably of some magnalium samples, with from 10 to 12 per cent. of magnesium, submitted to him. The alloy is almost as white as silver and sufficiently hard to cut aluminum with a sharp-edged piece of magnalium. It can be turned, bored, etc., quite as well as brass, and clean and neat threads of 0.25 mm. pitch can be cut with ease. It does not file so readily as brass, but is superior in this respect to copper, zinc and aluminum. Magnalium is suitable for lens mountings, and would make good divided circles and arcs for instruments in which light weight is a consideration. If bought by volume it is a little less expensive than brass; but the statements concerning the strength of this new alloy, made by the Magnalium Company of Berlin, are said not to be of any practical value.

SIR WILLIAM DAWSON.

Sir William Dawson's death, which we noted last week, called out general expressions of regret in Montreal, and indeed throughout Canada, and many tributes were paid to his memory. As indicating the appreciation of what he himself probably considered his greatest work, we give below the resolutions adopted by the Corporation of McGill University:

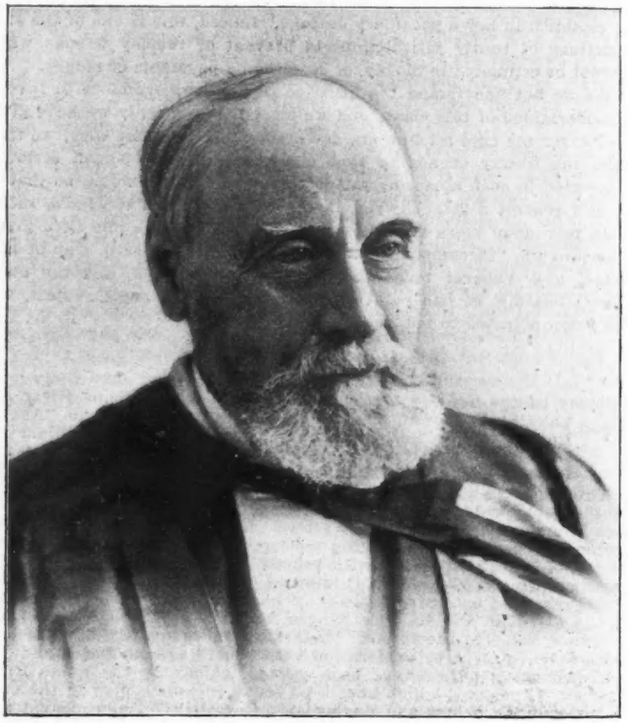
"Resolved, That this Corporation, while fully sensible how impossible it must be to express in words the loss which the university has sustained, and its appreciation of the services rendered through a long and laborious life by the late Emeritus Principal, Sir William Dawson, C. M. G., LL. D., F.R.S., desires to have inscribed on its records an expression of the profound respect which it entertains for his memory.

"For 38 years its honored head, and even in his declining years its firm and faithful friend, Sir William Dawson's life may be said to have been spent in the service of McGill. He spared himself in no way, and rendered much service both in connection with and outside of his official duties, for which his only reward was a consciousness of good work well done.

"As principal of the University, he raised it from small beginnings to the honored place it holds to-day among the universities of the world.

"As professor of geology he extended its fame as well as his own personal reputation over both continents.

"As chairman of the Normal School committee he was instrumental



Sir William Dawson.

in bringing to a higher level of efficiency the whole system of the province.

"As honorary curator of the museum he built up by a life of unsparing industry, and generously gifted to the University collections such as have never been brought together at so small a cost to any institution.

"In connection with the higher education of women he placed himself at the head of the movement which has now come to full fruition in the establishment of the Royal Victoria College.

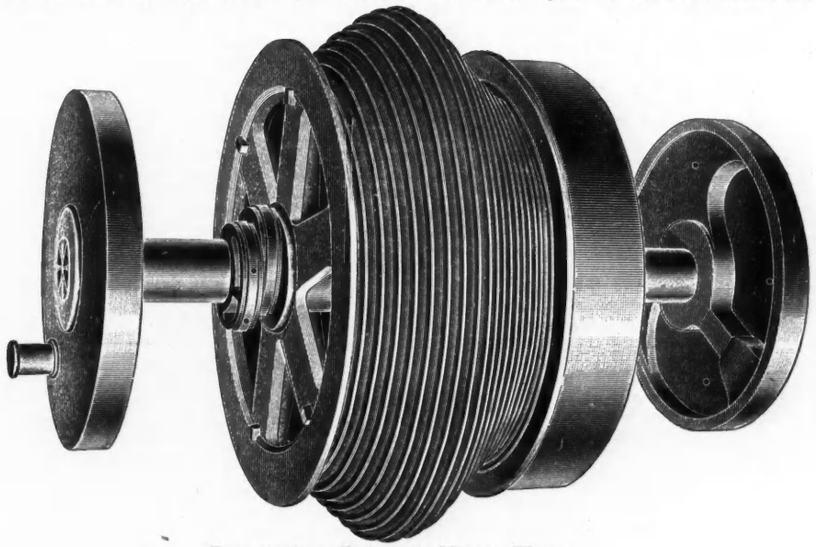
"Those who have been associated with him longest know best that the keynote of his life was ever zealous service, devotion to duty and unsparing self-sacrifice. These aspects of his life work for McGill will ever be cherished by all who come after him."

STEEL-PLATE ROADWAY IN GREAT BRITAIN.—United States Consul Hopley writes from Southampton, September 18th, 1899: "In the county of Down, Ireland, is a steel-plate roadway, known as the Benbrook and Newry Electric Railway. It is only 3 miles long, and has a rise of 180 ft. It has been in operation for 16 years; it is an ordinary railway of 3-ft. gauge. All the trains are mixed trains (passenger and goods or freight combined). The passenger line is built of ordinary steel rails, outside of and adjoining which is a lower line of steel plates. The wagons, without flanges on the wheels, run on the lower outside plates; the inner rails for the cars are high enough above the outer rail to act as a guide to the wagons, keeping them on the track. On either end of the line the wagons are detached from the train and taken to their destination over the regular streets and roads by horses. There are no terminal charges, so the cost of handling is light. There is no delay or difficulty in getting the wagons on or off the ends of the line. The cost of the road, including land and all, was about $77,860.

A DIFFERENTIAL DRUM FOR MINE WORK.

Large winding drums are frequently used for shallow mines with the result of overloading engines that would otherwise be of ample power. It is often desirable to use the smallest engine that will do the work, but it is a necessity to use a drum commensurate to the depth of the mine. The length of the drum is limited to avoid too great angularity by the usual short distance away from the pulleys, the best adaptation is usually that of a compromise between the length and diameter, making the diameter as well as the length, however, as small as possible. In the last few years the use of self-dumping cages has become nearly universal and as a result there is a heavier load on the engine at the starting point. The necessity of using a tight rope compels the lifting the load, cage, car and down-rope direct, the upper cage and car being tilted so as to exert very little weight to balance. The diameter of the drum being previously chosen this condition of things determines the size of the engine. The larger the drum, the larger the engine must be—and the diameter must be large for a deep mine. It is to be understood that one engine of a pair must be able to start this load until the upper cage rights itself, when its balancing weight reduces the load, after which the load is further reduced as the cage descends by the weight of the rope being transferred from the load side to the balance side.

A new winding drum has been introduced by the Crawford & McCrimmon Company of Brazil, Ind., designed to reduce the size of the engine to the requirements of the average work. This drum is conical at both ends, both ropes winding in the same grooves, the ends being reduced to the smallest admissible diameter for safe working, and the middle being enlarged to wind the ultimate depth of the mine. The extreme load at the beginning of the lift is thus started by the small



DIFFERENTIAL DRUM FOR MINING WORK.

diameter of the drum, while the increasing diameter, together with the increasing speed of the engine, and the decreasing load makes up the speed of the hoist, finally slowing up at the landing under a much more sensitive control of the engineer than can possibly be had with a drum of a large diameter throughout. It will be readily seen that the advantage of the flat rope system is secured in starting the load, and the same advantage of the small diameter in landing it, while the down rope exerts less opposing weight. These drums have been used for the last seven years in various sizes from 3½ to 9 ft. in diameter, in mines 500 ft. deep and under, with much success.

MAGNESITE IN GREECE.—A recent report from United States Consul D. E. McGinley, at Athens, says that in Greece magnesite is found in the northern part of Eubœa; in Limnos; near Megara, and as far west as Perachora; and in Locris and Phthivdis. At Mondondi it covers a large area near the surface; but they have sunk galleries there to the depth of 50 meters. The veins of magnesite sometimes extend 100 m. or more below the surface of the ground. The mineral is generally sold in a crude state, but sometimes the Society of Public Works of Athens calcines it and manufactures refractory brick. The largest owners of magnesite deposits in Greece are M. B. Boudouri, the present Minister of Marine; the Society of General Enterprises, and the Society of Public Works, Athens. There are a number of smaller owners of such lands or mines, among whom are Messrs. Ziller & Christomanos, who have valuable deposits at Pyli, Eubœa. Greek magnesite is exported to England, France, Hamburg, Belgium and the United States. It has been exported from Greece since 1870.

The official analysis of the magnesite of Mondondi and of Pyli is as follows: Carbonate of magnesium, 95.12; carbonate of calcium, 4.02; silicic acid, 0.52; moisture, 0.34; oxide of iron, traces.

The mineral is sold in the crude state, on board of vessels at the nearest harbor, at 23 fr. ($4.44) per ton. The cost of transporting the crude mineral to Liverpool and Hamburg is from 17 to 20 fr. per ton, and to New York but little more. There is an export duty of 5 per cent. ad valorem. There is a large tract of this mineral land for sale in Eubœa, and interested parties can learn the terms of sale by addressing Anast K. Christomanos, professor of chemistry in the University of Athens.

BRITISH COLUMBIA.—XXIII.
THE BIG BEND OF THE COLUMBIA RIVER.

Special Report of W. M. Brewer, Traveling Correspondent.

The town of Revelstoke, situated nearly 400 miles east from Vancouver, on the main line of the Canadian Pacific Railroad, is one of the most important junctions in the Province of British Columbia. Connections are made via Arrow Head and the Arrow Lakes for all points in the Lardeau, Trout Lake, Slocan and West Kootenay Mining Districts, including Nelson, Rossland and Sandon. So far as the mineral resources are concerned in the vicinity of Revelstoke, they are practically of no importance, but to the north, in the district known as the Big Bend of the Columbia River, and situated from 30 to 100 miles (according to the portion of the district visited) from the town of Revelstoke, discoveries of gold-copper ore have been reported.

During the past year this section has been brought into an unenviable notoriety through the work of two promoters named George W. Beach and William Crosbie, who organized the Boston & British Columbia Mining and Smelting Company. During a recent trip to Revelstoke the writer took great pains to investigate thoroughly the workings of these promoters with regard to the organization of this company, and interviewed many leading citizens of Revelstoke who were entirely disinterested, as wll as some who to some extent might be considered as interested parties.

It was the intention of the writer, to examine the properties described in the prospectus as the Standard Group of copper mines, but owing to the inclemency of the weather, the fact that they were situated a distance of nearly 50 miles by trail from Revelstoke, and that at this season of the year he was advised that the trip would have to be made on foot, this intention was abandoned. However, he was enabled to ascertain the following facts relative to this group of claims from a perfectly reliable source.

They are a fairly good prospect; the development work on September 27th, last, consisted of one tunnel 40 ft. long, with its mouth about 200 ft. below the summit of the hill; one tunnel with mouth about 50 ft. below the first, and somewhat longer than 40 ft., and another tunnel, apparently a cross-cut, which has been driven about 20 ft.; also a winze sunk below the floor of the first tunnel. At the mouth of the first tunnel, there was a limited quantity of ore on the dump, the tunnel having been run as a drift along the ore body. It was from such development that Mr. George W. Beach, who is described in the prospectus, as "the well known mining expert of British Columbia," made the following statement in his report to the board of directors, and published in the prospectus, "From actual measurement I have computed that there is 750,000 tons of copper ore in sight."

It is hardly necessary to make any further reference to the other statements made in the prospectus, when this one fact has been considered. But accompanying the prospectus was a map which is entitled "Sketch map showing approximate position of claims, and leads, also development work," "Sketch showing mines, ore-bins, aerial tramway," with a picture entitled "Smelter" appended, and a topographical map showing the Columbia River from the head of Arrow Lakes to Death Rapids, and the Big Bend District, generally. With the exception of the latter, it may be said that the sketch maps are pure and simple works of imagination, because as an actual matter of fact, no tramway, no ore-bins and no smelter exist. After a careful perusal of all the papers issued in connection with company's prospectus, the writer is astonished that any sane man would think of investing, because the statements, both individually and collectively, are so absurd that they stamp the scheme as "wild-cat" on the face of them.

However, as the company has installed a winter camp with a force of 14 men to prospect and exploit the Standard Group of mineral claims, which the writer has before stated were represented to him as a fairly good prospect, the management may within the next few months demonstrate that it owns a proposition possessing some value, and may further demonstrate that it is desirable to erect ore-bins, tramway, and even a smelter.

The observations made on this property, and the general facts as well known in Revelstoke, and gathered from perfectly reliable sources, seem fully to justify the strictures upon the company, and its prospectus made in the letters of Mr. H. Mortimer Lamb, published in the "Engineering and Mining Journal," June 24th, 1899; and Mr. Otto Abeling in the "Journal," August 19th, 1899. Mr. Lamb's contrast between the statements of the prospectus and the actual facts of the case, was entirely correct.

It is only fair to say that recently these properties were examined by Mr. Leo Von Rosenberg, of New York, who, it is claimed, has laid out about $30,000 worth of development work, to be done in the future. This work, if carried out according to the programme proposed, will consist of continuing the cross-cut on the present No. 3 tunnel to the vein, and drifting westerly 600 ft. after the vein has been intersected, also running a new cross-cut tunnel from a lower point which is expected to strike the vein at a distance of about 375 ft., and at a depth of about 600 ft. below the upper tunnel. From the point of intersection it is proposed to drift westerly on the vein, if it is found, 1,000 ft.

The Big Bend District has a history which extends back to the days of placer mining some 35 years ago. Since then prospecting for both lode and placer has been carried on somewhat irregularly, and up to the present time with results in some instances far from satisfactory. The Waverly Mining Company, which worked the Grant Group, near the head of the North Fork of the Illecillewaet River, closed down some time back, and in 1898 heavy machinery was taken up the Columbia River for hydraulicing in this same district, but these works have also been closed down.

The only company to-day, so far as the writer could ascertain, which is doing systematic development work, and which, judging from its reports (the second annual one having been issued last March), is pursuing a commendable policy, is the Carnes Creek Consolidated Gold Mines, Limited, with headquarters at Revelstoke. The property owned by this company consists of eight adjoining mineral claims known as the "Rosebery" Group, located on Carnes Creek, 37 miles distant by trail from Revelstoke, also the "Homestake" mineral claim in the same vicinity, and a mill site. At the time of the publication of this report there had been performed about 300 ft. of drifting and cross-cutting, besides some shaft work.

The report also contains a long list of assays made from time to time as the work progressed, which show that the values have varied from $17.50 per ton in gold to $230 per ton in gold. The report also contains a certificate from W. Pellew-Harvey of Vancouver, giving the results from the treatment of 350 lbs. of coarse crushed arsenical pyrites, which were treated by amalgamation, followed by cyaniding. The values obtained are given as $22 in gold and 1 oz. silver per ton.

This company was organized in Revelstoke, and the writer was informed that most of the capital which has been expended was furnished by local men. The writer takes pleasure in drawing attention to the progress made by this company, because apparently the management is following the right lines to be pursued in developing mining propositions, and the results if satisfactory should prove very beneficial to the entire district. Indeed, there is no doubt that the work of this company will next year attract a good deal of attention from outsiders toward the Big Bend District, who will be very favorably impressed by the confidence exhibited by the local men.

THE TAJOS MINE, MEXICO.

Written for the Engineering and Mining Journal by Frank B. Fowler.

This Tajos Mine, which is owned and controlled by Americans, has recently been incorporated in the United States, under the laws of Delaware, its officers being F. H. Prentiss, president; G. Gurney, vice-president and manager. The company's properties are situated in the mining District of Acachuane, near Tamazula, a town of 1,200 inhabitants, in the State of Durango, Mexico. This place is reached from Culiacan by a good wagon road, the distance being 47 miles.

Culiacan, population 15,000, the chief mining center of all this region, is the capital of the adjoining State of Sinaloa, contains a Federal Mint, several cotton and sugar factories, ice and electric light plant and waterworks. About 38 miles of railroad connect Culiacan with the custom-house port of Altata, where connection is made, by two Mexican lines of steamers, with other ports on the Mexican coast, and by the American line (The Pacific Coast Steamship Company) with San Francisco. Altata is also reached by connecting steamers, in two days from Guaymas, the terminus of a branch of the Southern Pacific Railroad.

The climate of Tamazula is mild, the latitude being about that of the lower part of Florida. Skilled miners receive $1.50 per day, in Mexican money, or about 75c. American money, the pay to ordinary laborers being one-half of this amount. Wood for fuel, of good quality, costs 25c. a cubic meter, delivered at mill. The way wood is received in this region, it requires 7 cu. m. to the cord.

The mines owned by the Tajos Mining and Milling Company are known as La Dura, La Colorada, El Chalatillo, Santa Genoveva, Santa Eduviges and Los Tajos; on which latter the main part of the development work has been done. The mines consist of 15 Mexican claims, or hectares, containing a superficial area of 37.05 acres.

The Tajos vein has an inclined shaft operated by a steam hoist. The vein, at present, in the bottom of the shaft (which is 170 ft. in depth), has a width of 3 ft., and shows an average assay value of 30 oz. silver per 2,000-lb. ton, the hand-sorted ore, which is exported, averaging 360 oz. per ton, and the balance, concentrated at the rate of 35 into 1, with an average saving of 85 per cent. The ores of the Tajos vein are of white quartz, carrying pyrites and galena containing silver, with also native silver and silver glance.

The Santa Eduviges vein is much wider, but of lower grade, and the saving in concentration less; while the others produce ore better suited to the hyposulphite leaching process, notably La Colorada vein, 12 ft. wide, which carries a small percentage of copper.

The company owns the water rights along the Sianori River for a distance of 3 miles above the mill, and the right to cut timber from a section covering over 10 sq. miles.

The steam and machinery plant consists of a 40-H. P. boiler (Fraser & Chalmers); a steam stamp (Gates Iron Works); a Lidgerwood hoist; a rock-breaker (Fraser & Chalmers); a 25-H. P. engine for rock crusher and other machinery; a concentrator (Johnson); a small engine for the concentrator, pumps, etc.

A timbered well, 8 by 12 ft. and 15 ft. in depth, has been sunk through the gravel of the Sianori River (which passes within 300 ft. of the mill), and converted into a filter by placing an inverted tank a little above bed-rock, and covered over to the surface with gravel. The suction of the pump passes down into the tank, so no matter how muddy the water in the river may become, a supply of clear, pure water is obtained at all times.

The shaft-house is some 150 ft. above the mill, and when the chute connecting is constructed there will be no unnecessary handling of the ore, the mill being so constructed and located that gravity carries the ore through all its stages of reduction. The buildings consist of an assay laboratory, a machine and pipe-fitting shop, stamp room, concentrator room and boiler room. The walls on the hillside of the mill, of three terraces, are of solid masonry, the roofs of part tile and part corrugated iron. The store and house, which are separate from the mill, have thick adobe walls with masonry foundations. In addition there are the shaft-house and hoist-house, and ore-shed with a dozen small structures for workmen. There is an abundance of limestone and clay for all lime, bricks and tiles that may be needed, within 600 ft.

The present plant is operating with an earning capacity of about $50 per day, but is not yet completed in certain details. The rock-breaker, with its engine, has yet to be put in place. This, with the construction of the chute, will obviate the expense of breaking the ore by hand and animal transportation to mill. These improvements are now being paid for out of the earnings of the mill, and when completed the plant will represent an investment of about $30,000.

The writer is not a stockholder in this company, nor in its employ, and has written this description solely with the object of showing what American talent and energy are accomplishing in this section. There are many other mines near here, now idle and unproductive—in profits, not ore—which could be made to pay by erecting appropriate reduction works, with competent and economical management. He will add that he knew this mine three years ago when it was being worked in the primitive Mexican way, none but the very highest grade of ore returning a profit, by far the greater portion remaining in the mine or on the dump. It has had many different owners, and at times no owner whatever. Every competent miner knew that it contained ore in quantity, but with their primitive, slow and wasteful methods they either failed or became disgusted and gave up the fight. Since the present company has taken it in hand and put up this plant (operating only since last July) there has been no loss.

OLD IRON WORK.—According to the "Bulletin" of the American Iron and Steel Association, the Bucks County Historical Society of Pennsylvania possesses an unusually interesting collection of colonial relics in its museum, which is at present in the court-house at Doylestown. The collection includes a large number of household utensils, tools and other articles used in colonial times in Pennsylvania, gathered and arranged by Professor Henry C. Mercer, now curator of the University of Pennsylvania's Museum of American and Prehistoric Archæology. A description of the collection, compiled by Mr. Mercer, has been printed. A unique department of the collection represents the artistic work of the Pennsylvania Germans in stove plates, made at Durham Furnace, in that State, a century and a half ago.

PHOTOGRAPHING ON GLASSWARE.—According to the "Journal" of the Society of Chemical Industry, glassware, like porcelain, may be decorated photographically by coating it with a solution of chrome-gelatin, superposing a positive, and printing by exposure to light. When the print is finished, the picture is developed and brought up into relief by dusting it over with finely-powdered black flux, which is then fixed by firing; painting in colors, also fired on, may be subsequently carried out. An ordinary print on clear paper can also be transferred to glass by the same means, provided the paper be rendered transparent by impregnation with paraffin, poppy oil, castor oil or petroleum spirit. To counteract the lightening of the shadows by this treatment, a sheet of ground blue-green glass should be laid over the positive when printing.

Attempts at polychrome printing by successive transfer of the different sections of a colored picture—each color by itself—and dusting each in turn with suitably colored fluxes, have been made, but without much success, owing to the unfavorable reaction of the chrome gelatin (when fired) on some of the pigments employed.

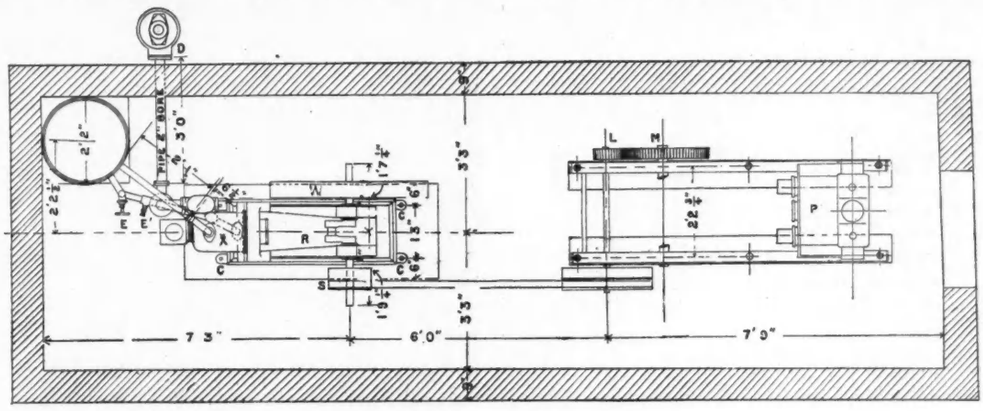
LEAD SMELTING AT PERTUSOLA, ITALY.—A paper in the "Berg- und Huetten-mannische Zeitunz," as abstracted for the "Transactions" of the Institution of Civil Engineers, says that lead ores are smelted at Pertusola in a blast furnace 23 ft. high and 7.5 ft. diameter in the hearth, provided with 15 tuyeres arranged in two series at different levels, whereby it is claimed that the sulphides in the charge are more completely oxidized; the working capacity of the furnace is increased, together with a diminished consumption of coke, and a higher temperature is attained in the melting zone, so that slags containing a large proportion of zinc can be rendered perfectly fluid. It is stated that under the most favorable conditions as much as 270.6 tons of ore and fuel have been passed through the furnace in 24 hours, but the average amount is 233.1 tons.

The yield of silver lead is 512 2/3 tons or 73¼ tons in 24 hours, or 39.95 per cent. on the charge; and 44 cwt. of coppery dross containing 30 per cent. of copper, 40.5 per cent. of lead, 17 oz. per ton of silver. No regulus is produced, and the coke consumption is 8.04 per cent. of the weight of the materials smelted. The slag has the following composition: SiO_2, 26.70; FeO, 32.95; ZnO, 12.88; CaO, 19.71; Al_2O_3, 3.10; MgO, 1.80; PbO, 1.16 (Ag. 0.009); S, 1.03 per cent.

OIL ENGINES AS PUMP MOTORS UNDERGROUND.*

By George L. Kerr.

Within recent years oil engines have been adopted to a limited extent for actuating pumps placed at some distance from the shaft. The writer does not imply that this class of motor is suitable for extended use underground—in fact, the reverse is the case, for in any mine where fire-damp is given off freely its use is not to be recommended at all, as there is the same danger present which is encountered by using an electric motor, the danger of sparking. Then, again, where oil engines are used there must be plenty of ventilation to carry off the fumes arising from the use of the oil. There is always the danger, too, of the oil being spilt and catching fire. The advantages of using an oil engine are that it can be applied with little trouble and at low first cost; in cases of emergency these are advantages which should not be overlooked. In the installation about to be described steam was the motive power first used, but after due consideration this method was discarded and an oil engine substituted for driving the pump. This oil engine was recently installed at a colliery in Ayrshire and has given great satisfaction both in regard to work done and working cost. Before applying the oil engine the water was raised by a steam engine with cylinder 13 in. in diameter, the pumps having 3-in. rams by 12-in. stroke, and going at a speed of 40 strokes per minute. The distance the water was pumped was 1,200 ft. and the vertical head 45 ft. In addition to this pump, two hand pumps 5 in. in diameter were also used to raise the water up to the steam pump through a vertical head of 20 ft. The steam and hand pumps were required to work almost continually for the full 24 hours. The steam engine and hand pumps were replaced by a Hornsby-Ackroyd patent oil engine actuating a Warner three-throw pump. The engine develops 2½ brake H.-P., has a 11½-in. diameter cylinder, is geared 5 to 1, and goes at a speed of 270 revolutions per minute. The Warner pump has 3 rams, 4½ in. diameter by 12-in. stroke, going 25 single strokes per minute.



UNDERGROUND PUMP WITH OIL ENGINE.

The oil engine and pump were placed further to the dip and raise the water through a vertical head of 95 ft. While the steam and hand pumps had to work practically the whole 24 hours, the oil engine and pump only require to be kept at work for 10 hours out of the 24 to pump the same quantity of water.

The general arrangement of the oil engine and pump will be understood from the plan shown herewith. The pump, P, is placed in a direct line with the engine cylinder, X. The piston rod of the oil engine is connected to a double crank, R, which drives a small belt pulley, S, and on the opposite side is a fly-wheel, W. 3 ft. 9 in. diameter, going a speed of 270 revolutions per minute. The pump is driven by belting through the belt wheel, S^1, which drives a small spur wheel, L, on the same driving shaft at the opposite end; this small spur wheel in turn being geared into a larger spur wheel, M, which gives motion to the pump rams in the usual way by means of double cranks. The engine is seated on a cement concrete bed and fixed by four binding bolts, C, C. The exhaust from the oil engine is not delivered direct into the air, but is led into an exhaust silencing box, D, to overcome the difficulty and danger arising from the oil fumes given off when working. As the cylinder is apt to get hot while working, it is provided with a water jacket and a constant circulation of water is kept going through the circulating pipe, A, which is connected to a wrought-iron tank, T, 7 ft. 6 in. by 2 ft. diameter. This tank should be kept properly supplied with water during the time the engine is at work. When the tank water becomes heated, cold water should be run in through the pipe, F, and the tap of the overflow pipe opened to allow the heated water to escape. To avoid emptying the tank when it is necessary to empty the water jacket, two stop cocks, E and E^1, are provided, so that the supply of water can be shut off from the tank, while the water jacket is being emptied.

The total cost of the engine and pump (reduced to American currency) was $630. Adding the foundations, tank, etc., the cost was $770. The cost of working the old steam pump and two hand pumps for a month of 31 days, including fuel, wages and all charges, was $251.72. The cost of running the oil engine for a month of 31 days worked out at $37.04. The steam engine and hand pumps required two shifts, while the oil engine was run only 10 hours a day. At this rate the oil engine and pump saved their cost in less than four months.

This shows that under certain conditions an oil engine may be successfully employed to raise water from dip workings underground. In this particular case the loss of pressure in conveying the steam to the engine was considerable, and to have used any other power meant a large initial outlay for cost of surface plant to generate either compressed air or electricity. With the employment of an oil engine there is the further advantage that no pipes are required to convey the power as in the case of steam or air, nor cables as with electricity.

There need be no danger in using oil engines for such work if sufficient care be taken at the starting of the engine when the vaporizer is being heated, and in the careful handling of the petroleum oil, such as taking it into the mine and filling the tank. The quantity of oil taken into the mine at one time should not be more than will suffice for one day's working; and in filling the tank it would be best to use only safety lamps. The only disadvantage of this class of engine, as already noted, is the fumes given off from the exhaust during working hours. But for this and the fact that the exhaust is at a high temperature, this type of motor for driving pumps would be much more frequently used than it is at present.

*Abstract of article in London "Colliery Guardian."

NOTES ON LEAD SMELTING AND GOLD AND SILVER REFINING.*
III. SLAG SETTLING FURNACES.

Written for the Engineering and Mining Journal by Malvern W. Iles.

This article will deal with one of the many methods used for separating matte and other heavy particles from molten slag.

The term matte, or regulus, will refer particularly to the mixed sulphides of iron, lead, zinc, copper and other metals, which are generally formed by the so-called lead and copper smelters, when a mixture of gold, silver, lead and copper ores are smelted in a blast furnace.

My first experience in a practical way in the art of smelting lead, gold, silver and copper ores began in 1878 with a small circular furnace only 36 in. in diameter at the tuyeres, and 7 to 8 ft. high from the center of the tuyeres to the top of the ore charge. This furnace was situated a few miles from Boulder, Colo., at a place called Orodelphan.

The matte and slag were tapped out together into a small two-wheel slag-pot, with a much pointed conical bottom, and the pot containing the molten slag, matte and, occasionally, a small quantity of arsenical speiss, was allowed to partially cool, then pushed by hand to the edge of the dump, where the matte cake was broken off, and the matte was crushed, rolled and then roasted with other sulphides.

At Leadville, Colo., during 1879, and for two or three years thereafter, there was little or no matte formed, and none saved; all was thrown over the slag dump with the slag. At one of the smelters there was a comparatively small amount of matte and speiss (arsenical) saved and partially roasted in heaps upon cordwood.

As the oxidized ores at Leadville became scarcer and the amount of sulphides increased it became necessary to save the matte. This was effected at first in a very crude way by allowing the matte to soldify with the slag in small slag pots, which generally, but not always, had more or less pointed bottoms, in order to collect the matte more closely.

After the smelters had quite generally begun to recognize the importance of saving the matte, and competition became keener, with a slight reduction in the cost of treating ores, more attention was paid to this matte. Undoubtedly the one thing which more especially directed attention to this subject was the Walter B. Devereaux patented slag pot, an extremely meritorious device, which quickly drew the attention of all lead smelters, and was in fact far in advance of any method previously in use, but as this patented invention was sold to the Omaha & Grant Smelter, at Denver, at a price reported at $25,000, various other means of saving the matte closely were promptly sought by different smelters, and the Patent Office was for some time kept busy with all kinds of slag pots, matte-pots and settlers.

Following the age of slag pots came that of matte-boxes of different sizes and shapes, but generally supposed to possess some improvement in construction or lining intended to prevent the radiation of the heat of the slag. I distinctly remember successfully introducing the Devereaux pot at the Omaha & Grant Smelter at Denver, at which I was then acting metallurgist.

The first slag settler I used, at the Globe Smelter, had only 6 cubic feet capacity; it was next increased to 9 cubic feet. I then devised

a box which held 30 cu. ft. and had movable sides held in place by bolts, washers, etc.; this was increased to 60 cu. ft., and later to 138 cu. ft. It seemed at one time that we would never reach the limit in size of the matte-boxes. But this supposition was dispelled when the last box was found to have overstepped the mark and a step backward was taken, because the box was too large for men and mules to handle; moreover, it seemed to "freeze up" or chill more quickly than boxes of smaller size, and there was no closer saving of the matte than in a box having from 60 to 70 cu. ft. capacity.

From 1886 to 1890 great changes were made in the size and general construction of the blast furnaces, while the tonnage per furnace per day increased rapidly. At the works of the Globe Smelter, where I was acting as superintendent, between 1890 and 1892 there was a great increase, and from 1892 to 1899 the furnaces were smelting from three to four times as much ore per day (of 24 hours) as had been the practice in 1887.

These great revolutionary changes from 40 tons to 120 tons, and even for long periods 140 to 170 tons per furnace per day, only served to show me in an overwhelming manner the inadequacy of all the then known methods for saving the matte closely. The different schemes and plans for modifying the matte-pots and matte-boxes or movable forehearths which were tried by me from 1887 to 1897 would make a long story. In April, 1891, I visited the Boston & Montana Copper Works, then in course of construction at Great Falls, Mont., in my search for some better method for separating the zincy mattes from the slag, formed by the lead smelters, for the presence of so much zinc in the ores made the problem much more difficult.

Mr. C. O. Parson showed me over the plant, as far as it had been completed, and explained to me his plans and ideas, some of which were exceedingly revolutionary. This suggested to me the use of a large furnace heated like that described by Parson, or even a reverberatory furnace heated with coal and on the ordinary grate bar. To get the slag and matte from the place of formation to the place of settling in the cheapest and quickest manner, gave me, however, much concern.

Based upon the ideas above named, the United States granted me two patents, on what is now known as the Iles slag settler.

I believe the best method for the separation of any substance suspended in slag of any kind will be found in the use of a large settling furnace, removed from the blast furnace and heated by any method preferred to which the slag with its associated valuable portions, which it is desired to save, will be transferred in any manner desired so long as it is done quickly and cheaply.

I do not claim any particular method of transferring the slag from the blast furnace to the separator, neither do I claim the reverberatory itself; that is to say, any peculiar construction of furnace. In drafting my letters patent I showed one of the many ways of getting the slag from the blast-furnace to the slag-settler, the particular way we showed being by the use of troughs as it seemed the simplest and most easy one which appeared at that time; but I indicated that it was quite immaterial how such transfer was made.

After several years' thought and deliberation on the question of the best way to get the slag and matte to the settler, I would favor the use of the most modern electric travelling crane, having a span of 100 ft. or more, the travel extending out beyond both ends of the line of blast furnaces.

In front, and at the middle of the line of blast furnaces, I would place three or more Iles settlers, connected to one common underground flue which should be at least 10 ft. wide and 8 ft. high, with good and proper clean-out appliances.

These furnaces should have at least 25 ft. space between them. The matte and slag tap holes should be on opposite sides of the furnace. Both the matte and the slag should have separate tracks, with no possible conflict and no delay from any cause. The slag and matte may or may not be granulated. There should be at least three separate and distinct electric travelling cages. Arrange to have all the slag shells returned to the blast furnace feed-floor bins; and of course this means the electric crane should be high enough to dump all slag shells, trough cleanings, sweepings, lead skimmings, and rubbish of all kinds, direct to the blast furnace.

The arrangement does not contemplate any shoveling, nor any of the present small tools. It is easy to prove, and experience has shown, an actual saving by my method of from $100 to $200 per day over the old method, where 500 tons of ore are smelted.

Some chemical and technical facts should be stated. As to the nature of the slag produced by the lead smelters: Analyses made over four years give its composition as follows: SiO_2—31.35 per cent.; iron bases, FeO, MnO—35.07; alkaline earth bases, CaO, BaO, MgO—20.25; ZnO—6.23; Al_2O_3—6.07; total, 98.97. The balance is due to the presence of sulphur, lead, alkalies, etc.

Very careful tests in order to find the relation of ore smelted to slag produced gave the following figures for slag produced to one ton of ore: August, 1896, 1.08 tons; September, 0.86; October, 0.96; November, 0.90; December, 1.00; January, 1897, 0.93. The average for six months being: 1 ton of ore produced, 0.95 ton of slag. There is some slag-forming material from the coke, particularly where it runs from 16 to 20 per cent. ash.

When we smelt 500 tons of ore, provision must be made for handling quickly and cheaply 500 tons of slag; and not only must these conditions prevail, but also there should be made provision for separating the float matte from the 500 tons of slag, and hence, I advise the use of three slag settlers, two of which always should be running and the third in repair or standing ready for instant use. All the experiments I have made go to prove that the longer the slag settles the freer it is from gold, silver and lead.

I am very doubtful whether all the silver can be removed from these slags, even by very long settling; as I know of one case where the slag was allowed to remain perfectly molten and in a quiescent state for 12 hours, and it still contained traces of silver. It is my belief that there is some form in which silver exists in slag, which can never be settled out by mere subsidence.

The matte tapped out from the settler invariably contains more copper, lead, silver and gold than the matte when sampled at or before it enters the settler. In the matte, the iron varies from 30 to 40 per cent.; lead from 12 to 25; copper, 15 to 30; zinc, 3 to 12; sulphur, 15 to 20 per cent. The gold in the mattes from the settler varies from 0.08 to 0.20 oz. per ton. The silver from 80 to 200 oz. per ton. It is surprising the amount of metallic lead, or rather bullion this furnace collects, due to very fine float particles which have escaped through a large matte-box stationed immediately in front of the blast furnace. I am not prepared to state positively whether it is best to run this furnace with or without some kind of forehearth; I have tried both plans and think possibly the best way is to have an improved matte-box such as that only used at the Globe Smelter up to June, 1899, whereby most of the matte is collected in the matte-box and the overflow slag is taken to the settler; but it should never be forgotten that the Iles settler will work best and run the longest, provided there is introduced a certain amount of raw matte in order not only to keep the bottom hot, but to prevent sulphide of zinc from accumulating. This separates from the slag and seems to grow up from the bottom and ultimately clogs the furnace. For this reason the best practice is to provide four furnaces with the matte-boxes, and one furnace where the mixed matte and slag is allowed to enter the furnace.

I have been criticised both in print and out of print for not dispensing

PIPE LINE, BED ROCK DREDGING COMPANY, IDAHO.

with the matte-boxes in front of the furnaces altogether, by those not particularly familiar with this method.

When one takes into consideration that at least 97 per cent. of the matte is collected at once, and at the furnace with only a trifling expense, and that occasionally the furnace "runs lead"; that is to say, there issues some bullion due to carrying the lead-well too high, or the furnace becomes crusted; and that the matte-boxes catch practically all the zinc matte and thereby prevent a clogging of the settler, which means loss of time and money; and finally the matte-boxes collect the arsenical speiss which is known to chill very rapidly. For these and a great many other reasons which I could enumerate, I must hold to the practice of interposing a matte-box in order to collect the major portion of the matte.

We made a great many quantitative tests on the fume from these slag settlers at the Globe Smelter, and in every single instance it was found too lean to save.

We experienced no difficulty in collecting upon at least 10 or 12 different times good representative samples from which we made assay and chemical determinations. The average of four of such analyses is as follows: Sulphur, 7.40 per cent.; zinc (Zn), 20.40; arsenic (As.), 1.50; antimony (Sb), 2.20; lead (Pb), 39.10.

The sulphur existed as sulphates; the zinc as oxide and sulphate; arsenic as As_2O_3; antimony, possibly as an oxide; lead, surely as a

sulphate of lead. Fire assay showed the fume to contain a trace of gold and 8.4 oz. silver per ton of 2,000 lbs.

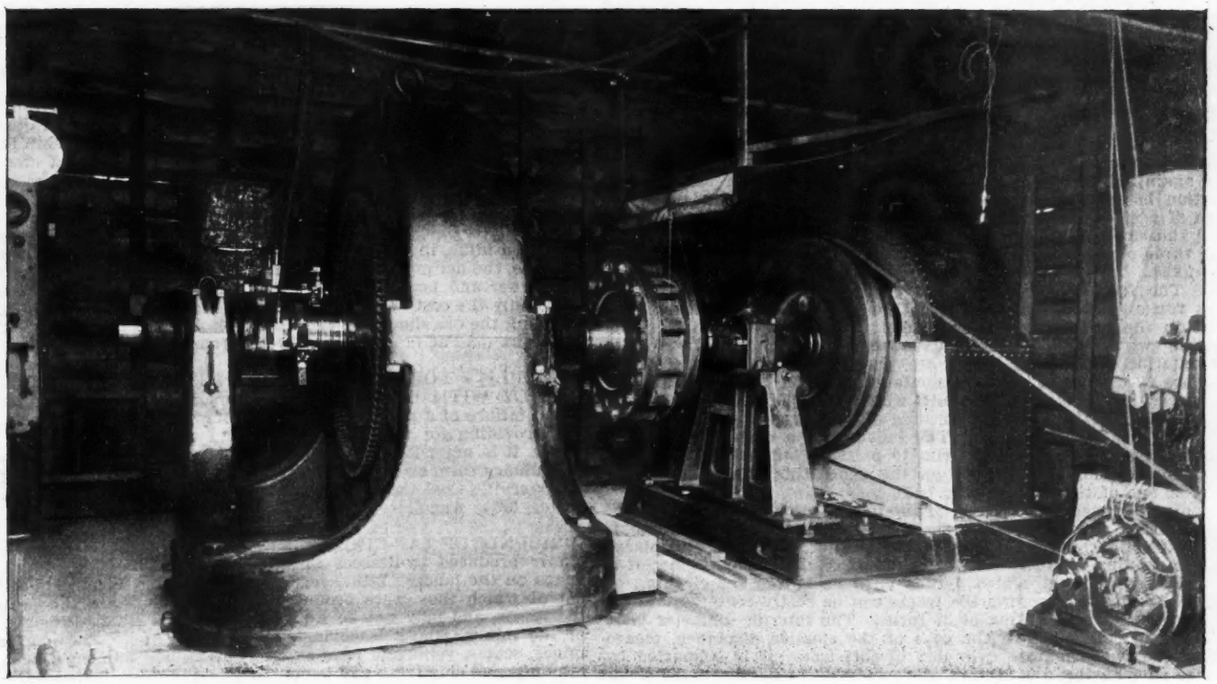
A very much larger sample than that represented above was collected by the use of the water-motor, and the fume was withdrawn from a point 2 ft. from the top of the 60-ft. stack. The analysis gave the following results:

Silica (SiO_2)	1.70	Potassium (K_2O)	0.60
Iron (Fe_2O_3)	1.00	Sodium (Na_2O)	0.85
Zinc (ZnO)	21.00	Carbon (C)	24.40
Sulphur as (SO_2)	1.60	Lead as (PbS)	14.64
Sulphur as (SO_3)	9.75	Lead as (PbO)	21.64
Lime (CaO)	0.60	Ammonia (NH_3)	Trace
Arsenic as (As_2O_3)	0.18		
Alumina (Al_2O_3)	1.20	Total	99.16

Careful experiments were instituted for the determination of barium, magnesium, antimony, cadmium, bismuth, phosphoric acid, titanic acid, chlorine, fluorine and copper, but not even traces were discovered. The following results were obtained by fire assay: Gold, trace; silver, 7.4 oz. per ton; lead, 30.2 per cent.

