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We have heretofore referred to the varying fortunes of the holders of the MacArthur-Forrest cyanide patents in the Australasian colonies. The recent decision of the Victoria courts allowing the Australian Gold Recovery Company to amend the original specifications of the patent, led the company to attempt the collection of royalties from parties using the cyanide process in the colony. An appeal has, however, been taken to the British Privy Council, which is the final authority in the case, and the courts will hardly permit the collection of such royalties while the appeal is still pending. The different decisions reached in the different colonies and the unsatisfactory state of the whole question would seem to be another argument in favor of Australasian federation.

Serious difficulty is reported in some districts of Western Australia, arising from the provision of the local mining law which allows alluvial and quartz mining claims to be located on the same ground; permitting, that is, a double ownership of the same territory. The question has been further complicated by a recent decision of the Colonial Supreme Court to the effect that where a claim is already held and worked as a quartz claim, other parties can enter upon it and search for alluvial gold, but are not entitled to remove any gold obtained in the search. The chief difficulty, where a double ownership is established, is to draw the line between the alluvial and reef gold; and one can readily see that this may give rise to endless litigation. The surface areas of some of the richest mines in the Kalgoorlie District are now being prospected for alluvial gold, notwithstanding objection of their owners and managers. A change in the law would seem to be expedient, if good titles and freedom from litigation are to be secured.

The early coming of cold weather in the Lake Superior country, and the possibility of an early closing of lake navigation, may seriously interfere with the plans of iron ore mines and shippers. There is very large tonnage under contract which is still to be delivered at Lake Erie ports, and it is altogether possible that some of it may remain on the docks at Duluth and the other shipping ports when ice closes the lakes. Ordinarily, rail freights on ores are too high to permit heavy shipments after the season of navigation; but with the present demand for ore it is very likely that there will be a rail movement of unprecedented extent during the coming winter.

Some very large cargoes of ore are coming down the lakes just now, and the record is far ahead of that made in any previous year. Just now work is being pushed in every possible way, and the steamers in the trade are trying hard to get down all the cargoes possible before winter stops them.

We have heretofore referred to the reports of discoveries of gold in the shales of Western Kansas. The real state of the case was well put by the State Geological Survey ("Engineering and Mining Journal" August 12th, 1899, page 181; September 16th, page 334). There is no more gold in these Kansas shales than the mere trace which can be found almost anywhere. The delusion is fostered and encouraged for their own ends by promoters, whose methods would be estimated at their true value in any community at all familiar with mining. The main reliance now is on the Beam process—with which our readers are somewhat familiar—and some of them have revived the old Arkansas "turkey feather" assay. A correspondent writes that some of them claim to get out of the shales by their methods of assay, over $10 a ton in gold, besides 20 per cent. of zinc. The zinc is a new addition to the scheme, doubtless prompted by the reports of prosperity from Joplin. A correspondent writes that these gentry are using the old familiar talk about metals in "incomplete evolution," the ordinary fire assay "setting back and destroying the nascent metals." It is too bad that such manifest fake work as this should be possible; but Western Kansas is not a mining country, and the farmers seem only too willing to be taken in.

We notice among manufacturers of mining and other machinery an increased disposition to cultivate the trade of our South American neighbors. Catalogues are prepared in Spanish, and other steps have been taken to introduce American goods in the South American States, whose trade is so largely held at present by our European competitors. Very much still remains to be done, however, and thorough systematic work is in order, if results on a large scale are wanted. As a part of this work a better acquaintance with their needs and methods of working is desirable, as well as the adoption of the metric system of measures, which is generally in use on the South American Continent. The possibilities for the introduction of mining machinery are large, but the use of American appliances must be developed carefully, in the face of slow progress and the other discouragements which are encountered. The possible result is, however, well worth working for.

An engineer familiar with South American mines called attention in our columns not long ago ("Engineering and Mining Journal" June 24th, 1899, page 735) to the possibilities open to our smelters and re-

finers in the purchase of ores and bullion in Chile, Peru, Bolivia and the Argentine Republic. We believe that these possibilities would be at least worth investigation. Should such trade be established, it would doubtless open the way to further business in machinery, mining appliances and supplies. It would, at any rate, give our people a share in a growing and profitable traffic.

We give on another page the first portion of an article on the "Use of Petroleum as Fuel," a subject upon which a great deal has been written with very little consideration of the real facts. The article has been prepared for us by a gentleman who has had much practical experience in this direction and understands thoroughly the limitations which have attended and possibly always will attend the substitution of any of the liquid hydrocarbons for coal. The chief of these is the fact that, as shown in the latest volume of "The Mineral Industry," the total production of crude petroleum in the world in 1898 was 17,000,000 tons, while that of coal was approximately 632,000,000 metric tons. Nevertheless, liquid fuel—or rather petroleum fuel—has its special field, and one of considerable importance. There are extensive regions—such as Southeastern Russia and parts of the west coast of South America—where petroleum is the most accessible and least costly fuel. Even in our own country there are districts in Southern California where oil fuel can be and has been advantageously used; and the same conditions will apply in Arizona and other parts of the Southwest, as well as of Northern Mexico. There are also certain special applications for which liquid fuel presents advantages which will secure its use even where it is more costly than coal.

While coal will doubtless remain the chief fuel of the world, there is no doubt that petroleum and its products will have an important auxiliary position; and a comprehensive presentation of these uses and of the best methods for the combustion of liquid fuel is valuable both for reference and to counterbalance the many inaccurate statements which find their way into the public press.

It is of some interest to compare the recent returns made by four of the large deep level mines on the Witwatersrand, which are now in the full course of production on a large scale. The latest month at hand for which full details are given is July, and the table below shows the gross returns obtained at the four mines named. The tons of ore and tailings are short tons, of 2,000 lbs., and the bullion is stated in ounces of fine gold:

	Stamps.	Tons crushed.	Gold oz.	Tailings worked.	Gold oz.	Total gold.
Geldenhuis Deep....	200	24,900	8,771	17,640	3,702	12,443
Glen Deep..	100	15,800	4,806	11,000	3,151	7,957
Robinson Deep.....	100	14,939	5,852	10,917	3,057	8,909
Rose Deep.....	200	28,200	7,848	23,260	3,604	13,452

The returns realized per ton for these four mines differ but little in amount, being, in the order given in the table, and in United States currency, $10.30, $10.40, $12.40 and $9.92. These amounts do not differ much from the average returns of the outcrop or first row of mines on the Witwatersrand. That of the Robinson Deep is the highest, as the original Robinson Mine has the highest average of any mine in the district; but the deep level average is lower by one-third of that of the outcrop mine. Apart from this there is no indication of a lowering of the tenor of the ore in gold in the deep mines. There is a considerable difference in the mill recovery. While at the Geldenhuis Deep only 29.8 per cent. of the gold was obtained from the tailings in the cyanide vats, the proportion at the Robinson Deep was 34.3; at the Glen Deep, 39.6, and at the Rose Deep, 41.7 per cent. Upon the whole the indications given at these mines do not show any marked difference in the depths so far reached; and the conditions are practically the same as in the older mines.

A DOUBTFUL CANADIAN PROPOSITION.

Our attention has been called to the persistent booming which some papers in Canada and in our own Northwest are giving some very doubtful enterprises. Thus we find in the Toronto "Globe" an editorial, ostensibly on the value of Western Ontario as a mineral country, a large part of which is given up to a puff of the so-called McGowan property near Parry Sound. The statement is made that the syndicate owning this property has recently refused an offer of $3,000,000, supposed to come from the "Copper Trust," which desires to own the property for the purpose of keeping it idle and preventing competition with its own mines. It is further intimated in the article that the McGowan is a property destined to be as great a producer "as the Rio Tinto of Spain, the Calumet & Hecla of Michigan, or the Le Roi of British Columbia." The classing of the Le Roi with the other two mines mentioned is perhaps a pardonable outbreak of patriotism, though most miners would concede a pretty wide difference. On the strength of such articles as these, intended to catch the public eye, we are informed that stock is being sold freely, both in the United States and Canada.

Now we are informed on good authority that this property was not long ago offered to different persons who declined to buy, even at a very low rate. The principal document offered in support of its alleged value was a report from a "celebrated mining engineer" whose principal knowledge of the country and of his "profession," a correspondent writes us, had been acquired as "assistant cook in a lumber camp." Other reports—not made for the parties who are selling stock, but by engineers familiar with the country—agree in stating that there is nothing whatever in the property to justify such statements as those of the Toronto "Globe" and others which are being freely circulated. The whole country is simply a prospect, but so far nothing to induce the belief that any considerable deposits of copper ores has been found. To claim that the property will develop in depth is a pure assumption with nothing so far to support it.

The exploitation of this concern, which is generally considered a "fake" in the district where it is located, is strongly resented by those who own and are developing legitimate mining propositions in the same region. They rightly consider that the creation of a bubble which is sure to burst before long, will be a great injury to their own interests.

We are surprised that a paper of the standing of the Toronto "Globe" should lend itself to such schemes. The resources of Western Ontario are quite valuable enough to form the basis of an editorial without bringing in the doubtful assertions of the promoters of such enterprises.

THE TRANSVAAL MINES.

The somewhat unexpected presentation of an ultimatum to Great Britain by the South African Republic and the beginning of an offensive movement by the Boer forces this week have apparently made a peaceable settlement of the South African troubles out of the question. The Boer Government seems to have made up its mind to fight, and the nature of its ultimatum prevents the withdrawal of the British claims, which would now involve a loss of prestige too great for the Government to risk. At this distance it looks as if President Kruger had made a mistake, and had sacrificed much of the strength of his position in order to secure some immediate advantage before the British military force in South Africa could be brought up to a full fighting condition. From a purely military point of view, his action might be approved; but there are other points to be considered, among them the facts that he has made it impossible for Great Britain to give way, and has consolidated English sentiment in favor of a war.

The final result of the conflict can hardly be doubtful. The advantages of position which the Boers of the Transvaal hold and their well known courage and persistency make it quite possible that a war may be long and harassing. Great Britain cannot afford to give way, however, and must establish her supremacy in South Africa, no matter how great an expenditure of men and money may be required. As far as material resources are concerned, the advantage, of course, is all on one side. The South African Republic, in the present condition of affairs, has practically no credit, and cannot borrow abroad. Its money supplies will soon be exhausted, and can hardly be replenished. On the other hand it is less dependent upon money as an instrument, and there are few modern nations which can carry on a war with so little regard to the treasury.

It is not necessary here to go into the merits of the case. There are charges of conspiracy and excessive demands on one side; and on the other of oppressive laws and taxation, of monopolies and official corruption. Both parties have made exaggerated statements, after the usual manner of man, and both are partly right and partly wrong. The main point, as an outsider sees it, is that a system of government adopted and carried on by a somewhat primitive pastoral community has failed when it was brought to bear on a great industry based on modern methods, involving the investment of very large amounts of capital and the presence of a large number of men whose habits, training and interests are all foreign and hostile to those of the original element of the country. It is probably inevitable that the great material interests existing in the Transvaal should in the end control the country, no matter what may be the abstract rights of the original settlers.

What chiefly concerns us is the result of the conflict to the mining interests. A certain degree of loss is inevitable. The stoppage of work and consequently of all returns on capital for the time constitute items which will be large in their present total. Whether there will be any actual destruction of property is another question. At present this seems unlikely; but if the contest should be prolonged it is hard to say what the Boers may do. Defeated and desperate men do not always stop to consider the results of their actions.

Another element of uncertainty is found in the large native population

of the country. The native laborers have generally left the mines where they have been employed, and have returned to their kraals. Possibly they may take no part, but the prospects of fight and plunger are powerful incentives to Zulus, and they have had some experience of what they may expect to find in Johannesburg and other towns. The native movements will doubtless be watched with much anxiety.

Meantime, the large capital invested in the Transvaal mines must be idle, and its owners can only wait the result of a contest for which, after all, they are chiefly responsible. It is an interruption much to be regretted to one of the most interesting of modern mining developments.

NEW PUBLICATIONS.

"Traite de Nomographie: Theorie des Abaques, Application Pratiques." Par Maurice d'Ocagne. Paris, France; Gauthier-Villars. Pages, 480; illustrated. Price (in New York), paper, $4.90; cloth, $6.

This is, we believe, the first comprehensive treatise on the subject indicated by its title. The author, who is professor at the Ecole des Ponts et Chausees in Paris, and has gained reputation by his published mathematical work, outlined the subject in a pamphlet published by him in 1891, which he has now developed in the present volume. Most engineers are more or less familiar with the science, or at least with some applications, though few in this country will recognize the name.

"Nomographie," as defined by M. d'Ocagne, is that branch of mathematics which has for its object the reduction of the calculations which are necessary in the different technical arts to simple readings from graphical tables, prepared once for all. In this way many difficult computations required in engineering work can be performed with all required precision simply by the inspection of accurately drawn curves. In this way also it is possible to make many calculations which either cannot be completed at all by ordinary algebraic methods or in which results can be obtained only through a long series of approximations. The science is allied to and its methods can be used in connection with those of graphical analysis, but it differs from that science, which reaches results by direct construction.