It is, of course, quite immaterial what kind of building is used to cover or protect the furnaces, or whether the furnaces be covered at all; still at places subject to heavy rains, snows, etc., I would recommend a brick building with 12-in. walls, with large half-circle doors, particularly where the matte or slag is tapped out. The bottom portion of the trusses should be of iron rods, and the roof should be covered with No. 24 corrugated iron and with a portion of the roof left off immediately above where the slag is poured into the furnace, for ventilation. A steel building throughout, with roof and sides would be even better than brick, provided the plans were so carefully worked out as to provide for future extension and enlargements; and care was taken not to have any of the supporting posts in the way. The stack should be built according to any good type, but in all cases I would recommend a height of 60 to 70 ft., lined up throughout with rather a basic fire-brick; the stack should be at least 3 ft. square on the inside, and be separate and distinct from the furnace, set away therefrom, at least 3½ ft., and in front of the so-called skim-door of the reverberatory furnaces.

(To be concluded.



WATER WHEEL AND DYNAMO, BED ROCK DREDGING COMPANY, IDAHO.

ELECTRIC MOTORS FOR A DREDGING PLANT.

The Bed Rock Dredging Company of Philadelphia, Pa., and its associated companies, have for two seasons carried on successful operations in placer mining at a point about 30 miles distant from Boise City, Idaho. Previously, direct-current apparatus has been exclusively employed to operate motors upon dredges, the current being generated either upon the dredge or in close proximity thereto. The Bed Rock Dredging Company was the first to employ alternating-current and polyphase motors for all the operations, the electrical equipments being supplied by the Westinghouse Electric and Manufacturing Company.

A district of about 200 acres of gold-bearing land was acquired by this company. Fifteen miles from the scene of the dredging a power house was constructed of substantial corrugated iron, measuring 20 by 30 ft. Current is generated by a 500-volt Westinghouse two-phase alternating-current generator, direct-connected to a Pelton water wheel. Water is conveyed to the wheel by a ditch, eight miles long, having a capacity of 1,000 miners' inches, or 20 cu. ft. per second. In many places the ditch has been blasted out of solid rock. From the terminus of this aqueduct a sheet-iron pipe descends to the power house and supplies the Pelton water wheel under a head of 350 ft. Fig. 1 gives a view of part of the pipe line. Fig. 2 shows the water wheel connected by a flange coupling to the 400-kw. Westinghouse generator, running at 360 revolutions per minute, and having a frequency of 30 gallons per second. The exciter, of the standard Westinghouse type of 125 volts, is belted to the water wheel, as shown in the illustration. There are also shown two 200-kw. Westinghouse transformers of the self-cooling oil-insulated type, which raise the voltage from 500 volts two-phase to 10,000 volts three-phase, for the transmission circuit. From the power house a three-wire three-phase circuit of No. 4 B. & S. gauge bare copper wire carries the current. The wires are supported on wooden poles and Locke high-tension porcelain insulators, with porcelain pin protectors to prevent leakage to pin.

About 600 ft. distant from each of the three dredges now in operation a small building has been erected, in which are placed the lowering Westinghouse transformers, reducing the pressure to 400 volts two-phase. A full equipment of Wurts non-arcing lightning arresters and choke coils is provided for the 10,000-volt circuits, to protect the generator and transformer stations.

The dredges are known as the ladder or elevator bucket type, with a capacity of 3,000 cu. yds. a day, each of them having the following electrical equipment of 400-volt two-phase Westinghouse type C motors: One 75-H.-P. motor operates a string of heavy buckets upon the ladder of the dredge, each having a capacity of 3¼ cu. ft., which discharge upon the delivery plate at the rate of 13 buckets per minute. The working of this motor is controlled by a reversing switch and auto-starter. Two other 75-H.-P. motors are direct connected to centrifugal pumps for furnishing water to hold the screened dirt in solution, and to force it along the sluice box for the washing process. The material dredged consists of boulders, cobbles and sand, the latter carrying the gold, and is passed by gravity from the delivery plate into a perforated revolving screen set on a slight incline. The water thoroughly disintegrates and washes the material as it slowly passes down the screen. The water, fine gravel, sand and gold drop through the perforations in the screen into a distributing box, from which they pass on to the different sections of gold saving tables by means of doors in the distributing box. The gold saving tables are made of cast iron to avoid warping and leaking.

A 20-H.-P. variable-speed motor swings the dredge into necessary positions, and another 20-H.-P. motor operates the grizzly and screen; both are controlled by reversing switches and auto-starters.

The controlling and starting apparatus for all the motors is placed in the cabin of the dredger, which also contains a complete outfit of indicating instruments, automatic circuit breakers and switches, conveniently arranged on marble panels for observing and properly controlling the operations of the dredge. This arrangement permits one operator to supervise and regulate every movement. The grounds surrounding the dredge are lighted by incandescent lamps from the 400-volt alternating current through suitable transformers. The general scheme and details of the dredging operations were worked out by Mr. S. S. Harper, General Manager of the several companies, and the successful results that have been attained are greatly due to his experience and judgment.

COAL PRODUCTION IN PRUSSIA.—The production of coal in Prussia for the nine months ending September 30th is reported as below, in metric tons:

	1898.	1899.	Increase.
Coal	65,981,830	70,739,622	4,757,792
Brown coal (lignite)	18,669,538	20,395,449	1,725,911
Totals	84,651,368	91,135,071	6,483,703

During this year there were in operation 269 coal mines and 386 open cuts or mines from which brown coal was taken.

THE ELECTRICAL PLANT AT THE BOLEO MINES, MEXICO.*

The copper mines and extensive works of the Compagnie de Boleo are in Lower California, on the west shore of the Gulf of California, the headquarters of the company being at Santa Rosalia. The smelting furnaces and works are near that point, while the mines are back from the Gulf, the most remote being 12 miles from the water.

The climate of Santa Rosalia borders on the tropical. Rain is rare, years often passing without any rainfall. On the other hand the climate is very frequently, and especially in the spring, humid and hot. There is almost an entire absence of fresh water and vegetation. Water for household use and for feeding boilers is brought by a pipe line 10 miles in length. Coal for boilers and the coke necessary for smelting purposes are brought by sailing vessels from England and Germany. Owing to the unfavorable conditions existing as to water, the high price of fuel, and also to a need of increased power at the mining points, the company was obliged to take under consideration a more economic method for the distribution of power than the use of portable engines placed near the shafts and elsewhere. Finally, in 1895, the company commissioned the Oerlikon Works, in Switzerland, to install an electrical plant for the distribution of power in and about the mines.

In order to reduce the expenses as much as possible the generating plant was placed near the shore of the Gulf, where salt water could be obtained for the condensers, etc. The power is transmitted to the mines and works where it is used.

The power plant includes 4 engines, 2 of 500 H.-P. each and 2 of 250 H.-P. each. All are compound engines of the Sulzer type, exhausting into surface condensers. The 250-H.-P. engines are run at 80 revolutions per minute and drive dynamos by means of rope connections. The 500-H.-P. engines are run at 84 revolutions and are direct connected to three-phase generators. In all the engines the admission pressure of steam is 120 lbs. The cylinders have jackets, to which steam at boiler pressure is admitted. The cranks are at an angle of 90°. The air pumps, which are placed below the engine room floor are worked by levers from the engines and communicate with pumps which pass the condensed water through coke filters previous to its being again fed to the boilers. The water necessary for surface condensation is taken from the sea and supplied to the condensers by means of a steam pump, which at the same time furnishes water for use in the smelter, etc.

The three-phase machines are the inductor type, all of the windings being fixed. The pressure is 3,000 volts per phase, or a total of 5,200 volts. The frequency is 42 periods per second. The 250-H.-P. machines run at 250 revolutions, have three bearings and a hemp rope drive. In the interior of the cast steel frame, and concentric therewith, are two cylinders of laminated soft iron which contain slots in their interior surface, in which are placed the armature windings. There are 60 coils, and each coil contains 36 turns. Between the two soft-iron cylinders is the field coil, which is supported on a bronze ring surrounding the shaft; it consists of 320 turns of insulated wire of about No. 3 B. & S. gauge. The inductor is a cast-iron wheel 40 in. in diameter, carrying on its rim 10 pairs of laminated iron poles. The exciter is mounted directly on the generating shaft. The total weight of one of these generators is 16 tons.

The direct-connected 500-H.-P. generators are of the fly-wheel type and run at 84 revolutions—the speed of the engines. The frame is of a construction similar to that of the smaller machines, and placed on a line running between the two cylinders of the steam engine; it is mounted on slide rails, which permit it to be moved for cleaning or repairs. By means of screws the frame can be easily centered. There are 180 coils, each consisting of 27 turns. The interior diameter is 16 ft. The field coil is, as in the case of the smaller machines, placed between the two armature cylinders of soft iron. It is supported by a bronze ring having a T section, the winding, consisting of 150 turns of copper ribbon insulated by mica paper, being divided between the two sides of the central rib. The fly-wheel inductor is mounted directly on the shaft of the steam engine and carries 30 pairs of laminated soft iron inductor poles. The fly-wheel has interior gear teeth which are engaged by a pinion operated by a small turning engine. The exciters are mounted on the generator frame and run by means of pulleys from the shafts of the machines. The complete weight of one of these generators is 54 tons, of which 22 tons are in the fly-wheel.

The distributing lines are bare wire, mounted on double petticoat porcelain insulators. The length of the lines is 18 miles and the length of wire 80 miles.

The high-tension current is stepped down at transformer sub-stations from 3,000-5,200 volts to 220-380 volts. The transformers are installed, according to circumstances, singly or in sub-stations containing up to six transformers. The large stations are two stories high, with the switchboard on the ground floor and the transformers on the floor above. Each sub-station is provided with lightning arresters, switches and fuses, and the connections are such as to permit of throwing out of circuit any transformer. The transformers have three laminated iron cores on which are placed the primary and secondary coils. There are in all four types of transformers, of 50, 30, 15 and 10-kw. capacity. Each motor has its own transformer, or, in case any one of these four types does not correspond to the capacity of the motor, two of a smaller capacity are used. By this arrangement the capacity of the transformers corresponds to that of the motors, thereby increasing the efficiency of the installation. The transformers are installed close to the motors in order to avoid long secondary lines. Those for the motors in the mine workings, used to run pumps, interior hoists, small ventilators, etc., are placed in the same station with the other transformers.

The secondary lines are of insulated wire mounted on porcelain insulators, or consist of three-conductor cables armored with steel wire. These three-conductor cables are installed in lengths of 325 ft., the junctions being made in a junction box, which simplifies testing for faults. The use of these cables has been particularly advantageous in connection with motors which are often shifted.

The motors are used to run ventilators, pumps, mining machines hoists, and for various other mining purposes; 84 motors in all are installed, having an aggregate horse-power of 1,630. The motors are wound for 220-380 volts. Those up to 12-H.-P. have short-circuited rotors and no starting devices; those for 12-H.-P. and above, and the smaller ones running hoists, are supplied with starting devices in the armature circuit. For lighting the interior of the mines current is taken from the same transformers that supply the motors.

For the lighting of Santa Rosalia—for which 60 arc lamps of 6 and 12 amperes, and about 500 incandescent lamps are used—direct current is employed, as it was found impossible to obtain a sufficiently regular voltage from the three-phase circuits, owing to irregularities due to the starting up of motors supplied from that circuit. At the central station there is installed a high-tension three-phase motor direct connected to 2 Oerlikon direct-current machines. The lighting current is distributed through a three-wire network at a voltage of 220 between the outers.

The two 250-H.-P. machines, the transmission lines, as well as a part of the motors and transformers, were put in operation in 1896; the lighting in the spring of 1897, and the two 500-H.-P. generators at the commencement of 1899. The electrical part of the installation was furnished by the Oerlikon Company, the steam engine by Sulzer Freres of Winterthur, and the boilers by the Societe Alsacienne de Construction of Mulhouse.

*Abstract of article in "Electrical World and Engineer."

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported to the Engineering and Mining Journal.

MINING PARTNERSHIP MAY ARISE BY OPERATION OF LAW.—A mining partnership may arise by operation of law, where the co-owners work the mining property, in which case the partnership is subject to changes, or by agreement; it is then commercial and a new partner cannot be included in same.—Freeman vs. Hemenway (75 Missouri Appellate Court Reporter, 611); Appellate Court of Missouri.

MEANING OF "NET PROCEEDS."—The lessees of a mine agreed to operate a mine, in consideration of the owners furnishing all necessary supplies, the net proceeds of the ore, after milling, to be divided between the owner and lessees. It was held that in determining the net proceeds only the cost of smelting, and not the cost of mining, hoisting and handling the ore should be deducted from the gross proceeds.—Yank vs. Bordeaux (58 Pacific Reporter, 42); Supreme Court of Montana.

LIABILITY FOR INJURY WHERE MINE OPERATOR DOES NOT COMPLY WITH LAWS.—Where a person is injured by reason of a wilful failure of a mine proprietor to comply with the provisions of the law providing for the health and safety of persons employed in coal mines, it is not necessary for him to show that he was in the exercise of ordinary care, as in cases of personal injury arising from negligence.—Carterville Coal Company vs. Abbott (81 Illinois Appellate Court Reporter, 279); Appellate Court of Illinois.

"MOUNDS OF TAP-CINDER" BELONG TO LESSOR.—Mounds of tap-cinder produced by lessees in working iron-stone mines, and left in heaps on the land as refuse, are not chattels, but form part of the soil out of which they were produced. Such mounds are the property of the lessor, and may not be worked or removed by a subsequent lessee of the mines, whose lease includes the coal and iron-stone, and "all mines, seams, veins and beds as well opened and unopened, of all other minerals and clay lying and being within and under the lands."—Boileau vs. Heath (67 "Law Journal Chancery," 529); English Court of Chancery.

CONSTRUCTION OF PENNSYLVANIA COAL LEASE.—Where the lessee of a coal mine bound himself to pay a royalty of so much per bushel for coal mined as taken from the pay rolls of the lessee, he must pay royalty for coal known as "entry coal," mined in opening passage ways or entries, the mining of which cost double the value of the coal produced from such passage ways, and for which the miners were paid by the yard and not by the bushel.—Jack vs. Forsythe (30 Pittsburg "Legal Journal," 6); Court of Common Pleas of Pennsylvania.

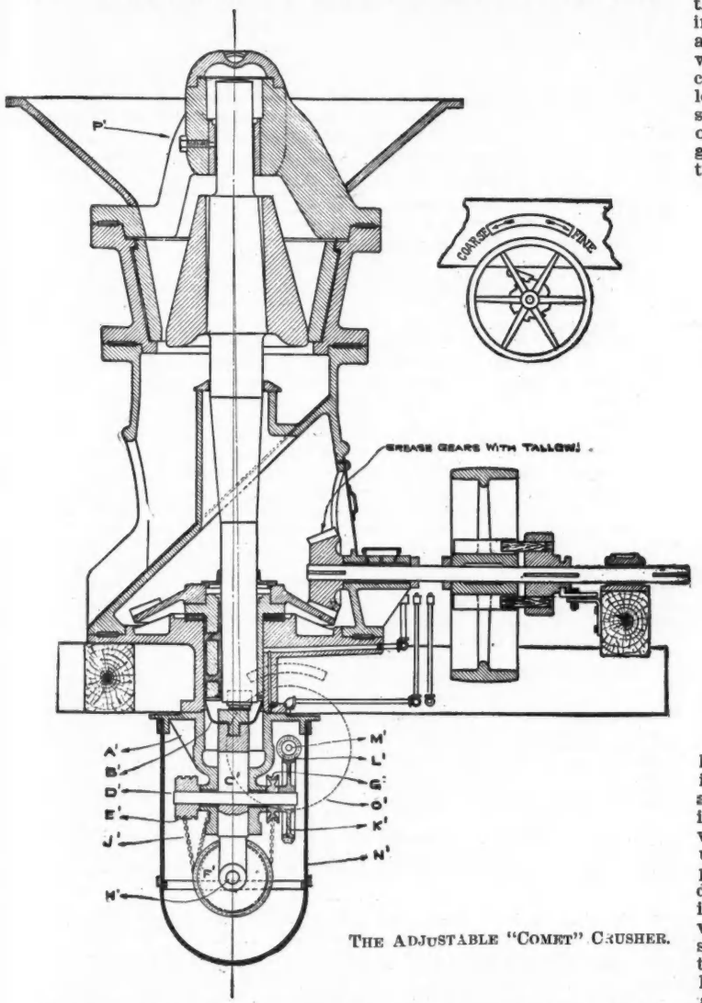
PAYMENT OF ROYALTIES WHEN NOT OPERATING.—Where a coal lease requires the lessee to mine a certain amount each year, a provision that royalties are to be paid so long as coal to that amount is produced under the lease does not relieve the lessee from the payment of royalties, where he arbitrarily and wilfully refuses to mine such amount. An allegation that such payments had become due and payable is a sufficient allegation, that the lease is yet in force.—Central Trust Company vs. Berwind-White Coal Company (95 Federal Reporter, 391); Circuit Court of the United States.

"THREE CARS OF COAL PER DAY" DOES NOT MEAN AVERAGE OF THREE.—Where a person agreed to purchase of a mining company at least three carloads of coal on every working day from September 1st, 1896, to May 1st, 1897, provided that he should not be bound to purchase more than three loads on every working day during such period, but should have the privilege to demand as many carloads on such working day in excess of three as the said mine was capable of producing, such person was bound to take and pay for not less than three cars on each working day; taking none on some days and enough on others to bring the average up to three cars a day would not meet the requirements of the contract.—Bouk Brothers Coal and Coke Company vs. Freeburg Mining Company (81 Illinois Appellate Court Reporter, 88); Appellate Court of Illinois.

THE ADJUSTABLE COMET CRUSHER.

The superiority of "Comet" gyratory type crushers over rock crushers of the jaw type is generally claimed for the reduction of quartz rock and for ballast and road metal work. Weight for weight, their capacity is much greater. For example, a size C reducing hard quartz to 2 in. ring and under, puts through 500 tons a day at a well-known Idaho mine. Its weight is 18,300 lbs. It displaced two 9 by 15 in. jaw crushers, each weighing 16,900 lbs. Weight for weight, the capacity of the Comet was double. The cost of wear and repairs was also much less. The comparison of actual outputs showing so significant an advantage for the Comet, does not appear to show its full superiority as one of the jaw crushers is rated at a capacity of 8 tons an hour, or 192 tons in 24 hours, while the Comet "C" is rated at 15 to 30 tons an hour, or 360 to 720 tons in 24 hours. In other words, the Comet was not forced to make a showing. It was not fed up to its capacity. It was a comparison of usual practice by one disinterested millman who got the most he could out of the two jaw crushers, and then substituted one Comet of about half their weight to do the work of both.

In larger sizes of any desired capacity the comparison as to weight is even more favorable to the Comet, as the framing of the straight jaw



THE ADJUSTABLE "COMET" CRUSHER.

machines has to be very heavy to resist the strain imposed. The largest Comet is capable of crushing 2 or 3 tons a minute. Theoretically we have in the straight jaw machine an intermittent action, while the Comet gives a continuous crushing around a cone of circular section. In point of strength, the straight jaw machine has flat members, not the most economical form for resisting stresses, while the Comet has one central fulcrum capable of resisting to the limit of integral strength of the steel or chilled iron of which it is composed, and the enclosing ring in which any surface stress is backed and supported in the best form possible.

If a piece of the hardest hematite of a flattened and elongated form—which is not unusual—gets into a flat jaw crusher the jaws have no advantage; they must crush the solid mass at one stroke. But with the Comet crusher such a piece is broken easily. It becomes a lever of the first order with the cone as fulcrum and is shattered by cross-breaking. It is not surprising then that the owners of Lake Superior iron mines are recognizing the merits of a crushing machine which has long since won its way in the gold mines.

The general construction of this machine is well known. The details of the Comet crusher are shown in the plate presented herewith. They merit careful attention, for the work that these machines do is as severe as any that steel and iron are called upon to perform. To devise a veritable stone-eater which will chew up the toughest and hardest rock continuously, and at the same time run smoothly and with comparatively small power is no small achievement in dynamics. While running, the cone can be moved up and down with an easy adjustment, so as to vary the size of product. It is not necessary to stop the machine and screw or shim it up. The adjusting gear is always ready, and by means of it the wear on the heads and liners can be equalized to promote the endurance of these severely tried wearing parts.

The stresses imposed on the bearings are severe, and good oil and lubrication are of prime importance. Fraser & Chalmers of Chicago, the makers of the Comet crusher, have determined upon and recommend to their customers a superior fire-proof oil which has given most satisfactory results in practice. Where cool bearings are so important and stresses are so severe the makers have considered it the best engineering practice, as well as considerate of their customers to make bearings ample. The driving shaft is given two good bearings. Overhung bearings have been tried without the outboard bearing, and trouble has resulted, despite extra efforts to keep the single bearing from heating and cutting. It is a poor point at which to economize bearing surface, and a substantial outboard bearing is a good means of securing immunity from trouble, which it would be unwise to abandon.

THE HEISE COAL WEDGE.

The wedging appliance devised by Bergassessor Heise, according to the London "Colliery Guardian," is being used at the Hibernia Colliery, in the Gelsenkirchen District, Germany, with satisfactory results. This appliance, shown by the accompanying Figs. 1 to 5, consists of a flat wedge about 1 m. long, drilled longitudinally through its axis for receiving a screw spindle, b, which has at its upper end a nut, c, and at its lower end two pins, d d, between which the spindle can turn. On both sides of the wedge there are wedge-formed plugs, which in the position of Fig. 1 go to make up a cylinder; and these plugs are guided by grooves in the wedge sides. In the plugs there are also holes in which the spindle pins, d d, engage. After the coal has been undercut and also

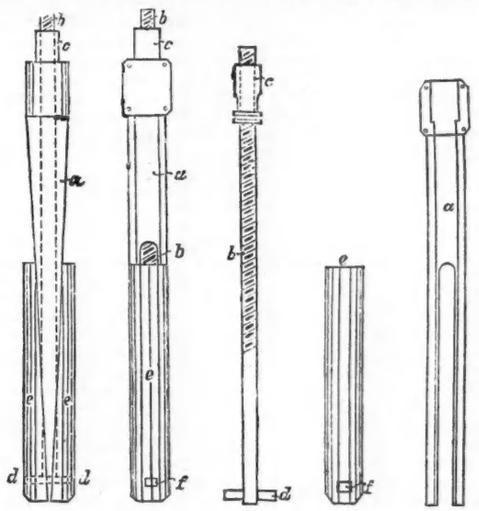


Fig. 1. Fig. 2. Fig. 3. Fig. 4. Fig. 5.

THE HEISE COAL WEDGE.

hewn on either side of the face, a 100-mm. hole the length of the wedge is put in by a hand rock drill, when the wedge is introduced in such a manner that the plugs lie parallel with the direction in which it is desired to exert pressure. The nut is then turned by a ratchet key, when the wedge is impelled between the plugs, forcing them apart, until it reaches the end of the hole. The spindle then draws the two plugs along the wedge towards the front end until the coal is broken down. At the Hibernia Colliery this wedging arrangement is employed in driving an incline upwards in seam No. 16 above the 10th level, in which shot firing is interdicted by the management. The seam consists of a soft underbed, 65 cm. thick and a very hard upper bed 1 m. thick, the former of which is got by the pick, while the latter is first holed and then wedged down. For this work the Heise appliance has given good results; but it is not suitable for stone, since the holes required are of too large diameter.

The same appliance was used experimentally at the Camphausen Colliery, near Saarbrücken, instead of the ordinary wedge driven by hammer; and, although the trials are not yet concluded, this wedge is evidently not suitable for a very hard coal that breaks off short. With such coal the hole for receiving the appliance takes an hour to drill; and the work of operating the wedge then requires from 15 to 20 minutes, while the pressure exerted is not transmitted to an extent corresponding with the time required for bringing down the coal. In other respects the Heise wedging appliance is very handy, and is calculated to do good service in coal that breaks off in large pieces.

OIL FUEL FOR STEAMERS.—An interesting trial trip recently took place on the Firth of Forth, being the oil fuel trial of the tank steamer "Syrian," built by the Grangemouth Dockyard Company for the carriage of petroleum in bulk for Eastern trade. The coal trials were very successful, the speed obtained being nearly 1 knot in excess of the guarantee. The result obtained from the oil fuel was still more satisfactory. The oil used was that known as astatki. On running the measured distance, the speed was 11½ knots, or nearly 1 knot more than was the case with Scotch coal. The number of revolutions was 7 to 8 more per minute, and the horse-power 200 more than at the coal trial, while the steam pressure of 180 lbs. was obtained with ease, notwithstanding that all the auxiliary machinery was running the whole time. The consumption of oil at the trial was found to be 25 per cent. less per horse-power than the consumption of coal.

SAMPLING ORE BODIES.

The average man who invests in a developed mining property, or blindly puts money into a prospect on the strength of specimens shown by a smooth-tongued promoter, has little idea, usually, of the value of the rock that has already come out of the hole in the ground, and no idea of how to determine the value of what is left. The pretty specimens seen on the desk of some mining company at its New York office do not, as a rule, resemble the dingy, mud-covered rock that the prospective investor, in case he takes the trouble "to see what the mine looks like," finds at the head of some drift, or in the breast of some stope. The miner who shows him about will not point out the poorest rock to him. Consequently, he either goes into the matter blindly, regarding all mining as a gamble anyway, or, if more cautious, employs some expert who may or may not be trustworthy. Only rarely, as a rule, does the investor employ a skilful and reliable mining engineer to determine the value and amount of the ore exposed; yet it is in this matter of sampling and measuring the amount and value of pay ore in sight, that the greatest mistakes are made in precious metal mining, and the worst frauds worked on the public.

Ore deposits, as a rule, are not sharply defined areas with regular outlines, and of uniform character. A deposit may have no well-defined boundaries, and its values may gradually fall off on either side of a rich central portion till they are too low to pay for mining. The outlines of the deposit are sometimes regular, but generally are extremely irregular, with richer portions running off into the lower grade rock surrounding them. Instead of being of uniform value, a deposit generally has richer and leaner streaks. This particularly applies to true vein deposits, where a quartz vein 6 ft. wide may have near each wall, or through its center, a streak of high-grade ore, a few inches wide, worth hundreds of dollars a ton; while the great body of the vein is not worth $10. Some of the copper-bearing lodes worked by the mines at Hancock, Mich., show similar streaks. An amygdaloid belt, 10 or 15 ft. thick, may carry much native copper along its contact with other beds, while the rest of the belt is frequently so poor as to barely pay for working. Such variations of character may take place not only along tolerably even planes, but the rich ore may be apparently concentrated around centers. In some of the great iron mines of the Menominee Range in the Lake Superior Iron District, for instance, the ore may vary widely in its proportion of iron and phosphorus within a distance of a few feet; and no apparent rule or reason has ever been discovered which would account for these changes.

Sampling any kind of an ore body, then, is evidently a matter of time and trouble. Prospectors, even the most honest, are prone to give values based on analysis of some picked specimen rather than on average of all ores exposed. There have been a number of companies floated in Eastern cities this year which, the promoters stated, had ore of fabulous richness, yet investigators could find nothing but a few outcrops of doubtful value or some holes in the ground, into which selected specimens from some other mine had been dumped.

In case the investor wishes to make a personal test of what he is buying and try his hand at sampling, there are four general systems open to him, all of which are frequently used on the same property:

1. With a pick or prospector's hammer, a great number of small samples may be quickly and roughly taken along lines at short intervals across the face of each plane section of ore exposed. The specimens should be taken systematically. An expert may be deceived by appearances and a man of thorough honesty may unconsciously chip off the best looking portions of the vein. A continuous groove should be made the length of the section, or small bits chipped off at intervals of an inch or so.

2. A lesser number of large samples may be taken with care and precision from along lines at wider intervals.

3. Mill-runs may be made. In this system a few samples are taken so large that each can be milled by itself, and furnish enough bullion to clean up. Each sample is taken from ore from several parts of the vein, to make it representative, and is shipped to a near-by mill, smelter or sampling works.

4. A rough method of ascertaining the value of gold veins is to take a large number of very small samples, pulverize them, and by panning in a miner's gold pan, estimating the amount of gold in the rock. This method is adapted only for free milling ores.

The first method is the quickest and easiest to use in claims at remote points. The samples have to be assayed separately, but they are quickly taken, and the assaying can sometimes be done on the spot with a portable outfit. When the rock varies in hardness, and the bits chipped off are of different sizes, the results may be unreliable. This system is not to be trusted where thin streaks of very high-grade ore lie in a wide body of low-grade rock. The system is well adapted for sampling ore bodies that must be mined on a large scale, and has been much used in the soft hematite deposits of the Lake Superior Iron Region. The system is applicable, also, where rich ore is in a thin sheet, and is used for daily working in a mine where quick, if rough, approximations are needed. As one specimen is taken from each point, there may be large errors in any single sample, but this is balanced by the great number of samples taken.

The second system is particularly adapted for ores so hard as to require blasting, and for ore bodies which vary greatly in value, and have the values distributed without system. The sample taken may be from 50 lbs. to 50 tons; but should be large enough to represent all variations along the line of the cut. It is reduced, by pulverizing and dividing by successive quarterings, to a size suitable for handy transportation to an assay office. It is advisable to take from the last quartering two samples, sending each to a different assayer, as a check.

The third system is impracticable in the case of prospects in a new country, and is used only when there is a mill or sampling works close at hand, on account of the high cost of carrying the necessary amount of ore any distance. The expense of making such tests is great, and they are suited better for determining the proper process of treatment than the actual value. Even for determining methods, mill-runs may be deceptive, as the samples taken come from a few points along the vein, and it is almost impossible to get the right proportions of the different grades of ore in each. A frequent cause of trouble in trying mill-runs is that the nearest available mill may be totally unsuited for the ore. Consequently, a claim that, with the right process, would be really a first class proposition, shows returns that are altogether too small.

In collecting samples, each is taken along the line selected, making a groove of uniform depth, crossing the principal lines of variation in the character of the ore. These sampling grooves should be distributed over the area of the plane sections selected as nearly as possible at equal intervals. In the first system the grooves are a few inches deep, and often but 2 or 3 ft. long. In the second system the amount of rock broken down is determined by the length of the line and the distribution of the value along it. The groove in this case is blasted out, and trimmed afterward throughout to uniform dimensions. The samples blasted down may be collected on the floor of the drift, but as a measure of precaution a canvas may be laid down to receive the material, and this canvas may be protected with boards to keep it from being torn by large fragments. In sampling shafts, winzes or upraises, a temporary platform of this sort is often erected to receive the rock blasted down.

It is often necessary to sample rock that is being, or has been, removed. If the ore is in sacks, a small amount, a few pounds, may be taken from each sack. To guard against fraud every fifth sack may be dumped out. If the ore is in cars, a shovelful may be taken from each car. This method is used in sampling the Lake Superior iron mine shipments. In a pile of ore on a dump, the top of the pile or dump may be sampled by taking small specimens, at tolerably even intervals over its surface; but as the prospector or miner may have carefully prepared his dump for just such an examination, the only safe thing to do is to drive trenches across the dump to its bottom, taking as samples one shovelful out of every 10 or 20 thrown out. If the dump is large, tunnels may be driven through it and samples taken in the same way.

NITRATE OF SODA.

The nitrate of soda industry shows a considerable improvement this year. A noteworthy feature is the increased consumption in the face of higher prices and a reduced production. In the eight months ending August 31st the Chilean oficinas had an output of 438,674 long tons, as against 834,693 tons in the same time last year, showing a falling off of 47.5 per cent. The sales on the other hand amounted to 1,101,666 long tons, or 99,827 tons, about 9 per cent. more than in the corresponding eight months of 1898. This increase in consumption was due principally to European buying. The United States used during this period only 80,567 tons, or 7.9 per cent. of the total, and as compared with 1898, our consumption of nitrate of soda shows a falling off of 17,208 tons. The sales for the nine months ending with September were 101,698 tons, which is 5,481 tons less than 1898. The price of nitrate of soda at the oficinas has been advanced to 5s. 2d. @5s. 3½d., as against a quotation of 4s. 10d.@4s. 11d. per cwt in 1898. The New York price is also higher, sales having been made recently at $1.70 per 100 lbs., against $1.55 at the same time last year. Up to within a few weeks the average freight rate from the west coast of South America was about 27s. 6d., which compares with 30s. last year, but freights have risen largely since then.

QUESTIONS AND ANSWERS.

Queries addressed to this department should relate to matters within the special province of this periodical, such as mining, metallurgy, chemistry, geology, mineralogy, machinery, supplies, etc. As it is manifestly impossible to devote space to all the questions and notes constantly received, preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot here undertake to give professional advice on problems requiring special investigation and which should be obtained from a consulting expert. Nor can we undertake to give advice about mining companies or mining stocks. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers should send their names and addresses. Anonymous questions will not be answered. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

Basic Slag.—I have seen some references to the utilization of basic slag. Can you tell me what it is used for?—T. R.

Answer.—Basic slag is used in Europe in the manufacture of fertilizers, its value consisting in the phosphoric acid which it carries. This use was first suggested in Germany, and in that country "Thomas-slag" is an important article of commerce, being exported to Belgium, as well as used at home. In Great Britain it is used to some extent, but not so extensively as in Germany. This, however, is chiefly due to the much smaller proportion of basic iron and steel made in Great Britain. In the United States basic slag has been used only in an experimental way, but there is no reason why it should not be largely used—as it probably will be before long.

Economic Value of Minerals.—How can one learn the economic value of certain non-metallic products? In opening a new section here we find glass-sand (supposed to be) fire-clay, potter's clay and building stone beside the coal seams. Have you a department of analysis?—W. G. R.

Answer.—A good way to keep posted on the economic value of mineral products is to study the volumes of "The Mineral Industry," and to follow the news, the markets and the price lists given in the "Engineering and Mining Journal." These will keep you informed of changes, new processes, new demands for minerals and other facts affecting their values.

We have no department of analysis. You will find the cards of a number of assayers and analysts in our advertising columns.

Zinc Smelting.—Can you inform me if the Silesian process (large crucibles) of zinc smelting is used in this country? If so, where? Do you know any firm experienced in building plants of that character? Can you refer me to any publications bearing on this subject?—W. H. E.

Answer.—The Silesian process of zinc smelting is not in use anywhere in this country. It has never been used here, except for a short time experimentally at Bethlehem, Pa., over 40 years ago. Its use at present is confined to Silesia and Belgium—in the last named country to a limited extent only. As the process is not in use here, and never has been, we cannot refer you to any firms in this country having experience in building plants.

The best—we may say the only—publications on zinc smelting are the articles given in the different volumes of "The Mineral Industry."

Calcite.—I have a mineral which I am told is calcite. It is said to yield a white metal, which, I am told, is calcium. Has the metal any uses?—E. D. M.

Answer.—Calcite is a crystalline limestone and has no especial value beyond ordinary limestone, except the fine specimens which are sometimes found in deposits. The metal, calcium, is the base of all lime and limestones and is very widely distributed in nature; in its metallic form, however, it is one of the rare metals, on account of the difficulty of separating it. As a metal there are no special uses for it. It is a white metal, somewhat soft, and has to be kept away from all contact with air on account of its great affinity for oxygen. If exposed to air it will burn, and be quickly converted into oxide. The so-called calcium light is made by directing an oxy-hydrogen flame upon lime.

Hoisting Engines.—I am desirous of buying a hoisting engine for sinking at least 500 ft.; we are now down 230 ft., but have to go deeper. Can you recommend a gasoline hoist as practical and economical where water is scarce? Would one be safe for 500 ft. depth? Where can I get a good one?—R. G. C.

Answer.—Gasoline hoisting engines have been well tested at different mines and found practical and economical. They are especially adapted to localities where water is scarce, as they need no water except for cooling the cylinders; and for that purpose the water can be used over and over again, with very little waste. There is no difficulty in using one to hoist from 500 ft. if you get an engine large and powerful enough. If you consult the advertising columns of the "Engineering and Mining Journal" you will find the names of a number of reliable makers.

Mine Timbers in the Anthracite Region.—Do the anthracite collieries in Pennsylvania use much lumber in mining, for supporting the roofs of galleries, etc., and generally for sustaining the weight of the soil? Is the business of supplying timbers an important and prosperous industry? Is it carried on as a rule by individuals or companies? Where is the timber brought from?—G. F.

Answer.—1. All the anthracite collieries use timber in the mines. The total quantity consumed for that purpose is very large; in addition a large quantity of lumber is used in building the breakers where the coal is prepared for market, besides other buildings.

2. Naturally the business of supplying timbers is one of considerable importance. Its extent varies from year to year; but there is some extension of mine workings every year, for which timbers are required, to say nothing of those needed for repairs and renewals.

3. Several of the large anthracite companies own their own woodlands, from which their timbers are cut as required. The sale to other companies is carried on by dealers in lumber, some incorporated companies and some firms or individuals. At least one mine-owner—the Girard Estate—takes pains to keep up the stock of timber, and plants yearly a large number of young trees, pine, oak, larch, etc., to keep up the growth and yield of its woodland.

4. The anthracite country was originally a heavily wooded region and there is still much woodland scattered through it. A considerable part of the timbers required has come from the region near the mines. Much is also brought from northern and western Pennsylvania, along the upper valleys of the Susquehanna and its tributaries. Georgia pine is used in the breakers and other buildings.

Zinc Used in Cyanide Process.—The assertion has been made, and widely published in the local papers in the Joplin District, that 20 per cent. of all the zinc produced in the world each year is consumed in the form of zinc shavings, used for the precipitation of gold from solution of potassium cyanide in the gold mining districts of South Africa. The writer does not believe that any such large quantity of zinc—which would be as much as the entire United States produces each year—is used in the cyanide process in South Africa, or in the world, for the purpose mentioned, and 2 per cent. of the world's output annually would easily cover the amount used in Africa. Will you kindly correct, through the columns of the "Engineering and Mining Journal," the statement referred to and give the amount so used?—G. M. S.

Answer.—The statement you refer to as to the quantity of zinc used in the cyanide process is manifestly an absurd one, as a brief examination will show. In 1898 the total tonnage of ore crushed in the Transvaal by companies reporting their results was 7,331,446 tons. Since the establishment of slimes plants at a number of the mines on the Witwatersrand, practically all of the tailings are treated. Making allowance for the small quantity of slimes wasted, and for tailings treated by the Siemens-Halske process, the total tailings cyanided were about 7,000,000 tons. It is usually estimated that the consumption of zinc in precipitating gold from the solution does not exceed at the outside 1 lb. per ton of ore or tailings cyanided. Allowing this extreme limit, the total zinc used in the Transvaal in 1898 did not exceed 3,500 short tons; probably it was less than that. Now as the production of zinc in the United States last year was 114,104 short tons, and the total production of the world was 467,149 metric tons, the quantity used in the Transvaal would be only 2.2 per cent. of the United States production, or 0.75 per cent. of the world's production. Your own estimate of 2 per cent. was very much nearer the truth than the wild guess referred to, but was still too high.

PATENTS RELATING TO MINING AND METALLURGY.

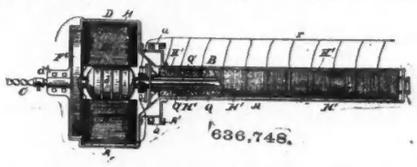
UNITED STATES.

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

Week Ending November 14th, 1899.

636,747. FLUME AND WATER-OUTLET THEREFOR. John A. Blake, Redlands, Cal. The combination with a flume having a hole through its wall; a thimble flanged at one end and inserted through the wall of the flume; and a bent discharge-pipe with one of its limbs rotatably journaled in the thimble.

636,748. ROCK OR COAL DRILLING OF OTHER MACHINE. Henry H. Bliss, Washington, D. C. The combination of a driven shaft, an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electromotor for imparting rotary motion thereto having an armature mounted independently of said shaft, and a supplemental electromotor for moving the shaft longitudinally.

636,750. APPARATUS FOR GALVANIZING. Edward I. Braddock, Medford, Mass., assignor to the New Process Coating Company, Portland, Me. A galvanizing apparatus comprising an outer vessel, and a smaller inner vessel located in said outer vessel below the upper edge thereof and above the bottom of the outer vessel.

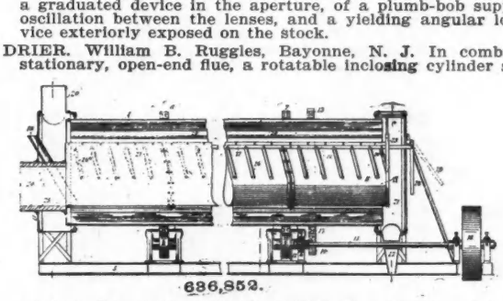
636,762. SCREEN CONVEYOR. Owen J. Conley New York, N. Y. A screen and conveyor having grooved driving and supporting drums and independent cables supported side by side in said grooves, in combination with tightening means.

636,768. CONVEYING APPARATUS. James G. Delaney, New York, N. Y. In combination with a stationary rope, a load-carriage and a rope traveling in a direction opposed to the load-carriage, a rope carrier containing two concentrically-connected wheels one of which engages with each of said ropes.

636,774 and 636,775. DREDGING VESSEL. Joseph Edwards, New York, N. Y. A dredging apparatus provided with partitions or divisions, provided with devices for uniformly distributing material throughout the apparatus and adjustable weirs connected with said partitions or divisions

636,843. PLUMB-LEVEL. Jacob E. Ramsey, Oakesdale, Wash., assignor of one-half to John Whealdon, same place. The combination with a stock having an aperture therein, lenses fitted in said aperture, and a graduated device in the aperture, of a plumb-bob supported for oscillation between the lenses, and a yielding angular locking device exteriorly exposed on the stock.

636,852. DRIER. William B. Ruggles, Bayonne, N. J. In combination, a stationary, open-end flue, a rotatable inclosing cylinder serving as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a return-flue, means upon the cylinder for elevating and depositing material upon the stationary flue, and adjustable means upon the latter for conveying said material forward in said cylinder as it drops from said flue.

636,865. PROCESS OF TREATING CALCIUM OXIDE. Carl Straub, Otisco Valley, N. Y. The process consists, first, in softening the calcium oxide by partial hydration, and second in reducing the mass to an indurated granular form by heating.

636,866. COMPOSITION FOR CEMENT, PLASTER, ETC. Carl Straub, Otisco Valley, N. Y. A composition of matter, consisting of water, slaked lime and bauxite.

636,869. STEEL ORE-BIN. Claude A. P. Turner, Minneapolis, Minn., assignor to the Gillette-Herzog Manufacturing Company, same place. The combination, with suitable posts held together by transverse bracing, of siding consisting of curved plates arranged with their convex surfaces outward, and means connecting said plates to the flanges of said posts.

636,885. BLAST FURNACE CASTING APPARATUS. Frank E. Bachman, Buffalo, N. Y. In a metal-casting apparatus, a metallic trough having an opening in its bottom and side filled with sand, a removable skimming-barrier in front of said opening, a removable dam in the rear of said opening and a removable guiding means in the rear of the dam for guiding the molten metal to the bottom of the trough as it flows over the dam.

636,899. PROCESS OF MANUFACTURING WATER GAS. Carl Dellvik, Stockholm, Sweden, assignor to Jacob Eduard Goldschmid, Frank-

fort-on-the-Main, Germany. An improvement which consists in supplying, during the period of heating, to an ignited body of fuel, such quantities of air as to prevent the reduction of the carbonic acid generated in the lower layers of the fuel when passing through the upper layers, and to cause a direct combustion of the fuel to carbonic acid throughout all the layers of the fuel.

636,902. APPARATUS FOR ELEVATING, TRANSPORTING, AND DISCHARGING MATERIAL. Ole Johnson, Milwaukee, Wis. The combination of a track, a carriage adapted to travel on said track, a bucket having opening and closing means, drums, mechanism for rotating the drums in the same direction, or in opposite directions, and at the same speed, or at variable speeds.

636,819. DEVICE FOR APPLYING PROTECTORS TO FULMINATING CAPS FOR EXPLOSIVE CHARGES. William E. Miller, Denver, Colo. A device consisting of a staff with a tubular protector rolled upon it, so that it can be readily transferred to the cap.

636,924. PROCESS OF COMBINING GASES BY CONTACT PROCESS. Max Schroeder, Hamborn, Germany, assignor of two-thirds to the Actien-Gesellschaft fur Zink-Industrie, vormals Wilhelm Grillo, Oberhausen, Germany, and August Heckscher, New York, N. Y. The process of recovering sulphuric acid or sulphuric anhydride from gases containing SO_2 and O, which consists in passing said gases through a mass comprising a catalytic agent and soluble salts.

636,938. MANUFACTURE OF ELECTRIC BATTERIES. Edward Baines, New York, N. Y. The method of compounding lead oxide, sulphuric acid and finely-divided charcoal by first mixing lead oxide and sulphuric acid to form a binder and second incorporating finely-divided charcoal with this binder.

636,995. CLAY OR GRAVEL WASHING MACHINE. William B. Horr and Clifford H. Gibbons, Jackson, Cal. A device for separating gold from clay or gravel consisting of an inclined cylinder composed of longitudinal interspaced bars, said cylinder having one end made conical and of imperforate material, and a neck prolongation of said conical end formed of parallel interspaced bars serving as a final screen for any material which passes over the said imperforate portion, and an inclined segmental trough.

637,013. CHROME-IRON COMPOUND AND METHOD OF MAKING SAME. Alexander G. McKenna, Wilkinsburg, Pa., assignor by mesne assignments to the Firth-Sterling Steel Company, Pittsburg, Pa. The process consists in mixing an alloy of iron, chromium and carbon with green oxide of chromium and raising the mass to such a heat that part only is brought to a molten state.

637,028. PROCESS OF MANUFACTURING LITHARGE. Carl V. Petraeus, Joplin, Mo. The method consists in maintaining a litharge-furnace and the molten lead charged therein at a temperature considerably above that at which litharge melts, exposing said molten lead to the action of a blast of air to oxidize the lead, running the highly-heated and fused litharge out of the furnace and subjecting it while still fused to an energetic cooling to produce a fine crystalline granular litharge.

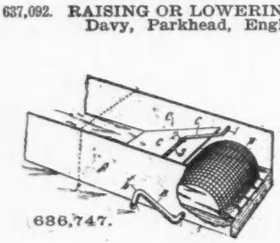
637,062. CARBURETER. Bernard C. J. Anderson, Morton Park, Ill., assignor of one-half to L. F. Nonnast, Chicago, Ill. The combination of an oil-pressure chamber, a generator-pipe communicating with the lower portion thereof, pressure means of predetermined maximum capable of forcing oil to a given height in said pipe.

637,071. ELECTRIC-BATTERY COMPOUND. Henry Blumenberg, Jr., New York, N. Y. A battery compound composed of bisulphate of an alkali or alkaline earth metal and an active oxidizing agent.

637,076. CRUSHING AND PULVERIZING MACHINE. William B. Folsom, Salt Lake City, Utah. The combination, with oscillating jaws, each having a single top pivot, of pivoted hangers, tie-rods by means of which and the hangers the lower ends of the jaws are connected, and a follower-roller journaled in the ends of the tie-rods and hangers to make the jaws follow each other.

637,081. CUPEL-MACHINE. Albert C. Calkins, Los Angeles, Cal., assignor to Frederick W. Braun, same place. A compressing-machine having a plunger and a lever jointed to the plunger and having two separate fulcra-bearings, one of which is located in a slotted bearing near the plunger and comes into action during the first part of the stroke to give a powerful compression, and the other of which is located more remote from the plunger and comes into action during the last part of the same stroke of the lever to make a discharge of the object compressed by a continuation of the same stroke of the lever.

637,092. RAISING OR LOWERING APPARATUS FOR MINES, ETC. David Davy, Parkhead, England. An endless-chain elevator consisting



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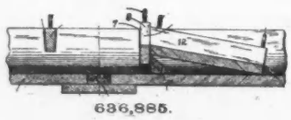

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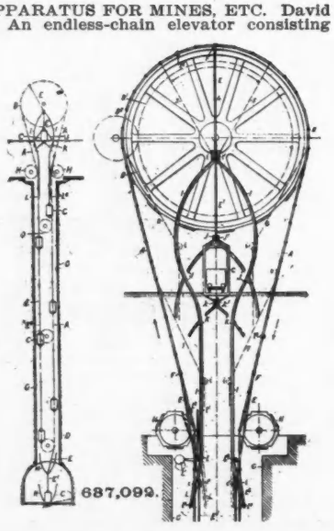


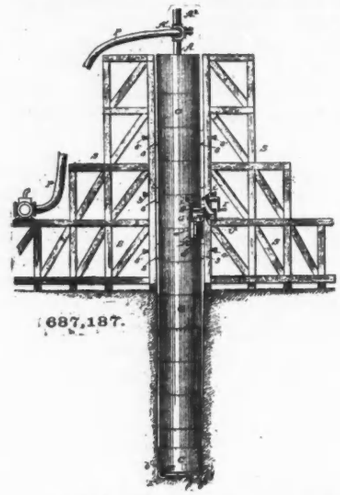
687,092.

of a pair of continuously-traveling endless chains passing over pulleys, a series of cages suspended by links from the chains, and curved stationary guides at top and bottom.

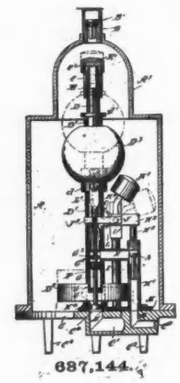
637,102. DRILL FORGING AND SHARPENING MACHINE. William J. Evans, Butte, Mont. The combination with a frame, a die-actuating device on said frame, comprising similar slide-blocks supported to move toward and from each other, a slide-block supported to reciprocate at right angles to the other slide-blocks, all the slide-blocks working in the same plane, a cranked main shaft, cranked counter-shafts rotatable at right angles to the main shaft, pitmen connecting said shafts with the slide-blocks, gearing connecting the main shaft with the counter-shafts, and means for rotating the main shaft, of forming-dies securable upon the aligned slide-blocks, an edge-forming die securable upon the other slide-block, and a bracket-arm adjustable on the forward side of the frame, and a port of a drill in the same place with the dies.

637,126. METHOD OF MANUFACTURING MINERAL WOOL. William H. Kemler and Charles H. Greene, Pittsburg, Pa. The method of manufacturing mineral wool consists in passing a flame of gas, substantially free from sulphur, over a mixture of silicious material and a flux, substantially free from sulphur, thereby producing a molten bath of slag with substantially no sulphur, and then blowing this slag into wool.

637,137. MINING CAISSON. Anthony F. Lucas, Washington, D. C. A caisson having at its lower end a rigidly-attached and closed driving-head made in sections, and a central water-supply pipe also rigidly



637,187.



637,144.

connected and bearing on the lower side rigidly-attached boring devices connected to and turning with the caisson about its vertical axis.

637,140. PROCESS OF PRECIPITATING GOLD FROM CHLORIDE OF BROMIDE SOLUTIONS. Frederick W. Martino and Frederic Stubbs, Sheffield, England. The process consists in treating the solutions with a hydrocarbon gas such as is produced when a metallic carbide is decomposed by water.

637,144. HYDRAULIC AIR COMPRESSOR. Lee E. Mitchell, Boston, Mass. A hydraulic air-compressor, comprising a tank having air discharge and inlet valves and a water-discharge opening in its bottom, a cylinder within the tank in line with said water-discharge opening and connected with a water-supply, a rod extending through said cylinder, and having a water-inlet valve and a water-exit valve thereon, a float connected with the air-inlet valve to control it, and a counter-balanced rock-shaft connected with the rod carrying the water-controlling valves and the air-inlet valve.

637,182. APPARATUS FOR DUMPING, DEPOSITING, OR RELEASING LOADS SUSPENDED FROM CRANES, ETC. Joseph Temperley and John R. Temperley, London, England. The combination, with the lifting-rope, of a retaining device suspended therefrom for temporarily preventing the dumping or release of the suspended load, a movable pawl-carrier having a reversible pawl and adapted when moved in one direction to disengage said retaining device, a support for said pawl-carrier suspended from said lifting-rope, and a shouldered member also suspended from said lifting-rope.

637,211. CEMENT. Charles F. Lawton, Albert L. Lawton and Arthur W. Lawton, New York, N. Y. A cement composed of a solution of an alkaline silicate and an insoluble glass charged with a metallic oxide in a powdered condition, whereby said cement will be rendered colored or opaque, and will be rendered insoluble on drying and exposure or on drying and heating to a temperature below that of fusion.

Reissues 11,788, 11,789 and 11,790. METHOD OF CASTING ALUMINUM ALLOYS. William A. McAdams, New York, N. Y. Original Nos. 634,904, 635,053 and 635,054, dated October 17th, 1899. The method of casting alloys containing aluminum and zinc, in which the aluminum predominates, consisting in rapidly removing the heat from the molten mass at a rate corresponding to not less than one-fifth of a calory per second for a solid spherical casting 1½ in. in diameter, or more rapidly than has heretofore been common in the ordinary use of molds, thereby preventing the segregation of the metals and the formation of large crystals.

GREAT BRITAIN.

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

Week Ending October 14th, 1899.

17,587 of 1898. ACETYLENE LAMP. L. T. Buffington, Minneapolis, U. S. A. An acetylene lamp for miners.

22,441 of 1898. BLAST FOR FURNACES. L. H. F. Pugh, Paris, France. Introducing a spray of hydrocarbon along with the air blast in blast furnaces, with the object of reducing the quantity of coke used.

22,733 of 1898. COAL SCREEN. E. B. Wain, Stoke-on-Trent. A shaking screen for sorting coals and minerals.

25,027 of 1898. BARYTA MAKING. H. H. Lake, London. Improved process for making baryta from carbonate, as a substitute for the present process of making it from the sulphide.

14,226 of 1899. ELECTROLYTIC PRODUCTION OF ALLOYS. P. Aulich, Vienna, Austria. Electrolytic production of an alloy of magnesium and aluminum by the simultaneous treatment of the ores.

15,438 of 1899. SULPHATE OF COPPER PRODUCTION. E. Frenot, Paris, France. Improvements in the electrolytic production of sulphate of copper, the process being used in conjunction with the copper refining process.

Week Ending October 21st, 1899.

25,477 of 1898. METALLIC OXIDE PREPARATION. C. L. C. Berton, Paris, France. Preparing oxides of metals by burning the metals in a powdered state in a jet of air and steam.

2,220 of 1899. BORING TEST HOLES. H. Gotham, Goslar, Germany. Method of ascertaining the dip and direction of strata in bore holes so as to obviate the drilling of many holes.

4,925 and 5,035 of 1899. GOLD PRECIPITATION FROM SOLUTIONS. F. W. Martino and F. Stubbs, Sheffield. Precipitating gold from cyanide, chlorine, etc., solutions by introducing a carbide which gives off a nascent hydrocarbon gas.

10,434 of 1899. DEEP BORING APPARATUS. A. Raky, Erkelenz, Germany. In deep boring apparatus, a counterbalancing mechanism for the rotating boring rod.

PERSONAL.

Mr. Frederick S. Harris, who has been staying at the Hoffman House, New York, has gone to Guadalajara, Mex.

Mr. Benedict Crowell of Cleveland, O., is in Salt Lake, Utah, examining mining properties in various camps near that city.

Mr. L. S. Moulton-Barrett, of Greenwood, B. C., has been inspecting the Golden Eagle claim on the North Fork of Kettle River.

Mr. Roy Hopping, dealer in and collector of mineral specimens, has changed his New York address from 5 Dey Street to 129 Fourth Avenue.

Mr. R. M. Jesup of Central City, Colo., has been appointed assistant superintendent for the Gold Coin Mines Company, operating in Gilpin County.

Mr. Forbes Rickard, of Central City, Colo., has been in Clear Creek County during the past week looking at mining property for Colorado Springs parties.

Mr. August Christian, chief engineer of the Anaconda Copper Mining Company, of Butte, Mont., has been looking over mines about Copper Creek, Colo.

Messrs. J. A. Wilder and Thomas W. Hough of Boston, Mass., have been on a visit to their mining interests in the Gilpin and Cripple Creek districts of Colorado.

Mr. Hugh Sutherland, managing director of the Dominion Copper Mines, Limited, of the Boundary District, B. C., and Mr. W. A. Campbell, of Greenwood, B. C., have been visiting Republic, Wash.

Mr. H. de B. Parsons of New York City delivered a lecture before the students of the Rensselaer Polytechnic Institute at Troy, N. Y., November 22d. His subject was "The Heating and Ventilation of Buildings."

Mr. Wilhelm Spiecker, commercial director of Der Gasmotoren-Fabrik, Deutz, Germany, was in Pittsburg recently with T. A. Snow, a representative of the Otto Gas Engine Works of Philadelphia, inspecting machine shops.

Mr. J. M. Jenckes of the Jenckes Machines Company, of Sherbrooke, Quebec, in company with Mr. F. R. Mendelhall, the company's agent, has been visiting the various mining camps throughout Southern British Columbia.

Mr. C. H. Wheeler, president of the Wheeler Condenser and Engineering Company, of New York City, is in England. The company has orders on hand from many large electrical and mechanical undertakings now under construction.

Mr. Henry Eyermann, of Düsseldorf, Germany, has been in Pittsburg negotiating with the Carnegie Steel Company to test a new open-hearth steel furnace. Similar furnaces are said to be now in use in some steel mills in Germany and Austria.

Mr. Ben. Williams has resigned his position as manager of the Copper Queen Consolidated Mining Company at Bisbee, Ariz. It is said that Mr. Williams' successor will be Mr. Walter Douglass, son of Mr. James Douglass, president of the company.

Mr. John Grahame, formerly general manager of the Huena Piden Railway and Mining Company of Chile, South America, has accepted the position of resident manager in the Bull Creek Mineral and Land Estates Company, Limited, of Ozark, Mo.

Mr. John V. N. Dorr, who has been acting as chemist for the Golden Reward Smelter, has resigned to accept a similar position with the Northwestern Gold and Silver Extraction Company, that is running a cyanide plant at Deadwood, S. Dak.

Mr. Harry J. Lawrence has been appointed traffic manager of the Pittsburg Coal Company. For over a year past Mr. Lawrence has been manager of the Johnson Coal Mining Company and before that was general agent of the Lake Shore Railroad at Pittsburg.

Col. W. P. Rend of Chicago, Ill., a large coal operator in several States, has sold all his coal interests in the vicinity of Pittsburg, Pa., and is reported to have said he expected to begin work January 1st on his lease on Boomer Branch, Fayette County, W. Va.

Mr. Joseph H. Scheuer, president, and Mr. H. O. Reinoldt, a director, of the St. Helens Gold Mining Company, of Milwaukee, recently inspected the company's property in the St. Helens mining district in the southeastern part of Chehalis County, Wash.

Mr. J. A. Coryell has returned to the Kettle Valley, B. C., from Phoenix, the new camp between Greenwood and Columbia, where he has been surveying the Old Ironsides addition to the townsite. Lots in the new addition to the value of $85,000 have been sold.

Dr. William R. Brooks, of the Smith Observatory at Rochester, N. Y., has been awarded the Lalande medal by the Academy of Sciences of Paris, France, for his discoveries of comets. The medal has been awarded to but two other American astronomers, Prof. Barnard and Dr. Swift.

Prof. E. B. Ross, of Auburn, Ala., at the last meeting of the Alabama Scientific Society, read a paper on fertilizers and the fertilizer industries of Alabama. He exhibited samples of phosphate rock found in Limestone County. He stated that lignite was used in the manufacture of fertilizer as coloring.

Mr. Chas. T. Schoen, president of the Pressed Steel Car Company of Pittsburg, Pa., sailed for Europe November 25th. It is said that Mr. Schoen is to close a deal with an English syndicate for the purchase of the Schoen steel car patents that are held in Great Britain and the various countries of Europe.

Mr. John B. Law has resigned his position as general manager of the collieries of the Newton Coal Mining Company at Pittston, the Old Forge Coal Company at Duryea, and the Girard Coal Company at Mt. Carmel, Pa. He is succeeded by James C. Neale. The controlling interests of these companies is held by Philadelphia men, with Frank Patterson as president.

Mr. C. S. Blake of Cincinnati, O., with Mr. H. A. Robson of Cotton Hill, W. Va., were last week looking at coal land in Fayette County, W. Va. Among other places visited were the Longacre Colliery Company, of Longacre, in which Mr. Blake is interested, and the property on Boomer Branch, above the lease of the Boomer Coal and Coke Company.

Mr. George M. Hadesty will act as superintendent of the Lehigh & Wilkes-Barre Coal Company's mines in the Honeybrook division. This includes the collieries at Audenried. Mr. Thomas Mack of Wilkes-Barre will be assistant superintendent and Mr. Wm. Leckie, formerly superintendent of the York Farm Colliery, will be inside superintendent of the collieries in the division.

Mr. J. H. Means, who had charge of the North Birmingham, Ala., furnaces for the Sloss Iron and Steel Company, has tendered his resignation, effective December 1st, and will take charge of the 12 furnaces of the Virginia and Alabama Coal and Iron Company, as general furnace manager, with headquarters at Bristol, Va. Mr. Means' place will be filled by Mr. J. H. McCune, who has been for years in charge of furnaces in the Birmingham District.

OBITUARY.

Daniel B. Gillette, Jr., a well-known Pacific Coast mining man, died recently, after a long and painful illness, at his home in Enfield, Mass. Mr. Gillette's first mining experience was at the silver-lead mine near Newburyport, Mass. Then going West, he became interested in several highly profitable mines, such as the Bonanza King, the Tiptop, Alaska-Treadwell and others. He was a man of engaging personality and his death at the comparatively early age of 53 years is regretted by many friends. He leaves two children.

William J. Hitchcock, a pioneer ironmaster of the Mahoning Valley, died in Youngstown, O., aged 70 years, Mr. Hitchcock went to Youngstown about 40 years ago, where he became associated with the late Chauncey Andrews in various enterprises, chiefly coal mining, iron making and railroad building. At the time of his death he was president of the Andrews & Hitchcock Iron Company, of Hubbard, O., president of the Morris Hardware Company of Youngstown, and director in a number of Youngstown manufacturing concerns. He is survived by a widow and 4 children.

Major John Alexander Steel, for a long time a prominent figure in the oil business in Pennsylvania and West Virginia, died on November 23d, at his residence in Pittsburg, after an illness of 5 weeks. Major Steel was born in Philadelphia in 1840. At the age of 21 he entered the Federal army at the outbreak of the War of the Rebellion as lieutenant, and became major. He was wounded at Antietam and at Gettysburg. At the close of the war he engaged in the oil business in West Virginia. In 1888 he went to Pittsburg and opened up the Harmony 100-ft. oil field in Butler County. He was a member of the firm of Guckert & Steel and president of the Hundred-Foot Oil Company. He is survived by his wife and two sons.

SOCIETIES AND TECHNICAL SCHOOLS.

Society of Chemical Industry, New York Section.—The regular monthly meeting was held November 17th. H. Schweitzer, secretary of the society, presided.

The session was devoted to the reading and discussion of several papers, among the most important of which was that on "The Question of Stable Waste," by W. H. Birchmore.

Other papers read were "The Determination of Titanic Acid in Iron Ore," by James Brakes; "The Analysis of Fats by the Muter Method," and "The Lixiviation of Gold Deposits Caused by Vegetation and its Geological Consequences." The next meeting will be held in January.

Engineers' Club of Philadelphia.—At the meeting on November 16th there were 89 members and visitors present. Mr. Richard Khuen read the paper of the evening on the "Atbara River Bridge," and illustrated his description by a series of lantern reproductions of drawings and photographic views. The contract for this bridge was awarded to American builders by the English Government. Mr. Khuen gave a short history of the events which led to the construction of the bridge and of the preliminary negotiations of the British Government. He then described the engineering features of the contract, the most unique of which was the method of erection without falsework, each span being erected as a cantilever from the anchored span behind it. All of the material was lifted and put in place by cranes, jacks and push-cars operated by the hand power of native convict labor. The details of erection were very fully described, and the fact that the eight Americans who were sent out to superintend the work escaped serious illness, though working in an equatorial climate, was ascribed to care in the use of drinking water and hours of labor. Mr. Khuen closed by pointing out the possibilities for American manufactures in Africa. Mr. C. J. Wennas, foreman of the construction party, described some interesting local peculiarities of the work of erection, and the general subject was discussed by Messrs. James Christie, Wm. R. Webster, Paul L. Wolfel, Edgar Marburg, Thomas Earle and others.

American Society of Mechanical Engineers.—The society will hold its annual meeting at New York City December 5th to 8th. The following papers will be presented: "The Steam Engine at the End of the Nineteenth Century," by R. H. Thurston; "The Berthier Method of Coal Calorimetry," by C. V. Kerr; "Test of Two Pumping Engines at the St. Louis Water Works," by J. A. Laird; "New Graphic Method of Constructing the Entropy Temperature Diagram of a Gas or Oil Engine," by H. T. Eddy; "Pressure in Pipe Due to Stoppage of Flowing Liquid," by Geo. M. Peek; "Liquefaction of Gases," by A. L. Rice; "Curved Glass Blue Print Machine," by P. M. Chamberlain; "A Metal Dynagraph," by P. M. Chamberlain; "Education of Machinists, Foremen and Mechanical Engineers," by M. P. Higgins; "Experiment on Using Gasoline Gas for Boiler Heating," by Herman Poole; "Friction of Steam Packings," by C. H. Benjamin; "Friction Tests of a Locomotive Slide Valve," by F. C. Wagner; "Note on Fly Wheel Design," by A. J. Frith; "A Broken Fly Wheel and How it Was Repaired," by James McBride; "Efficiency Test of a 125 H.P. Gas Engine," by C. H. Robertson; "Strength of Steel Balls," by J. F. W. Harris; "Colors of Heated Steel at Different Temperatures," by M. White and F. W. Taylor; "Impact," by W. J. Keep; "The Southern Terminal at Boston,' by H. J. Conant; "High Hydrostatic Pressures and Their Application to Compressing Liquids," and "A New Form of Pressure Gauge," by F. H. Stillman; "The Value of a Horse-power," by G. I. Rockwood.

INDUSTRIAL NOTES

The Lackawanna Iron and Steel Company, which proposes to erect a large plant at Buffalo, will increase its capital stock from $3,500,000 to $25,000,000.

The new buildings of the H. W. Caldwell & Son Company of Chicago, Ill., are nearly completed. The company expects to occupy them about January 1st.

The Robert Aitchison Perforated Metal Company of Chicago, Ill., is busy manufacturing perforated metals for mining purposes. The company also makes a conveyor lining.

The Rand Drill Co.'s plant at Tarrytown, N. Y., has orders booked ahead for 6 months. Recently a 48-in. stroke air compressor was shipped to the Cramp Shipbuilding Yards at Philadelphia.

The Solvay Process Company has decided to increase the capacity of its Detroit, Mich., plant so that the entire production of the company will reach 1,100 gross tons of soda ash per day.

The Perfect Lubricating Metal Company, of Cincinnati, O., recently shipped 25,000 lbs. of antifriction metal to Russia and Finland. The firm reports increasing orders from foreign countries.

The recently organized Columbus Iron and Steel Company, with $400,000 capital, is to build 2 blast furnaces in the south part of the city of Columbus, O. The furnaces will be moved from the Hocking Valley.

The New Castle Shovel Company of New Castle, Pa., manufacturer of shovels, etc., for mining and other purposes, recently opened offices

in Chicago under the supervision of K. F. Paterson and F. A. Hastings.

The Grasselli Chemical Company of Cleveland, O., which corporation has chemical works in Ohio, Pennsylvania, New Jersey, New York and Indiana, will erect a plant on land 6 miles from Birmingham, Ala. The chemicals will be sulphuric, hydrochloric and nitric acids.

The American Engineering Works has taken larger offices in the Marquette Building, Chicago. The firm's business, particularly in mine cars, has increased greatly during the year, several thousand mine cars having been shipped to mines in the United States, Canada and Mexico.

The Musconetcong Iron Company, Stanhope, N. J., is making extensive improvements to the Stanhope furnace, which has been idle since 1892. A spur is being built from the Lackawanna Railroad, the coal banks are being overhauled and the stack almost rebuilt. John S. Kennedy, formerly with the Sheridan (Pa.) Iron Works, will be superintendent.

The Pittsburg Reduction Company, manufacturer of aluminum, has decided to build a new plant in Canada, to be located at Shawenegan Falls on the St. Maurice River at a cost of fully $1,000,000. The firm has given a contract to the Westinghouse Electric and Manufacturing Company of Pittsburg for 7 electric generators to cost about $150,000. The works are expected to be in operation next fall.

The Berlin Iron Bridge Company recently shipped from Berlin, Conn., a trainload, 27 cars, of structural material consigned to the United States Commission at Paris, France. The material will be used in the construction of a special building 343 ft. long and 77 ft. wide, made entirely from American products and erected by American mechanics. It will contain a complete equipment of iron and wood-working machines of American make.

The trial of the Miller conveyor for coaling vessels at sea, which was carried on for a week outside Sandy Hook by the battleship "Massachusetts" and the collier "Marcellus," has been completed and is pronounced by the Maritime Board a success. The tests showed that over 20 tons an hour could be passed by the system from collier to warship. The conveyor is controlled by the Lidgerwood Manufacturing Company, of New York City.

The Gates Iron Works of Chicago, through its New York office, has received a contract for 4 crushers, screens and elevators to be used in remodeling the ballast plants of the Baltimore & Ohio Railroad. The plants are located at Wooddale, Del.; Kearneysville, W. Va.; Buckhorn, W. Va., and Connellsville, Pa. The Southern Pacific Railroad has also ordered a crusher from the Gates Iron Works to be erected in San Francisco.

The Rand Drill Company of New York City recently shipped one of its largest horizontal air compressors for use in the De Beers Diamond Mines at Kimberley. The air end of the compressor is compound and the steam end is compound condensing. The stroke is 48 in., the air cylinder being 39 and 24 in. in diameter, and the steam cylinder 22 in. by 40 in. A machine of nearly the same dimensions was shipped at the same time for the Geldenhuis Mining Company, of South Africa.

The American Trading Company of New York City has been buying equipment for the first modern paper mill to be built in China. Orders have been placed with the New Haven Manufacturing Company of New Haven, Conn., and the W. F. & J. F. Barnes Company for machine tools for the repair shops. A 4-cylinder triple expansion 500-H. P. engine has been ordered from Lane & Bodley of Cincinnati. The American Fire Engine Company has received an order for 3 single cylinder vertical 100 H. P. engines. Four centrifugal pumps have been ordered from the Lawrence Machine Company of Lawrence, Mass. Two 98-in. paper machines have been ordered from the Beloit Iron Works of Beloit, Wis.

The Gruson Iron Works, incorporated last May with a capital of $500,000, is to build a plant for manufacturing Gruson chilled charcoal iron turrets for coast defense guns at Eddystone, Pa., on the Delaware River. These turrets have heretofore been manufactured only at the Fried. Krupp Grusonwerk, Magdeburg, Germany. The new plant will include a foundry, casting pots, machine shops, etc. Besides turrets, the company will manufacture other very heavy iron castings. It is stated that the capital stock is to be increased to $2,000,000. The directors are: P. H. Griffin, of P. H. Griffin Machine Works, Buffalo, N. Y.; Thomas Prosser, representative of Fried. Krupp for the United States, New York City; C. W. Barnum, of Lime Rock, Conn.; T. Guilford Smith, vice-president New York Car Wheel Works, Buffalo, N. Y.; Capt. A. E. Piorkowska, representative of Fried. Krupp Grusonwerk, Magdeburg, Germany; Ernst Thalmann, New York City; David Townsend, Philadelphia; S. Singer, Paris, France; Herbert L. Satterlee, of New York City. The Fried. Krupp Grusonwerk, of Magdeburg, it is reported, holds a ⅛ interest in the company.

TRADE CATALOGUES.

Draughtsmen's and surveyors' supplies in great variety are shown in a 220-page illustrated catalogue published by the Eugene Dietzen Company of New York and Chicago. The company calls especial attention to its "Gem Union" drawing instruments, for which it claims high excellence in quality, form and finish. The instruments are sold singly or in cases. The surveying instruments shown comprise levels, transits, compasses, etc.

The Edson Manufacturing Company of Boston, Mass., which manufactures the Edson trench pump, issues an attractive 24-page pamphlet, showing how this pump looks in operation. One of these pumps, worked by hand power, in preparing foundations for piers of the Boston Elevated Railroad, handled water full of sand and gravel at the rate of 3,500 gals. per hour. A larger size is intended to handle 6,000 gals. For contractors' use and for shallow mining or open pit work this pump has advantages. The Edson force pump can be used for sinking piles in a sandy bottom.

The American Well Works of Aurora and Chicago, Ill., and Dallas, Tex., has issued pamphlets calling attention to the gas and gasoline engines it manufactures. These engines are made both in stationary and portable types, the portable engines being adapted for driving well-sinking machinery, pumps, hoists or electric light plants, and consequently are handy things in any locality where fuel is high-priced. The company also manufactures a gasoline traction engine. Of well-sinking machines the company makes a great variety of rigs, from a simple auger driven by hand power to rotary or drilling machines for the heaviest work.

MACHINERY AND SUPPLIES WANTED.

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

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

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

GENERAL MINING NEWS.

CALIFORNIA.

Inyo County.

(From Our Special Correspondent.)

Blue Bell.—On this mine in Snow's Canyon, 14 miles southeast from Darwin, development work is being pushed. The ledge, which is from 13 to 40 in. wide, has been drifted on about 165 ft. It is estimated that 100 tons of ore are on the dump and that 1,500 more are in sight.

Kern County.

(From Our Special Correspondent.)

Orihano.—The shaft at this mine, 7 miles from Keene, is down over 200 ft., at which depth $80 ore is being hoisted. The mine is owned by a company composed of Los Angeles and St. Louis men.

Los Angeles County.

(From Our Special Correspondent.)

King of the West.—The shaft at this mine at Acton is down 150 ft. Ten men are employed under W. J. Woodside, superintendent. The returns from a 20-ton shipment to the smelter averaged high in gold, silver and copper. The lot was probably selected ore.

Placer County.

(From Our Special Correspondent.)

Gold Blossom.—Twelve men are employed at this group of quartz mines, on Crater Hill, 4 miles west from Auburn, on development work. J. E. Walsh is superintendent.

Jupiter.—At this drift mine near Iowa Hill, a drift has been run up and down the channel for 400 ft., and blasting is going on.

Plumas County.

(From Our Special Correspondent.)

Claybank.—At this mine work is being pushed under the superintendency of J. H. Thomas. The working force is to be increased very soon.

San Bernardino County.

(From Our Special Correspondent.)

Copper World.—At this mine on the desert, 55 miles northwest from Vanderbilt, development work is going on rapidly and ore is being shipped at the rate of a car-load every 3 or 4 days. The output is to be increased.

Santa Barbara County.

(From Our Special Correspondent.)

Alcatraz Asphalt Company.—It is reported that the working force employed at the Los Conchas and La Patera asphalt mines owned by this company is to be transferred to the Sisquoc Mine, 8 miles north of Los Alamos, and that the company will concentrate all the work on that property, which comprises some 35,485 acres. The deposit in this tract is said to be apparently inexhaustible, and of the best quality. The reason given for abandoning the other mines is the cheapness with which the new property can be operated. A. F. L. Bell, manager, is arranging for the shipment of the materials and machinery to the Sisquoc.

Shasta County.

(From Our Special Correspondent.)

Black Diamond.—At this group of copper claims near Furnaceville, on North Cow Creek, operated by the North California Investment Company, 80 men are running the big tunnel through the hill to Pitt River. Air drills are used, and the work is progressing rapidly. The power plant works smoothly.

Cleveland Consolidated.—These mines and several others near Bully Choop Mountains employ some 60 men in the development work. The elevation being over 6,000 ft. and the ores of the district generally base, winter will likely delay resurrection.

Dry Creek Slide.—This property, near Keswick, is producing some rich ore, 7½ tons of which are said to have produced $385 per ton. Twenty-one men are employed under D. McCarthy, owner and superintendent. The mine is reported to have been bonded for $55,000 to C. C. Bush, Jr., for eastern parties.

Vandevere.—Waters & Foster are working this mine 2½ miles southwest from Copley, under lease. Drifts on the ledge show a vein from 12 to 18 in. wide, assaying over $22.50 per ton. The ore will be shipped.

Solana County.

(From Our Special Correspondent.)

St. John's Quicksilver.—This old mine, 5 miles from Vallejo, will be reopened as soon as necessary machinery can be installed. The output from 1873 to 1880 (when it shut down) was 11,528 flasks, valued at $504,810. Ore in the old workings ranged from 2⅞% to 10%.

Tuolumne County.

(From Our Special Correspondent.)

Imogene.—The new shaft at this claim at Stent is down 100 ft. on a ledge of ore. The property is being developed by the Alder Creek Gold Mining Company, and is said to be the north extension of the Jumper Mine.

Trinity County.

(From Our Special Correspondent.)

Buckeye Mountain Mines.—This group of 22 placer claims, comprising 3,087 acres about 10 miles east from Weaverville, on the Buckeye Mountains, is to be worked by a company organized by men in Humboldt County. The gravel is estimated at 2,500,000,000 cu. ft. A ditch and pipe line is to be put in, at an estimated expense of $22,000, to bring water from Stuart's Fork of the Trinity River. The dump is from 100 to 500 ft. Preliminary work is being pushed. E. A. Thomasson is in charge.

Bully Choop.—These gold claims on the northwest side of Bully Choop Mountain, are worked by J. E. Childs with 25 men. Drifting on the vein is going on. A road has been constructed from the mine to the road leading to the Cleveland Consolidated Mine, giving communication with supply points in Shasta County. A sawmill is completed, and a 10-stamp mill is going up.

Globe.—This gold mine at Dedrick is reported to have been sold to J. E. Childs, who is also interested in the Unity Mine at Minersville, 20 miles from Weaverville.

Maple Creek Mining Company.—The hydraulic property owned by this company, on Maple Creek, 8 miles south of Junction City, is to be worked on an extensive scale. Eight miles of road have been graded, and a pipe line about 2/3 of a mile long is being constructed. A sawmill has been completed.

COLORADO.

Clear Creek County.

(From Our Special Correspondent.)

Anetta Mining Company.—The Griffith Mine at Georgetown is opening another ore chute 1,800 ft. east of that from which the ore has been coming for 2 years. It is claimed that electric drills are to be installed.

Bay State Mining Company.—In the Eagle at Dumont another ore chute has been found at 600 ft. in the drifts east of the shaft. It is 6 ft. wide. It is to be treated at the Specht Mill, which has a complete system of concentration by jigs and tables.

Big Chief Mining Company.—This company, on Soda Creek at Idaho Springs, has bought a 4-drill compressor from the Leyner Company of Denver, Colo., and has also bought a 40 H.P. hoist and new boilers. It is proposed to sink the shaft on what appears to be a good showing of mineral.

Gilpin County.

(From Our Special Correspondent.)

Mining Deeds and Transfers.—C. C. Reid to P. W. Buchanan, 1/3 interest in Jay R. Lode. F. King to Joseph L. Walters, 1/12 interest in White Spar and Iron Clad claims. Wm. Brady to Puzzle Gold Mining Co., Parole Lode. N. M. Callaway, Sr., to S. B. Burdell et al, 1/3 interest in Rapahannock Lode.

Barnes.—A shaft building 28 by 54 ft., with a small ore house, is being erected by Byron Lake of Central City, and a 30-H. P. hoist will be installed.

Boston & Denver Mining and Milling Company.—A new boiler building 38 by 80 ft. has been completed, and 3 new 100-H. P. boilers are being put in, making a combined H. P. of 680. Grading for the new 80-stamp mill is completed and work on the foundation has begun.

Clark-Gardiner.—Rome, N. Y., parties are interested, and after 3 months have sunk a comparatively new shaft over 570 ft. J. W. Bostwick, Central City, Colo., is manager.

Gold Coin Mining Company.—A new shaft house, 24½ by 108 ft, with addition 10 by 77 ft., is being erected on the Hidden Treasure and the 80-H.P. hoister from the Kansas is in place. The water is held in this shaft from the California since the big plant there was burnt, October 24th. A new shaft house, 100 by 101 ft., is to be put up on the California, together with a 14 by 26 double cylinder hoisting plant of 150 H. P. from the Tyndale coal mine near Golden, built by the Ottumwa Iron Works. Two 5,000 ft. ropes have been ordered, one from A. Leschen & Sons Rope Company of St. Louis, Mo., and another from the San Francisco office of the Washburn & Moen Manufacturing Company. The California shaft, 2,232 ft. deep, will be pumped out. Mill ore from the Hidden Treasure 1,400 level runs 4 oz. gold per cord. A. L. Collins, Central City, is manager.

Hazeltine.—W. W. Weston of Cripple Creek has examined this property for the Scotch owners, and work may be resumed. Messrs. Auchea and Archibald Coates, the thread manufacturers, are part owners.

Lamberson and Warren.—A new shaft house 24 by 45 ft. is being erected and a new hoisting plant is to be put up by Denver parties. T. W. Brereton, Central City, Colo., is manager.

North Downs Mining Company.—The shaft is down nearly 300 ft. and good progress is made with air drills. Boston parties are interested. J. Thompson, Black Hawk, is manager.

Topeka.—The grading for the big shaft building is completed and 2 100-H. P. boilers and the big Webster Camp Lane Company's hoist are being installed. Another 100-H. P. boiler has been ordered. R. E. L. Townsend, Russell Gulch, is manager.

Wain.—The Waincross Mining and Milling Company has this mine in working shape and development has begun. C. R. Gage of Black Hawk is manager.

Hinsdale County.

Lellie.—This claim is improving. The breast of the drift is now in 430 ft. in ore that is shipped without sorting. The mine will be worked all winter.

Lake County—Leadville.

Little Chief.—This company, of which Thomas Pitblado is president and Edward Earle secretary, has filed a certificate with the Secretary of State of New York stating that the company's capital stock has been reduced from $10,000,000 to $1,000,000 in $5 shares.

(From Our Special Correspondent.)

Bohn Mining Company.—A 10 years' lease running from January, 1900, has been secured on this 30 acres by the company. Only 1 acre has been developed and over $275,000 has been taken out. The iron stope so far as developed is over 80 ft. wide and averages 30 to 40 oz. silver and 15% lead.

Clarendon Mining Company.—Papers are being drawn up for organization by December 1st. Julian Yale of Illinois, Senator Smith of Leadville, Geo. W. Cook, Col. J. J. Slocum and others are interested. The intention is to capitalize for $500,000, and the company will work still further west than the City Mining Company in the business center of Leadville, where the members own some valuable ground.

Rock Hill.—It has long been held that the rich ore shoots of the Crown Point, Pinnacle, Only Chance, Moyer & Wells placer and others extend west across the iron fault and the numerous new shafts prove that the projectors have great faith. The work of the Rock Hill Consolidated Mining Company and the Revenue Mining Company is most important.

Pitkin County.

Cowenhoven Tunnel.—This tunnel, which runs 2⅝ miles into Smuggler Mountain, near Aspen, drains the mines above its level and handles ore from these properties: Della S., Bushwhacker, Park Regent, Mineral Farm, Alta Regent, Homestead, Pre-emption, Little Deceiver and Badger State, all of which, except the Badger State, are worked by lessees. The present output is from 125 to 150 tons per day. All the ore goes direct to the smelters.

Mollie Gibson and Argentine Juniata.—The separate properties at Aspen are worked through one shaft under the same management. The mill that is handling the low-grade rock is equipped with crushers, Huntington mills and 18 vanners. About 175 tons per day are milled, the product being about 25 tons of silver-lead concentrates. The milling facilities are being increased to make the capacity 200 tons per day. In 1898 the cost of milling was about 85c. per ton and mining $1.60 per ton.

Smuggler.—This mine at Aspen is hoisting 8,000 tons of ore monthly from the 900 ft. level. The levels below 950 ft. are filled with water, and the pumping plant now handles 1,250 gals. per minute. All mining is done by machine drills. The veins in some places are 50 ft. thick. The ore is a silver-lead sulphide carrying more or less zinc, some of it going 8 oz. silver, 6% lead and 17% zinc. Only 2,000 tons per month go direct to smelters. The old mill has crushers, jigs, tables and puddles. The new mill has Chilian mills, 17 Hallett tables; in this the zincy ores are treated. The average cost of mining and milling is put at less than $1.75 per ton.

San Miguel County.

Carribeau.—This property, near Ophir, was bonded recently by the Venture Corporation of London for $350,000, and the deal includes 5 claims, the chief being the Carribeau and Montezuma. The properties were owned by the Carribeau & Montezuma Mining Company, of which C. S. Newton is local manager. The ores of the Cambean are silver-lead and grey copper. It is equipped with a 20-stamp mill, the product being concentrated and shipped to smelters. The ore is said to run $20 per ton on an average. The shipments recently have averaged 3 cars of concentrates weekly. The bond calls for an increase of the present plant to 50 stamps, to be completed by May 15th, when one-third of the purchase price is to be paid down.

Summit County.

The 4 dredge boats of the North American Gold Dredging Company, about Breckenridge, have about stopped work for the winter, as have the hydraulic elevator plants. The Oro Grande Company below Dillon has completed its 11-mile ditch and large pipe line and is ready for work next year. It has giants and Ludlum elevators working under a pressure of over 210 lbs. to the sq. in. The company has a new well drilling outfit, with which it will prospect its ground on the Royal placer. Another drill is to be put at work by Messrs. West and Blount on the Gold Crown placer recently bought by C. L. Westman.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Rhyolite Mountain.—There is quite a demand for property in the neighborhood of this mountain. A number of claims have been located and quite a number of patents are being put through. While but little has yet been found on this mountain, the prospects are quite good and a number of claims have recently been sold to outside as well as local parties.

FLORIDA.

Phosphate Industry. The entire property of the Marion Phosphate Company is under option to the Central Phosphate Company. A large prospecting crew is out to discover deposits, the work being supervised by E. Van Espen, formerly connected with Mr. Buttgenbach. The Marion Company has the largest acreage of any phosphate company in the State. The Bradley Company is to place electric lights at its mines and works at Fitzgerald, and the Holland Company intends to use acetylene gas for illuminating its mines, also at Fitzgerald, according to the "American Fertilizer." In the river pebble region the Peace River Phosphate Mining Company is the only miner, while in the land pebble district there are 5 operators—the Palmetto Company and the Florida Engineering Company at Kingsford, the Greenhead Company at Phosphoria, the Bone Valley Company at Bone Valley, and the Land Pebble Company at Land Pebble. Three plants are being constructed, one at Phosphoria, by George McKay of Ocala, for the Florida Engineering Company; one at Tiger Bay for the Palmetto Company, which will be the largest in the State, estimated to yield 300 tons daily; and one by a new concern, the Prairie-Pebble Phosphate Company, about 1 mile north of Mulberry, near Bone Valley. The pebble mines are paying a freight rate of 95c. per short ton f. o. b. vessel, at Port Tampa.

GEORGIA.

Lumpkin County.