Nomographie, as noted above, is not new, as many writers have used some of its methods, and have touched upon them in various ways. To M. d'Ocagne, however, belongs the honor of first formulating and fully stating the principles of the science, and of constructing a full and comprehensive treatise upon it. It must not be supposed that the work is purely theoretical. The author fully investigates the general theory in his second part, which is a careful and thorough study showing familiarity with the higher mathematics, and requiring close study on the reader's part. The great part of the book is occupied by practical applications of the principles and methods developed. These applications are carefully worked out and clearly explained. The author has evidently utilized his experience as an instructor as well as his mathematical researches, and realizes the practical as well as the purely theoretical side of his subject, which mathematicians often fail to do.

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.

"Tabeller Vedkommende Norges Handel, 1 Aaret 1898." Udgivne af det Statestike Centralbureau. Kristiania, Norway; Aschehong & Co. Pages, 180.

"Terminal Index for use with McNeill's Code." By Bedford McNeill. London, England; Whitehead, Morris & Co. Pages, 142. Price (in New York), $2.50.

"Queensland. Annual Report of the Under-Secretary for Mines: Year 1898." P. F. Sellheim, Under-Secretary. Brisbane, Queensland; Government Printer. Pages, 144.

"Jaarbock van het Mijnwezen in Nederlandsch Oost-Indie." Twentieth year, 1899. Amsterdam, Holland; published by the Ministry of Colonies. Pages, 180; with maps and illustrations.

"New South Wales Mineral Resources No. 6. The Copper Mining Industry and the Distribution of Copper Ores in New South Wales." By J. F. Carne. Sydney, N. S. W.; Government Printer. Pages, 160; with maps and illustrations.

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.
Letter should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents

Smelter Charges on Ores Carrying Zinc.

Sir: In your issue of September 23d, on page 361, you state that in Utah one of the large producers has a treatment contract according to the terms of which an ore may carry 20 per cent. zinc without any penalty charge. You also state "That it was not many years ago when penalties were charged for any proportion of zinc above 10 per cent."

I have been buying ores for smelters for the last 15 years in this section and I have yet to find a smeltery that will take an ore carrying over 10 per cent. zinc without charging a penalty for the excess. The effect of your publication is exceedingly harmful in that it leads every ore producer to believe that he ought not to be charged any penalty on zinc. Can you inform me of any smeltery that will take ore on a neutral basis that carries over 10 per cent. zinc without making a charge for the excess? W. C. Watt.

Hailey, Idaho, Sept. 29, 1899.

[In the case referred to, which was mentioned by us as an unusually liberal contract, the limit for zinc was fixed at 20 per cent., because—as stated in the note—the ore is a very desirable one in other respects. If it were not for the iron, copper, lead and lime, the limit of 10 per cent. zinc would doubtless be insisted on. The extension of the limit was made on account of the other ingredients in its composition. This case is an exceptional one, as was clearly implied in the note to which you refer.—Editor E. & M. J.]

The Waugh & Bignell Dry Concentrating Process.

Sir: A new dry concentrator set up at Lewiston, Wyo., of which much is expected, consists of a plain Canton or cotton flannel belt of ordinary width stretched taut, with the fleecy side outward, around two metal rollers of about 1 ft. in diameter, set about 12 ft. apart. While these rollers are perfectly bevel, crosswise with the course of the belt, one of them is raised a few inches higher at one end than the other. This gives the even table-like surface of that part of the belt between the rollers a pitch or slant of a few degrees in one direction and a like elevation in the other. When the machine is in motion the upper side of the table, on which the concentrating is done, is constantly moving toward the elevated end, while the lower side, from which the concentrates have been spilled, is moving in an opposite direction. In addition to the foregoing an apparatus for receiving and regularly distributing compressed air is placed under the upper surface of the table the full length of same and is fed by a patent blower. Now when the pulverized ore is on the table just enough atmospheric pressure is applied from beneath to penetrate the fiber of the cloth, inflate, loosen up and cause a boiling appearance of the ore on top. This, added to a slight shaking motion of the whole, assists gravity to settle the heavy and valuable particles into the surface fiber of the cloth, where they stick until they are carried to the elevated end of the table and spilled off into a receiver, while the light and valueless particles pass off of the table in its downward slope and in an opposite direction to its motion.

As preparatory to this process the ore is first passed through a drying furnace, where all moisture is removed from it, which is a very rapid and comparatively inexpensive operation. It is then reduced to the required state of fineness by means of heavy iron rolls. When sufficiently fine for concentrating purposes it is elevated by machinery into a bin above the concentrator, from which it is fed evenly on to the concentrator by means of an automatic appliance.

Messrs. R. E. Eugene, J. S. Waugh and E. Bignell are the inventors and patentees of this process. Patents have been obtained in the United States and foreign mining countries.

The first one of these mills was set up at Cripple Creek, Colo., where it was destroyed in the Cripple Creek fire. In addition to the one at Lewiston they now have two or three in operation in the Black Hills of South Dakota and a sampling mill in Denver, Colo.

The mill at Lewiston is the property of the Overland Dry Concentrating Company, an organization composed chiefly of Omaha, Neb., parties. D. D. Wolff.

Lewiston, Wyo., Sept. 1, 1899.

IRON ORE IMPORTS IN GREAT BRITAIN.—Imports of iron ore into Great Britain for the eight months ending August 31st were as follows, in long tons:

	1898.	1899.	Increase	Per ct.
From Spain	3,345,064	4,303,247	958,183	28.6
From other countries	606,035	613,633	7,598	1.3
Totals	3,951,099	4,916,880	965,781	24.5

The increase of imports from Spain has been greater than was considered possible or probable early in the year. There has been very little change in the receipts from other countries.

SIZE OF LAKE VESSELS.—The increasing size of lake carriers is shown by the fact that the increase in freight carried through the Sault Ste. Marie canals this year up to August 31st was 1,805,138 tons, or 14.2 per cent., the gain in number of vessels was only 827, or 7.5 per cent. The statement for the corresponding period for three years is as follows:

	1897.	1898.	1899.
Tons passed	10,805,604	12,613,639	14,418,477
No. of vessels	10,634	11,029	11,856
Av. tons per vessel	1,015	1,144	1,217

The average load this year shows an increase of 73 tons, or 6.4 per cent., over last year, and of 202 tons, or 9.9 per cent., over 1897.

PETROLEUM IN BELOOCHISTAN.—In 1898 several borings for petroleum were started in Beloochistan under the supervision of experienced Canadian engineers, who were invited over by the Indian Government for this purpose, says the "Petroleum Review." In three trial borings, of which one was 524 ft. deep, petroleum was met with at depths varying from 28 to 62, 92, 115, 125, 133 and 374 ft. The experimental production which was started at a depth of 380 ft. amounted to 160 barrels of 35 gallons each in 36 hours. Subsequently the production was restarted at a depth of 524 ft. by means of a 2-in. pipe, and the quantity of petroleum produced amounted to 400 gallons per day.

According to Engineer Townsend, the appearance of petroleum was noticeable in many places in the valley. On the hillsides, at an altitude of about 200 ft., the remaining layers of conglomerate have developed red spots from this matter, which were formed when the bed of the river was on a level with them. There is no coal in the district, and the Indian Government has accordingly adopted petroleum for working locomotives on the Quettah Railway with considerable success.

The Director of the Indian Geological Survey, with the view of obtaining definite information, has undertaken to make trial borings in Rori, on the Indus. It is thought probable that petroleum will also be found in Afghanistan. Coal is known to exist in large quantities in the Great District, and it is believed that petroleum also exists there.

GLASS MAKING IN THE UNITED STATES.

Written for the Engineering and Mining Journal by Robert Linton.

A convenient classification of the various kinds of glass manufactured in this country may be made by bearing in mind the different methods of working the "metal," or molten glass. 1. Blown glass, where a lump of glass is gathered on the end of a blow pipe, and then blown, either free in the air or in a mold, into the object required to be made. 2. Pressed glass, where the lump of glass is gathered on the end of a rod, dropped into a mold and pressed out by a plunger into the shape of the article desired. 3. Cast glass, where the glass is poured or ladled from pots out upon a metal table and rolled into sheets with a metal roller.

The working of the metal, of course, rarely finishes the product. Window glass is blown at first into cylinders, which are afterward cut open longitudinally, reheated and flattened out into sheets; plate glass after being cast must be annealed, then ground and polished; and similarly most kinds of glass require more or less finishing. The classification above made will include the following principal lines of glass and glassware:

1. Blown Glass.—Window glass, all kinds of bottles, flasks, carboys, etc., fruit jars, tumblers, lamp chimneys, globes, chemical ware.

2. Pressed Glass.—Table ware, novelties of many varieties.

3. Cast Glass.—Polished plate glass for windows and mirrors, rough and ribbed skylight glass, cathedral glass, wire glass.

There is little difference in the general chemical structure of the various kinds of glass. Essentially glass is composed of silica, an alkaline base, and a metallic or alkaline earth base, the latter generally calcium or lead. The principal raw materials are quartz sand, limestone, burnt lime, sulphate and carbonate of soda, carbonate of potash, oxide of lead. Some others in less extensive use are baryta, manganese, arsenic, niter, oxide of zinc, borax, and various metallic oxides used as coloring agents. The sand and limestone are used as they are found as native minerals.

Good quartz sand is found in a large number of localities. For glass making purposes it must be almost absolutely pure. Small portions of iron, alumina and lime are usually found as impurities, but any considerable quantity is very detrimental to the quality of the glass. Good sand is so plentiful that there is really no occasion to use any that is inferior in quality. That same may be said of limestone, also found in many places and very pure. Magnesia is an impurity of frequent occurrence, and as the presence of any considerable quantity of it is very troublesome to the glass maker and as its occurrence is varying and irregular, it is well to test the limestone in use from time to time. Analyses of sand and limestone in successful use for glass making are given below.

Sand.		Limestone.	
SiO_2	99.054	CaO	97.23
$Al_2O_3Fe_2O_3$	0.764	MgO	1.48
CaO	trace.	SiO_2	1.01
MgO	0.046	$Al_2O_3Fe_2O_3$	0.18
Rest (organic)	0.126	Organic	0.09
Total	100.000	Total	99.99

Carbonate and sulphate of soda and carbonate of potash are now manufactured on a large scale in this country and foreign alkali is largely displaced in the glass factories. The use of sulphate of soda is rapidly extending, especially in window glass manufacture. For tank furnace melting it is preferable to the carbonate, giving a clearer and more homogenous glass. Carbonate of soda is generally used for plate glass, bottles and flint glass. The Solvay ash holds the preference, being extremely pure. Oxide of lead is also manufactured in considerable quantity and high purity. It is used for the finer grades of glass and purity is therefore essential.

According to statistics found in the census of 1890, the glass factories used in that year the following materials: Sand, 369,328 tons; sulphate of soda, 38,092 tons; carbonate of soda, 96,777 tons; carbonate of potash, 1,272 tons; oxide of lead, 2,750 tons; lime, 29,690 tons; limestone, 45,482 tons; nitrate of soda, 7,031 tons; arsenic, 911 tons; manganese, 305 tons; salt, 2,429 tons.

The selection of materials is an important matter. No less so is their proper mixing. The recent improvement in the batch rooms of many of the factories in this country is gratifying to note. Where before everything was left to the care of a boss mixer and all work done by hand, now charging scales, conveyors and mechanical mixing apparatus insure regular proportioning and thorough mixing.

Fuel for melting is now almost exclusively producer gas manufactured from coal, or natural gas, which is still found in considerable, though rapidly decreasing, quantities in Pennsylvania and Indiana. A few old style direct coal-fired furnaces are still found here and there, but they cannot compete with those of modern construction. Natural gas, clean, powerful, easily regulated, is, when available, the best fuel for glass making. Producer gas, however, can be made equally efficient, although its use involves considerably more trouble, and at best it is not nearly as powerful a combustible as natural gas. The latter is practically all combustible, the former less than half, as shown by analyses. For blow furnaces, glory holes, flattening ovens, lehrs, etc., fuel oil is now being applied with success. The oil is injected into the burners sometimes by the use of a steam jet, sometimes by compressed air. Both methods have succeeded in giving good results.

Analyses of various kinds of glass are as follows:

	Window Glass.	Plate Glass.	Lead Flint.	Green Bottles.
$Si\ O_2$	72.26	72.1	53.70	69.82
Al_2O_3, Fe_2O_3	1.42	1.1	1.07	2.58
Ca O	13.34	12.1	0.59	10.62
Pb O	....	....	34.91	....
K_2O	....	....	9.12	1.50
Na_2O	14.01	14.7	0.30	16.08
Totals	101.03	100.0	99.69	100.60

Calculated from the census of 1890 the operating cost per pot and the cost per ton of sand melted were as follows (the figures given take no account of cost involved in capital or plant, interest or depreciation):

	Average Annual Cost Per Pot.	Average Cost Per Ton of Sand.		Average Annual Cost Per Pot.	Average Cost Per Ton of Sand.
Plate glass	$6,651	$97.42	Flint glass	$6,905	$137.86
Window glass	6,436	77.25	Bottle glass	9,738	77.06

Cost items are divided as follows by percentages:

	Plate Glass.	Window Glass.	Flint Glass.	Bottle Glass.
Wages	50	61	64	60
Batch materials	18	13	15	19
Other materials	14	11	11	8
Fuel	7	8	5	8
Miscellaneous expenses	11	7	5	5
	100	100	100	100

In comparison with this it will be interesting to note cost items that have been given for German glass manufacture: Wages, 38 per cent.; materials, 30; fuel, 20; miscellaneous expenses, 12 per cent.