Pioneer Exploitation and Development Company.—This company has been organized to purchase, sell and develop mines. The office is in Dahlonega; the officers are W. W. Murray, president; J. H. Moore, general manager; J. F. Moore, secretary and treasurer.

IDAHO.

Shoshone County.

Miners' Union Scored.—The Idaho Supreme Court on November 28th denied the petition of Paul Corcoran for a writ of habeas corpus. Corcoran was convicted of murder in the second degree in connection with the riot of April 29th and sentenced to 17 years' imprisonment. The court took occasion to express its opinion of those who have assailed the authorities of the State for their actions in suppressing the lawlessness in the Coeur d'Alenes, saying:

"It seems to be one of the methods of this organization, known as the Miners' Union, whenever an attempt is made to bring it to account for its unlawful, barbarous, and murderous acts, to at once commence an attack upon the legally constituted authorities who are endeavoring to enforce and maintain the law, and by false clamor seek to excite sympathy for the malefactors; and such action, by virtue of the recognized freedom of the press in this country, always finds an echo and too frequent endorsement with that portion of the press whose moral principles are governed and controlled by what is for their gain. Thousands of miles from the scene of the transaction they assume to judge and criticise, these journals of civilization hesitate not, upon no other authority than the lurid reports of their friends, based upon the statement of known malefactors and their advocates and defenders, to assail indiscriminately the legally constituted authorities of a community and State, for their efforts to maintain the law and protect persons and property within their jurisdiction. In keeping with this custom and rule, both the executive and judiciary of the State have been assailed in terms of unmeasured vituperation for simply doing their duty under their oath of office."

Bimetallic Mining Company.—This company has filed articles of incorporation. The capital stock is 1,000,000 shares, par value 10c. H. M. Davenport, W. A. Jones, Charles F. Ruddy, H. W. Scott, Jacob Lockman and N. Hillard are incorporators and directors. The company will work ground joining the Sixteen to One, near Wallace, on the north.

Buckeye.—A 2-stamp mill is running at this group of claims near Wallace.

Nine Mile Mining Company.—Contractors on this company's tunnel have completed buildings and have run about 50 ft. of their contract for 300 ft. When finally completed the tunnel will be 3,000 ft. long.

INDIANA.

Randolph County.

Coal Miners' Strike.—The strike at the coal mines in Southern Indiana has been practically settled by the signing of the Chicago scale by the John Ingle Coal Company and First Avenue Mine, employing 175 men. Both sides made concessions. The mines will not discharge non-union men at work but will pay the union scale.

MICHIGAN.

Iron—Marquette Range.

A find of Bessemer iron ore is reported 2 miles from Champion, on the line of the Huron Bay Railroad. Walter Fitch of the Champion has an option on the ground.

Hope.—This property lies 2 miles east of Crystal Falls, on the so-called "East Range." It is the N. E. ¼ of the S. E. ¼ of section 37 T. 43; R. 32. Pits have been put down near the contact of the slates and the diorite; some of the pits show ore averaging 52.25 iron and 0.045 phosphorus. In the old Hope shaft a body of ore 35 ft. thick was opened.

Iron—Menominee Range.

Explorations in Iron County.—In the Crystal Fall District the Menominee Exploration Company is at work in two places on the lower Michigamme River, and also at the Minnehaha just below the Mansfield. Work is being done just across the river from the Mansfield, and also at the Lotta, 3 miles north, belonging to Casper Aberle of Crystal Falls. Most work is going on along the contact between the slates and diorite northwest from the Hope Mine to Amasa. Beginning south, there are the Johnson & Johnson on the Hope, the Fleisham, the Voos-Fisher and the McClusker on section 24; the Voos and the Erickson, the Dunn & Hooper; then, on section 15, T. 44, R. 33, is the Gibson, with a number of explorations from there to Amasa. Near Crystal Falls, there is the Corrigan McKinney east of the Western, and the Hooper north of the Monitor. The Minnesota Iron Company is to explore north of the Lincoln and Corrigan; McKinney & Company between the Monitor and the Youngstown. Oglebey, Norton & Company have the Negaunee Exploration Company lands on section 19 and the

Minnesota Iron Company land in sections 24 and 25, to the west. A. L. Flewelling is exploring the Shafer lands near the Columbia. The Menominee Exploration Company has been exploring the Michigan Land and Iron Company's lands near the Dunn. William Jones has been exploring the old Mastodon property and the Minnesota Iron Company has been working on section 7 in T. 42, R. 32. About Iron River the Menominee Exploration Company has been working east of the Dober; also in the Boule River district, and near Iron Lake. The Oliver Mining Company is exploring near the Dober, and the Florence Iron River Company has been working northwest of Iron River.

Pewabic.—This mine, at Iron Mountain, is still shipping. According to Manager Brown, its output this season will be over 500,000 tons, or 200,000 tons more than last winter. This will be the best season's record since the mine was opened.

MINNESOTA.

(From Our Special Correspondent.)

Shipments of ore have ceased from the Duluth docks of the Duluth, Missabe & Northern road, with a total for the year of 3,300,000 gross tons, which is against a total of 2,635,000 tons last year. The Eastern Minnesota is still shipping and will have a total of about 890,000 tons as follows: Mahoning, 750,000 tons; Sauntry, 50,000 tons; Penobscot, 90,000. This road shipped 550,000 tons last year. The Duluth & Iron Range has passed a total of 3,900,000 tons and is shipping almost as actively as ever. It is intended by the company to carry on business till January 1st, and, if so, its total will be 4,300,000 tons. The continuation of work at these docks and the running of ships to January will have a very marked effect, if successful, on the question of winter navigation in future.

The Duluth, Missabe & Northern has ordered 500 30-ton wood ore cars from the Pullman Company, and 8 locomotives from the Pittsburg Locomotive Works. Seven of these will be the regular road engines and one a very heavy locomotive for hill work. This makes a total additional car equipment for the 3 Minnesota ore roads equivalent to 2,000 25-ton cars.

Iron—Mesabi Range.

(From Our Special Correspondent.)

Adams Iron Company.—This mine, at Eveleth, has reached a total of shipments of over 700,000 tons, and has closed down. The mine had its main shaft destroyed by fire at midsummer, and the great tonnage moved notwithstanding this is an indication of what the mine can do another year.

American Mining Company.—This company's Sauntry Mine will close with 50,00 tons, and had sent to dock up to November 25th 31,000. It is averaging about 3,500 tons a day. Stripping will be continued nearly all winter in anticipation of very heavy work another year.

Commodore Mining Company.—This company has shipped 160,000 tons and is over for the year. About 250 men have been worked and will remain all winter. A large output for the winter is expected.

Drake, Stratton & Company have taken an extension of 1,000,000 yds. on their contracts at Biwabik and will work all winter. The addition will make a connection between the 2 pits. The company has contracts amounting to over 2,500,000 yds. at Biwabik and Fayal, is employing 7 large steam shovels and 700 men. Nearly 3,000,000 yds. have already been taken from Biwabik, mostly by this firm.

Fayal Iron Company.—This mine, at Eveleth, has passed the 1,000,000 ton mark and is still shipping at the rate of 6,000 tons daily. It will send out not far from 140,000 tons more. Fayal entered the season with a stockpile of 250,000 tons, so that its actual mining operations are over 900,000 tons, of which 500,000 tons have come out of one pit that was not opened till less than a year ago. This mine is probably the most remarkable in the world. A new stripping contract was made a few days ago at Fayal, with Drake, Stratton & Company, amounting to 1,500,000 yards, and giving that company a total of earth moved from that mine alone of about 2,200,000 cu. yds.

Franklin Mining Company.—This company at Virginia employs 200 men and strips 2,000 tons a day, part from stocks at Franklin. Ore comes from Franklin No. 2, Bessemer and Victoria shafts. A total of about 100,000 tons will be the season's work. The mine belonks to the Republic Iron and Steel Company.

Lake Superior Consolidated Mines.—This company has secured additional iron land leases from the Rust, Goff and Burrows parties of Saginaw to lands near its present Hibbing mines, the new leases requiring a royalty of 25c. a ton and a minimum of 100,000 tons yearly after January 1st next. Prior to the date the royalty is 30c. on 20,000 tons. A lease has also been secured to the small portion of the Aetna Mine, beside the Mountain Iron, fee to which was not already in the hands of the company. This is also a 25c. lease with a minimum of 100,000 tons a year.

Ohio Mine.—This mine of the Consolidated Company has shut down with a total of 300,000 tons for the season. One shovel has been worked in ore during the season, and a force of men has been engaged in stripping, which work will continue through the winter.

Oliver.—This mine, of the Oliver Company, is working double crews in stripping and moving low-grade ore aside. Contrary to former practise, this low-grade stuff is being piled up for future shipment, and not put on the waste dump. The Mountain Iron Mine of the same company has closed for the season.

Sparta Iron Company.—This company will have 3 steam shovels stripping nearly all winter, and will make a very heavy output another season. It is still shipping.

Spruce Mining Company.—This company has ordered machinery for the Cloquet, or old Vega, and will reopen the property as soon as it can be set up. Cloquet has mined in all 162,000 tons, but has been idle several years. The quality of its ore was not what was hoped for in those days. The same interests have found ore in the S. ½ of S. W. ¼ section 4 58-17, running as well as 64% iron, 0.027% phosphorus, and quite dry. This ore is 80 ft. deep.

Iron—Vermilion Range.

(From Our Special Correspondent.)

There are said to be 15 drills in T. 62, R. 14, east of Tower. On both ranges there are 50 diamond and churn drills at work, including 15 for Cole & MacDonald. 12 for E. J. Longyear, and 6 for E. F. Sweeney, all contractors. The Minnesota Iron Company has 15, the Sullivan Drill Company several. and individuals some more.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—There was little change from last week, except that lower grade zinc ores were a trifle weaker. Top grade ore brought $32.50 per ton, the Eagle ore selling at this price and 1 or 2 other small lots were reported to have sold at the same figure, but the bulk of the zinc ore sales were at and below $30 per ton. Lead ruled steady throughout the week at $27 per 1,000.

During the corresponding week last year, zinc ore was advancing and sold for $39.50 per ton, while lead sold at $20.50 per 1,000. The output was less than the past week by 1,656,410 lbs. of zinc and 297,270 lbs. of lead ore, the value being less by $11,354. For the corresponding 47 weeks of 1898, the lead sales were greater than this year by 4,584,212 lbs., but the zinc sales were less by 52,933,390 lbs. and the value was less by $3,705,478. As compared with the previous week, the sales show a decrease of 790,260 lbs. of zinc and 153,510 lbs. of lead, and the value was less by $7,060. Following is the turn-in by camps:

	Zinc, lbs.	Lead, lbs.	Values
Joplin	2,039,130	269,100	$38,333
Carterville	1,018,390	246,720	21,428
Webb City	728,030	25,690	10,280
Oronogo	315,430	5,460	5,021
Central City	732,180	8,440	10,816
Stotts City	133,370	...	2 000
Belleville	345,760	8,290	5,807
Duenweg	111,500	32,290	2,154
Lehigh	126,020	...	1,953
Carthage	48,520	...	696
Galena–Empire	2,535,540	295,700	43,481
Aurora	880,540	...	9,152
Granby	326,300	14,000	5,030
Wentworth	220,000	...	3,080
Total for week	9,544,980	913,980	$159,548
Total for 47 weeks	459,551,990	43,340,068	$9,907,309

Mining Land Sales.—Transactions were light last week. The only sales of any size reported were by John D. Cameron, who sold the Richardson and Adams mines on the land of the Missouri Lead and Zinc Company for $25,000 to J. T. Burkeholder of Colorado Springs, Colo. Both mines are noted new producers, the Richardson Mine having cleaned up 39 tons of high-grade zinc ore in 1 week on 3 hand jigs. A mill will be erected by Mr. Burkeholder to handle the dirt from both mines. Mr. Cameron also purchased for eastern parties from G. Steppe, the mill and 6 lots on the land of the Boston Lead and Zinc Company, formerly known as the Hutchins land, for $20,000. The purchasers are eastern parties who contemplate securing large holdings.

New Smelter.—The board of directors of the Producers' Association and a committee of 7 visited Neodesha and Cherryvale, Kan., Nov. 23d, to secure a location for natural gas smelters to be erected and operated by the ore producers. The only opposition to the erection of smelters comes from 1 or 2 resident ore buyers.

The producers claim they can smelt ore cheaper than the present concerns, that they will abolish abuses in grading ore, that they have money enough to build either a smelter in the gas fields or to build an independent road to the coal fields that will enable them to lay down coal at the mines at 10c. per ton, as against the present charge of 60c. per ton, and that they will be able to insure to the ore producer a fair price at all times.

MONTANA.

Beaverhead County.

Greenwood Mining and Milling Company.—The new concentrating plant at Dillon is completed, but, owing to a short supply of water, will not run steadily before spring. It is equipped with high-speed rolls, automatic sizers, Bartlett and Woodbury tables. Power is furnished by a 15-in. double Leffel, and a 4-ft. Pelton water wheel. The mill is lighted by electricity. The plant was furnished by the Colorado Iron Works of Denver. The Greenwood Mining and Milling Company has a lease upon the immense tailings dump belonging to the Hecla Consolidated Mining Company. D. T. Haskett of Butte is president; Charles S. Elting, formerly of Butte, secretary; and C. A. Harvey of Melrose, treasurer.

Madison County.

Maggie A. Gibson.—This dredge has closed down for the winter. Since its removal from Bannock, the dredge has met with accidents, causing annoying delays, but the new ground is said to be as rich as anticipated.

Revenue.—This mine in Richmond Flat District, one of the oldest and steadiest gold producers in the State, has closed down. It is reported that the shut down is due to litigation pending between this company and the Monitor.

It is announced that the Revenue and Monitor mines will be consolidated and Roger C. Knox, who has had charge of the Monitor, will have charge of the consolidated property.

Turner Placer.—Development of this ground, 12 miles from Red Bluff, is in charge of G. D. B. Turner. It is a hydraulic proposition. The company will have 2,000 miner's inches of water brought 7 miles from Cherry Creek, at an elevation of 280 ft. above the diggings, running from 20 ft. to 200 ft. deep of gravel. This ground will be knocked down and washed through 3,000 ft. of bed rock flume, 5 ft. wide covered with block riffles. The sluices will have a fall of 3 in. to the 12 ft. box. The ground is reported to run from 8c. to 40c. per cu. yd.

Silver Bow County.

Anaconda Copper Mining Company.—At the upper concentrator, according to the Anaconda "Standard," the big Gates crusher, with its sets of rolls, is in place. The crusher and rolls are to take the place of No. 1 stamp. The ore will be fed to the crusher directly from the ore chute. After being crushed, it is screened through trommels—the fine material going directly on to the jigs, while the coarser is fed again to the rolls and then goes to the jigs. The rolls are just below the crusher. The jigs are being completely overhauled and some are entirely rebuilt.

In the east part of the mill 2 grinding mills are to be placed.

The engine power has been reinforced with a Rand Drill Company engine of about 170 H. P., which engine is now running the lower jigs. The main engine, which runs the rest of the machinery, is of 250 H. P. and of the Salkeld & Eckart design, manufactured by Morris & Company of Philadelphia.

Considerable progress has been made in substituting Wilfley shaking tables for the old buddles. The Wilfleys are located in a large building by themselves below the concentrator proper, which formerly contained about 40 round double-deck tables. Twenty-nine Wilfleys are in this building and more will soon be added.

Montana Ore Purchasing.—The Rarus claim is north of the Pennsylvania of the Boston & Montana Company, and about 1 mile west of Meadeville. It is about 1,050 ft. deep and is equipped with a 300-H. P. hoist of Webster Camp & Lane make. A 15-drill air compressor has been used. but a new 50-drill Rand compressor will soon be ready. The present boiler power is 320 H. P., 4 Erie 80-H. P. boilers, but a new boiler plant is to be set up of 6 horizontal boilers of about 100 H. P. each.

NEVADA.

Storey County—Comstock Lode.

Occidental Consolidated Mining Company.—At the annual meeting in San Francisco, last week, the following directors were elected: George R. Wells, Herman Zadig, A. S. Wollberg, Nat. T. Messer and J. J. McCarthy. George R. Wells was elected president, Herman Zadig vice-president, A. K. Durbrow secretary, James H. Kinkead superintendent.

NEW MEXICO.

Bernallilo County.

Beacon Hill.—The plant of this coal mine, about 1 mile southeast of Gallup, has been purchased by Rev. P. A. Simpkin, J. C. Spears, Hutchinson Brown and T. A. Fabro of Gallup, from C. H. Rhodes of Pasadena, Cal. The mine was a big producer at one time, but closed down owing to litigation. Work will be resumed.

Santa Fe County.

Gypsy Mining Company.—This company has leased and bonded the Gypsy and Lone Cabin claims to W. W. Robinson of Colorado Springs, Colo., and Joseph Mackedon of the Monte Christo Mine at San Pedro. The stock of the Gypsy Company is held by Christian Wieg of Las Vegas and men at Las Vegas and Raton.

NORTH CAROLINA.

Ashe County.

Ten thousand acres of magnetic iron ore land in this county are reported leased by the Pennsylvania Steel Company and the Cambria Steel Company of Philadelphia, Pa.

The tracks of the Norfolk & Western, from Chestnut Yards, Va., may be extended to the field.

OREGON.

Baker County.

Bryan.—This group of 3 claims in Cornucopia District is reported sold by James Mackay to John Smith of Pennsylvania, for $15,000 cash. The veins exposed are 3 to 5 ft. wide. Only a limited amount of development work has been done.

Diadem.—This group of 2 claims 22 miles southwest of Sumpter has been bonded by J. K. Pardeef of Philipsburg, Mont. The deepest shaft is down 75 ft. The ore is said to carry gold, silver and lead, with good assay values.

Grizzly.—This group of claims on a continuation of the Ibex ledge has been sold by E. S. Smith, who recently bonded it to the Grizzly Gold Mining Company. Among the directors are Eugene Sperry, Arthur H. Harrison, E. Barchard, Cato J. Johns, J. J. Perhale and Albert Geiser.

Post-Lambert.—This group of 5 claims is reported bonded by J. G. & J. T. English of Sumpter, owners of the Golconda Mine, for a large sum. Four ledges are reported exposed, 2 about 18 in. wide and the others 2 to 4 ft. wide. Wm. Connors has charge of development work.

Powder River Placer.—W. L. Vinson has contracted with the Hammond Manufacturing Company of Portland for a dredge boat on these placers near Baker City. Mr. Vinson owns 2 miles of ground, which is reported to go 30c. per yard.

PENNSYLVANIA.

Anthracite Coal.

Jeddo.—At this colliery, owned by G. B. Markle & Company, 2,000 men and boys are employed, the largest number since the colliery was opened.

Keeply Run.—A mine fire in this colliery at Shenandoah, owned by the Thomas Coal Company of Philadelphia, has done considerable damage.

New York, Ontario & Western Coal.—This company controls the output of 8 to 9 collieries along the upper valley. Through the Scranton Coal Company it has acquired the Pine Brook, of Scranton; the Elk Hill Coal and Iron Company's Richmond colliery at Priceburg and Richmondale Colliery at Richmondale and the Blue Ridge and Ontario near Peckville. It also controls the shipments of the Riverside at Peckville, the Raymond, of which Thomas Jones and J. J. Williams are principal owners, and has contracts for a share of the output of the Temple Iron Company's Northwest Colliery and the Mt. Pleasant Coal Company's Colliery on the West Side.

Susquehanna Coal Company.—There have been further disturbances at Nanticoke, but no loss of life at yet, and no serious damage to property. There seems to be less chance of any immediate compromise, as the miners have not tried to carry on negotiations with the company.

Bituminous Coal.

A block of coal land containing 500 acres, situated along the Big Sewickley Creek, was sold recently to Pittsburg men, the price paid averaging $110 per acre. This coal will probably be taken out on the Sewickley branch of the Pennsylvania lines.

The National Mining Company, which was chartered recently, has closed a deal for the purchase of 3,000 acres of coal land near Bridgeville, for about $400,000. The coal will be used by the Pittsburg Steel Company.

Franklin County.

The iron ore washer of G. G. Rock at Tomstown, which has been idle nearly 20 years, is now turning out about 50 tons of iron ore daily. About 20 men employed.

SOUTH DAKOTA.

Custer County.

Lithia.—H. Reinbold & Company of Custer have shipped this summer 150 tons of spodumene from a tin claim near Keystone. It was shipped to Germany to be used for manufacturing lithia salts. Reinbold & Company recently opened another deposit from which shipments will be made as soon as the new railroad from Hill City to Keystone is ready. The Etta and the new discovery are so far the only places where the mineral is found in paying quantities and good quality. The available lithia in the ore is from 5.5 to 6.8% Li_2O. Geologically the two deposits are "chimneys" and the amount of spodumene in the rock is 5 and 10% respectively. The spodumene from the Etta is the only commercial product ever shipped from the properties of the Harney Peak Tin Mining and Development Company. As the demand for lithia salts is limited, the price paid for the ore is rather low and the output is restricted to about 50 tons per month.

(From Our Special Correspondent.)

Chilcoot District.—Ore has been encountered on ground owned by Daniel Wise and L. E. Parris of Custer. It is believed that the vein is a continuation of the Chilcoot ledge.

Ocher Mill.—The contractors have completed the paint mill at Custer and the first test run is in progress. The plant will give employment to a number of men and teams.

Empire.—This group of claims, 2 miles west of Custer, is owned by William Tarrant and Edward Rogers, of Custer. A vein of ore has been opened by pits sunk at intervals.

Lizzie.—Work is progressing in this mine, 3 miles east of Custer. Two drifts are being run east and west from the bottom of a 270-ft. shaft.

Lawrence County.

(From Our Special Correspondent.)

Ajax Mining Company.—This company is running 2 drifts on the claim in the city limits of Deadwood.

American Mining Company.—A water right has been purchased on Spearfish Creek and a turbine is being put in to furnish electric power for the machinery used in driving the long tunnel under Ragged Top Mountain. The tunnel will be 3,900 ft. long, with 2 compartments 4½ by 6 ft., and will penetrate many dikes and veins which outcrop at the surface. The company now controls over 150 mining claims. The time of the bond has been extended on most of them and other claims have been purchased outright. Machinery has been hauled down from the Dacy shaft and is now in place at the tunnel opening. The company is backed by the Kilpatrick Brothers & Collins, of Newcastle, Wyo., coal mine operators and railroad contractors.

British-American Gold and Copper Mining Company.—At 115 ft., this company has cut ore said to average $12.50 per ton, gold.

Bullion.—Three carloads of ore were shipped last week, one each to Kansas City, Omaha and Denver, from this claim, owned by Dr. H. H. Muggley of Chicago. The ore is hauled 6 miles to the railway station. There are about 2,000 ft. of old tunnels and drifts in the mine.

Crown Hill Company.—Messrs. Peterson and Beverage, of Preston, have leased a portion of the Crown Hill Company's ground, east of Ragged Top. A shaft has been sunk 100 ft.

Galena Mining and Smelting Company.—H. H. Armstead of New York City, general superintendent, has been in the Black Hills examining the work done in the past 6 weeks near Galena.

Golden Reward.—The new reverberatory furnace, built to handle the slag from the smelter, has been blown in.

Hidden Fortune.—Otto P. Th. Grantz has returned from Denver, where he went with 2 carloads of ore. It is stated that he received $67,000 for 55 tons.

New York & Deadwood Mining Company.—This company has incorporated. Capital stock, $2,500,000; incorporators, Theodore B. Brown, Fred. J. Lancaster, Alexander Camerson and William B. Hill, of New York City, and Daniel C. Baker of Deadwood.

South Dakota-Colorado Springs Mining Company.—The machinery for the Ironside Mine, in Carbonate Camp, is arriving from Denver. An 80-H. P. boiler and engine will be used. A new tunnel is to be started on a line with the breast of the old workings and will be pushed some distance into the ore. An upraise is being made in the old drift for air. A wagon road is to be opened up to Maurice Station, on the Burlington Route, and ore shipped. C. E. Stubbs, of Colorado Springs, has returned to the Black Hills and will act as general manager.

Titanic Mining Company.—H. R. Bartlett, president, has disposed of nearly 200,000 shares of stock to persons in the eastern part of South Dakota. The company is sinking a shaft in Carbonate camp.

Pennington County.

(From Our Special Correspondent.)

New Railroads.—The Burlington Company has nearly completed the heavy grading on its line from Hill City to Keystone and the rails will all be laid by January 1st. The contractors on the new Dakota-Pacific Railroad from Mystic to Rapid City are crowding work and traffic will open by February 1st.

Ranger.—J. A. Boggs, of Minneapolis, Minn., has taken a bond on this group of claims near Keystone and development work has begun.

Tykoon.—This group of claims is owned by J. D. Faulk, of Cedar Rapids, Ia. Men are exploiting a vertical ore-shoot. The group is northwest of Keystone.

WASHINGTON.

Ferry County—Republic.

(From Our Special Correspondent.)

Bodie.—The shaft is down 331 ft., with 3[illegible] ft. of ore at the bottom.

Butte & Boston.—A steam hoist has been erected at the shaft, which is down 60 ft. and is expected to strike the vein 15 ft. deeper.

Chico.—The shaft is down 225 ft. At 250 ft. a crosscut will start for the vein.

Mountain Lion.—The buildings are up, and the machinery for mill and hoist is in transit; 6 carloads are at Grand Forks, B. C., and Bossburg, Wash. The company is waiting for better roads to haul in the machinery.

Morning Glory.—The tunnel is in 554 ft. The drift from the bottom of the winze is in, northerly, 87 ft. and has 14 ft. more to run to get under the shaft. The values reported run from $100 per ton up and the pay streak 10 to 12 in. wide.

Mud Lake.—The superintendent reports the shaft down 28 ft. The bottom is quartz, running $70 to $80 per ton.

Quilp.—The winze is down 71 ft. The vein on the tunnel level dips about 50° east. The mine will be extensively developed.

Princess Maud.—Compressor and engine and boiler rooms are going up and a new blacksmith shop.

Republic Consolidated Gold Mining Company.—This company paid its regular dividend of $35,000 November 15th, making a total of $400,000 to date. The company closed its mill November 16th for alterations. The new 200-ton mill will roast the ore and treat it by straight leaching. The plans are nearly completed, and construction may start any day. Manager Leckie will ship the rich ore to the smelter at Trail, B. C., until the new mill is completed. The company has purchased the control of the stock in the Jim Blaine Gold Mining Company, on a basis of 1 share of the Republic for 4 shares of the Jim Blaine, Republic treasury stock being used. Jim Blaine ground lies south of and adjoins the Republic. The company has also purchased the control of the stock of the Number Six Gold Mining Company, paying for it also in Republic treasury stock. The Number Six ground adjoins the Republic on the West and has been developed through the No. 3 tunnel of the Republic Mine. The companies will, it is understood, maintain separate organizations. Patrick Clark, the principal owner of the Number Six, is president of each of the 3 companies.

McCraig, Rykert & Company of Montreal recently completed the purchase of a control in the Quilp Gold Mining Company, through Manager Leckie, of the Republic. It is understood they will also take over the control of the Lone Pine-Surprise Gold Mining Company's stock, if not the whole of it, on December 4th.

Republic Reduction Company.—Laborers have broken ground for the new custom mill. It will be on the west side of San Poil River, ¼ mile below the Republic mill. The company will have an office near the mill, and material for this is already on the ground.

San Poil.—The south drift is in 56 ft. on an ore shoot, from 3½ to 4 ft. wide. A 5-ton sample from the San Poil ore dump a few weeks ago ran $22 per ton.

Okanogan County—Loomis.

(From Our Special Correspondent.)

Black Bear-War Eagle Mines.—The gasoline hoist is now hoisting from the 150-ft. level. The shaft will be continued to 250 ft. and drifts run each way to tap a parallel vein. The mill is expected to start December 1st.

Bull Frog.—The third and main vein has been cut in a drift run 85 ft. from the bottom of the shaft, showing 7 ft. of good ore. The ore contains no copper and cyanides readily.

Gold Hill.—This property, 4 miles west of Loomis, is working 50 men, running 3 tunnels on the Gold Hill vein and sinking on parallel veins. The property was recently bought by Ralph Baggaly of Pittsburg, Pa. D. G. Chillson is superintendent. The main ledge can be traced 3,000 ft. and cuts a porphyry dike almost in the center.

King Solomon.—This group, 12 miles north of Loomis on Mt. Ellmeham, has started sinking from the bottom of the 130-ft. shaft on the Julia. A 10-ft. vein shows from 3 ft. to a full face of ore running 100 oz. of silver, 20% lead and $5 to $18 gold.

Palmer Mountain Tunnel.—The force at work will be increased December 1st.

WEST VIRGINIA.

Oil.

Wolf Summit District.—The South Penn Oil Company has drilled in a test well on the P. C. Williams farm and has 100 bbls. a day producer. The same company is drilling No. 2, and has the rig up for No. 3 on this farm. This district, which includes the Jarvisville field, in Lewis and Doddridge counties, is the most active of any in West Virginia. The 2 developments have more than 50 wells drilling and rigs up; 23 wells were completed during November, and only 2 of the number dry; one was a gasser. The 20 producing wells furnished 618 bbls. new production, or an average of more than 30 bbls. to the well.

Boone County.

(From Our Special Correspondent.)

Fidelity Oil Company.—This Corning, O., company, Charles C. Sharp, president, has sold its gas well at Racine to the Charleston Gas Company of Charleston, and a pipe line is being laid between the 2 places.

Fayette County.

(From Our Special Correspondent.)

Weaver & Cannack, contractors of Charleston, have finished grading for the track connecting the Kanawha & Michigan Railway, with Captain W. R. Johnson's leases on Blake's Branch.

W. R. Johnson & Company are going to put in electric cutting machinery and coke ovens at their plant at Harewood. W. T. Leavell, manager.

WYOMING.

Carbon County.

(From Our Special Correspondent.)

Grand Encampment District.—At Gold Hill, 30 miles east of Saratoga, the Wyoming Development and Transportation Company is now getting in and erecting an experimental plant to test and treat the ores of its group of 13 lode claims. Also, a saw-mill plant. Its milling plants comprises a large boiler, 2 engines, Tremain steam stamps, crushers, elevator, Vezin automatic sampler, Bartlett concentrating tables and a small cyanide outfit.

Among the more notable locations of the season and locations of last year which are most promising may be mentioned the Eureka copper claim in Encampment District, located by David Boyce and now owned by the Eureka Copper Mining Company; the nearby claims of the Finlay Copper Company, and the Red Copper claim lying farther west toward the Kurtz-Chatterton mine, and owned by Messrs. Hopka and others.

In the Battle Lake region proper the most promising locations, and those upon which the most work is being done, are 2 claims near and west of the Doane Mine, owned by the Copper Belt Mining Company, which also owns the Morrison group of 11 claims west of the Rudefeha Also, 2 or 3 claims adjoining the Rudefeha on either side and owned by the Osceola Mining Company, of which Gov. Richards is president. Also, the Copper King, located by Harper and associates, now bonded to a company, and lying about ¾ of a mile west of the Haskins.

Some 7 miles northwest of the Rudefeha, near the head of Savery Creek, is a promising group of copper claims located by Messrs. Judd, Hacket, Cunningham, Bohun and Rishka, which are now bonded to an outside company.

All the properties mentioned are working with vigor with all the men obtainable. Probably 50 other claims in the district not yet equipped with machinery are pushing the earlier work of shaft sinking or tunnel driving.

A number of embryo town sites have been started. The principal of these is Copperton, on the west slope of the range on the North Fork of Battle Creek, about 8 miles from the town of Battle and 2 miles from the Kelsey.

The usual proportion of wild-cat companies, or those not strictly wild-cat but having undesirable holdings or operating leases, are in evidence.

From this season's prospecting and development, it is pretty safe to predict that in a few years this region will be a large producer of copper, a considerable producer of silver with a small output of gold. The Gold Hill camp of the Wyoming Development and Transportation Company is a strictly gold producer with a showing of copper on its outskirts. Assays of the vein matter have run from $10 to $600 in gold.

Laramie County.

(From Our Special Correspondent.)

New Copper Discoveries.—The Plumbago District, some 28 miles northeast of Laramie, has been called a plumbago camp, but west of it is an exposure of schists with numerous copper veins. The ores are chalcopyrite and chalcocite. A second camp has been opened 12 miles northeast of Laramie, at the head of Horse Creek. The veins are in gabbro and unusually rich ore has been taken out near the surface. The development work is meager, but indications are encouraging.

Hartville Iron Mines.—Last summer the Colorado Fuel and Iron Company began work at the Hartville hematite deposits and is about to begin shipments. A railroad has been built from the Cheyenne & Northern Railroad to the Platte River. It is estimated that the company will mine 1,000 tons per day, to go to Pueblo. It has been stated that a blast furnace would be erected at the camp; but nothing warrants this surmise. The ore is Bessemer hematite, low in silica and phosphorus, and occurs in large deposits in carboniferous limestone. One of these deposits has been tested to 150 ft. in depth and 150 ft. across. A large tonnage will be used for fluxes.

FOREIGN MINING NEWS.

AFRICA.

Rhodesia.

Gold production reported for September was 5,653 oz., against 2,346 oz. in September, 1898—the first month for which any output was reported. For the nine months ending September 30th the total production noted was 51,065 oz. gold.

Transvaal.

The gold production for the month of October is reported from Johannesburg at 19,906 oz., against 426,556 oz. in September and 482,108 oz. in August. The October output is from five mines which are now operated by the Transvaal Government.

CANADA.

British Columbia—Yale District.

(From Our Special Correspondent.)

Banner.—Twelve men are working at a tunnel to cut the vein at 100 ft. and continue another 100 ft. to meet a shaft already sunk. Eventually a 1,700-ft. tunnel is to be run at a lower level.

City of Paris.—This property in Central Camp has a 900-ft. tunnel, and 700 ft. of drifting on the ledge. A winze is being sunk at the station at the end of the tunnel. The copper value averages perhaps 8% and the gold and silver values are sometimes high.

Granby Smelter Company.—The boom holding a million feet of lumber for the flume which is to bring the water from the dam to the power house, gave way November 19th. The lumber is scattered along the North and main branches of the Kettle River for miles. No such flood was ever known at this season of the year.

Majestic.—This claim adjoins the City of Paris. The ore lacks the silver, so far, but is about the same in gold and copper. A tunnel is in 400 ft. The ore averages 15 ft. A 10-drill compressor serves both the City of Paris and Majestic.

Sailor.—This property, consisting of 4 full claims 1,500 by 1,500 ft. and 2 fractions, adjoins the Cariboo. The shaft head is 4,700 ft. above sea level. The vein matter is 15 ft. wide, with 4 stringers. Assays vary from $4 for the vein stuff to $50 for the pay shoots. The ore is free milling and concentrating. Donald A. Ross superintends a working force of 20 men. A Jenckes hoist and steam drill and a No. 5 Cameron pump comprise the machinery. The shaft is down 87 ft., with a 25 ft. crosscut. The country rock is altered diabase. The veins cut across the formation. The main line of the Columbia & Western Railroad passes within 4 miles of the group and 600 ft. below it.

Winnipeg.—This mine in Wellington Camp is ready to ship, and will as soon as rails are laid on the spur of the Columbia & Western. At the 300 ft. level a fine body of shipping ore has been cut. It is 35 ft. wide and runs at least $50 a ton.

Yankee Boy.—R. G. Edwards Leckie, manager of the Republic Mine, and Clarence J. McCuaig of Montreal, vice-president, have a bond on the Yankee Boy group for $25,000. It is understood that they were pleased with the results of the first trial shipment to the Trail Smelter, and will probably take up the bond. Some rich telluride-gold ore was found, but the bulk of the ore is the usual copper-gold mineral of the district.

The tunnel in Volcanic Mountain is now in 650 ft.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Rossland Ore Shipments.—The output for the 11 months and 23 days ending November 23d amounted to about 160,000 tons gross valued at $2,720,000.

Grant.—Senator Turner and associates have begun systematic development work, with Nick Tregear of Rossland as superintendent. A shaft is being sunk on a newly discovered ledge.

Labor Troubles.—R. C. Clute of Toronto has been appointed by the Dominion Government to investigate and report upon the difficulties which have arisen in the Slocan country between the mine owners and the miners over the 8 hour law. R. F. Tolmie, secretary of the Silver Lead Mines Association, has been in Rossland to ascertain the views of mine owners there.

Wakefield Mines, Limited.—This concern above Silverton in the Slocan is having surface improvements made. A 6,300-ft. Finlayson tramway capable of handling 240 tons per day will connect the mine and mill. The waterway will be 6,500 ft. long, 1,440 ft. of pipe line and 5,060 ft. of flume. This flume will carry 400 miner's inches of water, and will enable the company to generate 400-H. P. The concentrator will be 110 by 89 ft. The plant will have a capacity for treating 100 tons of ore per day and will be well equipped. A complete electric light plant will be installed. The stockholders reside in Great Britain, and its board of directors meets in Glasgow, Scotland. The manager is A. E. Patterson, with head offices in Silverton. The Wakefield group is situated up on Wakefield Mountain, and is developed by a system of tunnels.

War Eagle.—The annual report will not be submitted until the annual meeting in February.

Nova Scotia.

Colonial Copper Company.—According to press dispatches, copper properties at Cape d'Or, Cumberland County, and New Annan, Colchester County, have been bonded to this New York company for, it is said, $325,000. Several thousand dollars will be spent in development work.

Nova Scotia—Guysboro County.

(From Our Special Correspondent.)

Hurricane Point.—This small mine pays satisfactory dividends for the capital invested. October returns were 138 oz. from 266 tons of rock.

Wine Harbor.—The outlook is promising. The Eureka is again running under new management, which intends to open up large low-grade belts of ore known to exist, before attempting to to pay dividends. The small rich veins worked are not large enough to keep the mill running constantly. The Plough is being worked successfully under the management of J. E. Lowe of Amherst, one of the lessees. The ore from the new vein is very rich and pays handsomely. Mr. Weston of the Crows' Nest Mine has purchased the Middle lode and the Caledonia properties and is about to erect a modern plant. Napier Mine is under bond to provincial capitalists.

Nova Scotia—Halifax County.

(From Our Special Correspondent.)

Elk.—This mine, owned and worked by Mr. Getchell, is still doing development work only.

Geoffrey Jennings.—This mine at Caribou District recently milled 390 tons of rough material from development work which yielded 70 oz. of gold. Drifts run 500 ft. each way from the main shaft on the 500-ft. level, show a satisfactory ore body. The shaft is going 500 ft. deeper.

Ontario—Manitou District.

(From Our Special Correspondent.)

Interstate Consolidated Minerals Company.—This company has been formed at Rat Portage to take over the Mike Noonan Claim, in Manitou District, belonging to B. H. Evans, of St. Paul, and Mike Noonan, the discoverer. Men and supplies are now being sent in from the Canadian Pacific Railway at Wabigoon. A shaft will be sunk 200 ft. and it is hoped to have a mill working in 1901. The Manitou section is east of Rainy Lake.

COAL TRADE REVIEW.

New York. Dec. 1.

Anthracite.

Continued mild weather has had a perceptible influence on the demand for hard coal. The collieries are as busy as they can be, and no company thinks of any restrictions on output, but people have recovered from their fears of a few weeks ago and begin to feel that unless the winter is unusually cold, the railroads will be able to get forward all the coal needed. The weather in the West has been mild and there have been no storms along the seaboard. Consequently coal continues to go forward by water with no prospect of lake shipments closing for fully 2 weeks. Shoal water ports down East are getting filled up and everybody has a chance to draw a long breath and prepare for winter more deliberately.

Prices show no change, but the warm weather has apparently killed off the rumors of a general advance on December 1st. In the West dealers are making sure of getting in enough coal to last them over winter before navigation closes. They are not trying to sell coal, therefore, and the movements from yards as compared with receipts is much smaller than it has been. Nut size continues to be in most demand in spite of the 25c. premium asked. In the East consumers beyond the Cape are giving their attention to winter supplies, and those along the Sound or near New York are taking things easier, relying on their being able to get coal as they want it.

A lot of rather foolish statements have appeared in the press regarding the projected Delaware Valley & Kingston Railroad. The gentlemen behind the enterprise will undoubtedly try to make the road pay in case it is built, and the interests behind the existing roads can be trusted to hold a firm hand. In any event, there will be no reductions in freight rates next year.

Quotations at New York for free burning antracite f. o. b. continue: Broken, $3.50; egg, $3.90; stove, $4.25; broken, $4.25.

Notes of the Week.

The Lehigh Valley Coal Company makes the following statement for October and the 11 months of the fiscal years from December 1st to October 31st:

	October.	11 months.
Earnings	$2,396,214	$16,871,534
Expenses	2,315,874	17,309,087
Net or deficit	N.$80,340	$437,553

For the 11 months earnings increased $2,444,049.

or 16.9%, and expenses $1,840,837, or 11.9%, leaving a decrease of $603,217, or 57.9%, in the deficit.

The Philadelphia & Reading Coal and Iron Company makes the following report for October and the 4 months of the fiscal year from July 1st to October 31st:

	October.	4 months.
Earnings	$3,389,459	$11,251,743
Expenses	2,988,741	10,223,566
Net	$390,718	$1,028,177

For the 4 months there was an increase of $3,960,886, or 54.3%, in earnings; an increase of $3,391,957, or 49.6%, in expenses; and an increase of $568,929, or 123.9%, in net earnings.

Bituminous.

Pennsylvania Railroad officials to-day refuse to confirm or deny the rumor that the road had completed arrangements by which it virtually controls the Baltimore & Ohio. Another rumor is that the New York Central will control the Chesapeake & Ohio. If these rumors prove true there will be a general feeling of relief among many of the producers that supply the seaboard soft coal trade. It is pointed out that such control by two powerful companies would ensure stable rates that would permit of a profit to producers and carriers. At the same time the probabilities are that there would be far less favoritism than has prevailed in the past and one producer would have as fair a show as another.

There is no let-up in the demand for soft coal. The collieries are as busy as car supply will permit, but no sooner is one lot of orders cleared up than another comes in. Consumers continue their clamor. They charter all the boats or vessels available, pay demurrage charges and keep vessels waiting at the shipping docks while they make the life of selling agents a burden. At Perth Amboy one can see 15 or 20 boats in line at once waiting for cargoes.

One consuming territory wants coal as badly as another. There is an easier feeling over the shoal water ports, which are now pretty well supplied; but even there consumers are begging for just one more cargo before the ports are closed. The demand from the all-rail trade keeps up and is as heavy as it has been.

Transportation from mines to tide remains slow. Car supply varies on the different roads, but is on an average from 2-3 to 3-4 of what the colleries would like. In the coastwise vessel market freight rates are firm. We quote $1.85@$2 from Philadelphia to Boston and $1.35@$1.50 to Sound ports. From 25 to 50c. above these rates is asked from the further lower ports.

There is a general disposition among producers to grant miners a fair advance in wages for next year. This advance will come about without any friction unless labor agitators stir the miners up by incendiary talk about the enormous profits of the coal companies, down-trodden labor, etc. As a matter of fact, in spite of the high prices for coal sold to transient buyers, many producers having delivered contracts ship coal at an actual loss. But next year there will be no indeterminate contracts and delivered contracts will not be sought for.

Birmingham, Ala. Nov. 27.

(From Our Special Correspondent.)

The coal trade and the production in Alabama were never so active as now. The production is enormous, except at the Galloway, Carbon Hill and Pocohontas mines in Walker County, where a strike is on. The railroads have served notice on the operators, effective December 15th, that there will be an advance on coal rates to common points in Alabama and Georgia, and to Meridian, Miss., from the Birmingham District, of 10c. on the ton, or about $3 on the car. To Jackson and Vicksburg, Miss., an advance of 5c. on the ton will be made. This will mean considerable, for many thousand tons of coal are shipped from the Birmingham District to common points in Alabama and Georgia. The railroads on the other hand claim that they are entitled to some of the improved conditions, and that their advance is not as great as it should be. This decision was arrived at at a meeting held in Atlanta, Ga., last week.

There was a tow of coal, between 6,000 and 7,000 tons of Walker County coal, sent down the Mississippi River from Greenville to New Orleans last week, and another tow is about to be loaded.

Preparations are also being made to supply the various industries at Ensley, and the plants which will go into blast during December and January. It is stated that quite a large amount of coal will be needed at this point every day, and the output of more than one mine will be used. The building of a large number of coke ovens has its significance also.

The Tennessee Coal, Iron and Railroad Company is making arrangements to increase the output at every point. In the Blue Creek regions, from which place coal and coke is used for the Bessemer furnaces most extensively, new openings are being made and the output of each slope is being increased. At other points the outputs are being increased, as every bit of the product can find a ready sale. There will be work in all of the mines through the winter and all through the coming year.

Chicago. Nov. 28.

(From Our Special Correspondent.)

Anthracite Coal.—After a long period of activity the market has almost suddenly gone to the other extreme, the business of the past week having been very small in comparison with that of two weeks ago, buying having been wholly in small quantities. The fact that the weather has been spring-like here for a month or two has at last told on the hard coal trade and dealers in general have seen a remarkably good business turn quickly to almost absolute stagnation. Shippers have met with requests to cancel orders and notices to lessen quantities ordered are quite numerous. From present appearances the market will remain dull until freezing temperature comes to stay. Prices are steady, but under present conditions declines are in order. Circular prices are $5.75 for egg and stove; $6 for chestnut.

Bituminous Coal is being bought very freely. The mines have been able to gain some headway, stocks having increased somewhat during the week. There continues yet a great scarcity of cars for carrying coal, but gradually the railroads are setting aside as many cars as can be made available.

Coke continues in great demand with but limited supply.

Pittsburg. Nov. 28.

(From Our Special Correspondent.)

The expected rise in the rivers did not materialize, but a number of barges were lightened and several tows of coal got away. It is estimated that fully 1,000,000 bu. were shipped to Cincinnati and Louisville. Barges that hold 13,000 bu. were lightened to about 8,000 bu., and there was enough water to carry the coal safely over the dangerous parts of the Ohio River. There is a scarcity of coal in the lower ports, and prices have advanced. No increase in prices has been made by the Monongahela River Consolidated Coal and Coke Company since the last advance a month ago, but another is expected within the next two weeks. The local trade is good and the demand is being supplied, as the river coal combination can fill its local contracts by river, and is not dependent upon the railroads for cars. The railroad combination is closing all its small mines and in the future will only operate the most profitable mines under its control. No change in prices has been made this week. At the special convention of miners of the Pittsburg District it was decided to make no demand for an advance in the mining rate until the expiration of the present agreement on March 31st, 1900. There was a strong sentiment on the part of the miners to ask for an immediate increase owing to the advance in the price of coal.

Connellsville Coke.—The coke trade was greatly improved last week, and showed a remarkable increase in both production and shipments. The car service was better than it has been for several months, and the week is considered a record-breaker. The railroads are not yet able to transport all the coke needed at the furnaces. The production in the region last week was 194,664 tons, as compared with 190,534 tons the week previous. The shipments aggregated 10,956 cars, distributed as follows: To Pittsburg and river tipples, 3,018 cars; to points west of Pittsburg, 5,881 cars; to points east of Connellsville, 2,057 cars. This is an increase over the previous week of 706 cars.

Shang ai, China. Oct. 16.

(Special Report from Wheelock & Co.)

Coal.—Prices have advanced, limiting business. Arrivals for the fortnight were 16,834 tons. We quote per ton as follows: Welsh Cardiff, 15 taels; Australian Wollongong, cargo ex-godown, 13 taels, and other sorts, 6@6.25 taels; Chinese Kaiping, lump, 8.00 taels; dust, 5.00 taels, and mixed, 5.50@5.75 taels, ex-godown. Japan, all contracted for.

Kerosene Oil.—A large business has been done in American oil among natives at quotations, and 2.35 taels by importers for ready cargo and at 2.33 taels for November arrivals. Stocks are 719,854 cases. Sales of Russian Batum have been made for December-January shipment at 2.10@2.07½ taels per case, according to the different chops. Stocks are 418,600 cases. Sumatra Langkat sold up to 2.25 taels per 2 tons, and at 1.95 taels per 10 gals. for loose oil by first hands. Stocks are 149,500 cases. There is a good demand for all brands for the out-ports and we still anticipate an advance. We quote, per case, as follows: American Devoes, 2.28½ taels; Russian Batum Anchor and Horse Chop, 2.17½ taels, and Star & Crescent Chop, 2.17½ taels; bulk oil loose, 1.83½ taels. Sumatra Langkat is quoted at 2.15 taels per 2 tins.

SLATE TRADE REVIEW.

New York. Dec. 1.

November has not shown the expected large demand, and December shipments will likely be less, owing to the falling export trade.

Prices hold fairly firm, though some quarrymen are still shading the roofing slate schedule. The shipments of this kind of slate from Slatington and Walnutport from January 1st to November 23d amounted to 201,575 squares, showing an increase of 7,912 squares over the 12 months of 1898. The shipments of school slates from January 1st to November 23d were 16,940 cases, and of blackboards, 23,603 crates. The quarry operations in the Vermont district are active, preparations being made for winter supplies.

Export trade is quiet, owing to the high ocean freight rates.

The list of prices per square for No. 1 slate, standard brand f. o. b. at quarries in carload lots, is given below:

Prices of Roofing Slate.

Size, inches	Monson or Br'n ville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
24 x 14	6.10	3.50	3.00	3.35	3.25	5.10	3.00	..	.....
24 x 12	6.60	3.50	3.00	3.35	3.25	5.25	3.00	3.75	.....
22 x 12	6.60	3.50	3.25	3.50	..	5.25	3.00	3.75	.....
22 x 11	6.50	3.75	3.25	3.50	3.35	5.25	3.00	4.00	.. ....
20 x 12	6 90	3.75	.....	3 50	3.35	5.25	3.00	3.75	.....
20 x 11	6.80	.....	.....	4.00	3.35	5.25	3.00	.....	.....
20 x 10	6.80	4.50	3.50	4.00	3.60	5.35	3.25	4.25	9@10
18 x 12	6.80	3 75	.....	3.50	....	5.25	3.00	3.50	.....
18 x 11	7.00	....	.....	.....	.....	...	3.00	3.75	.....
18 x 10	7.20	4.50	3.50	4 00	3.60	5.35	3.25	4.00	9@10
18 x 9	7.10	4.50	3.50	4.00	3.60	5.35	3 00	4 25	9@10
16 x 12	6.80	3.75	.....	3.50	.....	.....	2.85	3.50	.....
16 x 10	7.10	4.25	3.50	4.00	3.60	5 25	2.85	4.00	9@10
16 x 9	7.00	4.25	.....	4.00	3.60	5.35	2.85	4.25	9@10
16 x 8	7.20	4 50	3.50	4.00	3.60	5.35	2.85	4 25	9@10
14 x 10	6 60	3.75	3.25	3.35	....	5 25	2.75	3.75	9@10
14 x 9	6.50	....	.....	.....	.....	.....	2.75	3 75	9@10
14 x 8	6 60	3.75	3.25	3.35	3.25	5.10	2.75	4.25	9@10
14 x 7	6.40	3.75	3 25	3 35	3.25	5.10	2.50	4.25	9@10
12 x 10	5.80	....	..	....	.....	...	2.50	3.25	.....
12 x 9	5.60	....	.....	.....	.....	.....	2.50	3 25	.....
12 x 8	5.50	3.50	.....	3.35	3.25	4 85	2.50	3.50	8¼@8¾
12 x 7	5.00	3.25	.....	3.35	3.25	4.85	2.50	3.50	8¼@8¾
12 x 6	4.80	3 25	..	3 35	...	4.75	.....	3 50	8¼@8¾

A square of slate is 100 sq. ft. as laid on the roof.

In Brownville and Monson delivery quotations can be had somewhat lower than above, which is also true of other brands. No. 1 Bangor are 50c. extra when full 3/16 in. Intermediate sea green, $2.25@$2.45 per square, according to size.

CHEMICALS AND MINERALS

(For further prices of chemicals, minerals and rare elements, see page 690.)

New York. Dec. 1.

Heavy Chemicals.—Business is good and prices are firm. According to report, a 1900 contract for foreign 74% caustic soda of 500 drums per month, at $2 per 100 lbs., has been refused, as higher prices were anticipated. Some domestic makers ask $2 f. o. b. works on contract. Alkali is confined to contract booking, while second hands with stocks to offer are selling at $1.12½@$1.25. Sal soda is in good request, but importers find it difficult to get buyers at quotations in New York; hence most of the business is done in the domestic article. Bleaching powder is very scarce on spot, resulting in increased prices. Arrivals of prime Liverpool have been sold at $2.25. Chlorate of potash shows further contracts for 1900 at $8¼.

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York	In New York.
Alkali, in bags.	80@85c.	95@1.00	95@1.05
Caustic Soda, high test	$1.85@2.00	$2.00@2.05	$1.95@2.00
98% powd.	.....	3 12½@ 3.50	.. . .
60@74 % pwd	.....	2.50@ 2.62½	.....
Sal Soda	60@70c.	....	67½@72c½.
" conc.	1.30@1.75	....	1.60@1.65
Bicarb Soda..	1.25@1.37½	.....	2.25@2.37½
" " extra	3.25@3.50	.....	
Bleach. Pdr., Eng. prime..	....	....	2.10@2.15
other br'nds.	....	....	1.80@1.85
Chl. Pot cryst	... .	8.25@9.00	9.25@9.37½
" powd.	....	9.12½@9.37½	9.50@9.62½

Prices are generally for large quantities, and in many cases depend upon make, test and package.

Brimstone.—Arrivals at New York were 2,700 tons. Spot best unmixed seconds were quoted unchanged at $21.50@$22 per ton, and shipments at $20.75@$21, while thirds are $2 else per ton.

Pyrites.—The increased demand from acid makers has helped to strengthen the market. A charter was taken of a 1,505-ton steamer to carry pyrites from Huelva, Spain, to the north of Hatteras at 12s. 6d., with option to Mobile, Ala., at 13s.

We quote American pyrites as follows: Mineral City, Va., lump ores, $3.25 per long ton

(basis 42%), and fines $3; Charlemont, Mass., lump, $5.50, and fines $4.75; Pilley's Island, lump, $6.50, and fines $4.50 per long ton, delivered in New York. Spanish pyrites, 12@14c. per unit, according to percentage of sulphur contents, delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46% to 51% of sulphur; America, 42% to 44%, and Pilley's Island, N. F., 50%.

Acids.—Acetic acid is stronger, muriatic and sulphuric are well contracted for next year, while blue vitriol is unsettled and can doubtless be had at around $5 per 100 lbs., owing to freer offerings.

Quotations are in large lots delivered in New York and vicinity, per 100 lbs unless otherwise specified.

Acetic, No.8..	$1.62½@1.75	Nitric, 42°	4.75@ 5.00
Blue Vitriol, best	5.00@5.25	Oxalic	5.75@ 6.00
Muriatic, 15°.	1.20@ 1.25	Sulphuric, 66°	1.20@ 1.25
Muriatic, 20°.	1.35@ 1.40	Sulphuric, 60°	1.05@1.10
Muriatic, 22°.....	1.50@ 1.55	Bulk 50° ton	16@17.00
Nitric, 36°	3.87½@4.12½	Sulphurous, 100%	
Nitric, 38°	$4.12½@4.37½	SO_2 anhydrous.	8.00@10.00
Nitric, 40°	4.37½@ 4.75		

Fertilizing Chemicals.—Sulphate of ammonia for shipment is quoted at $2.85@$2.87½, while the domestic article is held at $3 f. o. b. Boston. Sales of 1,600 tons of blood for export were recently made at $1.70 f. o. b. Chicago, and sellers are now seeking 5c. more per unit. No fish scrap offering; hence quotations are nominal.

Articles.	F. o. b. Wks.	In N. Y.
Potash, muriate, 80@85% 100 lbs.	...	$1.78
" " 95% "	...	1.81
" sulphate. 90% "	...	1 98½
" " 96% "	...	2.10½
" d'ble m're salt, 48@53% 100 lbs.	...	66c.
" " " " 30% "	...	89c.
" kainit, 12.4% long ton.	...	8.70@8 95
" sylvanit.. per unit.	...	37@38c.
Sulph. Am., gas (25%).... 100 lbs.	...	2 85
" " bone..... "	...	2.87½
Blood, dried, h-gr, Chi. per unit	1.72½@1.75	...
" " " N.Y., "	...	1.85
Azotine..... "	1.75@1.80	1.80@ 1.85
Bone black, diss., 17@18%...ton	...	16.00@16.50
Fish scrap, acid ..... "	10.50@11.00	12 50
" " dried ... .. "	19 50@20	21 50
Tankage h. gr., Chicago.... "	14.50@15.00	21.00
" concentrated.. unit.	1.45@1.50	1.90@1.9
" bone. . ... ton.	...	20.09@21.00
Bone, steam gd. domestic . "	... .	22.00@23.00

The quotations on potash are on the basis of foreign invoice weights, tares and analysis, in quantities of not less than 500 tons bulk salts or 50 tons concentrated salts.

Nitrate of Soda.—The steamer "Venetia" arrived with 31,400 bags, and sailings from the coast for New York were the steamer "Condor" on October 27th with 12,500 bags; "Kenyon," on October 29th, with 14,000 bags; "Danae," on October 17th, with 85,000 bags; "Sirius," on November 6th, with 21,600 bags; "Copac," with 25,000 bags, and "George Fleming," with 42,000 bags; also "Droone," on November 17th, with 9,000 bags for Charleston. Freights continue high. The spot market for nitrate of soda is a little easier at $1.70@$1.72½ per 100 lbs. The delay in sailings on the coast, however, will cause an advance to $1.80@$1.85 if the demand increases from now until March 1st next. Future shipments are quoted at $1.65, but on actual business this price can be shaded, as the coast market is easier.

Phosphates.—There is little new foreign business offering, but the orders already in hand are sufficient to keep the mines actively at work for some time to come. In the Tennessee field the large miners are accumulating stock for the winter, and, as the banks lend money on rock ready to be shipped, some operators look for higher prices later in the season. In Florida and South Carolina similar conditions prevail and in the latter State the Charleston Mining and Manufacturing Company is to oppose the Virginia-Carolina Chemical Company by erecting large works for the manufacture of bone fertilizers. The October shipments of phosphates from Port Tampa were 14,557 tons, and from Pensacola 14,888 tons.

Latest quotations for the European market, c. i. f. United Kingdom or North Sea ports, are as follows: Florida high grade rock (77@80%), 8⅞d. ($14 per long ton); Florida pebble (68@73%), 7¼d. ($9.80 per ton); Florida Peace River (58@63%), 7¼d. ($9.00 per ton); Tennessee high grade rock (78@80%), 7¼d. ($11 per ton); Algerian (63@70%) rock, 7¼d. ($9.38 per ton), and 58@63% rock, 6¾d. ($7.80 per ton).

We quote: Florida high grade, 78@80% rock, $9.50@$10 per long ton f. o. b. Fernandina. The freight rate to New York is about $2 per ton. Florida land pebble, 68@73%, $7@$7.50 per ton, delivered in New York. Florida Peace River, rock, 58@63%, $4.50 per ton f. o. b. Punta Gorda. South Carolina crude rock, $4.25@$4.50; hot-air dried, $4.50@$5 per long ton f. o. b. Fetteressa, S. C. Tennessee, 78% rock, $4@$4.50 f. o. b. Mt. Pleasant, and 75% rock, $2.75@$3 f. o. b. High grade Tennessee rock, ex-vessel New York, $9 @$10 per ton. Hickman County blue-gray rock, 65%, and not over 3% iron and alumina, $2.50@ $2.75 per ton f. o. b. mines. Concentrated phosphates, 13@15% av. P_2O_5 60c. per unit at sellers' works. Acid phosphates, $6.25 per ton for 14% in bulk f. o. b. Charleston, S. C.

Valparaiso, Chile. Oct. 21.

(Special Report of Jackson Bros.)

Nitrate of Soda.—The syndicate to which reference was made in our last circular has maintained its limit at 5s. 4d. ordinary terms for 95%, but it has as yet only placed one parcel at this figure. Some outsiders have offered nitrate for delivery October-November at even lower prices, without effecting sales, as freights are again firm and European limits prohibit any combination for new business. There is some demand for deliveries of this class in January at 5s. 1d. and for August-September at 5s. 2d. steamer terms, but producers on the whole are reticent in accepting these figures. Some few transactions have taken place in the 96% quality for delivery January-June at 5s. 4d. alongside. The production during September amounted to 2,488,000 qtls., making a total of 22,217,000 qtls. for the first nine months of this year, as against 20,955,000 qtls. in 1898. The consumption for the same period in 1899 reached 26,140,000 qtls., as against 23,585,000 qtls. last year; the latter has therefore overreached the former by almost 1,300,000 qtls. We quote 95%, October-December, 5s. 4d.; January-March, 5s. 1d., and 96%, 5s. 5d., all ordinary terms sellers. The price of 5s. 4d. with 27s. 6d. all round freight stands in 7s. 3¾d. per cwt. net cost and freight without purchasing commission. Sales reported during the fortnight were 363,000 qtls.

IRON MARKET REVIEW.

NEW YORK, Dec. 1, 1899

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Dec. 2, 1898		Week ending Dec. 1, 1899.		From Jan., '98.	From Jan., '99.
	F'ces.	Tons.	F'ces.	Tons.	Tons	Tons.
An' racite	28	21,150	48	41,250	1,051,3.3	1,591 097
Coke.....	148	203,350	210	241,525	9,392,449	10,543,570
Charcoal.	20	6,125	29	7,375	284,346	274,815
Totals..	196	230,625	287	290,150	10,728,118	12,409,482

The iron trade is still enjoying a little rest, which is comparative only, and does not mean any suspension of activity at furnaces and mills. The rest is not unwelcome to many, and it is quite possible that it may last until after the holidays, giving makers some chance to take stock and close up the year's business.

There have been few transactions in Bessemer pig, as about all that is in sight up to next June is engaged, and there is some hesitation about later contracts. More business has been done in foundry iron, and the Southern furnaces especially have taken several new contracts. Steel billets have been rather quiet.

The demand for finished material is moderate just now, though some new contracts are under discussion. The car builders are gradually completing arrangements for the material they need. Prices of bar iron and steel are stronger, but there is some slackening in the demand for plates, and it is said that some concessions have been made on future deliveries.

The reorganization of the Sloss Iron and Steel Company into the Sloss-Sheffield Company promises to add several furnaces to the producing list in Alabama, and very probably also another steel plant to the one now nearly completed at Ensley. The Ensley plant, though some delays have occurred, will probably be at work by the end of the year.

The work on several new furnaces of the largest class has been started, as noted in our news columns last week. We have passed the 500-ton limit now, and are to have furnaces making 750 tons of iron a day—before long it may be 1,000 tons. The new furnaces are to have every improvement in machinery; but not as much attention is given yet as should be to utilizing the by-products.

Inquiries for export trade still continue, but little actual business is reported. The trouble is not so much the prices asked as unwillingness to give deliveries as early as wanted. There is a great demand on the other side for finished material, as well as for raw iron and steel, and a large tonnage could be placed if it could be had when wanted.

The fact is that in Germany, Belgium and France production is not at present coming up to demand. It is limited, not so much by want of ores as by want of fuel. The French coke producers have about reached their limit; in Germany the syndicates which closely control coke production either cannot or will not increase their output, and the blast furnaces have to take what they can get—and that is not enough for their present needs.

Birmingham, Ala. Nov. 27,

(From Our Special Correspondent.)

There are no indications of an advance in pig iron quotations within a week, though it is not believed the prices will recede from the position which they hold in this district now. There were no big sales made during the past week to cause special mention. The higher officials of the Sloss Iron and Steel Company have all been East attending the final consummation of the deal for the corporation of the Sloss-Sheffield Steel and Iron Company, which absorbed the properties of the Sloss Iron and Steel Company and others. They have now returned.

The time for the blowing in of two or three more furnaces in this State, announced heretofore, is about here. It seems that machine shops and other plants which do repairs for the furnaces are delaying the work, and there is tardiness in blowing.

In finished iron circles the statement is made that, though there is a little activity in the bar iron trade, the sheet and plate trade show a falling off. Prices for sheet and plate are off a little, while for bar iron there is a slight improvement. The rolling mills in this district are running at full blast, and the preparations to put the old Bessemer mills in blast by the first of the new year are not being neglected. It is thought that the weakness in finished products is temporary, and that there will be a rush on again as soon as the new year opens.

The advance in freight rates north of the Ohio River announced to occur January 1st will not affect the market in this district to any extent, but may mean another advance in prices. The prices are steady. The following are the figures given for the product: No. 1 foundry, $18.50@$19; No. 2 foundry, $17.75@$18.50; No. 3 foundry, $16.75@$17.50; No. 4 foundry, $16@$16.50; gray forge, $16@$16.25; No. 1 soft, $18.50@$19; No. 2 soft, $17.75@$18.50.

Chicago. Nov. 28.

(From Our Special Correspondent.)

Pig Iron.—Furnaces desiring to sell iron for this or next year's delivery, do not lack customers. The inquiry remains large and all offers are eagerly taken by anxious consumers. The combined sales of the week are about equal to those of a week ago, but it is not the slackening in business that makes total sales rather limited, it is the fact that iron cannot be had. Prices on both Northern and Southern irons are firm, with advancing tendencies noticed in some Southern brands. But very little business is being transacted by Northern furnaces, they being practically out of the market, and sold up. Prices are as follows: Lake Superior charcoal, $25.50@$26.50; local coke foundry, No. 1, $24@$25; No. 2, $23.50@$24; No. 3, $23@$23.50; local Scotch foundry, No. 1, $24@$25; No. 2, $23.50@$24; Southern coke, No. 1, $21.75; No. 2, $20.75; No. 3, $19.75; Southern, No. 1, soft, $21.75; No. 2, soft, $20.75; Ohio silvery, No. 1, $30.25.

Philadelphia, Nov. 29.

(From Our Special Correspondent.)

The eastern Pennsylvania iron trade is in a condition that is a surprise to a good many. Buyers are out of the market. Manufacturers are straining every effort to keep their customers supplied with material according to contracts. Inquiries are not coming in; all buyers understand the situation too well to ask questions. The present dullness is relieved by a few rumors concerning reductions, but patient inquiry fails to discover any. The fact is that there is sufficient business awaiting acceptance to keep manufacturers busy if they need any.

Pig Iron.—There are rumors of changes in quotations, but no business has been done for delivery within three months at anything less than the rates which have been prevailing. The consumption of all kinds of iron and steel seems to be increasing. Most large consumers are covered; there are a number of foundrymen who are not, and their purchases are about the only movements on the market worth noting. More No. 2 iron is sold than any other kind.

Muck Bars.—Business is dull and quotations are $31.

Billets.—Quite a number of buyers are now ready, as they have been for weeks past, to place contracts when they can get their own terms, but mill men are not disposed to do anything under $40 delivered.

Bar Iron.—Manufacturers are not obliged to look after business and quotations are now changed. The only difference is that it is not as easy to get prices above the market as it was. For that reason some people say there has been a decline. This is not correct.

Nails.—Nails are not selling as fast as they were. The country trade is pretty well supplied.

Sheets.—There is no such a thing as stocks of sheet iron in this market.

Merchant Steel.—A good deal of business has been sent to mills this month for tool steel, tire and open hearth.

Pipes and Tubes.—The tube makers are about the only ones who have done a big business this week. The very highest prices are paid.

Skelp.—It is said that skelp could be bought at a little less, but no agent who represents a skelp maker can be found to corroborate the statement.

Plate Iron.—If there is any dullness in the iron trade it is not visible at the plate mills. The greatest pressure is evident. The requirements

of the boiler makers are simply beyond the possibility of present supply. Prices are away up and there is no danger of any weakening.

Structural Material.—The bridge-builders are endeavoring to exact compliance with the terms of contracts, as to times of delivery of material. It is impossible to do so in all cases. Bridge-builders are loaded up with contracts for this winter, and even within the past week a number of municipalities who have just succeeded in borrowing money in the New York bond market are asking for prices on small jobs. Agents and brokers say there will be a great deal of this sort of business this winter, and they add that over 200 towns now have money to spend on municipal improvements, and that the iron and steel interests will be able to profit by this demand to a great extent.

Steel Rails.—A rumor is out to-day that a large foreign order has just been placed with one of our Pennsylvania mills.

Pittsburg. Nov. 28.

(From Our Special Correspondent.)

The iron and steel markets have been quiet but firm this week. The only weakness of any consequence is in sheets, and prices are a shade lower than last quoted. A few small lots of Bessemer pig iron aggregating from 4,000 to 5,000 tons have been sold during the week for delivery this year at $24.50@$24.75 Valleys, and $25.25@$25.50 Pittsburg. The price for delivery next year is $1 less. There is no change in the price of foundry iron. The molders threaten to renew the strike for an advance in wages, and this will decrease the demand, and the price is likely to drop. The wage question was not settled as was expected it would be, by arbitration. At a large meeting of molders last night it was decided to renew the demands at the 27 foundries where the scale was not signed. There is but little demand for steel billets, and no sales were made during the week. The price asked is $37. Billets for delivery next year are quoted at $36. There is no change in structural material, but plates are a trifle weaker. Prices are prevented from a heavier drop, owing to the immense demand for steel cars. Boilers and tank plates are lower than last week. Steel bars remain unchanged. For large orders 2.25c. can be obtained for next year, while for prompt shipment prices are 2.50c., and some small sales have been made at a higher figure. The demand for pipes and tubes continues to be good, and deliveries are better than for a month or more. The demand for this month has been greater than during October. Old material and melting stock is bringing higher prices. Old rails are higher. Steel rails are quoted at from $21@$22 for mixed lengths, and from $22@$24 for short lengths. The price of iron rails remains unchanged, and is quoted at from $30@$32.

Pig Iron.—Sales aggregating about 5,000 tons Bessemer for delivery this year were made during the week at $25.25@$25.50. The first half of next year and part of the third quarter is practically sold up at prices ranging from $24.50@$24.75 Pittsburg. There is no change in the price of foundry iron.

Steel.—There is no demand for billets, and for prompt shipment can be had at $37 a ton. For next year's delivery sales are being made at $36. Steel bars are quoted at 2.50@2.60c. for prompt delivery and 2.25c. is asked for 1900.

Sheets.—The sheet market is weaker and prices have dropped a little. No. 28 is quoted at 3@3.10c. Galvanized sheets are also weak at 75% off with a 15c. freight allowance.

Ferro-manganese.—The demand continues good, but there is no change in prices. Small lots bring $125, while for large lots the minimum price is $100.

New York. Dec. 1.

The local iron market shows a good volume of business and sales agents here had a happier Thanksgiving than in many years. In foreign trade we note shipments of $14,000 worth of ice-making machinery to Denmark; some good shipments of machinery to Japan; shipments of $50,000 worth of sugar-making and $14,000 worth of manufactured iron to Porto Rico, and continued shipments of machine tools to France and Germany.

Pig Iron.—Prices show no weakening. The demand, almost wholly for small lots, continues good. We quote for delivery to July, 1900: Northern brands, tidewater delivery: No. 1 X foundry, $25@$25.50; No. 2, $24@$24.50; No. 2 plain, $23@$23.50. Southern brands, New York delivery: No. 1 foundry, $24@$24.75; No. 2 foundry, $22.25@$22.50; No. 1 soft, $22.25@$22.50; No. 2 soft, $21.25@$21.50; No. 3 foundry, $21.50.

Warrant irons have changed but little during the week. Alabama No. 2 foundry has been $16.50@$16.75; No. 2, $15.25@$15.50; No. 4, $15; gray forge, $15@$15.50.

Bar Iron and Steel.—The volume of business continues good, and prices are firm. We quote refined iron as high as 2.35c. on dock, and common, 2.15c. Soft steel bars, 2.25c.

Plates.—The local demand for plates is for small lots. The market is, if anything, easier. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 3.10@3.15c.; tank, 3/16-in., 3.20@3.25c.; shell, 3.25@3.30c.; flange, 3.40@3.45c.; marine, 3.45@3.50c.; firebox, 3.50@3.55c.; universals, 2.95c. Tank, ¼-in. plates for immediate delivery are quoted up to 4c.

Steel Rails and Rail Fastenings.—New business is not likely to amount to much before January. An occasional foreign order or inquiry comes in. We quote for standard sections $35@$36 f. o. b. Eastern mills. Smaller rails are quoted: 12-lb., $40; 16-lb., $40; 20-lb., $40; 30-lb. to 40-lb., $38; 40-lb. to standard, $37, with the usual advance for small orders. We quote angle bars, 2.45c.; fish plates, 2.40c.; spikes, 2.75c.

Structural Material.—The amount of structural material changing hands holds up well. We quote for large lots of steel at tidewater: Beams, 15-in., 2.50c.; tees, 2.55c.; channels, 2.55c.; angles, 2.45c., with higher figures for prompt delivery and small lots.

METAL MARKET.

NEW YORK, Dec. 1, 1899.

Gold and Silver.

Gold and Silver Exports and Imports
At all United States ports in October and year.

	October.		Year.	
	1898.	1899.	1898.	1899.
GOLD.				
Exports	$1,279 926	$772,867	$14,661 849	$33,650,705
Imports	16,738,353	7,562,876	144,082,169	41,831,297
Excess	I. $15,458,427	I. $6,79),009	I$130,020,320	I. $8,180,592
SILVER.				
Exports	4.512 827	4 985,519	43,946,327	43,723,941
Imports	2,553,444	2,193,125	23,652,668	24,917,220
Excess	E. $1,959,383	E. $2,792,385	E.$20,293,659	E.$18,806,721

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

Gold and Silver Exports and Imports, New York

For the week ending November 30th, 1899, and for years from January 1st, 1899, 1898, 1897, 1896.

Period	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports	
We'k	$36,908	$8,134	$904 235	$10,92[illegible]	E. $922,081
1899..	11,685,757	13,735,116	26,923,182	3,421 985	E. 21,451,838
1898..	7,802,023	95,976,766	31,260,463	2,980 485	I. 59,454,763
1897..	29,730,631	4 ,123,577	31,578,085	2,853 802	I. 2,668,665
1896..	64,781,077	76,379,704	34,867,516	3,574,210	I 4,564,035

Both exports and imports of gold were in small parcels, from various ports. Exports of silver were chiefly to London; imports were from the West Indies.

Prices of Foreign Coins.

	Bid	Asked
Mexican dollars	$ .47½	$ .49
Peruvian soles and Chilean pesos	43½	.45
Victoria sovereigns	4.85	4.88
Twenty francs	3.84	3.88
Twenty marks	4.74	4 79
Spanish 25 pesetas	4.78	4.82

Average Prices of Silver per oz. Troy.

Month	1899.		1898.		1897.	
	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.
January	27.42	59.36	26.29	56.[illegible]	29.74	64.79
February	27.44	59.42	25.89	56.0[illegible]	29.68	64.67
March	27.48	59.64	25.47	54.90	28.96	63 06
April	27 65	60.10	25.9[illegible]	56.02	28.36	61.85
May	28.15	61.23	26 31	56.98	27 86	60.42
June	27 77	60 43	27.0[illegible]	58.61	27.58	60.10
July	27 71	60 26	27.32	59.06	27.36	59.61
August	27.62	60.00	27.48	59.54	24.93	54.19
September	27 15	58 89	28.05	60.68	25 66	55.04
October	26.70	57.98	27.9[illegible]	60.42	26.77	57.57
November	27 02	58.67	27.93	60.60	26 87	57.93
December	.	.....	27.45	59.42	26.83	58.01
Year	.....	.....	26.76	58 26	27.55	59.79

The New York prices are per fine ounce; the London quotation is per standard ounce, 925 fine.

Average Prices of Metals per lb., New York.

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1899.	1898.	1899.	1898	1899.	1898.	1899.	1898.
Jan	14.75	10.99	22 48	13.87	4.18	3 65	5.34	3.96
Feb	18 00	11.28	24 20	14 08	4.49	3.71	6.28	4.04
March	17.54	11.98	23.82	14 38	4.37	3.72	6.31	4.25
April	18.43	12.14	24.98	14.60	4.31	3.63	6.67	4.26
May	18.25	12 00	25.76	14.52	4.44	3.64	6.88	4.27
June	17.93	11.89	25 85	15 22	4.43	3.82	5 98	4 77
July	18 33	11.63	29 63	15 60	4.52	3.95	5.82	4 66
August	18.50	11 89	31.53	16.23	4.57	4.00	5.65	4.58
Sept	18 46	12.31	32 74	16.03	4 58	3.99	5.50	4.67
October	17.76	12.41	31 99	17 42	4 575	3 78	5.32	4.98
Nov	16.93	12.86	28.51	18.20	4.575	3.70	4.64	5.29
Dec	.....	12.93	.....	18.30	... ...	3.76	.....	5.19
Year	.....	12.03	.....	15 70	.....	3.78	.....	4.57

The price given in the table is for Lake Copper. The average price of electrolytic copper in January was

Imports and Exports of Metals.

Port.	Week, Nov. 29.		Year 1899.	
	Expts.	Impts.	Expts.	Impts.
***New York.**				
Aluminum .....long tons	.....	.....	363	12
Antimony ore... " "	.....	‡36	.....	1,569
" regulus.. " "	.....	.....	.....	1,056
Chrome ore..... " "	.....	.....	.....	2.196
Copper, fine ..... " "	1,997	.....	55,080	24,854
" matte.. " "	.....	45	565	1,099
" ore..... " "	.....	.....	.....	45,123
" ash..... " "	.....	.....	.....	215
" sulphate " "	.....	.....	11,627	...
" other ... " "	.....	.....	.....	135
Cop-nickel matte " "	.....	.....	.....	53
Ferro-mangan'se " "	.....	.....	.....	278
Iron ore ... " "	.....	.....	.....	50
" pig, bar, rod " "	225	‡50	6 409	3,814
" pipe..... " "	328	.....	25,508	...
" plates, sheets " "	.....	‡55	748	201
" other..... " "	15	...	1,209	...
Lead..... " "	1,225	800	51,120	49,895
" ore..... " "	.....	.....	.....	941
Manganese, ore. " "	.....	.....	.....	6,440
Metals, old scrap " "	37	‡45	4,708	4,218
Composition... " "	.....	.....	6 886	255
Nails, ... " "	63	.....	17,410	...
Nickel ..... " "	20	.....	1,782	105
" Ore ..... " "	.....	.....	.....	4,071
§Railr'd material " "	17	‡45	7,328	3,943
Rails, old..... " "	.....	1240	.....	15.657
Spiegeleisen..... " "	.....	.....	.....	1,130
Steel bars, plates " "	194	‡610	40,572	15,931
" rails..... " "	647	.....	46,032	150
" hoops. ... " "	.....	.....	831	100
" wire..... " "	377	...	36,462	1.225
" not speci'd. " "	73	‡55	25,396	11,733
Tin ..... " "	.....	130	.....	25,048
" dross or ashes " "	.....	.....	63	...
" and black plates " "	.....	‡1,185	...	32,312
Zinc..... " "	.....	.....	272	358
" dross..... " "	.....	.....	437	...
" ashes, skim " "	.....	.....	2,129	290
" ore..... " "	.....	.....	8,447	.....
" oxide..... " "	158	.....	4,054	283
†Baltimore.				
Alumina ..... bags	.....	.....	.....	3,479
Antimony regulus..casks	.....	.....	.....	286
Chrome Ore.....long tons	.....	.....	.....	2,300
Copper, fine..... " "	.....	.....	31,569	2,238
" matte... " "	.....	.....	.....	.....
" sulphate " "	.....	.....	1,562	.....
" pipe..... " "	.....	.....	100	.....
Ferro-manganese " "	.....	.....	.....	2,163
Ferro-silicon..... " "	.....	.....	184	96
Iron pig, bar etc. " "	.....	.....	1,209	7,612
" ore..... " "	.....	.....	.....	243,393
" pyrites..... " "	.....	.....	.....	47,084
Manganese ore.. " "	.....	.....	...	73,613
Metals, old & Rails " "	.....	.....	4,604	51
Nails ..... " "	.....	.....	691	.....
Pipe, iron & steel " "	.....	.....	13,133	...
Spiegeleisen..... " "	.....	.....	.....	1,187
Steel, bars, pl'es.. " "	.....	.....	34,871	...
" wire ..... " "	.....	.....	1.389	40
" rails ... " "	.....	.....	67,233	276
not specified.. " "	...	.....	2,761	23
Tin..... " "	.....	.....	563	...
" and blackplates " "	.....	.....	...	2,643
" other..... " "	.....	.....	43	.....
Zinc..... " "	.....	.....	25	5
" dross ... " "	.....	.....	231	.....
" skimmings.. " "	.....	.....	131	.....
***Philadelphia.**				
Antimony ... long tons	... .	.....	.....	10
Chrome ore ... " "	... .	.....	...	3,0[illegible]
Copper, fine..... " "	... .	.....	535	...
" ore..... " "	.....	.....	.....	36,507
" old..... " "	.....	.....	.....	11
Ferro-manganese " "	.....	.....	.....	1,573
Ferro-silicon ... " "	.....	.....	.....	167
Iron, pig..... " "	.....	‡200	.....	4,990
" ore ..... " "	.....	‡16,411	....	261,853
" pyrites ..... " "	.....	.....	.....	10.153
Manganese ore.. " "	.....	‡3.548	.....	85,111
Steel sheets.. ... " "	.....	.....	... ...	510
Spiegeleisen..... " "	.....	.....	.....	2.120
Tin..... " "	.....	15	.....	1.079
" and black plates " "	.....	.....	.....	4,517
Zinc dust ..... " "	.....	.....	...	10
" ore .. .. " "	.....	.....	3,093	.....

Total United States.§§

Articles.	Sept.		Jan.—Sept.	
	Expts.	Impts.	Expts.	Impts.
Antimony.. long tons	.....	105	8	1,113
" ore.... " "	.....	238	.....	1,680
Copper fine " "	8,412	3,391	74 456	20,169
" su phate . " "	193	.....	11,635	...
" ore & matte " "	211	956	4,005	7,199
Iron, pig & bar.. " "	17,875	4,958	203,9[illegible]	36,509
" ore..... " "	5,417	54,184	21.09[illegible]	$25,475
Iron & steel plates " "	3,624	880	48,139	3,123
Iron & steel rails " "	27.060	....	185,997	1.123
" wire " "	11,499	195	86,457	1,999
Steel, billets, rods, etc. " "	1,600	2,577	63,720	22,024
Lead, pigs, bars & old ..... " "	1	1	46	207
Lead in ore..... " "	4,265	6,879	52,371	64,268
Nails, cut..... " "	1,400	.....	7,679	.....
" wire ..... " "	2,976	.....	23.059	.....
Tin..... " "	43	4,824	329	27,517
" plates..... " "	5	4,921	223	42 987
Zinc .. .. " "	8	106	5,764	904
" ore .... " "	1,713	.....	18,537	...

*New York Metal Exchange returns. †By our Special Correspondent. §Not specified. ‡Week ending Nov 24th §§ Monthly returns of the Treasury Department.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2½c. per lb. on pigs, bars etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb Quicksilver, 7c. per lb. Spelter or zinc, 1½c. per lb. in pigs and bars; 2c. on sheets, etc. Copper, tin and platinum are free of duty.

14.26c.; in February it was 17.02c.; in March, 16.35c.; in April, 17.13c.; in May, 17.2[illegible]c.; in June, 16.89c.; in July 17.099; in August, 17.42c; in September, 17.34c; in October, 16.94c; in November, 16.49c.

Financial Notes of the Week.

Business continues extremely active, and no changes in the condition of general trade can be reported. The speculative markets have been more steady and are still affected by dear money. Money for business purposes can be had without trouble, but speculative loans are made at high rates.

The British Government is meeting special war expenditures by issues of 1-year Treasury bills. It is a curious fact that the last issue of those bills was taken by the Japanese Government, which has a large balance in London, from the Chinese indemnity payments, and can secure better interest by taking these bills. The transaction is a regular and natural one; but for Japan to lend money to England looks a little out of order.

Silver has been steady and firm. Good Eastern business has absorbed the usual offerings, and the market has been maintained with a good tone.

The statement of the United States Treasury on Wednesday, November 29th, shows balances in excess of outstanding certificates as below, comparison being made with the statement of the corresponding day last week:

	Nov. 22.	Nov. 29.		Changes.
Gold	$246,088,307	$241,111,980	D.	$4,976,327
Silver	10,584,715	10,174,870	D.	409,835
Legal tenders	15,734,700	15,915,246	I.	180,546
Treas notes, etc.	923,092	1,058,986	I.	135,894
Totals	$273,330,804	$268,261,082	D.	$5,179,722

Treasury deposits with national banks amounted to $82,292,462, an increase of $383,494 during the week.

The statement of the New York banks—including the 63 banks represented in the Clearing House—for the week ending November 25th, gives the following totals, comparison being made with the corresponding weeks in 1898 and 1897:

	1897.	1898.	1899.
Loans and discounts	$594,267,500	$691,419,800	$676,636,400
Deposits	659 861,500	782,729,300	737,958,000
Circulation	16,009,100	16,330 900	16,471,600
Reserve:			
Specie	104,150,500	158 481,500	142.010,600
Legal tenders	83,375,800	55,558,400	49,131,100
Total reserve	$187,526.300	$214,039,900	$191,141,700
Legal requirements	164,965,375	195,682,325	184,489,500
Balance, surplus	$22,560,925	$18,357,575	$6,652,200

Changes for the week, this year, were increases of $1,121,100 in deposits, $9,300 in circulations, $5,232,300 in specie, $2,012,200 in legal tenders, and $6,964,225 in surplus reserve; a decrease of $3,125,800 in loans and discounts.

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 of the corresponding dates last year:

	1898.		1899.	
Banks.	Gold.	Silver.	Gold.	Silver.
N.Y. Ass'd	$158,481,500	.....	$142,010,600	.....
England	164,885,265	.....	159,567,175	.....
France	366,976.950	$244,327,395	377,476,365	$233,953,940
Germany	125.495,000	64,645,000	12[illegible],290,000	61,970,000
Spain	55,310,000	30,990,000	68,000,000	69,845,000
Aus.-Hun	177 495 000	62,265,000	184 600,000	62,660,000
Neth'l'ds	21,575,000	33.345,000	17,685 000	29,150,000
Belgium	14,630 000	7,315,000	14.770.000	7.385,000
Italy	74.335,000	11,440,000	77.320,000	7.215 000
Russia	493,745,000	17,990,000	429,835,000	22.350,000

The returns of the Associated Banks of New York are of date of November 25th, and the others are of date of November 23d, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the year up to November 16th, 1899, are reported by Messrs. Pixley & Abell's circular as follows:

	1898.	1899.	Changes.
India	£3,977 465	£4 672,025	I. £694 560
China	545.447	1.174.682	I. 629.235
The Straits	360,641	265,586	D. 95,055
Totals	£4,883,553	£6,112,293	I.£1,228,740

Arrivals for the week, this year, were £143,000 in bar silver from New York and £18,000 from Chile; total, £161,000. Shipments were £75,000 in bar silver to Bombay and £16,000 to China; total, £91,000.