The most striking contrast brought out is the relative proportions between labor cost and fuel. In this country labor cost is high and fuel cost is low; in Germany fuel is costly and labor is cheap. It is to be hoped that the American proportion will continue. Good wages go with intelligent labor, and intelligent labor is an important factor in bringing an industry to a high degree of development.

Cost of production has naturally varied somewhat since 1890. The last year is many respects not unlike the census year, and therefore the statistics of the census, except as they indicate the volume of business, may not be without application now. Many conditions are now similar to the conditions then, only there has been much progress made. Improved furnaces, machinery and apparatus are everywhere noticed, and with them more skillful manipulation. In a marked degree has the past year been concerned in the development of machinery. Fruit jars, lamp chimneys and other similar articles which have heretofore been exclusively produced by manual skill are now being blown by machines. Their use is sufficiently general to demonstrate their satisfactory working and their great economy is obvious. The possibility of extending the use of these machines for the manufacture of all kinds of hollow-ware can be readily appreciated. Improvements have also been made in annealing apparatus, mixing machinery and automatic weighing apparatus. The continuous tank furnace, especially for window glass and bottles, continues to displace the old style pot furnaces.

In keeping with improvements in equipment is the better quality of glass produced. The result is that the preference for foreign glass is no longer noticed in our markets; the superiority of American glass is so apparent. The following statistics of imports of plate and window glass make a showing that is very gratifying:

	Window Glass.		Plate Glass.	
	Boxes.	Value.	Sq. ft.	Value.
1888	1,184,219	$1,389,928	3,955,201	$1,258,736
1889	1,249,576	1,425,515	3,029,087	983,316
1890	1,193,954	1,430,777	2,833,838	931,333
1891	982,212	1,475,338	3,611,612	1,352,808
1892	1,112,009	1,549,707	2,475,530	827,765
1893	1,045,961	1,425,551	3,340,965	829,596
1894	888,332	1,067,787	1,956,605	449,086
1895	663,081	835,730	3,075,491	684,131
1896	886,372	1,067,990	3,339,201	773,250
1897	932,697	1,181,696	1,099,785	285,485
1898	648,483	953,116	641,070	157,929

Within the past year there has been quite an increase in the number of factories in operation; toward the close of the year the following were running:

	Factories.	Pot Furnaces.	Pots.	Day Tanks.	Rings.	Continuous Tanks.	Rings.
Window glass	80	94	780	....	....	34	510
Plate glass	11	40	800	....	....	....	....
Rough plate, etc.	10	10	98	....	....	6	....
Green bottles	81	31	174	60	387	90	869
Flint glass	137	216	2,499	60	342	16	93
Total	319	391	4,351	120	729	146	1,412

Such a large factory capacity indicates a large volume of business. In looking forward to another year it bids fair to be one of unusual activity in all lines of glass manufacture, of rapid progress in pushing improvements in machinery, furnaces and equipment, and of the attainment of a high degree of efficiency manifested by the quality of the product.

UTILIZATION OF BELGIAN PEAT.—At the instance of the Belgian Government Departments of Forestry and Agriculture an investigation of the numerous peat mosses in that kingdom has been made by A. Petermann, says the "Bulletin de l'Association Belge des Chimistes." In the State forests of Hertogenwald and Freyr (Ardennes), the peat is comparatively rich in nitrogen, the average content, referred to perfectly dry matter, being 1.8 per cent. The material contains too small a proportion of fiber to be suitable for use as litter, but, owing to its ligneous character and the presence of woody residues, it seems well adapted for distillation in closed retorts; and in fact 1,000 kgs. (air dry treated in this manner at a temperature of about 450°) yielded the following products: Coke, 337.5 kgs.; tar, 57.665 kgs.; acetic acid, 3.058 kgs.; methyl alcohol, 600 c. c. The tar, when subjected to fractional distillation, furnished: Oil distilling below 100° C., 2.5 kgs.; between 100° and 200°, 12.75 kgs.; between 200° and 300°, 17.00 kgs.; paraffin, 14.425 kgs.; carbon, 11.00 kgs. The quantity of ammonia produced, 921 grams (= 3,630 grams of sulphate of ammonia) is much less than the nitrogen content of the peat presaged. In addition, cyanides formed from the distillation of the organic bases, were detected in the carbon, and a considerable volume of illuminating gas was evolved, 2 kgs. of peat in one experiment having produced enough gas to supply one jet for six hours. The peat found in the plains of Campine is of a different nature, being earthy and containing from 28 to 60 per cent. of ash, as compared with the average 5 per cent. or so yielded by the Ardennes peat. It is, however, suitable for use as fuel locally, and for mixing with litter, the power of absorption for water being high, as is also the proportion of manurial ingredients.

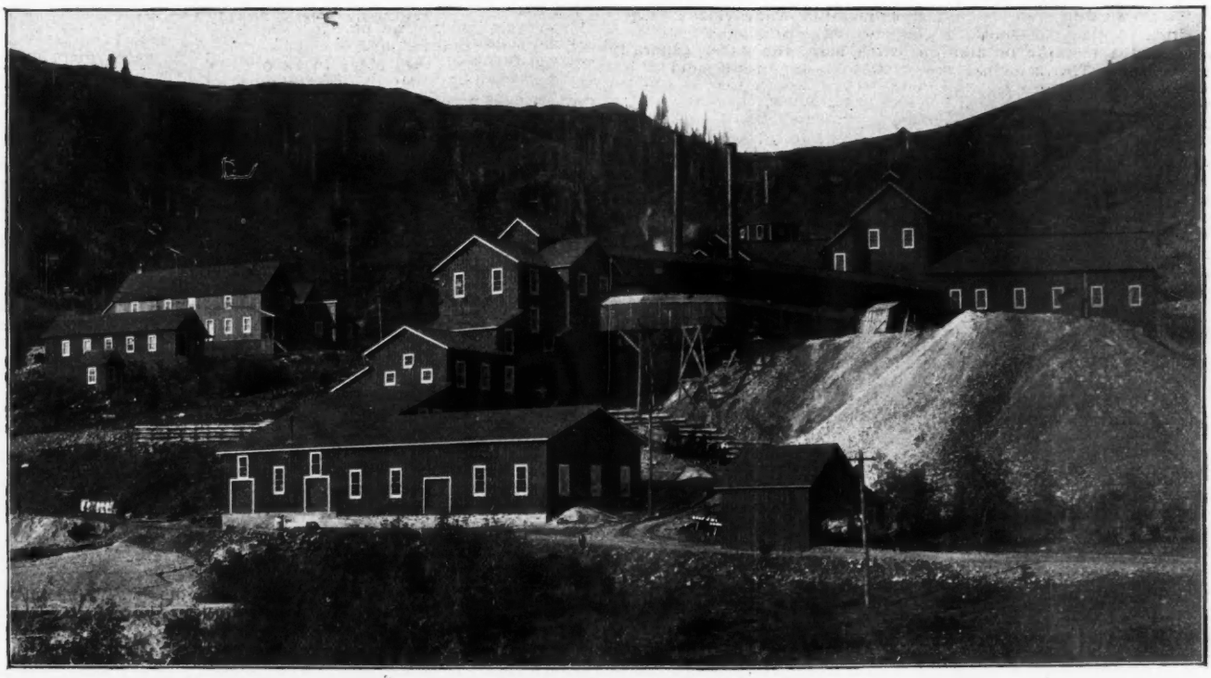
THE DALY WEST MINE, PARK CITY, UTAH.

Written for the Engineering and Mining Journal by H. L. J. Warren.

Park City, Uintah Mining District, Summit County, Utah, was first given reputation by the Ontario Mine. In recent years the camp has been comparatively quiet; in July, 1898, Park City was almost wiped out by a fire, but is now substantially rebuilt. Since the Ontario closed down, in 1897, the Silver King has been the only reliable producer till recently, for to-day the camp is thriving, employing almost as many men in mining ore as in its palmy days. The present revival is mainly due to the achievements of the Daly West and Ontario's gradual reawakening, at least in its production of smelting ore. Uintah and the adjoining districts, of which Park City is the business center, have other good mines, both old and new, but the present review is limited to an outline sketch of the Daly West. Park City mines are lead-silver producers, and Daly West is no exception.

The Ontario vein—which from the portion in Ontario territory paid over $13,500,000 in dividends—is a fissure in quartzite, passing on a southwesterly strike through the ground of the Daly and Daly West. The dip is towards the north, 50° from the horizon to nearly vertical. A quite general impression prevails that this extension of the Ontario-Daly fissure is the Daly-West vein from which the present ore is mined. While it carries good values in Daly-West territory and is liable, on further exploration, to prove an important factor in the mine's future, it has no considerable ore bodies opened in this ground. The Daly-West tunnel, which is at an horizon 900 ft. lower—and is a continuation of this tunnel. On the 1,200-level the Ontario-Daly fissure, standing nearly vertical, is exposed. It is clearly defined and strongly marked and when crossed by the level bunches and stringers of rich silver ore, showing native metal, were brought to light. The Daly Mine has mined the fissure up to the boundary plane of the Daly West; a vertical distance of 600 ft., exposing a face of a body of good milling ore, corresponding to the 700 to 1,300 levels, had Daly-West such workings. The reader will understand that the Ontario-Daly fissure enters Daly-West territory on the east, while the Daly-West contact vein is exploited on the western portion of the ground, adjoining the Anchor. The chief exploration on the fissure in this ground consists of these contiguous workings in the Daly mine. On the 1,200-level the contact vein where opened shows an ore chute 400 ft. long on the strike and 300 ft. on the dip, with an average ore thickness of 5 ft. The quality is not as good as on the 900-level, but affords excellent concentrating products, mixed with considerable shipping ore.

The excellent map herewith, especially prepared and drawn for the "Engineering and Mining Journal," shows the relative situation of the Daly-West, Ontario, Daly and Anchor mines, with their underground workings up to date. A glance suffices to tell that Daly-West territory is for the most part virgin ground, for all the stopes are accurately indicated, as also the levels and drifts. On the East, next to the Daly ground, is shown where the Ontario-Daly fissure vein is stoped up to the Daly-West boundary plane 700 ft. vertically, exposing an ore face the entire distance; on the West End are the Anchor workings. Other



DALY-WEST MINE AND MILL, UTAH.

vein proper is a contact vein with a quartzite foot wall and a lime hanging wall. Its strike is southeasterly-northwesterly, with dip to the north of 10° from the horizontal to 60° or more.

A three-compartment vertical shaft penetrates this ground a depth of 1,440 ft., or 40 ft. below the 1,400-level. There are but 3 levels driven, 900, 1,200 and 1,400. Ore was first cut on the 900-level, at which horizon the chief exploration was carried on. Here the vein was cut by a winding drift, a distance of 1,500 ft. from the shaft station; had its existence been known beforehand it might have been cut within 300 ft. of the shaft. The ore zone here is opened 750 ft. laterally along the strike. The dip is light, from 10° to 40°. In thickness the ore varies from 4 to 30 ft., and it may prove more at points, as layers of barren cherty lime occur in the roof, above which other good ore seams 2½ to 5 ft. thick were found, and this is liable to occur again. There are a number of stopes opened on the 900-level and those on the outer edge of the present development show no evidence of ore exhaustion.

From the 900-level is an upraise of 140 ft. opening into the vein where some fine stopes are exposed, one extending 70 ft. up the dip above the top of the upraise. This uppermost stope, the highest working in ore, has a fine showing of mineral. From this horizon, owing to the configuration of the mountain range, the vertical distance to the outcrop of the ledge is about 1,200 ft.; a hint of the probable worth of the unexplored upper ore bodies. Drifting from this upraise has proved the ore zone laterally 600 ft. along the strike of the vein, and the limits are not reached. Driving west, the workings of the Anchor were broken into in a huge stope some 60 ft. beyond its line on Daly-West territory, showing that at this point at least the ore zone extends to the Anchor boundary and beyond. In thickness, character and values the ore resembles that on the 900-level.

On the 1,400-level the ore zone was cut September 15th, 1899, about 700 ft. north from the shaft. At this point the vein is well defined and strong, but low grade. Here the dip is 50° to 60°. Exploration is being advanced on this level. The 1,200-level corresponds to the old Ontario drain tunnel, with its mouth above Park City—not the new long drain

interesting data—all obtained from authoritative sources—are supplied by this map, which gives it peculiar value to all interested in the Park City region. The compass index of this map gives the magnetic meridian; which in Utah is about 16° 30′ East of true North.

Before speaking of the inauguration of the present active campaign in March, 1899, it will be well to say a word of the origin of the Daly-West Mining Company and what the property has achieved prior to the recent organization. The salient facts are taken from the last annual report of President Daly to the share-owners, on February 20th, 1899, which was not printed. The Daly-West holdings consist of 40 patented lode claims. Before the company was formed an undivided one-half of the ground was owned by Messrs. J. B. Haggin, George Hearst, R. C. Chambers, et al., the other one-half by John J. Daly. In October, 1893, Mr. Daly incorporated his undivided one-half under the style of the Daly-West Mining Company, with capitalization of $1,500,000 in $20 shares, under the laws of Utah. About the same time the other one-half interest was acquired by a California corporation known as the Ivanhoe Mining Company. Attempts to unite these antagonistic companies were made on several occasions, but none were successful till the past winter. On January 31st, 1899, the incorporation articles of the Daly-West Mining Company were amended, the number of shares being increased from 75,000 to 150,000, each of a par value of $20; the additional 75,000 shares were given in purchase of the one-half interest not owned by Mr. Daly, and the Ivanhoe Mining Company, so far as relates to this mine, went out of commission.