Indian exchange continues firm and all the Council bills offered in London were taken at an average of 16.09d. per rupee.

Other Metals.

Daily Prices of Metals in New York.

November	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London, P'nce	Copper. Lake, cts. ₩ lb.	Copper. Electrolytic, ₩ lb.	Copper. Lond'n standard £ ₩ ton.	Tin, cts. ₩ lb.	Lead, cts. ₩ lb.	Spelter, cts. ₩ lb.
25	4.85¼	58⅞	27⅛	16⅞	16⅝	....	28	4.57½	4.37½
27	4.85¼	58¾	27⅛	16⅞	16⅝	75 10 0	27⅝	4.57½	4.37½
28	4.85¼	58¾	27⅛	16⅞	16⅝	74 15 0	27⅝	4.57½	4.37½
29	4 86	59¼	27⅛	16⅞	16⅝	75 0 0	27⅝	4.57½	4.37½
30	.....	.....	.....	.....	.....	74 10 0	.....	.....	.....
1	4 86	59	27¼	16⅞	16⅝	73 15 0	28	4.57½	4.35

The quotations given for electrolytic copper are for cakes, ingots and wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

Copper.—The market has been very quiet and we learn of but few transactions. Consumption continues excellent and the refiners are crowded with orders for early shipment. Under the circumstances, the decrease in the volume of new business has not affected prices as it would otherwise. We have to quote Lake copper at 16¾@17c.; electrolytic copper in cakes, bars and ingots at 16¼@16⅝c., in cathodes at 16 @16⅛c.

Our cables report a fair business doing in Europe in fine copper at slightly lower prices. The speculative market in London, which closed last week at £75 10s., opened at the same figure, and on Tuesday declined to £74 15s.; Wednesday it reacted to £75, and closes at £73 15. for spot, £72 15s. for 3 months.

The discount in three months' copper is notable and due to the scarcity of prompt metal.

Refined and manufactured sorts we quote: English tough, £78@£78 10s.; best selected, £79 10s.@£80; strong sheets, £84 10s.@£85; India sheets, £83 10s.@£84 10s.; yellow metal, 6¾@ 6⅞d.

Tin.—The market has not fluctuated as violently as during the past weeks and the metal has been selling at about 27¾@28c.

The foreign market, which closed last week at £127, opened at £125 and on Wednesday improved to £126 10s. It closes at £125 12s. 6d. for spot, and 2s. 6d. lower for 3 months.

Lead.—The demand for lead continues very strong and large transactions have taken place for both present and future deliveries. The prices still remain unchanged and we quote 4.45 @4.50c. St. Louis; 4.55@4.60c. New York.

The European market has been firm; Spanish lead is quoted at £17 10s., English 5s. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is quiet, and presents no novelty. Common lead is saleable in a retail way at 4.47½c., and desilverized at 4.50c.

Spelter.—The market is quiet and steady. Consumers are taking advantage of the lower prices established to replenish their depleted stocks. However, there appears to be no difficulty in obtaining all the metal required, and prices remain unchanged. We quote the metal at 4⅜c. New York, and 4⅛@4¼c. St. Louis.

The foreign market has declined further 12s. 6d., and the quotations are £19 17s. 6d. for good ordinaries, 5s. higher for specials.

Antimony is without change. We quote Cookson's at 10½@11c.; Hallett's, 9¾@9⅞c.; U. S. Star and Hungarian, 9½@9⅝c.

Nickel is firm and demand very brisk. Quotations are firm at 40 and 45c., according to size of order.

Platinum.—Demand is good, and prices are firmer. In large lots we quote $17.75, and for smaller quantities, $18 per oz., in New York.

For chemical ware (crucibles and dishes), best hammered metal, we quote as follows: In lots of 250 grams or more 67½c. per gram, and for smaller quantities, 70c. per gram; unmanufactured platinum will be supplied in same quantities at 2c. less per gram.

Quicksilver.—The New York price is unchanged at $50.50 per flask. Small lots sell at $52@$53. The London price is firm at £9 10s. per flask, with the same figure quoted from second hands.

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

	Per lb.		Per lb.
Aluminum.		Bismuth	$1.45@$1.50
No. 1, 99% ingots	35@37c.	Magnesium	$2.75@$3
No. 2, 90% ingots	31@34c.	Phosphorus	40@50c.
Rolled sheets	38c up	Tungsten	70c.
Alum.-bronze	20@23c.	Ferro tungsten, 60%	60c.
Nickel-alum	33@39c		

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

LATE NEWS.

A press dispatch dated November 30th says that the conference between the officials of the Susquehanna Coal Company and a committee of the striking miners, which has been in session for the past two days, ended in a new wage scale being promulgated. It is satisfactory to both sides, and will terminate the long strike. The strikers now await the sanction of the officers of the United Mine Workers before returning to work. The 4,000 strikers at Glen Lyon and Nanticoke have been idle since August 5th, and it is said they have lost in wages $462,000.

The Edward P. Allis Company, of Milwaukee, Wis., has just been awarded the contract for the large new copper smelting and refining plant for the Rio Tinto Company, Limited, of London, to be erected in Spain. This is a large and important contract.

(From Our Special Correspondent.)

Shipments from Tintic, Utah, for the week ending November 25th, included, from the 3 rail points of the district, 9 bars bullion, 75 cars of ore and 3 cars of concentrates. Of these totals the Swansea is credited with 14 cars ore; Mammoth 9 bars bullion, 10 cars ore, 1 car concentrates; Bullion Beck, 10 cars ore, 2 cars concentrates; Centennial Eureka, 5 cars ore; Gemini, 5 cars; Ajax, 5 cars; Eureka Hill, 4 cars; South Swansea, 3 cars; Sunbeam, 3 cars; Carissa, 1 car; Sunday, 1 car; Tintic Iron, 14 cars hematite for flux.

The Centennial-Eureka resumed shipments during the week of November 25th, and a production of 50 tons a day will be maintained till the Bleickert wire tram is in commission, when the tonnage will be largely increased. Sinking shaft below 1,500 is in progress. Mines in splendid physical condition.

(From Our Special Correspondent.)

Bullion and ore shipments from Salt Lake, Utah, during the week ending November 25th were as follows: The several smelteries sent forward 22 cars, or 929,588 lbs. lead-silver bullion; 5 cars, or 263,256 lbs. copper bullion. In the same week there were shipped from the different camps 49 cars, or 1,858,840 lbs. ore to smelteries outside of the State.

As previously reported, September was the banner month for cyaniding products marketed at the Consolidated Kansas City Smelting and Refining Company's Salt Lake City office, save when the De La Mar Mercur mill was not operating its refinery. The September total was $112,000, and October fell away to $92,000, which will be close to the November business. An advance of 25c. an oz. gold has recently been made for handling these products; it was either this or the Salt Lake City market for gold cyanides would be closed, so it is said. The Mercur company has a contract for marketing these products and is the only patron not affected by the new schedule.

Cripple Creek—Colorado.

(From Our Special Correspondent.)

October Output.—The output equals that of September, which proved a record breaker, the mill ore showing a little increase and the smelting ore a slight falling off. The output for the month was 36,361 tons of the total value of $1,432,995. Of this 11,866 tons of the value of $70 per ton, making $820,620, were handled by the smelters and 24,495 tons of the value of $25 per ton, making $612,375, were treated by the chemical mills. The only local mill worked was the Arequa, neither the Brodie nor the Gillette treating any ore. Two other small mills are expected to bid soon for ore—the Oneida near Victor and the Ryder in Independence. The large new mill of the Woods Investment Company in Arequa gulch will soon cut quite a figure. The output during October would undoubtedly have been greater had there been a market for the ore. Among the dividends paid by the public stock companies were the following: Portland, $60,000; Gold Coin, $10,000; Vindicator, $50,000, and Mary McKinney, $30,000. The dividend paid by the Mary McKinney company was the first.

Copper Mountain.—Considerable work is being done on this hill north of the main shipping district. Hoskins & Murray are sinking a shaft on their lease on the Fluorine claim of the Montreal company. This claim produced considerable ore in 1898. It is reported that they have a lease on the Alceda and Olean claims belonging to the Josephine Company. The lessees on the Lost Lillie claim of the Copper Mountain Company have a shaft down some distance. Some work is being done on the Nickle Plate ground between Copper and Rhyolite Mountain. At the south foot of Copper Mountain the Little Bonanza placer was recently bought by Montana men, representatives of the Marcus Daly interests.

Hoosier.—It is reported around that this mine on Tenderfoot Hill has been sold for a large sum, but no confirmation can be had and it is probable that negotiations are not completed yet, if under way.

Isabella Gold Mining Company.—Conditions are as usual. The rich shipment sent out about 2 weeks ago was 103,090 lbs. of ore, settled for on the basis of 160.52 oz. gold and 10.5 oz. silver per ton. These figures make the total value over $165,000. The ore came from the 10th level. Geo Kilborn of Cripple Creek is in charge.

MINING STOCKS.

Complete quotations will be found on pages 676, 677 and 678 of mining stocks listed and dealt in at:

Boston.	Spokane.	Mexico.
Colo. Springs.	Salt Lake.	Paris.
Denver.	San Francisco.	Rossland.
New York.	London.	Toronto.
Philadelphia.		

New York. Dec. 1.

The holiday has occasioned a lull in the local share market. Dealings in Amalgamated Copper were small at $85⅝@$87, showing a falling off from last week. Anaconda was also weaker, selling down to $45. British Columbia brought a better price, transactions being made at $11¼@$12⅛. Union of North Carolina reported on November 23d sales of 1,500 shares around $25, but this week quotations were $29 bid and $30 asked.

Of Arizona Lead a sale is reported on the curb at $10.

The American Smelting and Refining securities continue to improve in value; sales of the common being made at $39¾@$40¾, and of the preferred stock at $89¾@$91⅞. Considerable bidding for the 6% bonds of the old Sloss Iron and Steel Company was reported. These bonds have a first lien on the property consolidated with Sheffield Company. Of the Sloss-Sheffield common stock sales were made at $37½, a gain of 1½, while the preferred stock brought $75. Flemington Coal and Coke sold in 50 share lots at $28½@$27¾, a falling off from last week. Standard Oil was moderately dealt in at $455@$458½, closing around $457.

Homestake of South Dakota sold at $76, or $1 above last week. Kingston & Pembroke of Ontario lost 14c. at 76c.

In the Colorado section, Isabella sold again at $1.40, Golden Fleece at 28c., Mollie Gibson at 26c., Argentum-Juniata at 21c., Work at 30c., Small Hopes at 41c., and Alamo at 12½c. Little Chief of Leadville has officially announced a reduction in its capital stock from $10,000,000 to $1,000,000, divided into $5 shares.

Brunswick Consolidated of California is held around 27c. Efforts are being made by one faction to strengthen the management of this company by nominating Robert Gilman Brown, of the Standard Consolidated, as president for election in January. Others interested in the Standard have also been proposed to fill official positions in the Brunswick Company, thus putting the two properties virtually under the same management. The assessment of 3c. per share ($15,000) now being collected by the Brunswick Company will be used in straightening the shaft to permit of more economy in operating the property. The Comstock Tunnel Company in order to develop its property and thus realize an independent income, has decided to sell its treasury bonds at 4% pro rata to shareholders of record on December 11th. All subscribers not having enough shares to entitle them to receive a bond will be given scrip certificates Series B., representing fractional parts and exchangeable into bonds in amounts of $1,000. Sales of bonds were made this week at 3½%, the stock at 3½@4½c., and scrip at 4. Gould & Curry and Yellow Jacket have each levied a 15c. assessment, and the latter stock brought 20c. this week. Sierra Nevada sold at 45c., Best & Belcher at 43c.; Consolidated California & Virginia at $1.70@$1.65; Ophir at $1.25; Mexican at 52c., and Potosi at 35@29c.

Miscellaneous dividends declared were: Republic Iron and Steel Company, second quarterly of 1¾% on the preferred stock, payable January 1st, 1900; Consolidated Lake Superior Company 1¾% on the preferred stock, payable December 15th.

Boston. Nov. 29.

(From Our Special Correspondent.)

"About this time," as the old almanac says, "look out for" predictions. So Saturday and Monday we hear regularly from a certain clique of brokers and their organs, the little financial papers, of a "bull feeling," a "strong undertone," some "heavy inside buying orders" and all the rest of it. But this week—as for weeks past—the bull movement failed to show itself as the days went on. Again we have had a narrow and heavy market for coppers, with very little prospect of improvement.

No strong upward movement can be expected for some time. Boston is loaded down with trash bought at big prices. The least improvement brings out a flood of stocks whose owners are watching every possible chance to unload.

The money market is too stiff to permit any speculation on borrowed money with the present very narrow margins for profit.

On the whole, it is just such a market as might have been expected, after the wild excitement of three months or so ago. "Next morning's headache" is no pleasanter financially than individually; but it is often salutary.

The followers of the Amalgamated group of coppers, who bought in at high prices in the expectation that the insiders would sustain the market, are still waiting—that is, those who have not been forced to sell. They deserve all they get, for the tactics of the party controlling that group have long been known. Some people never learn, however, and they still cling to the hope that something will be done, they do not know just what.

Even the flamboyant Mr. Lawson seems to have been extinguished. I am told that when he can be seen he still repeats his predictions about future prices and wonderful combinations to come—but when these prophesies will materialize is left to the imagination of those who bought on their faith in them.

Some of the zinc company promoters and stockholders are getting uneasy about the zinc ore market. The drop threatens profits, and if prices continue low it is not improbable that companies will find lots of sub-leases thrown up and property left on their hands unproductive. To find new parties to lease will perhaps not be easy, and to work the mines directly will take capital. Moreover, a property capitalized on the basis of $45 ore may not be able to pay dividends long on $30 or $33 prices for its output.

Nevertheless promoters continue to advertise, and I hear they are still selling stock in the back towns; at any rate enough to pay them for pushing their doubtful wares.

Calumet & Hecla was quoted at $775; Tamarack, $221@$223; Quincy, $155; Osceola, $81. Isle Royale brought $44, and Old Dominion $30½. In the blind pool group, Boston & Montana was $320 bid and $35 asked; Butte & Boston, $69 bid; Parrot, $44; Arcadian lower at $32@$32½.

In the general list Dominion Coal was higher at $52, while United States Oil was quoted at $44.

San Francisco. Nov. 25.

(From Our Special Correspondent.)

In a market of the usual kind dullness is chronic, varying only in degree. Everything has been lower this week. The so-called find in Ophir failed to excite much interest, and now seems to have proved one of the usual failures. This and two new 15c. assessments put the market into rather a gloomy state.

Some quotations noted are: Consolidated California & Virginia, $1.40@$1.45; Ophir, 97@99c.; Mexican, 45@46c.; Sierra Nevada, 37@38c.; Best & Belcher, 36c.; Hale & Norcross, 37c.; Potosi, 26c.; Chollar, 21c.; Gould & Curry, 16c.

The latest assessment levied is one of 15c. by the Gould & Curry Company; it will be delinquent December 27th. Yellow Jacket has also called for 15c., delinquent December 26th.

Business at the California Oil Exchange continues quite active. Several new companies have been listed. Some quotations are: Tidal Wave, $2.90@$3.05; Yukon, $2.25; Anaconda, $1.50@$1.60; Century, 85c.; Fresno, 85c.; San Joaquin, 70c. The dealings are chiefly of a speculative kind.

The news was published in the "Bulletin" on Tuesday that the Union Consolidated Mining Company was about to receive $7,700 belonging to that company, which had been laying on deposit in the Bank of California for 22 years unknown to the officers of the company until recently. The money had originally been put in the bank under a slightly different name than that of the Union Consolidated Mining Company, but by whom, and for what reason, is not shown by any of the existing books or papers of the mining company. When the Union Consolidated directors learned that the money was on deposit, they took measures for its recovery and having satisfied the bank officials that it rightfully belonged to the Union Consolidated, the bank was ready to pay over the full amount, provided a bond was given to secure it from any possible loss. A bond in $10,000, indorsed by a surety company, has been tendered and accepted and the $7,700 is now in the treasury of the Union Consolidated Mining Company.

London, England. Nov. 14.

(From Our Special Correspondent.)

The quietness of the market in general has been broken by the issue of some new ventures. Mr. Darlington Simpson, who has been very successful with his Peak Hill Gold-fields Company in West Australia, has recently returned from that Colony with some more propositions in his pocket, and has this week offered two new companies to the public. These are the Lake Way Gold-field, Limited, and the Horseshoe Peak Hill Gold-field, Limited. Both of these properties have been examined and recommended by Mr. H. H. Schlapp, of Melbourne. The former is an ordinary quartz proposition similar to many that we are familiar with in West Australia, where the contents run 1½ oz. to the ton; while the latter is a low-grade proposition of 10 dwts. per ton, but the veins are very wide and extensive. Judging by the reports of so eminent an expert as Mr. Schlapp, I should reckon the propositions good ones. The framing of the terms on which the companies acquire the properties has, unfortunately for the general public, been designed for the special benefit of Mr. Darlington Simpson, for he has an option to purchase large blocks of shares at par for a period of two years. Though perhaps it is only right that a man who has devoted so much energy in acquiring properties should reap some reward if the properties turn out so well as his judgment leads him to expect.

Paris. Nov. 19.

(From Our Special Correspondent.)

The stock markets are fairly active, but the Bourse has been free from any special excitements during the week. At present it is chiefly the condition of the money market which affects speculation. The rates for money are higher, though the Bank of France has made no change in the official rate of discount; but loans are secured with more difficulty.

The metallurgical shares are just now the strongest point in the market, and with reason. Several of the large companies which have held back and refused to take contracts running later than next June, are now arranging for the sale of their products for the balance of 1900 at higher prices. The great difficulty is in the supplies of raw materials. Iron ores can be had, but fuel is the difficulty, and it is the supply of coke which is limiting production. How to increase this is the problem.

The Forges et Acieries de la Loire have just declared a dividend of 40fr. a share for tme year ending June 30th; this compares with 32.50fr. for the preceding year.

The copper shares are somewhat weaker. We continue to hear a great deal of nonsense about the American syndicate limiting production and refusing sales for export. These people do not seem to understand that consumption in the United States has increased, and smaller exports are attributed entirely to the action of the Amalgamated Company. It is of no use to state the facts.

The South African gold shares show many fluctuations, and a very uneven market exists and is to be expected. It is certain that there is a good deal of selling here; and it is also certain that all the stocks offered are readily taken by London. The transfer of French interests, if this continues, will reach a very large amount.

Changes have taken place in the direction of the French Bank of South Africa, due to the divergencies between the manager and a majority of the board on the subject of the war in the Transvaal. The manager appears to have been a strong Boer partisan, and, in a circular issued to the shareholders, accused the British Government of an intention to make mine owners bear the cost of the war, adding that French capitalists who had invested their money in gold shares had no interest in facilitating the acquisition of a new colony by England. He also attributed the sales of shares by French holders to their objection to see their money employed to pay English soldiers. The board, considering that he had no authority to take up such an attitude in the name of the bank, and without calling on him for an explanation—so he declares—voted his dismissal. The chairman, however, M. Jacques Siegfried, with two other directors, MM. Duval and Chabert, supported the manager, M. Dupasseur, and finding themselves in a minority, resigned their seats on the board, and some of the heads of the working departments have followed their example. The places of the three outgoing directors have been filled by M. Einhorn, of the International Bank; the Marquis d'Hautpool and M. Maurice Gheest, of the French Compagnie des Mines d'Or et Exploration. In retiring, M. Siegfried stated that the bank was now in an excellent situation, the profits in the 10 months of the year amounting to 3,500,000fr. The capital of the bank was originally 50,000,000fr., but 10,000,000fr. were written off in 1897, two years after its foundation, to cover losses from unsuccessful speculations in Johannesburg.

By far the best general description of the scene of war in South Africa which has appeared in French was published last week in "L'Economiste Francais"; it is written by M. Pierre Leroy-Beaulieu, who travelled in Cape Colony and the Transvaal not long ago. His predictions of disaster and final defeat for the British are hardly to be accepted; but that does not detract from the excellence of his description of the country, which gives one an admirably clear idea of its general character and chief features.

The foreign merchandise trade of France for the 10 months ending October 31st is reported by the Ministry of Commerce as below:

	1898. Francs.	1899. Francs.
Imports	3,728,845,000	3,465,902,000
Exports	2,830,174,000	3,189,214,000
Excess in imports	898,671,000	276,688,000

The decrease in imports was chiefly in food; the increase in exports was partly in raw materials, but chiefly in manufactures.

A decrease of 262,943,000fr. in imports and an increase of 359,040,000fr. in exports make together the important difference of 621,983,000fr. in our trade balance, the excess of imports over exports thus showing a decrease of 69.2% this year.

Azote.

STOCK QUOTATIONS.

NEW YORK.

NAME OF COMPANY	Location.	Par val.	Nov. 23. H.	Nov. 23. L.	Nov. 24. H.	Nov. 24. L.	Nov. 25. H.	Nov. 25. L.	Nov. 27. H.	Nov. 27. L.	Nov. 28. H.	Nov. 28. L.	Nov. 29. H.	Nov. 29. L.	Sales
Adams	Colo	$10			.18				.15						
Alamo	"	1			.12¾				12¾		.12¾				6,000
Alice	"	25			.51										1,000
Amalgamated C	Mont.	100	87.50	87.00	87 50	87.00			87.25	86 88	87.00	86.63	86.25	85.75	
Anaconda, c	"	25	45.75		46.25	46.00			46.25	46.75	45.75	45.00			1,250
Anaconda Gold	Colo	5							.44		43				
Anchoria Lel	"	1							.19						
Argentum-Jun	"	1							.21		.20				600
Belcher	Nev	5							.2		.25				
Best & Belcher	"	3							.37		.43				400
Breece	Colo	25							2.00		2 00				
Brit.Col.Copper	B. C	10	11.50	10.80					11.50	11 00	11.50	10.75	11 25	11.00	
Brunswick	Cal	1			.25				.22		.22				
Challar	Nev	1			.15						.15				
Comst'k T., st's	"	100			.03½				.03½		.04½				1,600
" " bon's	"	100			.03½				.03½		.03½				500
" " scrip	"	100							.04						50
Con. Cal. & Va	"	2½			1.60	1.55			1.70	1.65	1 70				1,200
Cr & Cr. Creek	Colo	1	.12½		.12½				.11		.13				300
Crescent	"	10	.15		.15				.15		.15				
Cripple Cr. Con	"	1	.16¾		.15				.16		.15				5,500
Crown Point	Nev	3	.10		.15				.20		.15				
Damon	Colo	1							.25						
Deadw'd Terra	S. Dak	25			.60				.60		.60				1,600
Dunkin	Colo	1													500
Elkton	Colo	1			1.195				1.195		1 162				
Eureka	Nev	20			.25				.20		.23				3,315
Father de Smet	Dak	100			.10				10		.10				40
Findley	Colo	1			.13				12½		.13½				15,489
Garf. Con	"	1			.20				.20		.20				26
Golden Age	"	1	.06		.06				.06		.06½				2,200
Golden Fleece	"	1			.32				.32		.28				600
Gould & Curry	Nev	3			.20				.18						
Hale&Norcross	Nev	3			.40										500
Homestake	S. Dak	100	75.00		75 00				65.00		76.00				60
Horn Silver	Utah	25							1.2		1.15				
Iron Silver	Colo	20							.54		.53				
Isabella	"	1	1.35		1 20				1.275		1.40				500
Jack Pot	"	1			.6				.59		.61				
King & Pemb	Ont	10			.65				.76		.76				400
Lacrosse	Colo	10			.18				.16		.18				
Leadville Con	"	10			09				.08		.08				500
Little Chief	"	50			.17½				.17½		.17				
Mexican	Nev	3			.40						.52				9.0
Mollie Gibson	Colo	5			.27				.25		.25				500
Morenci Cop. pf	"	1			1.385				1.785		1.85				
Moulton	Mont.	25			.35				.30		.35				
Mt. Rose	Colo	1	.39		.37				.36		.40				105
Occidental	Nev	3			.10						.10				
Ontario	Utah	10			8 00				8.00		8.00				1,160
Ophir	Nev	8			.90				1.25		1.00				300
Pinnacle	Colo	1			.28				.30		.34				
Pharmacist	"	1							.07						1,000
Phœnix	Ariz	1			.14	.12			.14		.13	.11			10,000
Plymouth Con	Cal	10			.10				2.402		.10				
Portland	Colo	1			2.35				2.75		2.40				
Potosi	Nev	5			.25				.30		.35	.29			800
Quicksilver	Cal	100			1.75				2.00		2.00				
do. pref	"	100			7.50				7.50		7.50		8.50		100
Savage	Nev	2½			.14				.13		.15				1,000
Sierra Nevada	"	5			.35				.45		.35				500
Small Hopes	Colo	20			1.00				.41						100
Specimen	"	1			.10				.09		.10				
Standard Con	Cal	1			2.65				2.65		2 70				
Syndicate	"	10													
Tenn Copper	Tenn	25	16.00		16.00	14.00			16 00	14 0	16.00	14.00	15.00	14.00	
Tornado	Colo	1			.45				.45						
Union	"	1			.32				.34		.34				
Union Con	Nev	2½			.33				.33		.30				
Utah Con	"	5			.08						.07				
Work	Colo	1			.30				.50		.30				1,000
Yellow Jacket	Nev	5			.15				.15		.20				1,000

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.		$100	39¾		40¾	40			40¾	39¾	40¾	39¾	40¾		11,880
" " " pf		100	90		90½	89¾			90¾	91	91¾	91¼			2,695
Am.S &W Co n		100	48½		49¼	48½			49¾	48¾	50	49	49		21,715
" " pf'r n		100			95	94¾			95¾	95¾	97	91	97¾		1,025
Central of N. J.	N. J.	100	122		122½				121½	121	122½	121¾	122¾		2,548
Col. C. & I. Dev	Colo	100													200
Col. Fuel & I.	Colo	100	52¾		53	52			53¾	52¾	46		53		5,190
Col. & H.C.&I.	Ohio	100	18½		18¾				18¾						200
Del. & Hud.	N. Y.	100	121¼		121½				121¾		121¾	121¾	123¾		1,805
Federal Steel		100	59		60¾	59			62	59¾	62¾	61¾	63		1,7637
" " pf		100	83¾		81¾	80¾			82¾	81¾	82¾	81¾	83¾		11,747
National Lead	N. Y.	100			31¾	30¾			30¾	30	30¾	30	29¾		965
" " pf	Md	100			109¾										68
National Salt		100	50	48	50	48			50	48	50	48	50	48	
" " pf		100	76	74	79	77½			80	78	79	78	80	78	
N. Y., Ont. & W.	N. Y.	100	25½		25½	25¼			25¼	25	25¼	25¼	25¼		7,484
Reading, 1st pf.	Pa.	100	59		59¼	58¾			59¾	58¾	59¾	58¾	59¾		17,700
" 2d pf.	"	100	31		31	30¾			31¼	31	31		31		2,400
Republic I & S.		100	25		24½	24¼			25¾	25	26¾	25¾	26¼		10,088
" " pf		100	70		74	69¾			71	70¾	74	71	71¾		8,120
*Stan.Oil of N J.	N. J.	10	458	456	456	455			458	456	4583/4	457	458	456	
Tenn.C.,I.&R.R.	Ala.	100	1 4		115¾	115			1163/4	115	116		115		3,170

* Ex-dividend.

PHILADELPHIA, PA.

NAME OF COMPANY.	L'cation.	Par Val.	Nov. 22. H.	Nov. 22. L.	Nov 23. H.	Nov 23. L.	Nov. 24 H.	Nov. 24 L.	Nov. 25. H.	Nov. 25. L.	Nov. 27. H.	Nov. 27. L.	Nov. 28. H.	Nov. 28. L.	Sales
Am. Alkali			3.55		3.25						3.78		3.25	3 00	2,625
" " pf							1 65				1.63				350
Bethlehem Irn	Pa.		60.00	59.88											
Bethlehem St'l	"	$50	19.88	19.00			19.00				19.25				50
Cambria Iron	"	50	44.25		44.25						44 25		44.25		143
Cambria Steel	I.T.	50	20.25	19.75	20.25		20 50	20.25			21 88	20.75	21.25	20.88	2,715
Choctaw. pref.	Pa.	50			45.25		45.25				45.25	45.00	45.00	44 50	465
Lehigh Val.	"	50	27.38		27.50	26.88	27 00				27.00	26.50	27.00	26.50	684
Penna. R. R.	"	50	65 25		65.	65.13	65.38	65.13			66.00	65.75	66 63	67.13	8,160
Susq I. & S.	"		5 25	5.13	5.25	5.00	5 00				5.00		4.75		925
United Gas I.	"	50	162	160	163¼	162	163¾	163					161		1,004
Welsb. of Can	Can.	100	2.00		2.00										460
Welsb. Coml.	"	100													
Welsb Light.	"	100	49.00	47.00	48.25		48.00				48.00		47.50		55

Total shares sold, 17,558.

SALT LAKE CITY, UTAH.* Nov. 10.

STOCKS.†	No. of shares	Par val.	Bid.	Asked.	STOCKS.†	No. of shares	Par val.	Bid.	Asked
Ajax	300,000	$10	$.90	$1.50	Homestake	400,000	$1	$0.09	$0 12
Alice	400,000	25	.45	1.10	Horn Silver	400,000	25	1 00	1 50
Anchor	150,000	10			Joe Bowers	400,000	1	.17½	18
Buckeye	500,000	1	.02¾	.04	Little Pittsburg	400,000	5	.06¾	.07¾
Bullion-Beck & Ch.	100,000	10	3.70	3.88	Lower Mammoth	150,000	1	.52¾	.53
Centennial Eureka	90,000	50			Mammoth	400,000	5	3 01	3.25
Chloride Point	500,000	1	.23½	.25½	Mercur	200,000	25	6 83	7.00
Daisy	500,000	3	.21	.21½	Northern Light	400,000	5	18¾	.19
Dalton &	500,000	5			Omaha	300,000	2	13	.20
Dalton & Lark	2,500,000	1	.04	.08	Ontario	150,000	100	8.00	9 00
Daly	150,000	20	1.60	1.70	Richmond-An	500,000	1		
Daly West	150,000	20	12.94	13 20	Sacramento	1,000,000	5	30¾	.35
Dexter	200,000	5	2.25	2.50	Silver King	150,000	20	51 25	52 50
Eagle	150,000	1	.04¾	.06	Star Consolidat'd	500,000	1	.46¼	.50
Eagle & Blue Bell	250,000	1	1 50	2.00	Sunbeam	250,000	1	.61¾	.63¾
Emerald	300,000	1		.01	Sunshine	250,000	10	.31	.33
Four Aces	250,000	1	.09	.13½	Swansea	100,000	5	3 50	3.58
Galena	100,000	10	.35	.45	South Swansea	150,000	1	1.31¼	1 36
Geyser-Marion	300,000	5	.30	.36	Utah	100,000	1	.60	1 10
Grand Central	250,000	1	5 92½	6.00	Valeo	200,000	10	.75	.80

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

BOSTON, MASS.†

NAME OF COMPANY.	Par val.	No. of shares.	Nov. 22. H.	Nov. 22. L.	Nov 23. H.	Nov 23. L.	Nov. 24. H.	Nov. 24. L.	Nov. 25. H.	Nov. 25. L.	Nov. 27. H.	Nov. 27. L.	Nov. 28. H.	Nov. 28. L.	Sales
Aetna, cons. g.	$5	100,000			4.50										125
Advent'e.Cons	25	100,000	7.00										6.75		200
Allouez	25	80,000	4.00		4.00	3.75							4 00	4 13	3.80	3.25	275
Anaconda	25	1,200,00											46.38		100
Arcadian, c	25	150,000	34.00	33.00	34 00		34 00	29.00					36 00	33 00	35 00	32.00	3,500
Arnold, c	25	60,000			8 50		8.35	8.00					8.50		8.00		510
Ashbed	25	40,000	1.00														
Atlantic, c	25	40,000					25.00										5
Baltic, c	25	100,000	25.00		25.00		25.00	24.00					25.00	24.00	24.50	24.25	900
Bingham, c.&g.	10	190,000											15.38	15 0	15.00		90
Bonanza, g.&s.	10	300,000							1.31				1.86	1.25	1.13		8,660
Boston									6.00				6.00				250
Boston & C C.	2	20,000		40													
Bos.&Mon,Tr R	25	150,000	819		8 8		825	3.5¼			326	323	326	324	583
Breece	25	200,000													
British Col.	5	200,000	11 00	10.25	11.50	11.25	12 00								550
Butte & Bost., c	10	200,000											73.00	71.00	74 00	72.00	310
Cal. & Hecla, c.	25	100,000	762		762		760						760		777½	770	54
Catalpa, s	10	300,000															
Centennial, c	25	90,000	24 00	23.50	23 0								23 7	23.50	23 50	23 00	2,005
Central Oil	25	59,720	23.75	23.50	23 50	23 38									25 00		300
Cochiti, g	10	150,000	16.38	16.00	16.00		16 25	16.00					16.25	16.00	16.50	15.75	943
Cont.ZL.Mg&Sm	10	110,000					5.25										40
Copper Range	10	100,000	41.00				39 0	36 7					37.00	36.00	37.00	35 00	2,420
Crescent, s	10	300,000													.25		50
Dominion Coal	100	150,000	46 00		51.00	50 75	50.88	50 50					51 50	51.00	52.50		3,315
do. pref	100	20,000	117¾		117¾		118	1 7					118				40
Federal Steel	100	464,843	59 50	58.13	59 38	58.63	60.25	59.13					61.88	60.00	62.50	61.25	15,489
do. pref	00	532,610					81.75						81 88	81.50	82.00	81.50	147
Franklin, c	25	10,000													18.00	17.50	26
Gold Coin	25	40,000													.50		100
L Royal Con. c.	25	100,000					32.50	32.00					34.50	33.00			435
Mass. Con	25	100 000	0.88		10.50		11 00	10.25					10.25		11 00		300
Mayflower	25	100,000					3.75						3.25		3 75		195
Melones	10	167,577															
Merced, g	15	100,000			10 00	9.00	11 50	10 00					12.75	12.00	13.50	11.25	2,680
Michigan	25	100,000	9.25		9.75	9.50							9 88				300
Mohawk, c	25	100,000	20.50				21.00	20.00					20.50		20.00		325
Montana C &C.	25	200,000			9.50								9.75				300
Napa	7	100,000			11.25												300
New Idria	5	100,000															
N.A.Gold Dre'g	10	100,000															
Old Colony, c	25	100,000	6 25				6 00								6.00		100
Old Dominion,c	25	150,000			30.00		30.00						30.00		30.00		400
Osceola, c	25	93,000			81 50								81.50	80.00	82.00	80.50	203
Parrot, s &	10	229,850			44.50	44.00	44.50	44 00					44.75	44.50	44.00		680
Pioneer					2.50	2.25									2.25		105
Quincy, c	25	100,000	155		155		152						158		155	153	57
Rhode Island	25	100,000	6 00	5.50	5 50		5.50						5.50		5 50	5.50	445
Santa Fe, g. & c	10	250,000	6.00	5.50	9 00	8.75							9.50	8.00			1,160
San. Ysabel, g.	5	130,000	10.25	9.88	10.0		10 00	9 50					10 00		10.00	9.75	1,058
Tamarack, c	25	60,000	216	210	216		220	215					224½	220	225	221	337
Tecumseh, c	25	80,000	5.25		5.50								4.75		5.50	5.25	630
Tri Mountain	25	100,000			9 50	9.25	9.25	9.00					9 50	9.00	9.50	9.25	601
Union C. L	25	80,000											388				200
United States	25	250,000	33.00				33 25	32 50					35.50	33.50	38.00		885
U. S. Oil	25	100,000	44.25	43.75	43.75	43 50	44.88	42 00					45.00	43.50	44.75	44.00	4,904
Utah Cons,g &c	5	900,000	38 50	37.50	38.38	37.50	37 50						38.50	37.88	37 00		1,945
Victor, g	5	300,000	9.38	8.00	8.00		8 00						8 50	8.00	8.00		700
Victoria	25	100,000			5.00		5.00	4.75					5.00		5 00		595
Washington	25	40,000											2.00	1.88	1.88	1.75	1,655
White Knob	100	50,000					18.00										100
Winona, c	25	100,000											7.25				20
Wolverine, c	25	60,000	42.50	41.88	41.75		42 00	41.00					42.50	42 00	43.00	41.00	1,002

Official quotations Boston Stock Exchange. Total sales, 6,464.

COLORADO SPRINGS, COLO.‡

NAME OF COMPANY.	Par val	Nov. 17. B.	Nov. 17. A.	Nov. 18. B.	Nov. 18. A.	Nov. 20. B.	Nov. 20. A.	Nov. 21. B.	Nov. 21. A.	Nov 25. B.	Nov 25. A.	Nov. 27. B.	Nov. 27. A.	Sales.
Alamo	$1	.12	.12¼	.12	.12¼	.12¼	.12¾	.12¾	.13¾	.12¼	.12¾	.12¼	.12¾	20,000
Anaconda	1	.47	.49	.48¼	.49	.48	.50	.47	.49	.45	.46	.45	.47	12,500
Arg'ntumJ	1	.21¾	.22	.22		.21	.21¾	.21	.22	.19¾	.21	.21	.22	3,000
Cadillac	1	.02½	.02¾	.02¼	.02¾	.02¾	.02¾	.02¾	.03¾					29,500
C. C. Con	1	.16¾	.16¾	.16¾	.16¾	.16	.16¾	16	.16¾	.16	.16¾	.17¾	.17¾	7,100
Dante	1	.21¾	.22	.21¾	.21¾	.21	.22	2 3¾	21					83,500
ElktonCon	1	1.20¾	1 22	1 19	1.20	1.16	1 20	1.16¾		1.17¾	1 17¾	1.16¾	1.20	2,500
El Paso G	1	.39		.38¾	.38	.38	.38	.36	.37	.32½	.33¾	.33	.33	1,500
Favorite	1	.05¾	06	.05¾	06	.05¼	.05¾	.05¾	.05¾					32,000
Findley	1	14¾		.15¾	.16	14¾	.15	.14¾	.15	.13¾		.14¾	.14¾	17,000
Golden Fl	1	.30¾	.34	.29	.31¾	.29	.33	.29¾	.33	.26	.31	.26	.30	
Gold Hill	1	.02¾	.03¾	.02¾	.03	.02¾		.02¾	.03¼					24,000
Ing. Con	1	.12¾	.12¾	.13	.13	14	.12¾	.13	.14					25,000
Isabella	1	1.41¾	1.43	1.43	1 40¼	1 41	1 38	1.39¼	1 35¾	1.35¾	1.41	1 42¾	1.45	61,200
Jack Pot	1	.62¾	.61	64	61	.64	61¾	.62	61¼	.62	62¾	.63	10,500
Lexington	1	.26	.26¼	.26¾	.25¾	.26¾	.25¾	.25¾	.25¾					51,500
Magnet R	1	.05¾	.05¾	.05¼	.05	.05¼	.05¾	.05¾	.05¾					9,000
Matos	1	30	34	.31	.32	.32¾	.31¾	.32	.30	.30¼	.30	.30¼		4,400
Midway	1	.07	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾						18,500
Mobile	1	.04	.04¾	.04¾	.04¼	.04¾	.04¾							4,000
Mollie Gib.	1	.28	.33¾		.28	27¾		.28	.23	.27	.24	.27¼		
Montreal	1	.11¾	12	.10¾		.12¼	.12¾	.12¾	.12¾					18,500
Moon-A'c'r	1	.70	.78	.73	.79½	.70	.75	.70	.75	.70	.78	.68	.71	700
Mt. Rosa	1	40	.41	.41		.41		.40¾		.41¾	.42¾	.40¾	.43	1,600
New Haven	1	.05¾	.05¾	.05¾	.05¾	0 3¾	.05¼	.05	.05¾					143,500
Oriole	1	.07¾		.06¾	07	.06¾	.06¾	.06¼	.07					16,000
Pilgrim C	1	.09¾	.10		.10	.09¾		.09¾	.10					6,000
Pinnacle	1	.33	.34	.33¾	.34	.33	.33¾	.33	.33¾	.33	.34¾	.34¾	.33¾	33,000
Portland	1	2.43¾	2.44	2.43		2 41	2.45			2.42	2.43	2 41	2.43	3,80
Prince Alb.	1	.06¾	.06¾	.06¾	.06¼	.06¾	.06¾	.05¾	.06¾					26,000
Princess	1	.06¾	.06¾	.06¾	.07	.06¾	.07	.06¾	.06¾					10,000
Pythias	1	.06¾		.05¾	.06		.09	.06¾	.06¾					17,000
Specimen	1	.12¾	.13	.12¾	.13¼	.12¾		.12¾						30,000
Tornado	1	.49¾	.50	.49¾	.50	.49¾	.50	.49¼	.50	.49	.49¾	.45¾	.50	7,000
Trachyte	1	.07¾	.08	.07¾	.07¾	.07¾	.07¾	.07¼	.07¾					6,000
Union	1	.34	.34¾	.34	.36		.33¾	32¾	.33	.36¾	.36¾	.36¼	.36¾	11,000
Uncle Sam	1	.06¾	.07	.05¾	.06¾	.07	.06¾	.07	.07					4,000
Vindicator	1	1 40	1 45	1 42½	1.45	1.48	1.49	1 48	1.50	1.48	1.50	1.49¼	1.52	2,600
Work	1	31	.31¾	.31¾	.32	32¼	.32¾	31¾	.32	31¾	.31¾	.31¾	.31¾	44,600

‡ Colorado Springs Mining Stock Exchange. Sales for four days ending Nov. 21st, 798,100 shares; quotations for Nov 25th and 27th by telegraph.

SPOKANE, WASH.* Nov. 24.

NAME OF COMPANY.	Par val.	Prices. H.	Prices. L.	Sales.	NAME OF COMPANY.	Par val.	Prices. H.	Prices. L.	Sales.
Admiral Dewey	$1				Mountain Lion		1 12	1.05	
Anaconda	1				Noble Five	$1			
Athabasca	1				North San Poil				
Ben Hur	1				Novelty	1			
Black Tail	1	.12¾	.13½		Old Ironsides	1			
Buffalo Hump	1				Palo Alto	1			
Buffalo L. Tender					Pearl				
Caribou (C'mp McK)	1				Princess Maude	0.10	.10¾	.09¾	
Chespa Blue Jay		01¾	.03½	2,500	Quilp	1	.18	.15	
Conjecture		.00¾			Rambler Cariboo	0.25	.61	.60	
Crystal		.06	.05½	500	Rebate	0.10			
Dardanelles	1				Republic (Con)	1	1.19	1.14	
Deer Trail No. 2	1	.21¾	.18		Res. M. & M		.17¾	.17	
Evening Star	1	.10	08¾		San Poil	1			
Gold Ledge	1	.08	03	1,500	Slocan Star	1			
Golden Harvest	1	.08¼	.03	3,000	Sullivan		.14		5,000
Good Luck Con					Summit	0.10			
Hit or Miss	0 05				Syndicate				
Insurgent	0 10	.03¾	.02¾	2,000	Tom Thumb	1	.19	.17	
Jim Blaine	1			16,500	War Cloud				
Knob Hill		.26	.26¼		Waterloo	1	.14	.13	
Lone Pine-Surp. Con	1	.20½	.19½	500	Wiarton				
Mabel					Wonderful				
Mark Tapley	0.05								
Miller Creek									
Morning Glory	.10	.09							
Morrison		.12	.09						

*Official quotations Spokane Stock Exchange. Total sales, 13,000.