Prior to this amicable union of interests the shaft was put down 1,400 ft. and the 900 and 1,200 levels opened. In these levels and drifts therefrom 10,125 ft. of work was done, besides 3,198 ft. of upraises and 729 ft. of winzes, or a total development of 15,407 ft. Ore shipments under the original regime, aggregated 12,778 tons, which yielded 644,333 oz. silver, 656 oz. gold and 3,312 tons of lead, and sold for $364,149. These products were marketed when silver and lead were at their lowest. Besides this ore contained an average of 2¾ per cent. copper, of which no account was made. Under the present advantageous treatment contract,

which allows for copper, and the better prices for silver and lead, the company would have realized over $500,000.

Mining operations were resumed on March 1st, 1899, after a close down of 2 years. The months of March, April and May were consumed in surface and underground clearing up, getting ready for energetic work. In June shipments were begun and have varied from 400 to 650 tons a week, about evenly divided between crude ore and concentrates. At the time of the reorganization there was no debt outstanding against the property, though the company then agreed to pay $15,000 for an undivided one-third interest in and to the Silver Lake Water Company, which assures a continuous and ample water supply. Later the property of the Morgan Silver Mining Company, joining Daly-West, consisting of 15 patented claims, was acquired at a cost of $100,000. In 5 months this $115,000 was paid and September opened with the company out of debt and probably $15,000 in the treasury. The earnings are fully $60,000 per month. From the outstart, 23 years ago, there has been paid out in purchase of property and betterments a little more than $700,000. Development of what was then known as the Daly-Chambers-West ground, was first begun in 1891, and from the very beginning operations have been under the management of Mr. John J. Daly, and the superintendent in immediate local charge has been Mr. John McSorley, who has become as much a part of the mine as the shaft house or its admirable machinery equipment.

Some idea of the character of the ore may be had from the partial analyses, or contents rather, here given, of two lots, each of 1,000 tons, one ore and the other concentrates, recently marketed. These results were obtained by uniting the assay pulps of several typical carloads with the intent to obtain the average worth of the shipping products:

	Lead %.	Silver Oz.	Gold.	Copper %.	Iron %.	Zinc %.
Ore	23.65	62.95	$1.20	3.00	13.5	25.24
Concentrates	35.63	52.64	1.05	1.74	13.5	13.30

Surface improvements consist of a model shaft house, concentrating mill, assay office, machine, carpenter and blacksmith shops, large water tanks, boarding and lodging houses. The engine is capable of sinking to 3,000 ft., and the entire machinery plant is in good condition. The concentrating mill is equipped with crusher, 2 Cornish rolls, revolving screens, elevators, 6 double Hartz jigs, 2 Huntington mills and 6 Wilfley tables. On starting up in March last this mill was put in commission by Mr. F. W. Sherman, formerly of Montana, who remains in charge. Although the mill was up-to-date when built, 5 years ago, its long vacation necessitated numerous repairs and changes. Mr. Sherman is making it give a good recovery account, and, beginning with October, he anticipates handling 150 tons daily with a saving of fully 90 per cent. of the metals—less zinc—in the milling rock put through. The assay office is in charge of Mr. G. C. Swan.

At the time of this visit an innovation was arranged for that will be the means of a considerable saving in operating costs. It consists of converting the 1,200-level and the Ontario drain tunnel—one being the continuation of the other—into the mine's main traffic artery. The Union Pacific has agreed to build a spur to the mouth of the tunnel, the work on which is begun, and this will save the wagon haul, an elevation of 1,200 ft., and a hard climb of 2 miles. Supplies will be taken through the tunnel to the shaft and hoisted to the surface, and all ore and concentrate products will be forwarded from the tunnel. During the months of snow and ice and in the spring this will be both a saving and convenience, for the wagon road is, much of the time, almost impassable. The elevation of the Daly-West shaft house is 8,750 ft.

The principal office of the Daly-West Mining Company is in Salt Lake City. Its officers and directors are Messrs. John J. Daly, president-manager; Robert C. Chambers, vice-president; Dr. Allen Fowler, secretary; O. J. Salisbury, treasurer, and Charles Read, all residents of Salt Lake City.

THE MANUFACTURE OF SODIUM NITRITE.*

Details of the manufacture of nitrite of soda are very scarce in chemical literature; it will therefore be of interest to briefly describe the production of this substance, which is now very widely used in the dyeing industry. The raw material used in its manufacture consists of purified Chile saltpeter, and although the presence of sodic chloride may interfere with the value of the nitrite, the re-crystallization of commercial saltpeter, with a view to the elimination of the sodic chloride, is not practised, as the expenses connected with the operation would be too great.

The saltpeter is melted in large cast-iron vessels, an operation which includes the evaporation of the hygroscopic water, and the decomposition of a part of the iodides and iodates which accompany the saltpeter. At 310° C., saltpeter begins to fuse, and before adding the lead necessary for its decomposition the temperature is raised to about 400-420°.

The lead should be as pure as possible, as the presence of small quantities of other metals might cause the decrepitation of the whole charge; it is antimony which is the most to be feared. The lead used must be in thin sheets. About 280 parts of lead are necessary for 100 parts of saltpeter. As soon as the melted saltpeter has reached the desired temperature the necessary quantity of lead is gradually added; at the same time the whole must be kept constantly stirred so as to obtain a very intimate mixture. It is necessary to carefully watch that the charge does not become too strongly heated, for fear the vessel might be pierced; in case of emergency, to prevent such an accident, a quantity of cold saltpeter must be added, or the fire withdrawn. When all the lead has been added the stirring must still be kept up for some time, and the melted mass is then removed by means of a large cast-iron ladle. It is then run in the form of fine threads into cold water, in which its solution is helped by constant stirring. The decomposition of the saltpeter by the lead at 420-500° has the effect of producing, besides the nitrite, about 1 per cent. of caustic soda, which dissolves a certain quantity of the oxide of lead formed; this latter should also be removed. This is generally effected by neutralizing with nitric acid; in this manner saltpeter is re-formed, while the oxide of lead is precipitated in the state of insoluble hydroxide. We may also use nitrate of lead or sulphuric acid for neutralizing the solution; sulphuric acid is preferable on account of its low price, but we then obtain sulphate of soda, which is deposited in the concentrating vessels in the form of anhydrous salt. We thus have in aqueous solution nitrite, undecomposed saltpeter, caustic soda holding oxide of lead in solution, and the soluble impurities of the saltpeter, such as chloride of sodium, etc. The insoluble residue consists of oxide of lead, a very small quantity of metallic lead, which has escaped oxidation, and a certain proportion of peroxide of lead. The solution diluted to about 6-8° Beaume is neutralized with nitric acid (or dilute sulphuric acid), or again with a solution of nitrate of lead; the oxide of lead in solution is precipitated, and the addition of the acid is continued as long as a precipitate is formed.

We may here correct an error which has slipped into most treatises on chemistry; many authors state that nitrite of sodium has an alkaline reaction, but this is not the case—the pure nitrite is absolutely neutral.

The neutralized solution separated from the insoluble residue by any convenient method is concentrated in cast-iron basins until it reaches 42-45°Baume when warm.

The insoluble residue is thrown on a large filter of coarse material, such as sacking, washed with warm water, and the wash-waters added to the principal solution. The residuary oxide of lead is capable of various applications, which will be dealt with directly. The concentrated solutions are added together in cast-iron vats and left to crystallize; if the crystals thus obtained are not pure they must be re-dissolved and re-crystallized. The pure crystals are separated in a centrifugal machine, washed, dried, and packed.

The desiccation takes place in an oven, the temperature of which is carried to about 50°, and the crystals are packed in cylinders of double thicknesses of parchment paper.

The residuary oxide of lead may be either melted and cast as it is, reduced to the metallic state, or transformed into minium; it can also be used for the preparation of white-lead, of nitrate, acetate, or other plumbic compounds.

The analysis of the nitrite is generally made with a titrated solution of permanganate of potassium. By dissolving 9.594 grms. of permanganate in 1 liter of water we obtain a solution, each c.c. of which is equal to 1 centigram of nitrite of sodium.

The analysis is carried out in the following manner: A known quantity of the nitrite is rapidly weighed and dissolved in an Erlenmeyer flask of 150-200 c. c. capacity with about 80 c. c. of water. To this solution are added a few c. c. of dilute sulphuric acid (1: 4), and it is then titrated. When the coloration begins to disappear with difficulty, a fresh quantity of sulphuric acid, much stronger than the last, is added, as there is now no longer any danger of nitrous acid escaping. The addition of the permanganate is continued drop by drop until the rose tint is permanent for about a quarter of an hour.

To hasten the final reaction the solution may be heated towards the end of the operation to 30-40°. The analysis of the melted mass is carried out in the same manner as is that of the oxide of lead to see if the washing was thoroughly done.

*Abstract of Article in the "Chemiker Zeitung."

AN EMERALD CRAZE IN COLOMBIA.—United States Minister C. B. Hart writes: "Until very recently emeralds were a drug on the market of Bogota. One who desired to buy them had only to wait and have them brought to him. The famous Muzo Minè, which has produced emeralds of great value and in large quantities, lies near Bogota, and the people of this city have long been familiar with its products. This mine is operated by a French company, which insists that for the past year or so it has found almost no emeralds. However, from this source or from some other crude emeralds have continued to come into Bogota. Of the cut stones, set and unset, there has been an abundance in the market. Hard times have compelled many persons to offer for sale their highly prized heirlooms, and these have been obtainable, as a rule, at very low prices. In July an emerald craze seized upon Bogota. The jewelry stores and all other establishments where emeralds are dealt in were besieged by persons who wished to buy, and by others who wished to sell; and for the same reason, men and women crowded the streets, standing in the roadway as well as on the sidewalk, some displaying their emeralds and others their money. A jewelry establishment located on the most prominent corner in Bogota was compelled to ask the police to drive the crowd away.

"As the news spread outside of Bogota, emerald owners began to rush in. This swelled the throng and sent the fever up several degrees. Sales were made right and left, at prices hitherto unheard of in this market. Persons who had not thought of selling, tempted by the wild rush to buy, brought out their emeralds and began trading. Nobody could explain the real cause of the excitement, and many are now beginning to realize that it was without real cause. In a few days the fever reached its height and began to decline. While it lasted emeralds sold, on a gold basis, at about three times their value in this market just before the excitement began. It is estimated that up to this time about 4,000,000 pesos have changed hands as the result of the furor.

"The crowd soon disappeared from the streets, and many buyers who went in on the flood tide find themselves with emeralds that will not bring the price they paid for them. Others, also inexperienced, have more or less excellent imitations as souvenirs of this extraordinary movement. It does not appear that the expert dealers have bought so extravagantly as the general public, and yet it is believed that some of these have far overreached themselves.

"The only approach to an explanation for this craze is that a Bogota dealer who went to Paris recently, on his return to this city began to buy emeralds at higher prices than had been ruling in the market. This seems to have started it. Some of the experts say that this dealer drew out of the market long before prices reached their height, and that he did so because emeralds were selling in Bogota for more than they would bring in Europe."

ROASTING COPPER ORE AT KESWICK, CALIFORNIA.

Written for the Engineering and Mining Journal by Thomas Neilson.

Since the Mountain Copper Company of Keswick, California, discarded the pyritic process of smelting, several thousand tons of ore have been roasted in stalls or heaps, and a smaller proportion in mechanical roasting furnaces (McDougall and Ropp). As roasting admits of many variations, it was the practice at Keswick to experiment and find out the most satisfactory and cheapest method.

Stalls were first employed. The average dimensions were 14 ft. long, 7 ft. wide and 6 ft. high, built of rough masonry. These kilns had side and back openings, the latter only communicating with the flue which traversed the line of kilns and was carried thence up the hillside to a height of about 200 ft. In all, 170 kilns, in 4 rows, with flues connected to one large flue, had a capacity of 6,000 tons when full. After a great many trials, it was found the results of stall roasting did not compare favorably, either in quality or cheapness, with heap roasting, and, as a consequence, the heap roasting was extended and practically all coarse ore is now roasted in that way.

The advantages claimed for stalls as compared with heaps (time occupied and the concentration of the smoke into one or more flues) were more than counterbalanced by matting, more expensive discharging, constant repairs; and added to this the heavy initial cost of their construction.

The average quality of the ore is represented by the following analysis: Fe 38.0; Cu 8.; Zn 4; S. 46; SO_3 and Al_2O_3,3. **Total, 100.** Silver, about 1½ oz, and gold 0.03 oz. This ore (chalcopyrite) contains only a trace of arsenic, and is an ideal ore for roasting and smelting, giving a product remarkably pure and free from obnoxious ingredients.

The ore as mined was, until recently, shipped unscreened, in iron cars of 10 and 20 tons' capacity and discharged into the receiving bunkers at the various calcination depots. These bunkers had a capacity of 150 tons each, were furnished with grizzlies and about 6 in. below the grizzly was a second screen of 1 in. or ¾-in. mesh. The ore passing over the grizzly and screen thus receives a double screening, the 3 sizes, coarse, medium and fines, falling into separate cars. These cars—heavy iron cars of 2,500 lbs. capacity—stand on 18-in. gauge tracks which radiate from the bunkers by switches to the various heaps. The heaps are built on ground about 10 ft. to 12 ft. below this loading track, and on the same level as the bottom of the heaps the railroad track, 3-ft. gauge, is laid.

Having laid out the location of the heap the first thing done is the building of a trestle and laying the rails from the bunkers. For this purpose round poles, 4 to 6 in. diameter at the small end, and of the requisite length, are framed into bents and set up 15 ft. apart; connecting these are stringers 6 by 8 in., 16 ft. long, and on these are laid the ties, 4 by 4 in., and finally the rails (16-lb.) are spiked down. By giving these tracks a slight grade of from ¾ to 1 per cent. an easy grade is ensured and yet not too steep for the returning empty cars.

For good practice—reasonable length of time burning, adaptation to rapid and cheap building, as well as the necessities of the steam shovel in discharging—a heap 20 ft. wide and 8 ft. high has been found to be the most suitable size.

The length of heaps depends on the nature of the ground; some heaps were 500 ft. long and others 1,500 ft., but where plain cars are used the distance should never be more than 500 ft. unless some system of electric traction is used.

Over the ground thus laid out, fines to the depth of 6 to 12 in. are spread and this for a double reason, one the utilization of the fines for the purpose of roasting them, and the other to prevent the fusion of the ore to the surface rock. Next in order comes the laying of the wood, a simple operation, yet requiring care, for on its proper performance depends the successful lighting of the heap. The wood used should be free burning light wood. Pne, fir, cedar, manzanita were all used at Keswick and gave good results. The wood is in 4-ft. lengths and 6 in. square; it should be dry before being placed under the heap. Flues running lengthways down the center of the heap are made by placing cord wood in continuous parallel lines, leaving a space between them about 4 in. for split wood. At intervals of 8 ft. along this flue similarly built flues are placed, and at each intersection a rough chimney composed of old boards or cord wood is erected to the height of 8½ ft.

After filling in the flues with kindling wood, the fines are covered over with cord wood again and the spaces between the intersecting flues filled in with wood. For a heap such as this, carrying 10 tons per lineal foot, one cord of wood will serve 120 tons of ore, and in dry weather, with good wood, 1 cord will serve 150 tons. This is a matter of judgment and the disposal of the wood to the best advantage.

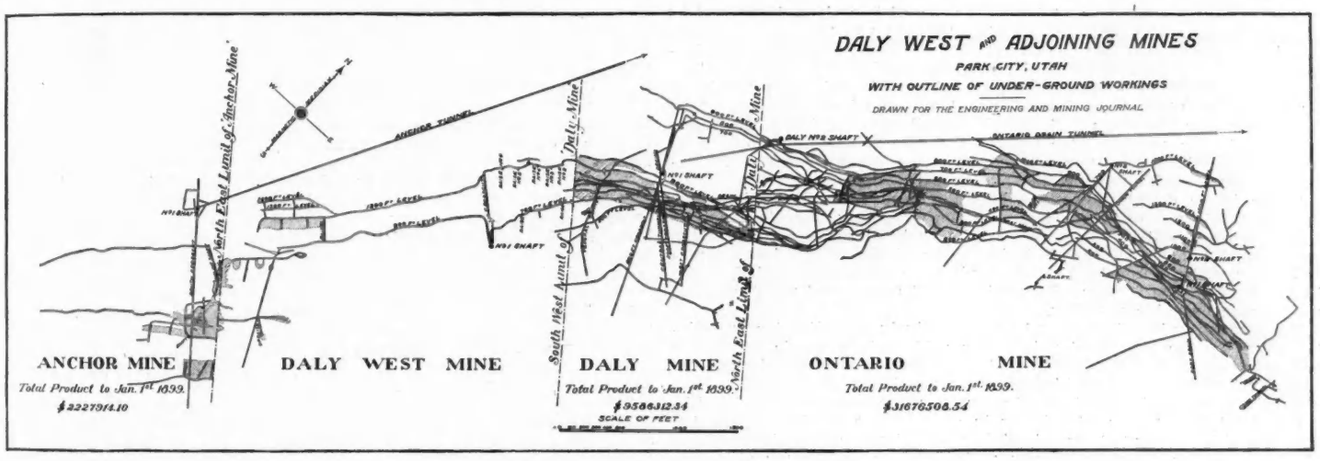
Having laid out the wood we next proceed to the filling up of the heap with ore. The coarser ore only is allowed to be placed next the wood and chimneys; a low wall of coarse ore or waste rock is built outside the wood to a height of about 6 in., leaving an arch over the projecting wood of the flues. Coarse and mediums are now dropped on the heap till the capacity of heap width is almost reached, when medium ore is used to cover, and a final cover, about 2 in. deep, of fines completes the heap. Various minor details in building are observed which are difficult to convey in words. The object sought for in building is a thorough roast, and as far as possible a contemporaneous oxidation by having the heap well vented.

The heap being now complete, the rails, stringers and ties are removed for use at another similar heap; the poles are left in and allowed to burn, as the cost of extracting them would not compensate for the labor.

At Keswick about 15,000 tons of ore would constitute a fair-sized deposit, and when completed, rails, ties, etc., would be removed to the next in rotation.

Before lighting up, the flues and chimneys are all cleaned out; then taking a can of coal oil, pour about ½ pint or more into each chimney and apply a torch. Within a very short period the wood will have caught and in an hour the ore will have started burning. Nothing remains now but to watch any inequalities in burning, closing up with fines any holes that break out, and to break up the crust of sulphur that settles on the top of the heap.

A heap of such dimensions in good weather will burn 6 months and but little is gained by taking ore out before its time. Companies are



like individuals, impatient, and instead of allowing the ore to be well burned it was more often removed while only semi-roasted.

Experiments were made with the object of hastening the calcination of the ore. About 10 ft. apart, holes were drilled under the heap, or earthenware tiles laid there before the heap was built. When the heap had burned about 2 or 3 months these holes were blasted with powder, but the results were far from satisfactory. Either there was a displacement of the ore all over the ground or slight fissures were made. In the first case the calcination stopped from excess of air and in the latter case matting resulted. Blasting is beneficial when the heap is almost drying out, and then it serves chiefly to cool the ore and make it more easily handled by shovel or steam shovel.

Where the heaps were not taken out too soon the sulphur contents would average about 12 per cent., of which 2 per cent. was in the form of sulphate, but in non-ready heaps the sulphur was much higher.

For several months now the company has employed a ¾-yd. steam shovel built by the Union Steam Shovel Company, for the purpose of discharging the heaps. Previously the ore was shovelled either directly into railroad cars or into tram cars and transferred. With the steam shovel it is necessary to have the railroad parallel the heaps and frequently with the same track by throwing the rails over, another heap can be taken out.

In the old system there were many drawbacks, scarcity of men, influence of climatic conditions, etc. Picks and shovels lasted but a short time, whereas with the steam shovel there were few repairs, a certain quantity of ore could be calculated on, and the work was rendered less unhealthy.

Before leaving the subject of heap building I should mention a later method of building which I introduced. In this case the ore was screened at the mines (where it ought to have been in the first case) and by building on a long stretch of ground (1,500 ft.) a temporary trestle strong enough to bear the weight of a loaded train of 100 tons of ore, the ore could be brought to the heap without any intermediate processes, saving the cost of bunkers, grizzlies, tram cars and small trestles. When the heap was completed the timbers were pulled out and could be used over again for the same purpose.

The following estimates of costs will show the saving by the improved systems of handling. Common labor is paid from $1.85 per 10 hours, cord wood costs about $3 per cord, and about 500 to 800 tons

of ore are handled from the mine daily, a similar quantity being discharged from the heaps.

	Indirect Loading, Cents.	Direct Loading, Cents.
Labor	15.00	6.25
Cordwood	2.50	2.50
Poles left in	0.20	....
Proportionate cost of lumber and rails used	0.16	0.54
Stores	0.04	0.02
Total	17.90	9.31
	Discharging (manual), Cents.	Steam Shovel, Cents.
Labor	20.50	4.50
Repairs	....	0.10
Stores	2.50	0.12
Interest	....	0.20
Total	23.00	4.92
Total	40.90	14.23

A saving in favor of the new systems of 26.67c., which, on 500 tons per day, is equal to $133.35, and, per annum, gives a total saving of nearly $50,000.

The thirds or fines from the 1-in. mesh could not all be used on the heaps either as a topping or as a surface bed, so a considerable amount had to go elsewhere, to the mechanical roasters, and for this purpose a second screening had to be performed.

Several attempts were made to roast these fines in heaps after the dust had been extracted by making very low heaps and providing the heap with twice as many vents, but except for a few inches round the flues and chimneys, the ore simply fused or agglutinated. Another experiment was made with briquetted fines, but this was hardly in the nature of a success, and in my opinion the roasting of fines in heaps except as indicated in the earlier part of this article, is impracticable.

The fines are screened through ½-in. mesh and under, the coarser going to the smelters, and the fines (under ½ in.) going to the McDougall or Ropp furnaces.

The McDougall furnaces at Keswick were of two sizes, 15 ft. and 18 ft. in diameter, the smaller calcining 20 tons per 24 hours and the larger 35 tons of sulphide ore to within 5 per cent. sulphur. This furnace and the Ropp are too well known to require a description. The McDougall furnace requires no fuel after being started, while the Ropp requires about 10 cords of wood per 100 tons of ore calcined. The labor costs for the Ropp and the McDougall are practically the same, about 12 to 15c. per ton. To this, in the case of the Ropp, has to be added fuel, about 30c. per ton, making the costs as follows: McDougall furnace, 15c.; Ropp, 45c.

There is no doubt, however, that the Ropp furnace requires less repairs and is more regular, but with the perfecting of certain details the McDougall will in this respect make an ideal roaster. Granulated matte is also roasted successfully in Ropp and McDougall furnaces; in the latter without fuel by simply keeping the temperature of the flues higher, and in the former with an increased amount of wood as compared with sulphide roasting.

Heap roasting is suited only to comparatively dry climates and districts where the fumes of sulphurous acid and sulphuric anhydride will not destroy vegetation. For like reasons it would not be advisable to bring the heaps within too great proximity of a town. When you calculate that 180,000 tons of ore will, when roasted annually, liberate about 55,000 tons of sulphur in acid form, and that means 150 tons per 24 hours, or 200 lbs. of sulphur per minute, chiefly in the form of SO_2 into the atmosphere, you will see some reason for objection by the neighboring inhabitants. Heap roasting is a primitive but cheap process, although it does seem wasteful to lose such a valuable ingredient as the sulphur; still, as the market for sulphur and SO_4H is so far away, the article would constitute a drug in the market.

ABSTRACTS OF OFFICIAL REPORTS.

Burma Ruby Mines, Limited, British India.

The directors' report for the year ending February 28th, 1899, says: "The income account shows a profit for the 12 months of £4,322, which would have been considerably increased but for the fact that the richest mine at Shwebontha was completely drowned out for the four months July-October. This total is increased to £9,893, owing to the remission of 2 lakhs of rupees, being about one-third of the rent due during the two years ending October 31st, 1898. The profit on working and the remission thus granted by the government would have allowed a dividend of 5 per cent. to be paid, for the first time, to the shareholders, but the board felt that it was necessary to again approach the government with a statement of their position, and to urge that the temporary remission should be made a permanent reduction of rent, and that the balance of arrears due, amounting to 4 lakhs of rupees, should be cancelled, relieving the company from a great drag on their future prosperity. These important concessions have now been granted by the government of India, which has determined, in the first place, to remit the 4 lakhs of arrears still due under the original lease; and to reduce the yearly net rent for a term of years from Rs. 3,15,000 to Rs. 2,00,000, subject to an increase in the government share of the net profits from 20 to 30 per cent., the reduction continuing for five years, and being subject to reconsideration at the end of that term. These concessions, will, in the opinion of the board, place the company in a sound financial position as a paying and profitable concern.

"With regard to the anticipated increase in mining profits, it is to be noted that the machinery for working the mines by electricity, which started September 5th, 1898, and was in full operation at the commencement of the present year, has proved a success, and has reduced the expenses by £500 a month, while the efficiency and regularity of working has much improved. So successful, indeed, has the installation proved, that the board has determined to double it; and the new machinery is expected to be in working order by the end of this year, when the output will be proportionately increased. Work has been suspended at the Yaboo Mine until the dry season, and is concentrated at the more rich and profitable mines of Shwebontha and Kyouklongyi.

"The returns for the five months since the close of the period dealt with in the accounts, March to July, 1899, are in every way satisfactory, and show a mining profit of £11,470, as compared with a loss of £360 for the same period of 1898. Under these circumstances the directors propose with confidence a dividend of 5 per cent. out of the profits of the year 1898."

Waitekauri Gold Mining Company, New Zealand.