STOCK QUOTATIONS.

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	Nov. 13. B.	Nov. 13. A.	Nov. 14. B.	Nov. 14. A.	Nov. 15. B.	Nov. 15. A.	Nov. 16. B.	Nov. 16. A.	Nov. 17. B.	Nov. 17. A.	Nov. 18. B.	Nov. 18. A.	Sales.
Mines:														
Anac'da G.	$5	.50	.51	.51	.....	.49	.50	.....	48¾	.....	.....	.49¾	.49	10,400
Afg. J.	1	.21¾	.....	.22	.....	.22	.....	.21¾	.....	.21¾	.22	.21	.23	.....
Bankers	1	.....	.....	.....	.....	.....	.....	.14¾	.....	.14¾	.15	.....	.....	.....
CrippleC.C.	1	.....	.....	.....	17¾	.....	.17¾	.....	18	.....	.17	.....	.....	.....
Della S.	1	.....	.....	.02	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elkton Con	1	1 25	1.26	.....	.....	.....	.....	1 20	.....	.....	.....	.....	.....	.....
Findley	1	.....	.....	.....	.....	.....	.....	14¾	.16	.....	.....	.....	.22½	.....
Garf. Con.	1	.....	.....	.....	.....	.....	.22½	.....	.....	.....	.....	.....	.....	.....
Gold Coin.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Goldstone.	1	.....	.03¼	.02½	.03	...	.03	.02½	.02¾	.02½	.03	.....	.....	6,000
Indepnd'nc	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ironclad.	1	.06	.07½	.06	.....	.....	.....	.....	.06¾	.....	.....	.06	.....	.....
Isabella	1	1.47½	1.48	.....	1.50	.....	1.50	1.42	1.43	1.43	1.45	1.41	1.44	6,500
Jack Pot	1	.....	.....	.....	65	.....	.....	.....	62¾	.....	.....	.....	.....	.....
Jefferson.	1	.09¼	.....	.09¼	.10¾	.09	.....	.....	.....	.....	.....	.....	.....	.....
Keystone	1	.18¼	.18½	.17½	.17¾	.....	.18½	.....	.....	.17½	.18¾	.17¾	.....	.....
LosAngeles	1	.09	.09½	.....	.09	.....	.....	.05½	.05¼	.....	.....	.....	.08¾	5,000
Mollie Gib.	5	.....	.....	.25	.....	.....	27½	.....	.....	.....	.....	.22½	.....	.....
NewZealnd	1	.....	.47	.....	.52	.....	.52	.49	.....	.45	.50	.46	.50	1,500
Ophir	1	.....	.....	.....	.75	.....	.74	.....	.....	.....	.75	.....	.....	.....
Pharmacist	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.17	.17½	.17¾	1,000
Portland.	1	.....	2.51	2.46	2.48	.....	.....	.....	.....	.....	.....	.....	.....	1,000
Specimen	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union Gold	1	.36	.....	.36¾	.....	.....	.37	.35	.....	.35	.....	.35	.....	1,500
Vindicator.	1	1.47	.....	.....	.....	.....	.....	.....	.....	1 47	.....	.....	.....	.....
Work	1	.....	.....	.....	.....	.....	84¼	.....	.....	30	..	.31¾	.....	.....
Prosp'cts:														
C.C Imp	1	.006	.007	.006¾	.007	.006	.007	.006	.006¼	.006	.006¼	.006	.006¾	34,000
Illinois	1	.....	.11¾	.....	.01¾	.....	.01¾	.....	.01¾	.....	.01¾	.01¾	.01½	.....
Old Gold	1	.02¼	.02½	.....	.02¾	.01¾	.....	.01¾	.02½	.02	.....	.02	.....	2,000
Puritan	1	.02¾	.02¾	.....	.02¾	.....	.02½	.02¾	.02¾	.02¾	.02¾	.02¾	.02¾	27,000
Miscell.:														
Acacia	1	.....	.....	.46	.....	.....	.43¾	.36	.39	.44	.....	.....	.44	2,000
Alamo	1	.11¾	.....	.12	.....	.12	.....	.....	.....	.12	.....	.12	.12¾	3,000
Aola	1	.....	.06¼	.....	.06¼	.....	.05½	.04¾	.....	.....	.....	.05¼	.05¾	1,000
Battle Mt.	1	.....	.39	.....	.38	.....	.....	.....	.37½	.....	.37	.....	.....	1,000
Bob Lee	1	.08½	.....	.08¾	.09¼	.....	.....	.....	.08¼	.....	.....	.....	.....	.....
C. C. & M.	1	.20	.....	.20	.....	.20	.20¾	.18¼	.18¾	.....	.....	.20¾	.....	5,000
De Beers	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Des Moines	1	.07	.07¾	.07	.....	.....	.07¼	.....	.....	.07¼	.....	.....	.....	.....
Favorite	1	.....	.....	.05	.....	.....	.....	.05¾	.....	.05¼	.....	.....	.....	2,000
G'ld'n Eagle	1	.48	.....	.50	.55	.50	.55	.....	.....	.50	.55	.51	.60	100
Goldstone.	1	.....	.03¼	.02¾	.03	.....	.03	.02¾	.02¾	.02¾	.03	.....	.....	6,000
Gr'nite Hill	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Magnet R.	1	.05¾	.05¾	.....	.05¾	.....	.....	.....	.05¾	.....	.....	.05¾	.05¾	3,000
Mobile	1	.....	.....	.....	.....	.....	.....	.04	.....	.....	.....	.....	.....	.....
Mt. Beauty	1	.12¾	.....	.....	.14	.....	.13¾	.13¼	.14	.13¼	.13¾	.....	.12¾	5,000
Trachyte	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

‡ Official Quotations Denver Stock Exchange. Total sales, 120,000 shares.

SAN FRANCISCO, CAL.

NAME OF COMPANY.	Location.	Par. value.	Nov. 22.	Nov. 23.	Nov. 24.	Nov. 25	Nov. 27.	Nov. 28.
Alpha Con.	Nev.	1.00	.04	.03	.04	.04	.03	.03
Alta.	"	2.00	.01	.06	.06	.06	.06	.06
Andes	"	3 00	.13	.13	.18	.13	.11	.15
Belcher	"	3.00	.29	.29	.29	.29	.28	.29
Best & Belcher	"	3 00	.39	.37	.40	.40	.39	.45
Bullion	"	1.00	.06	.05	.05	.05	.05	.05
Caledonia	"	3.00	.58	.57	.60	.59	.59	.60
Challenge Con.	"	3.00	.21	.21	.22	.23	.21	.23
Chollar	"	3.00	.22	.20	.22	.21	.19	.22
Confidence	"	3.00	.84	.80	.80	.75	.81	.87
Con. California & Virginia	"	2.50	1.50	1.45	1.55	1.60	1.55	1.75
Cons. Imperial	"	1.00	.01	.01	.02	.01	.02	.01
Crown Point	"	3.00	.21	.21	.22	.21	.20	.21
Gould & Curry	"	3.00	.17	.26	.17	.16	.16	.18
Hale & Norcross	"	3.00	.30	.43	.41	.48	.40	.41
Julia Con.	"	1.00	.02	.02	.02	.02	.04	.02
Justice	"	2.00	.08	.08	.08	.08	.09	.09
Kentuck Con.	"	1.00	.01	.01	.01	.01	.02	.01
Mexican	"	3.00	.49	.46	.50	.50	.45	.55
Occidental Con.	"	3.00	.13	.13	.13	.13	.13	.13
Ophir	"	3.00	1.00	1.10	1 10	1 15	1.05	1.15
Overman	"	2.00	.16	.16	.17	.17	.16	.17
Potosi	"	3.00	.26	.27	.27	.27	.26	.28
Savage	"	2 50	.15	.16	.16	.16	.16	.16
Seg. Belcher & M.	"	2.00	.04	.06	.05	.04	.07	.07
Sierra Nevada	"	3.00	.39	.37	.39	.41	.39	.43
Standard	Cal.	10.00	2 60	2.85	2.85	2.85	2 85	2.75
Union Con.	Nev.	2.50	.34	.33	.35	.36	34	.36
Utah Con.	"	1.00	.08	.08	.08	.08	.08	.08
Yellow Jacket	"	3.00	.18	.17	.18	.19	.17	.17

Official telegraphic quotations of San Francisco Stock Exchange.

TORONTO, ONT.*

NAME OF COMPANY.	Par val.	Nov. 21. B.	Nov. 21. A.	Nov. 22. B.	Nov. 22. A.	Nov. 23. B.	Nov. 23. A.	Nov. 24 B.	Nov. 24. A.	Nov. 25. B.	Nov. 25. A.	Nov. 27. B.	Nov. 27. A	Sales
Ontario:														
Alice A.	$1	.07	.10	.07	.10	.08	.10	.08	.10	.08	.11	.08½	.10	1,600
Empress	1	.02	.03¼	.02	.03	.01½	.03½	.02	.03¼	.02	.03½	.02	.04	
Golden Star	1	30	.32¾	.31¼	.33	.30¾	.34	32	.33¾	.31	.32½	.32	.34½	3,500
Ham Reef.	1	.17½	.25	.20	.25	.20	.....	.16¼	.20	.16	.20	.15¼	.19	.....
British Col.:														
Athabaska	1	.34	.39	.31	.36	.32	.36	.32	.39	.33	.39	.32	.38	.....
Big Three	1	.09½	.12	.09¾	.11¾	.09¾	.12	.10	.12	.10	.12	.09½	.11	2,500
Br'd'n&G.C.	1	.27½	.30	.28	.31½	.27	.31	.27½	.31	.26½	.30	.27¾	.29	.....
Crow's N. C.	.5	35.50	39.75	34 00	39 50	35 50	40.00	36 0	40.00	35.00	40.00	35.01	40.00	.....
Dardanelles	1	.10	.22½	.10	.12½	.10¼	.12½	.10¼	.12	.10	.12	.10¼	.12	1,500
Deer Park.	1	.01¾	.02¼	.01½	.02½	.02	.03	.02	.02¾	.02	.03	.01½	.03	5,700
DeerT'lNo 2	1	.17½	.20	.15	.18¾	.17	.19	.16	.20	.17½	.20	.17½	.19½	18,500
Even'g Star	1	.07¾	.09	.08	.09½	.08	.09¾	.06¾	.09	.06¾	.09¼	.08	.09¾	.....
Fairview C.	0.25	.03¾	.06¾	.05	.06	.05	.06	.05	.06	.05	.06	.05	.06	14,500
Insurgent	0.10	.02¼	.04½	.02	.04½	.02¼	.04	.02½	.04¼	.02½	.04¼	.02¾	.04	
Iron Mask	1	.69	.72	.68½	.72	.68	.72	.63	.73	.68	.72	.63	.71	500
Monte Crist	1	.06½	.08	.06¾	.09	.06¾	.08¼	.06	.08¾	.06¼	.08¼	.06¼	.08	560
Morrison	1	.09¾	.13	.11¼	.12½	.09	.12½	.10	.14½	.11	.12½	.09	.14	.....
No Name Five.	1	.16½	.22	.17¾	.20	.17	.21	.17	.20	.17	.21	.17	.20½	2,750
Noble Five.	1	.01	.02¼	.01	.02¾	.01	.01¾	.01	.02	.01	.01¾	.01¼	.02	79,000
Novelty	1	.02	.03½	.02	.03¼	.02	.03	.02	.03	.02	.03¼	.02	.03¾	.....
Rambler	1	.57	.60	.55	.60	.57	.60	.56	.61	.57	.60	.56	.61	.....
Rathmullen	1	.07¾	.08¼	.07¼	.08¾	.07¼	.08¾	.07¼	.08¼	.07	.08¼	.07	.08¾	.....
Republic	1	1.16¼	1.20	1 15	1.18	1 16	1.20	1.16¼	1.20	1.14	1 19	1.16	1.20	3,300
Van Anda	1	.06½	.08	.06½	.08	.06¾	.07¼	.06½	.07¼	.06¼	.07¾	.06½	.07¾	25,000
Victory Tri.	1	.04	.05¾	.04	.05¾	.05¼	.05½	.04	.06	.05¾	.05¼	.04	.05¾	5,500
Virtue	1	.46¾	.48¾	.46	.48	.47	.50	.47	.49	.47½	.49	.51½	.55	1,000
Waterloo	0.10	.13	.14½	.13	.14	.13	.14	.12½	.13¾	.12	.14	.13	.15	21,250
White Bear.	1	.03¼	.04¼	.03¾	.04	.03¾	.04	.03¼	.04¼	.03¾	.04	.03¾	.04½	34,000
Winnipeg.	1	.30½	.32	.30¾	.32	.30½	.32	.29¾	.31½	30	.31½	.29½	.32	4,000
Develop Co.														
B.C.G.F'lds	1	.02¾	.04	.03	.04¼	.03	.03¾	.03¾	.04	.03¾	.04	.03	.04	
Can. G. F. S.	0.10	.08	.09	.08	.09	.07¾	.09	.08	.09	.08	.09	.08	.09	18,000
Gold Hills	1	.05¼	.06	.05	.06	.05¼	.05¾	.05¼	.06	.05¼	.06	.05¼	.06¾	24,000

*Official quotations of the Standard and Toronto Mining and Industrial Exchanges. Total shares sold, 259,500.

LONDON.

Nov. 17.

NAME OF COMPANY.	Country.	Authorised capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers
			£ s. d.	s.d.		£ s. d.	£ s. d.
*Alaska Goldfields	Alaska	£300,000	1 0 0	2 1	Mar., 1899	17 6	1 0 0
*Alaska-Mexican, g.	"	200,000	1 0 0	0 4.8	Nov., 1899	17 6	1 2 6
*Alaska-Treadwell, g.	"	1,000,000	5 0 0	1 6	Nov., "	5 0 0	5 5 0
Anaconda, c., s.	Montana	6,000,000	5 0 0	3 2	Nov., 1899	9 10 0	9 12 6
Chiapas, g., s., c.	Mexico	252,500	1 0 0	.....	.....	5 0	7 0
Con. Gold Fields	"	300,000	1 0 0	.....	.....	11 3	13 9
De Lamar, g., s.	Idaho	400,000	1 0 0	6	May, 1899	4 0	5 0
Elkhorn Priority (New), s	Colorado	87,500	1 0 0	1 0	June, 1898	1 3	3 9
Golden Gate, g.	California	80,000	1 0 0	.....	.....	1 1	2 0
Grand Central, g., s.	Mexico	300,000	1 0 0	2 0	Aug., 1899	1 8 9	1 11 3
Hall Mines, c., s.	British Col.	250,000	1 0 0	4 0	May, 1898	6 3	8 9
*Le Roi, g.	"	1,000,000	5 0 0	5 0	Nov., 1899	6 7 6	6 10 0
*Lillie, g.	Colorado	250,000	1 0 0	2½	Dec., 1899	15 0	1 0 0
Montana, g., s.	Montana	660,000	1 0 0	6	Apr., 1899	4 3	4 9
Mountain Copper	California	1,250,000	5 0 0	9 0	Sept., 1899	7 2 6	7 7 6
Newfoundland, c.	Newfoundland	250,000	1 0 0	.....	.....	7 6	12 6
Palmarejo & Mexican, g., s	Mexico	300,000	1 0 0	.....	.....	2 0	3 0
Plumas Eureka, g.	California	281,250	2 0 0	0 6	Oct., 1896	3 9	5 0
Richmond, g., s., l.	Nevada	270,000	5 0 0	1 0	Dec., "	3 9	6 3
Sierra Buttes, g.	California	245,000	2 0 0	0 6	Apr., "	2 6	3 9
Stratton's Independence	Colorado	1,100,000	1 0 0	2 0	Sept., 1899	2 16 3	2 18 9
Colomb. Hydraulic, g.	Colombia	75,000	1 0 0	6	Nov., 1899	6 3	6 9
Coplapo, c.	Chile	200,000	1 0 0	6 0	July, 1899	3 12 6	3 17 6
Frontino & Boltvia, g.	Colombia	140,000	1 0 0	1 6	Oct., 1899	1 18 9	2 1 3
St. John del Rey, g.	Brazil	600,000	1 0 0	1 3	June, 1899	1 9 6	1 10 6
Tolima A., s., g.	Colombia	70,000	5 0 0	5 0	July, 1897	2 10 0	3 0 0
Tolima B., s., g.	"	30,000	5 0 0	5 0	"	1 10 0	2 0 0
UtahCon., g(High'ndBoy)	Utah	800,000	1 0 0	rts.	Mar., 1898	7 7 6	7 12 6
Velvet, g.	BritishCol'mbia	100,000	1 0 0	.....	.....	7 7 6	7 10 0
*Ymir, g.	"	200,000	1 0 0	1 0	Oct., 1899	1 1 6	1 10 0
British Am. Corp.	"	1,500,000	1 0 0	rts.	Dec., 1898	1 0 9	1 1 3
Linares, l.	Spain	45,000	3 0 0	12 6	Oct., 1899	9 0 0	10 0 0
Mason & Barry, c., sul.	Portugal	420,000	2 0 0	5 0	May, 1899	3 17 6	4 2 6
Rio Tinto, c.	Spain	1,625,000	5 0 0	1 15	Nov., 1899	46 12 6	46 17 6
" " pref.	"	1,625,000	5 0 0	2 6	"	6 6 2	6 15 0
Tharsis, c.	"	1,250,000	2 0 0	11 0	May, 1898	8 5 0	8 10 0
Libiola, c.	Italy	252,000	5 0 0	1 6	Sept., 1899	1 12 6	1 17 6
Assoc. Gold Mines	W. Australia	500,000	1 0 0	4 0	Oct., 1899	10 15 0	11 0 0
Broken Hill Prop., s.	N.S.Wales	384,000	1 8 0	1 0	Oct., 1899	2 4 0	2 5 0
Great Boulder Prop.	W. Australia	1,750,000	2 0 0	6	Sept., 1899	1 19 0	2 0 0
*Hannan's Brownhill, g.	"	110,000	1 0 0	7 6	Nov., 1899	11 15 0	12 0 0
Ivanhoe Gold Corp.	"	1,000,000	5 0 0	5 0	Oct., 1899	16 16 0	16 15 0
Kalgurlie, g.	"	120,000	1 0 0	rts.	Feb., 1899	10 7 6	10 12 6
*Lake View Consols, g.	"	250,000	1 0 0	21	Nov., 1899	20 12 6	20 17 6
Mt. Lyell M. & R., l., c.	Tasmania	975,000	3 0 0	4 0	Oct., 1899	10 12 6	10 17 6
*Mt. Morgan, g.	Queensland	1,000,000	1 0 0	7	Nov., 1899	5 2 6	5 5 0
Waihi, g.	New Zealand	320,000	1 0 0	2 0	Dec., 1899	10 7 6	10 10 0
Westrain. Jt. Stk. L. & F.	W. Australia	1,000,000	1 0 0	1 0	Dec., 1898	4	4 6
Champion Reef, g.	Colar Fields	220,000	10 0 0	4 0	Sept., 1899	5 3 9	5 5 6
*Mysore Gold, g.	"	250,000	10 0 0	4 6	Nov., 1899	5 13 9	5 16 3
Nundydroog, g.	"	242,000	1 0 0	2 0	" 1899	3 7 6	3 10 0
Ooregum, g.	"	145,000	1 0 0	1 6	Dec., 1899	3 12 6	3 15 0
" pref. g.	"	120,000	1 0 0	1 6	" 1899	4 11 3	4 13 9
Angelo, g.	Transvaal	275,000	1 0 0	5 0	Mar., 1899	7 5 0	7 10 0
Bonanza, g.	"	200,000	1 0 0	11 0	June, 1898	4 5 0	4 10 0
British S. Af., chartered.	So. Africa	5,000,000	1 0 0	rts.	May, 1899	4 3 9	4 4 6
Cape Copper, c.	"	600,000	1 0 0	5 0	July, 1899	5 2 6	5 5 0
" pref	"	150,000	2 0 0	5 0	" 1899	4 17 6	5 2 6
City & Suburban (New), g.	Transvaal	1,360,000	4 0 0	8 0	Aug , 1899	5 11 3	5 13 9
Con. Deep Level, g.	"	200,000	1 0 0	x all.	June, 1898	1 15 0	2 0 0
*Crown Reef, g.	"	150,000	1 0 0	18 0	Nov., 1899	15 0 0	15 10 0
De Beers Con., d.	Cape Colony	3,500,000	5 0 0	21	June, 1899	28 15 0	29 0 0
Duan Roodepoort, g.	Transvaal	135,000	1 0 0	5	Oct., 1899	5 17 6	6 2 6
Ferreira, g.	"	90,000	1 0 0	30 0	Aug., 1899	21 10 0	22 0 0
Geldenhuis Deep, g.	"	350,000	1 0 0	8 0	Aug., 1899	9 17 6	10 2 6
Geldenhuis Est., g.	"	200,000	1 0 0	10 0	Aug., 1899	6 12 6	6 17 6
Ginsberg, g.	"	160,000	1 0 0	5 0	Aug., 1899	3 2 6	3 5 0
Henry Nourse, g.	"	125,000	1 0 0	10 0	Aug., 1899	8 7 6	8 12 6
Heriot (New), g.	"	115,000	1 0 0	5 0	Sept., 1899	6 5 0	6 10 0
Jagersfontein, g.	Orange Fr. St.	1,000,000	5 0 0	9 0	June, 1899	14 16 0	15 0 0
§Johannesburg Con. Invst	So. Africa	2,750,000	1 0 0	2 0	Aug., 1897	1 18 9	2 1 3
Jubilee, g.	Transvaal	50,000	1 0 0	5 0	Aug, 1899	6 5 0	6 15 0
Jumpers, g.	"	100,000	1 0 0	4 0	Nov., 1899	5 8 9	5 7 6
Kleinfontein, g.	"	275,000	1 0 0	2 0	Mar., 1899	2 16 3	3 2 6
Langlaagte Estate, g.	"	500,000	1 0 0	3 0	Sept., 1899	3 5 0	3 10 0
May Con., g.	"	275,000	1 0 0	6 0	Aug., 1899	4 13 9	4 16 3
Meyer & Charlton, g.	"	85,000	1 0 0	8 0	July, 1899	5 10 0	5 15 0
Namaqua, c.	Cape Colony	200,000	2 0 0	6 6	June, 1899	4 8 9	4 11 3
Primrose (New), g.	Transvaal	300,000	1 0 0	6 0	Aug., 1899	4 7 6	4 10 0
Rand Mines, g.	So. Africa	490,000	1 0 0	15 0	Aug., 1899	43 2 6	43 12 6
Robinson, g.	Transvaal	400,000	5 0 0	8 0	Aug., 1899	9 2 6	9 12 6
Sheba, g.	"	1,100,000	1 0 0	0 6	July, 1898	1 2 6	1 5 0
Sim. & Jack Prop., g.	"	5,000,000	5 0 0	4 0	July, 1899	6 2 6	6 5 0
Wemmer, g.	"	80,000	1 0 0	18 0	June, 1899	12 0 0	12 10 0
Wolhuter, g.	"	860,000	4 0 0	2 0	Feb., 1899	4 16 3	4 18 9
Worcester, g.	"	100,000	1 0 0	1 0	Oct., 1899	2 12 6	2 17 6

*Ex-dividend. §Dividend pending.

PARIS.

Nov. 9.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning.	Prices. Closing
			Francs.	Fr.	Fr.	Fr.	Fr.
Aciéries de Creusot	France	Steel mfrs.	27,000,000	2,000	75.00	1,925.00	1,900.00
" " Firminy	"	" "	3,000,000	500	125.00	3,870.00	3,745 00
" " Fives-Lille	"	" "	12,000,000	500	85.00	560 00	560.00
" " Huta-Bank	Russia	Iron & steel	.....	500	.....	4,595 00	4,680.00
" " la Marine	France	Steel mfrs.	20,000,000	500	50.00	1,769.40	1,760.00
" " Longwy	"	" "	.....	500	35.00	1,275.00	1,275.00
Anzin	"	Coal	.....	.....	220.00	6,550.00	6,800.00
Biache-St. Vaast	"	Steel	.....	1,000	160.00	3,800.00	3,800.00
Bolco	Lower Cal.	Copper	.....	500	1.07	2,895.00	2,850.00
Briansk	Russia	Coal & Iron	.....	500	.....	1,246.25	1,248 75
Bruay	France	Coal	3,000,000	400	1,000.00	51,800.00	51,800.00
Cape Copper	S. Africa	Copper	15,000,000	50	1.50	125.50	126.00
Camp d'Or	"	Gold	3,875,000	25	3.75	41.00	40.00
Courrieres	France	Coal	600,000	200	70.00	2,795.00	3,000.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	696.00	696.50
Denain-Anzin	France	Steel	.....	500	28.00	1,310.00	1,425.00
Dombrowa	Russia	Coal	.....	500	12.50	1,160 00	1,158.00
Donets	"	Steel	.....	.....	.....	1,210 00	1,205.00
Dourges	"	Coal	.....	1,000	400.00	29,000.00	30,565.00
Dynamite Centrale	France	Explosives	.....	500	12.40	465.00	470.00
Epinac	"	Coal	.....	2,500	31.25	600.00	600.00
Escombrera-Bleyberg	Spain	Lead	.....	500	35.00	1,210.00	1,200.00
Fraser River	Brit. Col'mb	Gold	250,000	25	.....	6.00	6.00
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	56.00	55.50
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	87.0	86.00
Laguna	Chile	Nitrates	16,250,000	125	12.50	30.00	30.00
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	605 00	6.9.00
Lautaro	Chile	Nitrates	13.750,000	125	.....	100.00	100.00
Malfidano	Italy	Zinc	12,500,000	500	50.00	1,385.0	1,365.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	30.00	540.00	515.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,245.00	1,220.00
Naptha Baku	Russia	Petroleum	.....	.....	.....	785.00	804 00
Naptha, Le	"	"	.....	.....	.....	1,3 0.00	1,300.00
Naptha Nobel	"	"	.....	.....	.....	655.00	664.50
" " parts	"	"	.....	.....	.....	18,100.00	13,320.00
Nickel	N. Caled'nia	Nickel	10.000.000	250	10.00	395.00	365.00
Penarroya	Spain	Coal, etc.	.....	500	65.00	2,675.00	2,705.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25	.....	4.25	4.50
Rio Tinto	Spain	Copper	40,625,000	125	33.84	1,191.00	1,170.00
" " preferred	"	"	40,625,000	125	2.40	158.00	153.00
Rive-de-Gier	France	Coal	.....	.....	.....	22.00	22.50
Robinson	S. Africa	Gold	68,750,000	125	12.50	234.00	234.00
St Etienne	France	Coal	.....	.....	18.00	482.0	496.00
Salines de l'Est	France	Salt	.....	500	11.50	251.00	255.00
Salines du Midi	France	" etc.	.....	500	25.00	873 00	880.00
Sels Gem. de la Rus. Mer	Russia	" etc.	.....	500	25.00	587.00	585.00
Tharsis	Spain	Copper	33,750,000	50	10.56	216.50	219.50
Vicoigne-Nœux	France	Coal	.....	1,000	730.00	27,400.00	30, 00.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	80.00	900.00	895. 0

STOCK QUOTATIONS.

MEXICO.

Nov. 17.

NAME OF COMPANY.	No. of shares.	Last div'd.	Prices. Op'g	Prices. Cl'g.
Chihuahua:				
Gloria	1,500	.....	$50	$50
Durango:				
Barradon y Cab	2,400	.....	40	40
Candelaria de Pan.	1,200	.....	20	20
Capuzaya	2,400	.....	30	30
Penoles	2,500	30.00	2,000	2,000
Restauradora	10,000	.....	20	20
Rosario y Anexas	4,800	.....	10	10
Guanajuato:				
Angustias	2,400	5.00	275	250
Cinco Senores y An	2,000	15.00	350	320
El Oro	500	.....	30	30
do. pref	2,000	.....	30	30
Guadalupe Hacie'a	10,000	3.00	270	240
Trinidad, aviador	2,000	.....	30	35
do. aviada	400	.....	30	25
Zona Minera de Paz	3,400	.....	30	25
Hidalgo:				
Amistad y Concord.	9,600	1.47	28	29
Arevalo	720	.....	200	200
Bartolome de Med.	2,000	3.00	68	64
Carmen	1,100	7.75	350	300
Luz de Maravillas	500	.....	150	140
Pabellon	800	27.80	30	20
Hidalgo:				
Real del Monte	2,354	10.00	340	330
San Francisco Hc	6,000	3.00	220	225
San Rafael y An.	1,200	12.00	1,000	1,020
do. aviado	1,200	6.00	400	410
do. del Oro	3,000	5.00	20	20
Soledad	960	5.00	300	330
Sorpresa	960	7.80	260	300
Union Hacienda	2,000	5.00	350	340
Mexico:				
Coronas	500	.....	75	75
Esperanza y An	3,000	10 00	1,600	1,580
Michoacan				
Luz de Borda ava	4,000	.....	30	22
Pueblo:				
Tlauxingo	2,400	.....	27	28
S. Luis Potosi:				
Concep. y An.	2,400	.....	245	230
Sta. Mariadela Paz	2,400	10 00	720	840
Zacatecas:				
Asturiana y An	2,500	10.00	310	305
Cabezon	2,400	.....	15	15
C'delar. de Pinos	2,530	.....	60	80
Palma de Somb	2,400	.....	100	80

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.

ROSSLAND, BRITISH COLUMBIA.*

Nov. 23.

NAME OF COMPANY.	No. of shares.	Par value.	Selling price.
Brandon & Gold. Cr.	1,500,000	$1	$0 30
Brit. Amer. Corp'n'n	7,500,000	5	5.25
Brit.Col. Dev. Co	1,500,000	2½	5.50
Canadian Gold Fields	10,000,000	0.10	.10
Cariboo	1,000,000	1	1.30
Commander	500,000	1	.....
Deer Park	1,000,000	1	.....
Dundee	1,000,000	1	.....
Evening Star	1,000,000	1	.....
Fern	200,000	¼	.....
Gold Fields of B.C.	3,000,000	3⅓	.....
Hall Mines	250,000	5	3.00
Hattie Brown	1,000,000	1	.....
Homestake	1,000,000	1	.....
Iron Colt	1,000,000	1	.....
Iron Horse	1,000,000	1	.....
Iron Mask	500,000	1	.75
Josie	700,000	1	.....
Jumbo	500,000	1	.....
Kenneth	1,000,000	1	.....
Keyszone	1,500,000	1	.....
KootenayGold Fields	20,000	1	.....
Lerwick	500,000	$1	$0.15
Lily May	1,000,000	1	.12
Lon.&Van.Fin.Dev.Co	500,000	5	.....
London B. C. Gold F.	250,000	5	8.00
Monte Cristo	1,000,000	1	.....
New Gold Fields, B.C.	250,000	1	5.50
Novelty	1,000,000	1	.05
Queen Bess Prop.	120,000	5	5.00
Rambler Con.	1,000,000	1	.60
Reco	1,200,000	1	.....
Red Mt.View	1,000,000	1	.....
St. Elmo	1,000,000	1	.05
St. Paul	1,000,000	1	.....
Sarah Lee	1,000,000	1	.....
Silver Queen	1,500,000	1	.15
Slocan Star	500,000	1	1.20
Vic.Tr MinesDev. Co.	25,000	5	.....
Virginia	500,000	1	.03
War Eagle Con	2,000,000	1	2.70
Waverly Mines	100,000	1	.....
White Bear	3,000,000	1	.10
Wild Horse	400,000	1	.....

From Our Special Correspondent.

MEETINGS.

NAME OF COMPANY.	Location.	Meeting.	Date.	Place of Meeting.
Consolidation Coal	Maryland.	Annual..	Dec. 14.	Baltimore, Md
Copper Queen	Arizona.	"	Dec. 7	Salt Lake City, Utah.
Cripple Creek Con.	Colorado..	"	Dec. 7	Denver, Colo.
Gold Mountain	Montana..	"	Dec. 8	Butte, Mont.
N.Y. & Hon'l. Ros.	Mexico..	"	Dec. 14	45 Broadway, New York City.
Old Bonanza	California	"	Dec. 6	168 Crocker Bldg, San Francisco, Cal.
Old Colony	Michigan	"	Dec 13.	60 State st, Boston, Mass
Santa Rosalia	California	"	Dec. 15.	310 Pine st, San Francisco, Cal.

ASSESSMENTS.

NAME OF COMPANY.	Location.	No.	Dlq.	Sale.	Amt.	OFFICE.
			Nov.			
Alta	Nev..		28	.....	.05	309 Montgomery st., San Francisco.
Blue Bird	Utah	1	19	Dec. 9	.00½	Walker Bank Bldg., Salt Lake City.
Christmas	Utah	1	24	Dec. 9	.01½	501 W.First South st., Salt LakeCity.
Confidence	Nev..	33	23	Dec. 14	.15	414 California st., San Francisco.
Con. Imperial	Nev..	43	14	Dec. 5	.01	Mills Bldg., San Francisco, Cal.
Con. Oil & Dev.	Cal..	1	16	Dec. 2	.10	505 California st., San Francisco.
Crown Point	Nev.	77	23	Dec. 14	.10	Mills Bldg., San Francisco, Cal.
Hillside	Utah	1	24	Dec. 15	.01½	R'm 1 Masonic Bl'k, Salt Lake City.
Inyo Marble	Cal	33	6	Dec. 6	.05	Mills Bldg., San Francisco, Cal.
Justice	Nev..	66	22	Dec. 14	.05	309 Montgomery st., San Francisco.
Lady Wash.Con.	Nev..	12	16	Dec. 7	.05	309 Montgomery st., San Francisco.
Little Chief	Utah	2	25	Dec. 13	.01	161 So. Main st., Salt Lake City.
Lucky Bill	Utah	...	29	Dec. 19	.02	R'm 152, C. & C. Bldg, Salt Lake City
Mariposa Com'l.	Cal	13	8	Dec. 5	10 00	320 Sansome st., San Francisco, Cal.
Mexican	Nev.	62	13	Dec. 4	.15	309 Montgomery st, San Francisco.
Molly Bawn	Utah	1	29	Dec. 18	01	522 Dooly Bldg., Salt Lake City.
National Con	Cal..	9	27	Dec. 21	.10	773 Mission st., San Francisco, Cal.
New Klondike	Utah	3	27	Dec. 18	.01	Walker Bldg., Salt Lake City.
Ophir	Nev..	76	14	Dec. 4	.20	309 Montgomery st., San Francisco.
Osceola Con	Cal.	8	11	Dec. 6	.01	307 Montgomery st., San Francisco.
Revenue	Utah	2	6	Dec. 11	.02	419 Dooly Block, Salt Lake City.
Sacramento Con.	Utah	1	18	Dec. 18	.0⅛	Walker Bank Bldg, Salt Lake City.
Tetro	Utah	10	18	Dec. 9	.01	617 McCornick Block, Salt Lake City.
			Dec.			
Alliance	Utah	22	1	Dec. 22	.10	McCornick's Bank, Salt Lake City.
Arrastraville	Cal..	4	11	Jan. 3	.10	213 Jackson st., San Francisco, Cal.
Bellefontaine	Cal..	...	11	.....	.01	.....
Brunswick Con.	Cal..	13	19	Jan. 17	.03	309 Montgomery st., San Francisco.
Gould & Curry	Nev..	88	27	Jan. 18	.15	69 Nevada Block, San Francisco.
Joe Bowers Ext.	Utah	4	10	Dec. 30	.01	Walker Bldg., Salt Lake City.
Lulah Con	Utah	2	5	Dec. 20	.00½	150 Main st, Salt Lake City.
Martin White	Nev..	...	4		1.50	
Opohongo	Utah	3	14	Jan. 4	.01	Walker Bank Bldg., Salt Lake City
Orient	Cal..	...	6	.....	.50	.....
Orr Water Ditch	Nev..	...	11	.....	3.00	.....
Sierra Nevada	Nev..	117	7	Dec. 26	.15	309 Montgomery st., San Francisco.
Yellow Jacket	Nev..	2	26	Jan. 31	.15	Mills Bldg., San Francisco.

DIVIDENDS.

NAME OF Co.	Date.	Am't.	Paid 1899.	Grand Total.
Alamo, Utah	.....	.....	$2,500	$2,500
Alaska-Mexican	.....	.....	72,000	429,031
Alaska-Treadwell	.....	.....	300,000	4,220,000
Ætna Con	.....	.....	45,000	195,000
AmalgamatedCop.	.....	.....	1,500,000	1,500,000
American Gold	.....	.....	48,000	434,000
Am. Sm. & Ref. pref	.....	.....	568,750	568,750
American Zn. Mg	.....	.....	15,000	15,000
Am. Zinc-L. & Sm.	.....	.....	40,000	40,000
Arcaconda Copper	.....	.....	3,900,000	12,150,000
Anchoria-Leland	.....	.....	72,000	234,000
Apollo Con., Alas	.....	.....	40,000	140.000
April Fool, Nev	.....	.....	16,000	16,000
Argonaut, Cal.	.....	.....	220,000	400,000
Associated, Colo	.....	.....	12,500	75,000
Aurora Iron	.....	.....	50,000	890,000
Bald, Butte	Dec.11	$15,000	142,500	792,141
Bonanza, Wash	.....	.....	7,500	7,500
Bona'za Dev., N.M	.....	.....	1,050,000	1,050,000
Boston-Aurora	.....	.....	26,640	26,640
Boston-Duenweg,z	Dec. 5	4,000	32,000	32,000
Boston-Little C.Zn	Dec. 1	10,000	80,000	80,000
Boston-Provid'nce	Dec. 2	3,750	14,250	14,250
Boston Quick, Cal.	.....	.....	10,000	10,000
Boston & Cal	.....	.....	72,000	72,000
Bost. Get Th'e, Mo	Dec.10	10,000	50,000	50,000
Boston & Mont	.....	.....	5,375,000	14,500,000
Breece	Dec. 1	10,000	40,000	70,000
Bul.Bec.&Champ.	Dec.15	10,000	120.000	2,438,400
Bunker Hill & S.	Dec. 4	21,000	168.000	768,000
Calumet & Hecla	.....	.....	8,000,000	64,850,000
Carib'o-McK. B.C.	.....	.....	72,000	311,935
Centenn'l Eureka	.....	.....	120,000	2,150,000
Central Lead	Dec.15	5,000	60,000	142,000
Champion, Cal	Dec. 1	8,500	25,500	321,700
Charleston, S. C.	.....	.....	20,000	200,000
Colorado Sm.	.....	.....	100,000	1,945,000
Colonial Lead, Mo.	.....	.....	10,000	10,000
Commodore, Colo.	.....	.....	48,000	432,000
Com'wealthZ. pref	Dec. 1	10,000	20,000	20,000
Consolidation Coal	.....	.....	205,000	5,716,650
Daly-West, Utah	.....	.....	60,000	60,000
Delta L. & Z., Mo	Dec. 1	820	4,100	4,100
D'rTr'l No. 2 Wash	.....	.....	27,500	45,000
Doe Run, Mo.	Dec.15	2,500	30,000	90,000
De Lamar, Idaho	.....	.....	48,000	2,346,000
El Dorado, Cal	.....	.....	10,000	10,000
Elkton, Colo.	.....	.....	37,500	694,461
Empire State, Ida.	Dec.15	29,554	256,135	323,037
Fanny Rawlings	.....	.....	20,000	20,000
Ferris-H'g'ty, Wyo	.....	.....	5,000	5,000
Garfield Con	.....	.....	12,000	12,000
Gold Coin, Vict.	.....	.....	110,000	260,000
Golden Cycle	.....	.....	95,000	248,500
Golden Eagle, Col.	.....	.....	10,000	20,000
Gold King, Col.	.....	.....	90,000	90,000
Golden M. & Ex.	.....	.....	10,000	10,000
Golden Star	.....	.....	41,000	41,500
Grafton, Colo	.....	.....	10,000	10,000
Grand Central, Ut.	.....	.....	347,500	666.250
Grass Valley Ex.	.....	.....	30.000	30,000
Gwin, Cal	Dec.12	5,000	50,000	101.500
Helena—Frisco	.....	.....	165,000	920,000
Hidden Treas., Cal.	.....	.....	3,600	3,600
Holy Terror	.....	.....	$45.000	$162.000
Homestake	.....	.....	857,500	8,038,750
Horn Silver	.....	.....	20,000	5,250,000
Idaho, B. Col.	.....	.....	28,000	292,000
Isabella	.....	.....	202,500	472,500
Jack Pot	.....	.....	75,000	75,000
Jamison, Cal.	.....	.....	11,700	50,700
Lake Superior Ir.	.....	.....	84,000	736,000
Last Chance, B. C.	.....	.....	25,000	45,000
Last Dollar, Colo.	.....	.....	20,000	20,000
Le Roi, B. Col.	.....	.....	240,000	1,305,000
Lillie	Dec. 1	$11,250	135,000	301,610
Little Tiger, Cal.	Dec.16	7,500	32,500	32,500
Mammoth	.....	.....	260,000	1,610,030
Marion Con., Colo	.....	.....	5,000	300,000
M'y McKinney, Col	.....	.....	30,000	30,000
Mead, Cal	.....	.....	40,000	120,000
Mercur	.....	.....	100,000	1,341,000
Mo. Zinc Fields, pfd	Dec.12	2,664	21,312	21,312
Modoc	Dec.15	5,000	35,000	135,000
Montana, Ltd	.....	.....	58,855	433,700
Mont. Ore Pur	.....	.....	560,000	1,360,000
Moon-Anchor, Colo	.....	.....	45,000	306.000
Morning Star, Cal.	.....	.....	63,200	751,800
Moulton, Mont	.....	.....	40,000	500 000
Mountain Copper	.....	.....	1,080,000	1,173,750
Mt. Shasta, Cal	.....	.....	6,000	6,000
Nana Con.	.....	.....	90,000	1,040,000
New Central Coal	.....	.....	20 000	470,000
New Idria	.....	.....	90,000	170,000
New York Zinc	Dec. 2	7,000	21,000	21,000
N.Y.& H.-Rosario	.....	.....	150,000	1,130,000
North Star, Cal	.....	.....	50,000	50,000
Olive	.....	.....	12,000	12,000
Okanogan, Wash.	.....	.....	3,125	3,125
Orig. Empire, Cal.	.....	.....	100,000	550,000
Osceola	Dec.15	279.000	558,000	3,080,500
Parrot	.....	.....	897,000	3,035,898
Pennsylvania, Cal	Dec. 8	10,300	66,250	137,075
PennsylvaniaCoal	.....	.....	890,000	14,050.000
Petro, Utah	.....	.....	15.000	32,000
Pioneer, Cal	.....	.....	12,500	62,500
Portland	.....	.....	600,000	2,437.080
Queen Bess Propr.	.....	.....	25,000	25,000
Quicksilver (Pref.)	.....	.....	21,500	1,845,411
Quincy	.....	.....	950,000	11,070,000
Rambler-Cariboo	Dec. 1	10,000	20,000	60,000
Raven, Colo	.....	.....	20,000	49,500
Republic, Wash	.....	.....	281,500	400,500
Royal, B. C.	.....	.....	50.000	1,050,000
Sacramento	.....	.....	50,000	138,000
St. Joseph Lead	.....	.....	112.500	2,897,500
Santa Rosalia, Cal.	.....	.....	5,000	130,000
Silver King	Dec.10	50,000	575,000	2,400,000
Small Hopes	.....	.....	25,000	3,325,000
Smuggler	Dec.15	10,000	125,000	1,220.000
South Swansea	Dec. 6	7,500	52,500	165.000
Squaw Mountain	.....	.....	10,000	10,000
Standard, Cal.	.....	.....	60,000	8,899,226
Standard, Ida.	.....	.....	30.000	1,745,000
Stratton's Inde'ce	.....	.....	488,000	488,000
Swansea	Dec.10	5,000	60,000	251,000
Tamarack	Dec.28	360,000	600.000	6,270,000
Tomboy	Dec.15	72,000	152,000	812,000
United Z.&L., pfd.	.....	.....	$40,000	$40,000
Utah, Utah	.....	.....	2,000	179,000
Vindicator	.....	.....	177.625	304,500
War Eagle, B. C.	Dec.15	$26,250	315,000	492,750
Weath. Bonanza	.....	.....	1,562	1,562
What Ch'r Zn, Mo.	.....	.....	10,000	10,000
Wolverine	.....	.....	210,000	270,000
Yellow Aster	Dec. 9	10,000	115,000	283,789
Grand Total	.....	$1,015,088	$36,398,460	224,810,859