The report of this company for the year ending May 31st, 1899, shows that during the year 23,578 tons of ore were mined and treated, the bullion realizing £70,277. Miscellaneous receipts were £65, making a total of £70,342. The expenditure in New Zealand and London was £42,787, leaving a profit for the year of £27,555. To this is to be added £8,946 brought forward from previous year, making a total of £36,501. The average earnings and costs per ton worked—reduced to United States currency—were as follows:

	Per Ton.
Receipts from gold sold, etc.	$14.56
Mining and transportation of ore to kilns	$3.06
Roasting, crushing and extraction of bullion	4.00
General and miscellaneous charges	1.80
Total expenses	$8.86
Net earnings	$5.70

The directors' report says: "Dividends Nos. 4 and 5 of 1s. per share on fully paid shares and 3d. per share on partly-paid shares (free of income tax) were paid during the year and amounted to £19,647. Income tax in London and New Zealand, interest on debentures and on temporary loans, and the expenses of the new share issue absorbed £3,164, leaving a balance on May 31st last of £13,663 to be carried forward to the credit of the new account.

"The chief points of interest during the year are as follows: 1. Increase of capital: The issue of new capital was successful, and sufficient money has been realized to enable the directors to adjust the capital account and to pay off £12,600 debentures—all that could be obtained. The outstanding debenture issue has been reduced to £22,400. They will be paid off as they can be got in, and any that may remain over when they fall due, May 31st, 1900.

"2. The development work which was in abeyance at the time of the last annual meeting has been resumed, and the entire development of the mine is being pressed forward at every point where it had previously been commenced.

"3. In the low levels opened up during the year, it is found that the run of gold maintains its value in depth. The gold-bearing reef referred to at the last annual meeting, found in the extreme northern end of No. 1 level, No. 1 shaft, has been explored for a considerable distance, and promises to be a valuable addition to the resources of the mine. A good deal of work has been done at the old Waitekauri and the Komata sections, and the ore reserves upon them have been largely increased.

"4. The whole of the 40 stamp mill has been converted from dry to wet crushing, and is working satisfactorily, the result being a better extraction of bullion at a less cost, while it is expected that the mill will reduce a larger quantity of ore, twenty more stamps will be added to the mill as soon as possible.

"Since the date of the accounts the cabled returns show, for the period from June 1st to September 9th, a total of 7,223 tons worked, with a yield of £20,853. On August 24th a dividend (No. 6) on account of the current year was paid, of 1s. on the fully paid shares, and 4½d. on the partly paid shares, free of income tax, amounting to £10,144."

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

DUTY ON JAPANESE ANTIMONY.—In the matter of the protest of McKesson & Robbins against the decision of the collector of customs at New York, N. Y., as to the rate and amount of duties chargeable on certain merchandise imported, the Board of General Appraisers holds that the merchandise is sulphide of antimony. It was assessed for duty at 20 per cent. under section 6, act of July, 1897, and is claimed to be entitled to free admission under paragraph 476, which reads: "Antimony ore, crude sulphite of." The paragraph quoted contains two incongruities. There is no such thing in commerce as "crude sulphite of antimony," the proper term being "sulphide" instead of "sulphite." Nor is it correct to say "crude sulphide of antimony ore." Antimony ore is variously known as stibnite, and sulphide of antimony or oxide of antimony.

It will appear from an examination of the free list that it is generally in the form of an index, the subjects being arranged in alphabetical order, with descriptive terms often following the names of the articles indexed. The board is of the opinion that paragraph 476 covers only antimony ore, and that the descriptive phrase "crude sulphite of" was intended to show the kind of antimony ore that Congress had in mind.

The merchandise in question is produced by fusion, and during the melting process the gangue or slag is separated, while the sulphide of antimony is run off in ingots. In this operation the sulphide of antimony has undergone no change, and it is, therefore, still crude sulphide of antimony. Could the tariff provision be construed to apply to crude sulphide of antimony, not in the form of ore, the protest would be well founded; but, as has been said, we hold that paragraph 476 covers only antimony ore. It is held that the merchandise is not antimony ore. The protest is overruled accordingly. The article is known as Japanese needle antimony, and has been advanced by "cruding" beyond the condition of ore to one of the stages in the manufacture of regulus of antimony. The board finds that it is a partly manufactured article, unenumerated. The assessment of duty would, therefore, appear to be correct.

CRUDE PETROLEUM AND ITS PRODUCTS AS FUEL.

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

Many varying opinions on the subject of petroleum fuel have been published during the last few years, in various periodicals. Most of these have appeared under the title of "Liquid Fuel." This is very misleading, as many liquids may be used as fuel. In this paper, we shall only consider petroleum and its products, as these are the only liquid fuels that are produced or are beginning to be produced in various parts of the world on a sufficiently large scale to be of public interest. Other liquid fuels, such as shale oil, gas tar, molasses or alcohol, may be used locally on a very extensive scale, but it is hardly practicable for their use to extend beyond a limited radius from the source of production.

Petroleum is to-day produced commercially in many parts of the world. In fact, petroleum deposits of various sizes have been found to exist in almost every country, and it would seem that there are yet virgin stores of this material for the world to draw on. Crude petroleum is a hydrocarbon, often containing a small percentage of sulphur and oxygen as impurities. Its specific gravity may vary from 12° to 70° Baumé, but the greatest quantity produced ranges from 30° to 45° Baumé. The color of crude petroleum is usually a green brown, but it is found from a light brown color, through the various shades of green to a jet black. Colorless petroleum has been found in a natural state, but only in small quantity, and of light gravity. It is the result of a natural distillation in the bowels of the earth.

Crude petroleum may be broken up by distillation into benzene, kerosene and other distillates and residuums of various qualities, any one of which makes a very good fuel under certain conditions. To a misunderstanding of these conditions is due much of the adverse criticism of the use of oil as fuel that has appeared of late years, and to an appreciation of these conditions and of the special qualities of each of the products of petroleum will be due the success that this class of fuel will achieve. These products and their qualities may be:

Gasoline, or petroleum distillate of more than 74° Baumé (sp. gr.), will never be used for fuel except to a very limited extent, since it and its closely associated distillates are always more valuable for other purposes, and it is but poor economy to burn them under a boiler when it will give so much better results when used directly in the cylinders of the engine.

Benzene, or petroleum distillate from 55° to 74° Baume, is the best of all liquid fuels, but its use is restricted owing to the care with which it has to be handled. The difficulty, danger and expense of transporting will only allow of its use in a very few favored localities. It will probably be used more extensively for enriching gas and for small portable motors.

Kerosene or petroleum distillate of from 48° B. to 35° B. gravity, is an excellent fuel, but, owing to the expense attending its preparation, we can hardly expect to see the price fall below 3c. per gallon, except in the places where it is produced; for, should it generally become so cheap the consumption of it as an illuminant would increase so enormously that there would be little left for fuel.

The present price of kerosene in bulk and in large quantity may be taken at about 3c. per gallon at its place of production, both in Russia and America. As a fuel for small boilers, it is the best, because of its portability and the safety and facility with which it can be handled. Any one who has seen one of the many systems of small kerosene engines and boilers now in vogue in the United States, will marvel that so especially neat, automatic and economical a motor has not been more generally introduced.

Next to kerosene, some of the heavy distillates of petroleum known as neutral or solar oils could be used as fuel, but they have no particular advantage over kerosene, save their high fire test.

Crude petroleum may contain any portion of benzene and kerosene from nothing up to nearly 90 per cent., varying entirely with the locality where it is produced. However, we may say roughly that of these two distillates, American crude petroleum contains 50 to 75 per cent. of kerosene and benzene; Russian from 15 to 50 per cent.; Peruvian from 15 to 50 per cent.

If distillation is stopped after the benzenes and kerosenes have been run off, there remains in the still an oil known by the various names of residuum, reduced oil, tar, fuel oil, astatki, mazoot, petroleum refuse, etc. In speaking of these, we shall employ the term "residuum."

If the distillation of this residuum is pushed still farther, neutral and lubricating oils distill over, or else, with certain forms of stills, decomposition sets in, and various products may be distilled over, until nothing but a small amount of coke is left in the still.

The demand for mineral lubricating oils is so great in the United States that but little residuum would be placed on the market at a price which would render it available as a fuel oil. In Russia, however, where the crude oil contains a low percentage of kerosene, there is an enormous surplus of residuum, which cannot all be used for the manufacture of lubricating oils. It is generally known as "astatki" or "mazoot," and is used for fuel in all possible places; in fact, a few years ago the Baku distiller tried to burn as much of it as he could, since there was little or no sale for it. This astatki is the fuel oil par excellence for marine and locomotive work where a perfectly safe oil is required. It is now distributed largely over the Russian Empire, and in 1890 some 600,000 tons were used for interior navigation in Russia alone, and the consumption has been constantly increasing.

The Eastern petroleum region of the United States is about 400 miles from the seaboard, and although many pipe lines traverse this distance, there must be an expense connected with the carriage of the crude oil. To the general public the question is not what is the price at the point of production, but what is the price at the point of delivery to the consumer located at the seaboard. Manufacturers in the States who have had the advantage of using natural gas for fuel are very loath to go back to coal, and as the supply of gas gradually diminishes, they turn to oil or artificial gas as their next best fuel. These manufacturers will be the first to use the surplus of oil from the Eastern regions, but, as has been shown, few of the products of this crude oil will be available for fuel; benzene will be largely used for enriching gas or small motors, kerosene for illuminating purposes and the residuum for making lubricating oils. The petroleum fuel consumed in the United States is almost restricted to the use of crude oil, and this is not the fuel which will suit the general consumer, especially if he is to use the oil for either railroad or marine purposes. Crude oil is a most excellent and easily handled fuel, but it must be used with caution, and is absolutely unfit for use on a locomotive or steamer, since, in case of accident, it may catch fire and spread with the startling and deadly rapidity which only those who have seen a petroleum fire can realize.

The writer has for many years used crude oil in stationary boilers and furnaces without accident, but notwithstanding this, he would consider most foolhardy and dangerous the general use of such fuel in locomotives and steamers. For such purposes no petroleum should be used that has a fire test of less than 200° to 250° Fahrenheit. A petroleum oil with a fire test of 250° F. is a safer fuel than coal.

The main Russian petroleum field (Baku) is some 600 miles distant from the seaboard at Batum, with which point it is connected only by a single line of railroad, the hauling capacity of which is often taxed to its utmost to carry the kerosene distilled at Baku. The only way in which this residuum can reach the Black Sea in a satisfactory and economical manner is by the construction of a pipe line to carry the crude oil from Baku and then distill it on the Black Sea shore, instead of on the Caspian, as at present. As such a plan would entail the removal of most of the refineries, it would probably meet with very strong resistance from their owners. It is not practicable to construct a pipe line solely for the use of residuum and to pump the oil such a distance, since the thickness and viscosity of residuum, especially at a low temperature, would make the steady working of the line a difficult and costly operation.

In London "Engineering" of 1888, the present writer treated of this subject, and the details of this plant have not changed much to this day. If residuum oil of good quality could be bought in Batum in large quantities at from 20s. to 25s. per ton, f. o. b., it would soon find a large market, and would prove a strong competitor against coal, especially in vessels running from the Black Sea ports to the East. The use of this Russian residuum as fuel on the steamers and railroads of the Empire is too well known to need mention here, save to remark that the various systems of burning petroleum have probably received more attention there than in any other place in the world; indeed, most of the modern methods of petroleum burning are due to Russian mechanical inventors.

The petroleum fields of the Kuban are close to the seaboard, and could market their oil with but little difficulty. During the past few years these fields have remained dormant, but there exists a very large deposit of a heavy petroleum which will make a most excellent fuel for marine purposes. As most of the land is crown property, it is possible the Government is reserving it for its own purposes, since it is perfectly aware of the immense advantage petroleum fuel would be to its fleet. Perhaps when Russia has the right of passing the Dardanelles, her navy may adopt petroleum fuel at a great advantage, especially as this petroleum deposit is but a few miles from the port of Novorossisk, one of the best harbors possessed by Russia. Indeed, some years ago the writer remembers that at one time Novorossisk was the only available harbor in all European Russia, since not only all the Baltic ports, but Odessa and the rest of the ports on the Black Sea were then closed by ice.

It is probable that in the future petroleum fuel will be used more for marine purposes, on account of economy in space and weight. Next to this mining and metallurgical purposes will be the largest consumer, owing, first, to the advantage of less weight to transport to regions difficult of access, and, secondly, to the ease of manipulation. California petroleum will probably be largely used for this purpose, as the production of crude petroleum there is being rapidly increased, and the oil is better suited by its quality for fuel than for refining purposes, owing to the small proportion of volatile constituents and large proportion of heavy hydrocarbons. It is just the contrary of the petroleum found in the Eastern States, which is especially adapted to the manufacture of illuminating oils, owing to the large proportion of volatile hydrocarbons it contains.

The petroleum fields of Peru somewhat resemble those of California, and are most favorably situated close to the sea and under climatic conditions that are enjoyed in but few places, and the few wells drilled have been productive. The crude oil is a good fuel for stationary boilers, and, if 40 per cent. of benzene and kerosene are distilled off, the resulting residuum is an oil of about 22° B. gravity and 260° to 280° fire test, of moderate viscosity and containing no paraffine. It preserves its fluidity at low temperatures, and makes an excellent fuel for either locomotive or marine use. The price at which it can be supplied is 20s. to 30s. per ton. As good coal on the West coast of South America seldom reaches a lower figure than 25s. per ton, this fuel oil will be able to compete with it from an economic point of view so soon as a sufficiently large supply of it is guaranteed.

There also exists on the high tableland between the two chains of the Andes in Peru a yet untouched petroleum deposit in very favorable geological surroundings. The neighboring region is very metalliferous, but without fuel. Once the supply of fuel solved, the development of the mineral wealth is assured.

It is not the writer's object to review the various methods that have been or are now in use for burning petroleum, but, believing more in practice than in theory, and that the simplest and most economical system is the best, he will limit himself to a description of those methods that have shown these qualities.

Petroleum is a liquid hydrocarbon—that is, it is a compound of hydrogen and carbon in varying proportions. One pound of carbon, when completely burned, yields 14,500 heat units, each of which is equal to 772 foot-pounds of energy; by this we mean that one pound of carbon oxidized to form CO_2 (carbonic acid) will give off during the combination 14,500 heat-units, and will require the amount of oxygen contained in 12.13 pounds of air to completely burn or oxidize it. If we allow just

the right proportion of air to mix with the burning carbon we get a most intense heat, which is supposed to be about 4,580° Fahrenheit. If, however, we allow too much air to reach the carbon, the number of heat-units given off is the same, but the temperature is reduced, because part of the heat is absorbed in warming the excess of air.

For our purpose we will consider that the air consists of oxygen and nitrogen in the proportion of 8 to 28. Therefore, for each part of oxygen which combines with the carbon 3½ parts of nitrogen must be heated. This is pure waste. The nitrogen of the air serves no purpose in burning except to lessen the intensity of the heat. Were it possible for us to combine carbon with undiluted oxygen, the intensity of combustion would be raised enormously—in fact, so much that boilers could hardly be built to stand the heat.

If we do not allow sufficient oxygen to reach the carbon, the latter will not oxidize to CO_2, but only to CO (carbonic oxide), and will give out much less units of heat. Here, then, is the great difficulty. To get the maximum efficiency of carbon as fuel, we must admit just enough oxygen under the form of atmospheric air to allow of complete oxidization—if too little is admitted, we do not liberate all the heat-units; if too much is admitted, it acts as a dilutent, and the total useful efficiency is greatly diminished.

One pound of carbon would, if all its heat were utilized, exert 5.67 H. P. for one hour, instead of from ½ to ¼ H. P., which is the result obtained in the best ordinary practice. The same pound of carbon would, if all its heat were utilized in a boiler, evaporate 15 pounds of water from 212° at atmospheric pressure. The average evaporation of boilers now in use only utilizes about one-half of this heat, either from bad design or from poor stoking. Not to mention the fact that any accumulation of scale in the interior or of soot on the exterior seriously affects the efficiency of the boiler; ⅛ in. of a deposit of soot renders the heating service practically useless, while 1/16 in. of scale or sediment will cause a loss of over 10 per cent. in fuel.

Hydrogen is also a fuel, and the best of all, since one pound of hydrogen requires the oxygen contained in 36 lbs. of air to effect its complete oxidization, during which it gives off 62,032 units of heat, and the temperature of combustion is much higher than that of carbon. The result of the oxidization of hydrogen is to form H_2O, or water.

Sulphur is also a fuel, but a poor one, as it only gives out 4,000 units of heat on oxidizing, but as the quantity of sulphur contained in petroleum is so small, it may be disregarded for all practical purposes.

We have here our two useful fuels, namely, carbon and hydrogen, and any other element which may enter into their composition is a detriment. Knowing the chemical constituents of our fuel, we can easily calculate its theoretical efficiency. In order to reach as near the theoretical efficiency as possible, in practice we must supply the right amount of oxygen, or air, and in the properly regulated admission of air is where liquid fuel has its great superiority over solid.

It must be remembered that the presence of oxygen in fuel is harmful, not only because it does not serve to increase the heat, but it has weight, which must be paid for when the fuel is purchased, and must be carried to serve no useful purpose, since the oxygen required for combustion is furnished free of cost from the air and does not have to be carried or handled.

Annexed will be found a table of combustibles, which will allow the reader to appreciate more fully what has been written above.

In order to allow the right amount of air to reach the combustible employed various methods have been used, the best of which is to turn the combustible or fuel into gas, which is under complete control and can be easily regulated. Next to this is liquid fuel, which has all the advantages of gaseous fuel, since it can be changed to gas at the moment of admission to the furnace, is under the same easy control, and has the extra advantage of flowing more easily through pipes of less diameter and requiring much less space for storage. After liquid fuel, pulverized solid fuel is the best, since it admits of being intimately mixed with air and being injected into the furnace much in the same style as a liquid fuel.

(To be continued.)

Garnet Deposit, Garnet Mountain, New York.

CALCIUM CARBIDE IN THE TRANSVAAL.—The Transvaal Government not long ago granted a concession to Wanoner & Co., giving them the sole right to manufacture calcium carbide in the Republic. It appears, however, that a patent for the manufacture of carbide and for the manufacture of acetylene gas was taken out some years ago by a Frenchman named Bullier, and is now owned by the Read-Holliday Acetylene Company, an English concern. Hence a conflict has arisen, with doubtful results.

Table of Combustibles.

Kind of Combustible.	Air Required.	Temperature of combustion				Theoretical Value.		Highest attainable value under boiler.	
	In pounds per lb. of combustible.	With theoretical supply of air.	With 1½ times theoretical supply of air.	With 2 times theoretical supply of air.	With 3 times theoretical supply of air.	In lbs. of water raised 1° per lb. of combustible.	In lbs. of water evaporated from and at 212° with 1 lb. of combustible.	With chimney draft.	With blast theoretical supply of air at 60°, gas at 320.
Hydrogen	36	5750°	3800°	2860°	1940°	62.032	64.20	.....	.....
Carbon	12.13	4580°	3215°	2440°	1650°	14.500	15.00	13.30	14.14
Wood (air dried)	4.80	3700°	2607°	2100°	1530°	7.249	7.50	6.64	7.02
Petroleum	15.43	5050°	3515°	2710°	1850°	21.000	21 74	18.55	19.90

Note I.—On an average 1 lb. of coal is equal in steam making capacity to 2 lbs. of dried peat; 2 to 2½ lbs. of dried wood; 3 lbs. of dried tan bark or bagasse; 3½ lbs. of straw; 5 to 8 lbs. of wet tan bark or begasse.

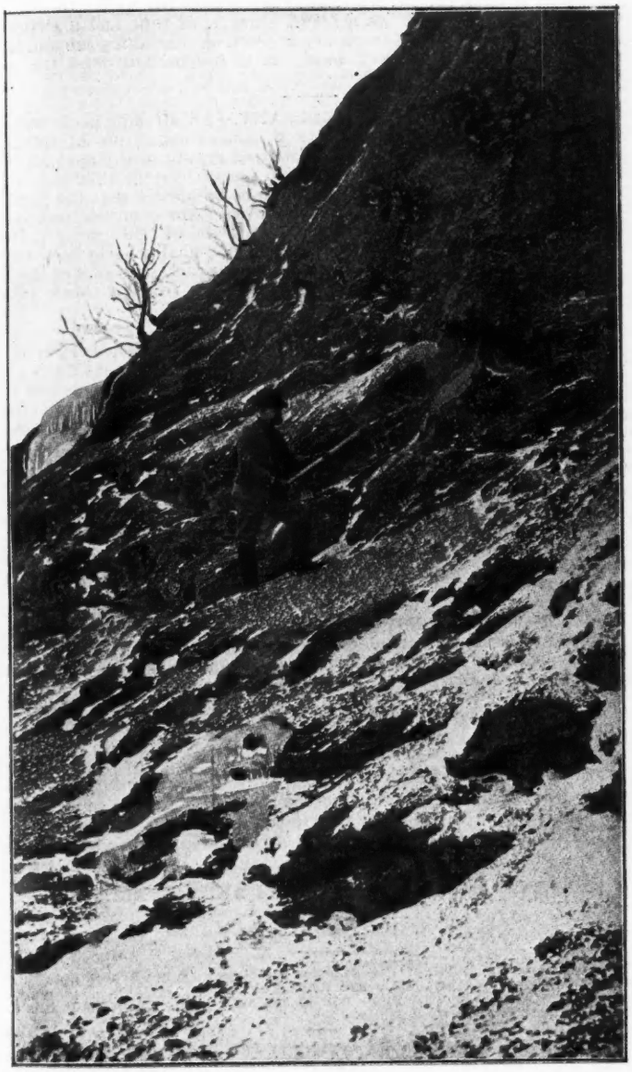
Note II.—With chimney draft, experiments show that about twice the theoretical amount of air to secure perfect combustion is used in the U. S. Navy, and about hree times as much in the ordinary run of boilers.

Note III.—The relative value of fuels is largely a question of locality and transportation. In the tropics, precious woods are burned since they are the cheapest, and during a coal famine in the Western States, the most available fuel was Indian corn. Natural gas varies in its composition, but is usually worth from 2 to 2½ times its weight of coal or about 30,000 cubic feet to the ton.

GARNET MINES IN THE ADIRONDACKS.

The accompanying illustration, for which we are indebted to Mr. Verplanck Colvin's report on the New York State Land Survey, shows the general appearance of one of the large deposits of garnet in Essex County, New York, in one of the wildest sections of the Adirondack Region. Of this locality the report says: "Garnet Peak is the next summit northwesterly from the Black Eagle, or northerly from Crow Mountain, and its steep, gray ledges are very noticeable on the easterly side of the Blue Mountain road at the summit, where the land begins to descend northerly. In this vicinity are several mines of the mineral popularly styled 'pocket garnet,' the pockets being merely large crystals, sometimes quite regular in form, but often in large amorphous masses. In the adjacent part of the Fourteenth township is a mine, and a mill at which the mineral is separated. It is reduced to fine grained particles of various grades and is then used as an abrasive in finishing hard wood, etc."

The second illustration shows outcrops of garnet on the side of Gore Mountain, one of the most prominent peaks in the region. Of this locality the report says: "Nearer a small clearing below, at the mines,



Garnet Crystals, Gore Mountain, New York.

the cluster of log buildings used as storehouses for the garnet—here dug and exported as a substitute for emery—the great excavations, dumps and masses of refuse stone from the mines, indicate the extent of the workings. These mines are, perhaps, the most remarkable of their kind known; certainly the most notable in this section of the country. A vertical vein of perhaps 100 ft. in thickness, richly charged with the mineral, here extends along the northerly face of the mountain, at an elevation of about 2,800 to 2,900 ft. above the sea. The country rock on either side is a hard gneiss, containing very little mica, though broken crystals of what appeared to be biotite or phlogopite, were met with. The vein stone is of softer material than the country rock and is quite variable in its nature and composition.

"The remarkable feature of this vein consists in the innumerable crystals of the so-called pocket garnet with which it is filled. These crystals are almost as abundant as cobble stones in a bank of glacial drift; not by any means perfect crystals, but coarse, irregular clusters, of which the vein stone may be estimated to contain from 10 to 15 per cent., and in places 20 per cent. of the volume of the vein, all of deep red, irregular masses of mineral. They are found of all sizes, from small bits up to enormous pockets, a foot or more in diameter, and it is claimed that crystals of 3,000 lbs. weight have been taken from this mine. These large crystals, however, are not permanently knitted together, for the decomposition of the vein rock seems to have penetrated them also, so that frequently the broken fragments can be picked out easily with a stick, knife or trowel, and fall into the hands of the collector as dull, ruby-colored, disintegrated masses. In some cases huge crystals crumble so easily that a shovelfull of broken garnet can be taken from a single pocket in the rock. Almost all of this material is valuable, for when prepared in the form of garnet paper it is preferable for use in the dressing of hard wood and in leather finishing, keeping sharper than corundum or emery, although it is not quite so dense; yet specimens are occasionally met with that approach corundum in hardness."

THE PRECIPITATION OF COPPER BY ZINC.*

By John C. Shengle and Edgar F. Smith.

At various times during the past year attempts have been made in the John Harrison laboratory to make a direct comparison between silver and cadmium, with the hope that in this way the atomic mass of the latter metal might be definitely established. The most carefully purified metallic cadmium in weighed amounts was allowed to act upon various soluble salts of silver. The precipitation of the latter metal was rapid and complete. The results, while very fair in quantitative respect, could not be used for the purpose designed. The precipitated silver contained cadmium. It was not dissolved portions of the latter but metal originating from the salt which was acted upon, which salt became in some way encased in the silver so that the most painstaking efforts failed to eliminate it. Nor did it seem to make any difference as to which silver salt was acted upon. Cadmium, in small amounts it is true, but nevertheless cadmium, was invariably discovered in the beautiful deposits of silver.

When copper salts were substituted for silver salts the cadmium threw out the copper quickly, and in calculated amounts, but it also was contaminated with varying quantities of cadmium, so that the scheme originally planned for the determination of the atomic mass of cadmium was abandoned.

The negative experience suggested the idea of testing the copper precipitated by metallic zinc. This being a method recommended for the quantitative estimation of copper, we concluded to ascertain if possible whether it carried or retained any zinc. Pure copper sulphate was prepared, and metallic zinc was also obtained pure by the distillation method of Morse and Burton.