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Dividends. Paid, 1899.	Dividends. Total to Date.	Dividends. Date and Amount of Last.		
1	Ætna Cons., q.	Cal.	$500,000	100,000	$5	$45,000	$195,000	Oct...	1899	.10
2	Alaska-Mexican, g.	Alask	1,000,000	200,000	5	72,000	429,031	Oct...	1899	.10
3	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	300,000	4,220,000	Oct...	1899	.37½
4	Alice, g. s.	Mont.	10,000,000	400,000	25	.....	1,075,000	April.	1898	.05
5	Amalgamated, c.	Mont.	75,000,000	750,000	100	1,500,000	1,500,000	Oct...	1899	2.00
6	American Gold, g. s. c. l.	Colo.	3,000,000	300,000	10	48,000	434,000	June.	1899	.09
7	Amer. Sm. & Ref., pref.	U. S.	32,500,000	32,500	100	568,750	568,750	Oct...	1899	1.75
8	Am. Zinc, Lead & Sm.	Mo...	500,000	200,000	25	40,000	40,000	Oct...	1899	.10
9	Anaconda Copper	Mont.	30,000,000	1,200,000	25	3,900,000	12,150,000	Nov..	1899	2.00
10	Anchoria-Leland, g.	Colo..	600,000	600,000	1	72,000	234,000	Oct...	1899	.03
11	Anglo-Mexican, g.	Mex..	2,001,625	400,230	5	.....	1,728,993	Dec..	1898	.24
12	Apollo Con., g.	Cal...	1,000,000	100,000	10	40,000	140,000	Jan..	1899	.40
13	Appie Ellen, g.	Colo.	600,000	600,000	1	.....	25,000	Aug..	1898	.01
14	April Fool	Nev..	500,000	500,000	1	16,000	16,000	Oct...	1899	.01
15	Argonaut	Cal..	2,000,000	200,000	10	220,000	400,000	Nov..	1899	.10
16	Associated, g.	Colo..	1,250,000	1,250,000	1	12,500	84,000	Feb..	1899	.01
17	Atlantic, c.	Mich.	1,000,000	40,000	25	.....	780,000	Feb..	1898	1.00
18	Aurora, l.	Mich.	2,500,000	100,000	25	50,000	890,000	June.	1899	.50
19	Bald Butte	Mont.	250,000	250,000	1	142,500	762,141	Dec..	1899	.06
20	Big Six, g. s.	Colo..	500,000	500,000	1	.....	15,000	May..	1898	.00½
21	Bonanza	Wash	1,000,000	1,000,000	1	7,500	7,500	Nov..	1899	.00¼
22	Bonanza Dev.	N. M.	3,000,000	300,000	10	1,050,000	1,050,000	June.	1899	3.50
23	Boston-Aurora, pref.	Mo...	800,000	32,000	25	26,640	26,640	Nov..	1899	.17
24	Boston & California.	Cal..	600,000	600,000	1	72,000	72,000	June.	1899	.06
25	Boston & Colo. Smelting	Colo..	750,000	15,000	50	45,000	270,000	Oct...	1899	.75
26	Boston-Little Circle, z.	Mo-K.	1,000,000	100,000	10	80,000	80,000	Dec..	1899	.15
27	Boston & Mont. Con.	Mont.	3,750,000	150,000	25	5,375,000	14,500,000	Nov..	1899	15.00
28	Boston, q.	Cal...	1,000,000	100,000	10	10,000	10,000	Oct...	1899	.10
29	Breece, l.	Colo..	5,000,000	200,000	25	40,000	70,000	Dec..	1899	.05
30	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	120,000	2,438,400	Dec..	1899	.10
31	Bunker Hill & Sullivan.	Idaho	3,000,000	300,000	10	168,000	768,000	Dec..	1899	.07
32	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	8,000,000	64,850,000	Sept..	1899	20.00
33	Cariboo-McKinney, g.	B.Col	800,000	800,000	1	72,000	311,965	June.	1899	.01½
34	Centen'l-Eureka, g.s.l.c.	Utah.	5,000,000	200,000	25	120,000	2,150,000	Aug..	1899	.50
35	Central Lead, l.	Mo...	1,000,000	10,000	100	60,000	142,000	Dec..	1899	.50
36	Champion, g. s.	Cal...	340,000	34,000	10	25,500	321,700	Nov..	1899	.25
37	Charleston, p. r.	S. C..	1,000,000	10,000	100	20,000	200,000	June.	1899	2.00
38	Colorado Smelting	Colo..	1,000,000	100,000	10	100,000	1,945,000	Jan..	1899	1.00
39	Commodor.	Co o..	1,200,000	1,200,000	1	48,000	432,000	Jan..	1899	.04
40	Commonwealth, z., pref.	Mo ...	500,000	100,000	5	20,000	20,000	Dec..	1899	.01
41	Consolidation Coal	Md...	10,250,000	102,500	100	205,000	5,716,650	Feb..	1899	2.00
42	Con. Tiger & Poorman.	Idaho	1,000,000	1,000,000	1	.....	20,000	Dec..	1898	.02
43	Cræsus, g.	Cal...	1,000,000	200,000	5	.....	30,000	Dec..	1898	.15
44	Crowned King, g. s. l.	Ariz .	6,000,000	600,000	10	.....	232,000	Dec..	1898	.02
45	Daly	Utah.	3,000,000	150,000	20	.....	2,925,000	Mar..	1897	.25
46	Daly West	Utah.	3,000,000	150,000	20	60,000	60,000	Nov..	1899	.20
47	Deadwood Terra, g.	S. D..	5,000,000	200,000	25	.....	1,350,000	May..	1898	.15
48	Deer Trail No. 2.	Wash	1,000,000	1,000,000	1	27,500	45,000	Nov..	1899	.00¼
49	De Lamar, g. s.	Idaho	2,000,000	400,000	5	48,000	2,346,000	May .	1899	.12
50	Della S., g.	Colo .	1,000,000	1,000,000	1	.....	60,000	Jan .	1897	.01
51	Delta Lead & Zinc.	Mo...	100,000	100,000	1	4,100	4,100	Dec..	1899	.00¼
52	Doe Run, l.	Mo...	500,000	5,000	100	30,000	90,000	Dec..	1899	.50
53	Dutch, g.	Cal ..	1,500,000	150,000	10	.....	39,000	Feb..	1898	.04½
54	Eldorado, g.	Cal...	1,000,000	100,000	10	10,000	10,000	July..	1899	.10
55	Elkton Cons., g.	Colo..	1,250,000	1,250,000	1	37,500	694,461	Sept..	1899	.03
56	El Paso, g. s.	Colo..	650,000	650,000	1	.....	12,393	Jan..	1898	.01
57	Empire State-Idaho.	Idaho	1,000,000	100,000	10	256,135	323,037	Dec..	1899	.30
58	Enterprise, s. l.	Colo..	500,000	500,000	1	.....	900,000	Sept..	1898	.05
59	Fanny Rawlings, g. s.	Colo..	1,000,000	1,000,000	1	20,000	20,000	Aug..	1899	.01
60	Fern, g.	B.Col	200,000	200,000	1	.....	10,000	Jan ..	1898	.05
61	Ferris-Haggarty, c.g.s.	Wyo.	1,000,000	1,000,000	1	5,000	5,000	Mar..	1899	.00½
62	Florence, s.	Mont.	2,500,000	500,000	5	.....	137,530	Aug..	1897	.01
63	Garfield Con., g.	Colo..	1,200,000	1,200,000	1	12,000	12,000	May..	1899	.01
64	Geyser-Marion, g.	Utah.	1,500,000	300,000	5	.....	96,000	Sept..	1898	.02
65	Gold Coin of Victor, g.	Colo..	1,000,000	1,000,000	1	110,000	260,000	Nov..	1899	.01
66	Gold & Globe, g.	Colo .	750,000	750,000	1	.....	51,625	July..	1898	.00½
67	Gold King, g.	Colo..	1,000,000	1,000,000	1	90,000	90,000	Oct...	1899	.03
68	Golden Cycle, g.	Colo..	1,000,000	200,000	5	105,000	258,500	Dec..	1899	.05
69	Golden Eagle, g.	Co'o.	500,000	500,000	1	10,000	20,000	Nov..	1899	.01
70	Golden Fleece, g. s.	Colo..	600,000	600,000	1	.....	569,480	Feb..	1897	.01
71	Golden Reward, g.	S. D..	1,000,000	100,000	10	.....	155,000	Feb..	1898	.15
72	Golden Star, g.	B.Col	1,000,000	1,000,000	1	41,000	41,000	July..	1899	.01
73	Grafton, g.	Colo..	1,000,000	1,000,000	1	10,000	10,000	Nov..	1899	.01
74	Grand Central, g.	Utah.	250,000	250,000	1	347,500	666,250	Sept..	1899	.24
75	Grass Valley Expl.	Cal...	100,000	30,000	2	30,000	30,000	Oct...	1899	.25
76	Gwin, g.	Cal.	1,000,000	20,000	50	50,000	101,500	Dec..	1899	.25
77	Hall Mines, Ltd.	B.Col	1,500,000	300,000	5	.....	160,000	May..	1898	.25
78	Helena – Frisco, l. s.	Idaho	1,100,000	222,000	5	165,000	920,000	Nov..	1899	.25
79	Holy Terror, g.	S. D..	500,000	500 600	1	45,000	162,000	Nov..	1899	.01
80	Homestake, g.	S. D..	21,000,000	210,000	100	857,500	8,038,750	Nov..	1899	.50
81	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	20,000	5,250,000	Mar..	1899	.05
82	Idaho, s. l.	B.Col	$500,000	500,000	$1	$28,000	$292,000	Jan..	1899	.05¾
83	Iowa, g.	Colo..	1,000,000	1,000,000	1	.....	95,000	June.	1898	.00½
84	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10	.....	507,500	April.	1898	.02
85	Isabella, g.	Colo..	2,250,000	2,250,000	1	202,500	472,500	Sept..	1899	.01
86	Jack Pot, g.	Colo..	1,250,000	1,250,000	1	75,000	75,000	Sept..	1899	.04
87	Jamison	Cal ..	3,900,000	390,000	10	11,700	50,700	April.	1899	.10
88	Klondike Bonanza, Ltd.	Klond	750,000	52,750	5	12,000	12,000	Aug ..	1899	.24
89	Lake Superior Iron.	Mich.	2,100,000	84,000	25	84,000	736,000	Feb ..	1899	1.00
90	Last Chance, s. l.	B.Col	500,000	500,000	1	25,000	45,000	Apr..	1899	.05
91	Last Dollar, g.	Colo..	1,500,000	1,500,000	1	20,000	20,000	Oct...	1899	.02
92	Le Roi, g.	B.Col	5,000,000	200,000	5	240,000	1,305,000	Nov..	1899	1.20
93	Lillie, g.	Colo..	1,250,000	250,000	5	135,000	301,610	Nov..	1899	.05
94	Little Tiger, g.	Cal...	500,000	500,000	1	25,000	25,000	Nov..	1899	.01½
95	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	260,000	1,610,000	Nov..	1899	.10
96	Marion Con.	Colo..	5,000,000	500,000	10	5,000	300,000	May..	1899	.01
97	Mary McKinney, g.	Colo..	1,000,000	1,000,000	1	30,000	30,000	Oct...	1899	.03
98	Matoa, g.	Colo..	1,000,000	1,000,000	1	.....	25,000	Dec..	1898	.02½
99	Mead, g.	Cal...	200,000	200,000	1	40,000	120,000	June.	1899	.20
100	Mercur, g.	Utah.	5,000,000	200,000	25	100,000	1,341,000	Oct...	1899	25
101	Minnesota Iron	Minn.	16,500,000	165,000	100	.....	4,735,000	Oct...	1898	1.50
102	Missouri Zinc Fields, pf.	Mo...	400,000	16,000	25	18,648	18,648	Nov..	1899	.17
103	Modoc, g.	Colo..	500,000	500,000	1	30,000	130,000	Nov..	1899	.01
104	Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5	98,855	453,700	April.	1899	.12
105	Montana Ore Purchas'g.	Mont.	2,500,000	80,000	25	560,000	1,360,000	Oct...	1899	1.00
106	Monument, g.	Colo..	300,000	300,000	1	.....	12,624	Dec..	1898	.01
107	Moon-Anchor Con., g.	Colo..	1,750,000	600,000	1	45,000	306,000	Nov..	1899	.07½
108	Morning Star, g.	Cal...	240,000	2,400	100	63,200	751,800	Oct...	1899	3.00
109	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1	.....	60,000	Jan ..	1898	.02
110	Mt. Shasta	Cal...	100,000	20,000	5	6,000	6,000	May..	1899	.30
111	Moulton	Mont.	2,000,000	400,000	5	40,000	500,000	Oct...	1899	.05
112	Mountain Copper.	Cal ..	6,250,000	250,000	25	1,080,000	1,173,750	Oct...	1899	2.16
113	Napa Cons., q.	Cal ..	700,000	100,000	7	90,000	1,040,000	Oct...	1899	.30
114	New Central Coal.	Md...	1,00,000	50,000	2)	20,000	470,000	April.	1899	.40
115	New Idria, q.	Cal...	500,000	100,000	5	90,000	170,000	Oct...	1899	.30
116	New York Zinc.	Mo...	700,000	28,000	25	21,000	21,000	Dec..	1899	.25
117	N.Y.& Hon Rosario, s.g.	C. A..	1,500,000	150,000	10	150,000	1,130,000	Nov..	1899	.10
118	North Star Mines of N.J.	Cal ..	5,000,000	250,000	10	50,000	50,000	Nov..	1899	.20
119	Nugget	Colo..	1,000,000	1,000,000	1	.....	20,000	Aug ..	1898	.00½
120	Okanogan, g.	Wash	62,500	1,250,000	05	3,125	3,125	Oct...	1899	.00¼
121	Ontario, s. l.	Utah.	1,500,000	150,000	100	.....	13,557,500	Nov..	1897	.75
122	Orphan Bell, g.	Colo..	1,000,000	1,000,000	1	.....	115,000	Mar..	1898	.01
123	Original Empire, g.	Cal...	5,000,000	50,000	100	100,000	500,000	May..	1899	1.00
124	Osceola, c.	Mich.	2,500,000	93,000	25	558,000	3,080,500	Dec..	1899	3.00
125	Parrot, c.	Mont.	2,300,000	230,000	10	897,000	3,035,898	Oct...	1899	1.50
126	Pennsylvania Coal.	Pa....	5,000,000	100,000	50	800,000	4,050,000	May..	1899	8.00
127	Pennsylvania Cons.	Cal...	5,150,000	51,500	100	68,250	136,475	Dec..	1899	.20
128	Petro, g.	Colo..	1,000,000	200,000	5	15,000	32,000	Oct...	1899	.02½
129	Pioneer, g.	Cal...	1,000,000	100,000	10	12,500	62,500	Mar..	1899	.12½
130	Portland, g.	Colo..	3,000,000	3,000,000	1	600,000	2,437,080	Nov..	1899	.02
131	Queen Bess Propr., s. l.	B.Col	500,000	100,000	5	25,000	25,000	July..	1899	.12½
132	Quicksilver, pref.	Cal...	4,300,000	43,000	100	21,500	1,845,411	May..	1899	.50
133	Quincy, c.	Mich.	2,500,000	100,000	25	950,000	11,070,000	Aug..	1899	6.00
134	Rambler—Cariboo, s. l.	B.Col	1,000,000	1,000,000	1	20,000	60,000	Dec..	1899	.01
135	Raven, g.	Colo..	1,500,000	1,500,000	1	30,000	49,500	Nov..	1899	.01
136	Reco, s. l.	B.Col	1,000,000	1,000,000	1	.....	297,500	Jan..	1898	.10
137	Republic Cons., g.	Wash	3,500,000	3,150,000	1	157,500	277,500	Sept..	1899	.01
138	Royal Con.	B.Col	2,500,000	2,500,000	1	50,000	1,050,000	June.	1899	.01
139	Sacramento, g.	Utah.	5,000,000	1,000,000	5	50,000	138,000	Oct...	1899	.00½
140	St. Joseph, l.	Mo...	3,000,000	300,000	10	112,500	2,897,000	Sept..	1899	.50
141	Seventy-Six, g. s.	Colo..	1,000,000	200,000	5	.....	2,050	Mar..	1898	.02
142	Santa Rosalia, g. s.	Cal...	100,000	100,000	1	5,000	130,000	Oct...	1899	.05
143	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	575,000	2,400,000	Dec..	1899	.34
144	Small Hopes, s.	Colo..	5,000 000	250,000	20	25,000	3,325,000	Feb..	1899	.10
145	Smuggler, s. l. z.	Colo.	1,000,000	1,000,000	1	125,000	1,220,000	Dec..	1899	.01
146	South Swansea, s. l.	Utah.	150,000	150,000	1	52,500	165,000	Dec..	1899	.05
147	Squaw Mountain, g.	Colo..	2,000,000	2,000,000	1	10,000	10,000	Nov..	1899	.00½
148	Standard Cons., g. s.	Cal...	2,000,000	200,000	10	60,000	3,893,226	Nov..	1899	.10
149	Standard	Idaho	500,000	500,000	1	30,000	1,745,000	April.	1899	.06
150	Stratton's Independ'ce.	Colo..	5,500,000	1,100,000	5	488,000	488,000	Sept..	1899	.48
151	Swansea, s. l.	Utah.	500,000	100,000	5	60,000	251,000	Nov..	1899	.05
152	Tamarack, c.	Mich.	1,500,000	60,000	25	600,000	6,270,000	Dec..	1899	6.00
153	Tomboy, g.	Colo..	1,500,000	300,000	5	152,000	812,000	Dec..	1899	.24
154	United, z. l., pref.	Mo...	1,000,000	40,000	25	40,000	40,000	July..	1899	.50
155	Utah	Utah.	1,000,000	100,000	10	2,000	179,000	Jan.	1899	.02
156	Victor, g.	Colo..	1,000,000	200,000	5	.....	1,155,000	Dec.	1898	.50
157	Vindicator, Cons., g.	Colo..	1,500,000	1,015,000	1	177,625	304,500	Oct.	1899	.05
158	War Eagle, Cons.	B. C..	2,000,000	1,750,000	1	315,000	492,750	Dec..	1899	.01½
159	West. Mine Enterprise.	Mont.	500,000	120,000	1	.....	48,680	Jan..	1898	.20
160	Wolverine, c.	Mich.	1,500,000	60,000	25	210,000	270,000	Oct..	1899	1.50
161	Yellow Aster, g.	Cal...	1,000,000	100,000	10	115,000	283,789	Dec..	1899	.10

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Levied 1899.	Assessments. Total to Date.	Assessments. Date and Amount of Last.		
1	Alaska	Utah.	$1,000,000	1,000,000	$1	$50,000	$50,000	Sept..	1899	.01½
2	Arnold, c.	Mich.	1,500,000	60,000	25	180,000	180,000	Jan..	1899	3.00
3	Best & Belcher, g. s.	6... Nev..	302,400	100,800	3	40,320	2,631,403	Oct...	1899	.20
4	Bingham Placer	Utah.	275,000	275,000	1	27,500	27,500	Oct...	1899	.10
5	Boston & Cp. Ck., g.	Colo..	400,000	200,000	2	.....	20,000	Aug..	1898	.10
6	California Borax	Cal...	200,000	2,000	100	4,000	4,000	Oct...	1899	2.00
7	Centennial, c.	Mich.	2,500,000	100,000	25	.....	460,000	Mar..	1898	3.00
8	Central Eureka, g.	Cal...	4,000,000	400,000	10	34,000	135,942	Sept..	1899	.03
9	Chollar, g. s.	Nev..	336,000	112,000	3	28,000	2,075,000	Aug..	1899	.15
10	Con. Cal. & Va	Nev..	540,000	216,000	2½	108,000	786,000	Oct...	1899	.25
11	Cons. Imperial, g. s.	Nev..	500,000	500,000	1	10,000	2,256,000	Nov..	1899	.01
12	Crown Point, g. s.	Nev..	300,000	100,000	3	20,000	2,990,000	Nov..	1899	.10
13	Dalton, s. l.	Utah.	2,500,000	500,000	5	5,000	58,750	April.	1899	.01
14	Dexter	Nev..	1,000,000	200,000	5	.....	38,000	Apr..	1898	.15
15	Diamond Con.	Utah.	1,000,000	200,000	5	8,000	8,000	Mar..	1899	.04
16	Eureka Con. Drift. g.	Cal...	500,000	500,000	1	12,500	183,000	Nov..	1899	.00½
17	Geyser, s. l.	Colo..	5,000,000	500,000	10	150,000	1,225,000	July..	1899	.10
18	Gold Coin	Colo..	1,000,000	200,000	5	10,000	10,000	Mar..	1899	.05
19	Gould & Curry	Nev..	324,000	108,000	5	27,000	4,646,050	Oct...	1899	.15
20	Granite Hill, g. s.	Cal...	500,000	100,000	5	3,000	124,000	June.	1899	.03
21	Great Western, q.	Cal...	5,000,000	50,000	100	20,000	75,520	May..	1899	.15
22	Hale & Norcross, g.s.	Nev..	336,000	112,000	3	39,200	39,200	Nov..	1899	.10
23	Head Center Con., s.g.	Ariz..	5,000,000	200,000	25	25,125	25,125	Mar..	1899	.20
24	Horse Shoe Bar Cons.	Cal...	6,000,000	60,000	100	3,000	85,800	Jan..	1899	.05
25	Little Pittsburg	Utah.	2,000,000	400,000	5	3,000	21,000	June.	1899	.00¾
26	Lower Mammoth	Utah.	150,000	150,000	1	7,500	22,500	June.	1899	.05
27	Lucky Bill.	Utah.	300,000	120,000	2½	2,500	58,800	Nov..	1899	.02
28	Marguerite, g.	Cal...	500,000	50,000	10	15,000	85,000	Aug..	1899	.10
29	Marina Marsicano, g.	Cal...	$1,000,000	100,000	$10	$19,000	$54,360	Oct...	1899	.05
30	Martin White	Nev..	1,000,000	100,000	10	150,000	150,000	Dec..	1899	1.50
31	Mayday, g. s.	Cal...	50,000	50,000	1	5,000	10,000	July..	1899	.10
32	Mayflower, g.	Cal...	1,200,000	60,000	20	.....	6,000	Sept..	1898	.05
33	Meteor, s. l.	Utah.	600,000	300,000	2	6,000	9,734	Sept..	1899	.01
34	Mexican, g. s.	Nev..	302,400	100,800	3	25,200	2,283,920	Nov..	1899	.15
35	Montreal	Utah.	2,500,000	250,000	10	25,000	30,625	April.	1899	.05
36	Northern Light, g.	Utah.	2,000,000	400,000	5	.....	80,000	July..	1898	.10
37	Ophir, g. s.	Nev..	302,400	100,800	3	50,400	4,652,968	Nov..	1899	.20
38	Osceola, g.	Cal ..	10,000,000	100,000	100	1,000	11,810	Oct...	1899	.01
39	Potosi, g. s.	Nev..	336,000	112,000	3	28,000	2,185,200	Sept..	1899	.15
40	Powning	Cal...	750,000	75,000	10	2,800	2,800	Aug..	1899	.01
41	Rescue, g.	Nev..	100,000	10,000	10	500	5,500	Feb..	1899	.05
42	Reward, g.	Cal...	64,000	64,000	1	1,400	65,280	Nov..	1899	.02½
43	Revenue.	Utah.	150,000	150,000	1	4,500	4,500	Nov..	1899	.02
44	Salmon River, c. s. g.	Nev..	57,000	57,000	1	1,425	11,970	Oct...	1899	.02½
45	Savage, g. s.	Nev..	280,000	112,000	2½	22,400	7,309,800	Sept..	1899	.10
46	Shower Con.	Utah.	2,000,000	400,000	5	8,000	8,000	Aug..	1899	.02
47	Sierra-Nevada, g. s.	Nev.	300,000	100,000	3	50,000	6,756,919	Dec..	1899	.15
48	Silver King, s.	Ariz.	10,000,000	100,000	100	50,000	490,000	Aug..	1899	.25
49	Snow Flake.	Utah.	500,000	100,000	5	5,000	51,000	July..	1899	.02
50	Sunbeam Cons.	Utah.	250,000	250,000	1	50,000	73,125	Oct...	1899	.10
51	Tetro.	Utah.	300,000	300,000	1	15,000	33,000	Nov..	1899	.01
52	Union Cons., g. s.	Nev..	250,000	100,000	2½	18,000	2,660,000	Sept..	1899	.15
53	Utah Cons., s.	Nev..	100,000	100,000	1	15,000	485,000	Sept..	1899	.05
54	Valeo.	Utah.	200,000	200,000	1	10,000	10,000	May..	1899	.05
55	Watt Blue Gravel, g.	Cal...	1,100,000	100,000	10	3,000	58,000	May..	1899	.03
56	Yellow Jacket, g. s.	Nev..	360,000	120,000	3	18,000	5,306,000	April.	1899	.15

G., Gold. S., Silver. L., Lead. C., Copper. Z., Zinc. This table is corrected up to Dec. 1. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

Abrasives—	Cust. Meas.	Price.
Carborundum, f.o.b.		
Niagara Falls grains..	lb.	$0.10
Powd., F. FF. FFF..	"	.08
Minute No. 1	"	.15
No. 15	"	1.00
Corundum, N. C.	"	.07@.10
Chester	"	.04½@.05
Emery, Turkish flour	"	.03
Grains	"	.05
Naxos flour	"	.03
Grains	"	.05
Chester flour	"	.03
Grains	"	.05
Peekskill flour	"	.01¾
Grains	"	.02½
Crude, Kuluk, best	lg. ton	18.50
Levant, "	"	22.00
Naxos (Greek) best	"	26.00
Pumice Stone, Am. powd.	lb.	.01½@.02
Italian, powdered	"	.01½
Lump, per quality	"	.04@.40
Rottenstone, ground	"	.02½@.03
Lump, per quality	"	.05@.14
Rouge	"	.17@.30
Tripoli, prepared	sh. ton.	20.00
Acids—Acetic, 30% pure	100 lbs.	2.75@4.00
30% ch. pure	"	6.00@8.00
80% pure	"	7.50@9.50
Benzoic, English	oz.	.09@.09½
German	lb.	.46@.47
Boracic, pure cryst	"	.11
Powdered	"	.11½@.11¾
Carbolic, cryst. in drums	"	.16
Carbonic, liquid	"	.15
Chromic, crude	"	.23
Chem. pure	"	.50
Absol. ch. pure	"	1.75
Hydrochloric, ch. pure	"	.08
Hydrofluoric, 36%	"	.03@.04½
48%	"	.05@.06
Best	"	.25
Nitric, chem. pure	"	.10
Sulphuric, 98%	"	.02
Chem. pure	"	.07
Tartaric, cryst	"	.32
Powder	"	.32½
Alcohol—Grain	gal.	2.42@2.44
Refined wood, 95@97%	"	.86@.85
Purified	"	1.20@1.55
Alum—Lump	100 lbs.	1.75
Ground	"	1.85
Chrome, com'l	"	3.50
Aluminum—		
Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Hydrated	"	.05
Sulphate, pure	"	.02
Com'l	"	1.50
Ammonia—Aqua, 16°	"	.04
18°	"	.04½@.05½
20°	"	.05@.06
26°	"	.07@.08
Ammonium—Bromide, p'r'd	"	.52@.53
Carbonate lumps	"	.08¼@.08¾
Powdered	"	.09¼@.09¾
Muriate, gran., white	"	.06¾
Gran. ch. p.	"	.09½
Lump	"	.09½
Gray	"	.06¼
Nitrate, white, pure (99%)	"	.10½
Phosphate, com'l	"	.12@.15
Chem. pure	"	.60
Antimony—Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¼
Best	"	.08½
Oxide, com'l white, 95%	"	.09½
Com'l white, 99%	"	.10½
Com'l gray	"	.07@.08
Sulphuret, com'l	"	.16
Arsenic—White	"	.04¾@.05¼
Red	"	.07¾@.08½
Asphaltum—		
Ventura, Cal.	sh. ton	32.00
Cuban, refined	lb.	.04½
Common	"	.02
Egyptian, refined	"	.06½
Trinidad, refined	"	.01½
San Valentino	lg. ton	15.00
Gilsonite, Utah, ordinary	lb.	.03¼
Select	"	.03¾
Barium—Carbonate, Lump, 80@90%	sh. ton	25.00@27.50
92@98%	"	26.00@29.00
Powdered, 80@90%	lb.	.01¾@.02
Chloride, com'l	"	.02½
Chem. pure cryst	"	.05
Nitrate, powdered	"	.05¼
Oxide, com'l, hyd. cryst	"	.18@.22
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphate	"	.01
Barytes—Crude, No. 1	sh. ton	9.00@10.00
No. 2	"	8.00@8.25
No. 3	"	7.75@8.00
Prime White	"	18.00@20.00
Floated	"	19.00@20.00
Bauxite—Ga. & Ala, f.o.b. cars, first grade	lg. ton	5.00
Second grade	"	3.75
Benzole—90%	gal.	1.00@1.10
Bismuth—Oxide, hydr.	lb	2.25@2.56
Subnitrate cryst.	oz.	.09@.10
Bitumen, "B"	lb.	.03½
"A"	"	.05
Bone Ash	"	03¾@.03½
Borax—Cryst. and pow'd	"	.07@.07¼
Calcined	"	.22
Bromine—Bulk	"	.45
Cadmium—Metallic	"	1.50@2.00
Sulphide	"	2.00@3.00
Sulphate	"	2.00@2.50
Carbide, in ton lots, f.o.b. Niagara Falls, N.Y.	lb.	.03@.04

Calcium—	Cust. Meas.	Price.
Acetate, pure white	100 lbs.	$1.00
Gray	"	1.35@1.40
Brown	"	.90@.95
Carbonate, ppt.	lb.	.05
Chloride, com'l	100 lbs.	.95
Best	"	1.90
Sulphite	lb.	.05
Cement—		
Portland, Am., 400 lbs.	bbl.	1.50@2.00
Foreign	"	1.75@2.50
"Rosendale," 300 lbs.	"	.90
Sand cement, 400 lbs.	"	1.55@1.95
Slag cement, imported	"	1.65
Ceresine—		
Orange and Yellow	lb.	.11
White	"	.13
Chalk—Lump, bulk	sh. ton	2.15@2.25
Precipitated	lb.	.04@.04½
French	100 lbs.	.30@.35
Chlorine—Liquid	lb.	.30
Water	"	.15
Chrome Ore—		
(50% chrome) ex-ship	lg. ton	20.00@21.00
Sand	"	35.00
Clay, China—Am. com., ex-dock, N. Y.	lg. ton	7.70
Am. best, ex-dock, N. Y.	"	8.70
English, common	"	11.00
Best grade	"	16.00
Fire, ground, f.o.b. Jersey City, N. J.	sh. ton	4.00@5.00
Slip Clay	"	6.00
Cobalt—Carbonate	lb.	1.50
Nitrate	"	1.30
Oxide—Black	"	2.00
Gray	"	2.50
Smalt, blue ordinary	"	.20
Best	"	.30
Chem. pure	"	5.00
Copperas	100 lbs.	.62½
Copper—		
Carbonate	lb.	.18@.20
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide	"	.19@.20
Cream of Tarter—crys.	"	.23½
Granulated	"	.24
Powdered	"	.24
Cryolite	"	.06½
Explosives—		
Blasting powder, A	"	.10½
Blasting powder, B	"	.05@.05½
"Rackarock," A	"	.25
"Rackarock," B	"	.18
Judson R.R. powder	"	.10
Dynamite, (40% nitroglycerine)	"	.15
(50% nitro-glycerine)	"	.17
(60% nitro-glycerine)	"	.19
(75% nitro-glycerine)	"	.23
Glycerine for nitro (32 2-10° Be.)	"	.16½
Nitro-Benzole	"	.14
Feldspar—Ground	sh. ton	6.50@7.75
Flint—(See Silica).		
Fluorspar, f. o. b. mines—		
Am. lump, 1st grade	"	7.50
2d gr	"	6.50
Gravel	"	6.00
Crushed	"	5.75
Ground, ex. fine	"	19.00
2d gr	"	15.00
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump	100 lbs.	.75
Powdered	"	.85
Ganister Rock	lg. ton.	6.50
Graphite—(See Plumbago).		
Gypsum—		
Am. gr'd (terra alba)	sh. ton	8.00
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—Ground. American, best	"	20.00
French	"	37.50
German	"	40.00
Iodine—Crude	100 lbs.	2.45
Resublimed	"	2.85
Iron—Chromate	lb.	.03@.10
Muriate	"	.05
Nitrate, com'l	"	.01¼@.01¾
True	"	.04
Oxide, pure copperas col	"	.05@.10
Purple-brown	"	.02
Veneian red	"	01@.01½
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white	lb.	.06½@.07½
Com'l, broken	"	.06@.07
White, gran.	"	.07½@.08
Nitrate, com'l	"	.00½@.06¾
Chem. pure	"	.35
Lime—Bldg., ab. 250 lbs	bbl.	.90
Finishing	"	1.00
Magnesite—		
Crude, lump (95%) Greece	lg. ton	7.25
German (85%)	"	12.00
Calcined, 600° C. (Greece)	"	15.00
1,000° C. (Greece)	"	18.50
3,000° F. (Greece)	"	21.00
Domestic, soft	sh. ton	12.00@15.00
Bricks, all magnesite	M.	185 00
Magnesite and chrome	"	226.00
Magnesium—		
Metallic, ingots (Ger)	kg.	5.95@6.90
Powdered (Ger.)	"	6.19
Ribbon or wire (Ger.)	"	10.00
Carbonate, light, fine pd	lb.	.03¾@.04
Blocks	"	.06@.09
Chloride, com'l	"	01¾
Fused	"	.20
Nitrate	"	60
Manganese—Crude, pow'd 70@75% binoxide	"	.01¾@.01¼

Manganese—	Cust. Meas.	Price.
75@85% binoxide	lb.	.01¼@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.02¾@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%	unit	.22@.22½
Marble—Flour	sh. ton	5.50@8.00
Mercury—		
Bichloride	lb.	.59@.60
Bisulphate	"	.41
Mica—N. Y. gr'nd, coarse	"	.05
Fine	"	.08
Sheets, 1½x3 in.	"	.60
8x10 in.	"	13.00
Mineral Wool—		
Slag, ordinary	100 lbs.	.90
Selected	"	1.40
Extra	"	3.00
Rock, ordinary	sh. ton	32.00
Selected	100 lbs.	2.50
Extra	"	5.00
Monazite—92%	sh. ton	140.00
Nickel—Oxide, bl'k No. 1	lb.	1.00
Black No. 2	"	.60
Green, No. 1	"	1.00
No. 2	"	.60
Oils—		
Black, reduced 29 gr.:		
25@30 cold test	gal.	.10¼@.11
15, cold test	"	.11½@.12
Zero	"	.12½@.13½
Summer	"	.10@.10½
Cylinder, dark steam ref	"	.09½@.14½
Dark filtered	"	.12½@.17½
Light filtered	"	.14½@.17
Extra cold test	"	.22½@.26¼
Gasolene, 86° @ 90°	"	.16@.18
Neutral filtered, lemon, 33@34 gr.	"	.14½@.20
White, 33@34 gr.	"	.22½@.24¼
Wool grade, 32 gr.	"	.12½@.15½
Naphtha, 62°	"	.12¾
Deodorized, 76°	"	.13¾
Linseed, domestic raw	"	.44
Boiled	"	.46
Calcutta, raw	"	.65
Graphite, lubricating, Am. dry	lb.	.10
In oil	"	.12
Axle grease	"	.08½@.10
Wood grease	"	.05@.06
Ozokerite—Foreign	"	.08
Paints and Colors—		
Benzine, Sumatra	"	.35@.40
Marbled	"	.27@.28
Chrome green, common	"	.05@.06
Extra	"	.12@.15
Chem. pure	"	.19@.25
Yellow, common	"	.10
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack—Com'l	lb.	.03@.05
Refined	"	.08@.10
Calcined	"	.12@.20
Fine spirit	"	.20@.35
Litharge, Am. powd.	"	.06@.06½
English flake	"	.08@.08¼
Metallic, brown	sh. ton	16.00@20.00
Red	"	16.00@20.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾@.05
French, washed	"	.01¼@.02½
Orange mineral, Am.	"	.07¾@.08
Foreign, as to make	"	.09@.10¾
Paris green, pure	"	.11@.12
Red lead, American	"	.06@.06½
Foreign	"	.08@.08¼
Shellac, "D. C."	"	.26
Native	"	.16
Turpentine, spirits	gal.	.44½@.45
Ultramarine. best	lb.	.25
Vermilion, Amer. lead.	"	.10
Quicksilver	"	.64@.65
Chinese	"	.80@.90
English, imported	"	.67
White lead, Am., dry	"	.05½@.05¾
In oil	"	.06@.06½
English, in oil	"	.07½@.08¼
Whiting, common	100 lbs.	.45
Gilders	"	.50
Zinc white, Am., ex. dry	lb.	.05¾@.06
American, red seal	"	.07½@.08
Green seal	"	.08@.08½
Foreign, red seal, dry	"	.07¾@.08¾
Green seal, dry	"	.08¾@.09¾
Foreign, in oil	"	.10½@.11¾
Plumbago—		
Am. lump, f. o. b. Providence, R. I.	sh. ton	8.00
Am. pulv., f. o. b. Providence, R. I.	"	30.00
German, lump	100 lbs.	1.50
Pulverized	"	2.00
Ceylon, pulv. common	lb	.04½
Best	"	.06@.10
Italian, pulv.	"	.01¼
Potash—Caustic, ord.	"	.05
Elect. (90%)	"	.06@.07
Potassium—		
Metallic, in balls (Ger.)	kg.	17.85
Bicarbonate cryst.	lb.	.08¼
Powdered or gran.	"	.12
Bichromate	"	.09¾
Bromide	"	.46@.47
Carbonate	"	.02¾@.03½
Chromate	"	.35
Cyanide (98@99%)	"	.28@.29
Ferro-cyanide	"	.19@.20
Iodide	"	2.15
Permanganate, pure cr.	"	.14@.15
Prussiate, yellow	"	.19¼@.19½
Red	"	.37@.38
Silicate	"	.06
Sulphide, com'l	"	.10

	Cust. Meas.	Price.
Quartz—(See Silica).		
Rosin—Common	bbl.	$1.25
Best	"	4.10
Salt—N.Y. com. fine abt. 380 lbs	bbl.	.70
N. Y. agricultural	sh. ton	1.50
N. Y. coarse	"	2.30
N. Y. dairy and table	"	2.90
Saltpeter—Crude	100 lbs.	3.50
Refined	"	4.25@5.50
Samarskite	lb.	1.00
Silica—Best foreign	lg. ton	10.00@11.00
Ground quartz, ord.	sh. ton	6.00@8.00
Best	"	12.00
Lump quartz	"	2.50@4.00
Fire bricks (Blue Welch)	M.	35.00
Silver—Chloride	oz.	.65
Nitrate	"	.41
Oxide	"	.85@1.10
Sodium—Metallic	lb.	.07¾
Acetate, com'l	"	.03¾@.04
Bichromate	"	.07
Bromide	"	.49@.50
Chlorate, com'l	"	.09¾@.10
Hyposulphite	100 lbs.	1.60@1.70
Nitrite	lb.	.07½@.07¾
Peroxide	"	.45
Phosphate	"	.03
Triphosphate	"	.04
Silicate, conc	"	.01@.01¼
Sulphate, gran., puri'd	"	.03
Sulphide	100 lbs.	1.75
Sulphite	lb.	.02½
Tungstate, com'l	"	.35
Pure	"	.50
Strontium—Nitrate	"	.07½
Sulphur—Roll	100 lbs.	1.70
Flour	"	1.80@1.85
Flowers, sublimed	"	2.00
Talc—N. C. No. 1	sh. ton	15.00@15.50
No. 2	"	10.00@12.00
N. Y., Fibrous	"	8.00@9.00
French	100 lbs.	1.25@1.50
Italian	"	1.50@2.00
Tar—Coal	bbl.	3.00
Tin—Chloride	lb.	.13@.15
Crystals	"	.24@.26
Muriate, com'l	"	.09
Oxide, white, ch. pure	"	.48@.50
Uranium—Oxide	"	1.80@3.00
Zinc—Metallic, ch. pure	"	.09@.10
Carbonate	"	.15
Chloride	"	.06@.08
Dust	"	.07@.07¼
Sulphate	"	.02½

THE RARE ELEMENTS.

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

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5 71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.50
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Calcium—Electrol	"	4.28
Cerium—Fused	grm.	2.02
Nitrate (N. Y.)	lb.	21.00
Chromium—Fused	kg.	5.95
Pure powder 95%	"	1.79
Chem. pure cryst	grm.	.21
Cobalt—(98@99%)	kg.	5.35@5.71
Pure	"	30.94
Didymium—Powder	grm.	3.81
Nitrate (N. Y.)	oz.	4.00
Erbium	grm.	3.09
Nitrate (N. Y.)	oz.	3.00
Gallium	grain	9.52
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.50
Indium	grm.	4.05
Iridium	"	2.38
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Nitrate (N. Y.)	oz.	3.50
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Molybdenum—Powder	kg.	2.62
Fused, electrol 95%	100 grms.	15.47
Niobium	grm.	3.81
Osmium	"	.95
Palladium	"	.95
Rhodium	"	2.87
Rubidium—Pure	"	4.76
Ruthenium—Pure powd	"	2.38
Selenium—Com'l powder	kg	20.94
Sublimed powder	"	40.46
Sticks	"	23.32
Silicium—Amorphous	100 grms.	2.87
Crystals, pure	"	5.95
Strontium—Electrol	grm.	6.19
Tantalum—Pure	"	3.57
Tellurium—Ch. p. sticks	100 grms.	11.90
Powder	"	9.52
Thallium	kg.	23.80
Thorium—Metallic	grm.	7.85
Nitrate 49@50% (N. Y.)	lb.	5.00@5.50
Titanium	grm.	.71
Uranium	"	.48
Nitrate (N. Y.)	oz.	.25
Vanadium—Fused	grm.	1.19
Wolfram—Fused	100 grms.	22.80
Powder, 95@98%	kg.	1.90
Chem. pure	"	6.42
Yttrium	grm.	3.33
Nitrate (N. Y.)	oz.	4.00
Zirconium—Com'l	kg.	119.00
Pure	grm.	.71
Nitrate (N. Y.)	oz.	1.00

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to Oct. 26th. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Review of Chemicals and Minerals.