The determinations were conducted in the usual manner, but instead of weighing the precipitated copper it was dissolved in nitric acid and estimated by means of the electric current. The liquor poured off from this deposit was examined for the zinc. Analysis resulted as follows:

1. In this 20 c.c. of a copper salt solution, containing 0.1739 gram of copper, was precipitated by metallic zinc. The deposit of copper was filtered, thoroughly washed, dried and dissolved in acid, and its solution electrolyzed, the filtrate from the copper deposit being used for the determination of any contaminating zinc: 1. Copper present, 0.1739g.; copper found, 0.1742g.; zinc found, 0.0067g.

In the second and third determinations the results were: 2. Copper present, 0.1739g.; copper found, 0.1741g.; zinc found, 0.0027g. 3. Copper present, 0.2609g.; copper found, 0.2612g.; zinc found, 0.0033g.

Twenty-two precipitations were made with varying conditions. Zinc was found in all of the precipitated copper. As a rule this method gives fair results, but it is, notwithstanding, interesting to know that the good results must be due largely to a balancing of errors.

VICTORIUM.—In his presidential address before the British Association last September, Sir William Crookes announced the discovery of a new element to which he proposed to give the provisional name of monium. Since that date he has completed his investigations and laid a full account of them before the Royal Society, says "Engineering." The new element, which has been renamed Victorium, is of a pale brown color, easily soluble in acids. It is less basic than yttria, and more basic than most of the earths of the terbia group. In chemical properties it differs in many respects from yttria, but, speaking generally, it occupies a mid-position between that element and terbium. On the assumption that the oxide has the composition Ve_2O_3, the atomic weight of Victorium is apparently not far from 117. The photograph of the phosphorescent spectrum of the oxide, Victoria, shows certain definite lines that have not hitherto been associated with any other element.

EXPLOSIVES IN GREAT BRITAIN.—The annual report of the British Inspectors of Explosives shows that there is still a considerable quantity of foreign nitroglycerine products imported, 983,600 lbs., as against 1,153,530 lbs. in the previous year. Gelatine dynamite forms the principal item in the above total. Amongst the investigations conducted by the department were some on mixtures of oil gas and acetylene at different pressures, which showed that when the proportion of acetylene does not exceed one-fifth, and the pressure is not above 150 lbs. per square inch, such mixtures are not explosive. Dr. Dupre reports that nitroglycerine and nitrocellulose are still the principal ingredients used in the specimens of explosives submitted to the department for license. Great progress has, however, been made in the knowledge of the properties and peculiarities of these explosives. Thus in 1873 nitrocellulose was divided practically into two kinds, the soluble and the insoluble in ether alcohol, but it has since been found that this question of solubility is not, as originally believed, a matter of the degree of nitrification, but of the method of manufacture followed, and it is thus possible to produce soluble specimens even of tri-nitrocellulose.

*Abstract of article in "Journal of the American Chemical Society," October, 1899.

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 otbained 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.)

Peat.—Where can I find information as to the use of peat? I have a large deposit and would like to convert it into marketable fuel.—S. D.

Answer.—An article on the use of peat as fuel and its preparation for use was published in "The Mineral Industry," Volume II, pages 489-496. This was supplemented and brought up to date by an article on the same subject in Volume VII of the same work, pages 191-198. You can find no more complete and compact presentation of the subject than is given in these articles.

Liquid Air.—I have seen advertisements and references in the daily papers to the use of liquid air as an explosive in mining; also as an agent in treating ores. Can you tell me of any practical applications?—P. M. D.

Answer.—The use of liquid air is still in the experimental stage, and it is hardly safe to pronounce as yet any positive opinion as to what we can do with it in mining. Probably it may be used in cooling and assisting in the ventilation of deep mines. Some experiments have been made with its use as an explosive, but they have been only of a preliminary and desultory nature. Much further trial will be needed to establish its utility. That there is a large field for investigation is really all that can be said.

As to the advertisements and newspaper paragraphs claiming that liquid air is used in extracting gold from its ores, they are simply "fakes." The schemes are put forward by people who presume on the ignorance of the public and are trying to take advantage of the free advertising which liquid air has received.

Gold and Silver Ores.—Can you refer me to reading matter upon the subject of gold and silver ores? Also is it possible to determine how these values exist in low-grade tailings?—F. N. F.

Answer.—1. There are a number of good books on the subject you mention. Among them we might name Rickard's "Gold Milling" ($2.50); Rose's "Metallurgy of Gold" ($6.50). These refer to the extraction of the metals from their ores. Kemp's "Ore Deposits of the United States" ($4) would be useful. Stretch's "Prospecting, Locating and Valuing Mines" ($2.50) would give you much information.

2. The only way to determine the existence or value of gold and silver in low-grade tailings is by the ordinary methods of sampling and assay.

3. From your letter it is apparent that your knowledge of mining is limited and you desire to extend it. We might suggest that a course in mining in the United Correspondence Schools would help you much more than desultory reading in books; and the directions received in that course would probably save you waste of time and effort.

Stamp Mills.—As a student of mechanics, it seems to me that the stamp mill, which is so widely used for crushing ores, is a very imperfect device. It is rough, not capable of nice adjustment and involves a certain loss of power. Can you tell me why it is so extensively used? Why has it not been replaced by better machines?. Is there an opening for the invention of such machines?—S. C. C.

Answer.—Your criticism of the stamp mill as a mechanical device is to some extent justified. Without doubt machines can be and have been devised which are much better—on paper—and are capable of nicer adjustments and better theoretical utilization of power. Nevertheless the stamp mill is simple, easily understood, readily repaired and will stand rough work. For these reasons it is widely used and will continue to find favor. There are many other crushing and grinding mills which are used and which all have their advantages. These, of course, have replaced the stamp mill to some extent, but still leave it a very wide field. You must remember that the work of crushing rock and ore is rough work, and does not permit the introduction of too many mechanical niceties. A device which may seem excellent on paper and may work well in a clean, quiet engine room or mechanical laboratory, is very apt to break down under the hard conditions of actual work in a mill. Some experience of these conditions in an average mining plant may give you an idea of what is required there, and a greater respect for the stamp mill than you apparently have at present.

An analogous case, mechanically, is the link motion, which is so generally used for operating the valves of locomotive cylinders. Its imperfections have been demonstrated hundreds of times, and are generally admitted. Nevertheless it holds its place because it is a rough-and-ready mechanism, simple, easily adjusted and able to work well under all the conditions of oscillation, dust and other disturbing influences found in a running locomotive.

There is always an opening for improvement, and inventions which will improve or cheapen the working of ores will find acceptance. Many which are brought forward, however, are thrown aside, because the inventor has not a practical knowledge of the work required of them. Such knowledge is the first requisite.

UTILIZING THE WASTE GASES OF BLAST FURNACES.—Die Deutsche Kraftgas Gesellschaft is the title of a company which has just been formed in Berlin, under the auspices of the Union Electrical Company and of Messrs. Siemens & Halske, to put down plants to utilize the waste gases of blast furnaces in driving gas engines and dynamos, etc.

THE DEEPEST OIL WELL.—It is claimed that the Forest Oil Company has the deepest oil well on the Bedell farm, in the Monongahela River Valley, about 25 miles from Pittsburg. The hole has been drilled to a depth of 5,532 ft., but work has been suspended owing to a break in the 2⅞-in. rope used. As a result 1,000 ft. of rope and a string of tools are at the bottom. Experts are at work on the fishing job and hope to be able to resume drilling soon. It is proposed to sink the well 6,000 ft.

UTILIZING COKE DUST IN GERMANY.—An attempt made to convert coke dust into briquettes, with a cement consisting of cellulose residue, did not succeed because a prolonged drying in the open air was necessary for the briquettes to stand carriage; but in that case they crumbled in the fire, while they also burned so slowly that the furnace could not be kept at the desired temperature. For counteracting these disadvantages it was proposed to mix nitrate of soda with the sementing substance; but the only method which has hitherto been found to give good results is to use the dust itself as fuel, with one of the devices for feeding powdered fuel, which has recently been introduced.

COKE IN FRANCE.—The 1,889 coke ovens in the French department of the Nord and Pas-de-Calais together produced 738,252 tons during the first half of the present year, against 707,499 tons in the corresponding period of last year and 643,951 tons in that of 1897. The slight increase of 4.34 per cent. this year is entirely due to the Pas-de-Calais, because in the Nord only the Aniche Company could keep up its out-turn, all the other companies having been obliged to restrict their production through want of coal. This state of things has, however, been turned to account, states the "Revue Industrielle de l'Est," for reconstructing the ovens and providing them with appliances for recovering the by-products. Indeed, the transformation is so thorough that the day is looked forward to when coke will become a kind of by-product of the oven, which will chiefly serve for the generation of gas to be used directly as motive power.

COAL IN THE TRANSVAAL.—The Transvaal Mining Department has begun to issue, in a tabulated form, statistics of the coal output of the State. There are five producing districts—Boksburg, Heidelberg, Middelburg, Lydenburg and Klerksdorp—and the number of mines in each respectively is 9, 3, 12, 1, 1, or a total of 26. The total production in long tons and average values per ton at mines for six years have been as below:

	Tons.	Value.		Tons.	Value.
1893	548,534	$2.25	1896	1,437,207	$2.04
1894	791,358	2.18	1897	1,600,212	1.84
1895	1,133,466	2.19	1898	1,907,808	1.68

The total output for the first quarter of the current year was 512,462 tons, indicating a total of upwards of 2,000,000 tons for the year.

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 September 26th, 1899.

633,568. APPARATUS FOR PURIFYING AND RECOVERING METALS, ETC. William J. Clapp, Birmingham, England. The combination, with a furnace, of a vessel for holding a purifying agent, such as powdered lime, a steam pipe for blowing the said agent into the heating chamber of the furnace, means for superheating the steam in the pipe, a stack receiving the gases from the heating chamber, a water-bosh in the base of the stack, a spray pipe for water projecting upwardly into the stack, and a spray pipe for steam projecting downwardly in the stack, the gases from the furnace being admitted to the stack between the two spray pipes.

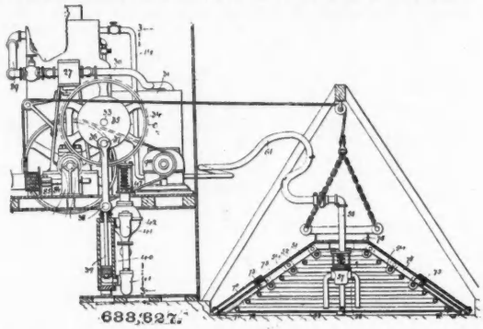
633,572. BILLET-CONVEYOR. John C. Cromwell, Cleveland, Ohio, assignor of one-half to William Garrett, same place. A conveyor comprising a driving cable or belt and a series of rollers which rest upon the upper face of the cable or belt in its upper path, and are driven thereby.

633,589. PLUMB-LEVEL. Frank B. Hinkson and William L. Crawford, New Castle, Pa. The combination with the cylindrical casing in the stock of the transparent ends provided with arbor-bearings into which the arbor-points of the plumb-bob are adapted to fit, of a one-piece ring provided with diverging flanges and slotted in line with the slot in the stock.

633,611. PROCESS OF MAKING EXPLOSIVES. Francis G. du Pont and Francis I. du Pont, Wilmington, Del. The process consists in mixing alcohol with nitro-cellulose, and then mixing with the alcoholized nitro-cellulose a solution of nitro-glycerine in ether.

633,618. CEMENT. John C. Sellars, Birkenhead, England. A cement comprising in combination bauxite and silicate of soda in proportions, as specified.

633,627. THAWING APPARATUS. Chas. Taylor and Chas. E. Robertson, Montreal, Canada. Apparatus comprising a heat-reflecting device adapted to reflect heat upon the substance to be thawed, said reflecting device consisting of a cone having an inner reflecting-



633,827.

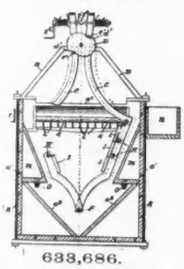
surface and its outer surface covered with insulating material and carrying a series of vanes projecting beyond the diameter and adapted to be adjusted to increase or reduce the diameter.

633,661. AIR-DRILL. Alfred P. Schmucker, Denver, Colo. In a drill operated by air or other suitable fluid, the combination with a suitable support, of a nut mounted thereon, a hollow screw-shaft engaging the nut, an air-tube passing through the screw-shaft, a cylinder made fast to the forward extremity of the air-tube and provided with ducts adapted to take the air from the tube and deliver it alternately to the front and rear parts of the cylinder-chamber, and a piston located in the said chamber and adapted to reciprocate when acted on by the air from the said ducts, the piston being grooved to allow the air to cross the chamber, the wall of the cylinder being provided with suitable exhaust-ports, and a drill-bit supported to be actuated by the reciprocating piston.

633,668. COMPOSITE WIRE AND PROCESS OF MANUFACTURE. Orlando M. Thowless, Newark, N. J. A composite wire having an internal platinum core and an external covering of nickel or nickel alloy.

633,686. ORE CONCENTRATOR. George T. Cooley, Joplin, Missouri. The combination of a water-tank; a separating sieve or grate mounted in the upper portion thereof; a pair of wing arms carrying swinging valves or gates and pivoted immediately facing each other at an angle opening upward immediately under the sieve or grate; and means for simultaneously reciprocating the wing arms toward and away from each other.

633,692. ROCK-DRILLING MACHINERY. William Gleeson, San Francisco, Cal. A main cylinder, a piston, a distributing-valve for air or



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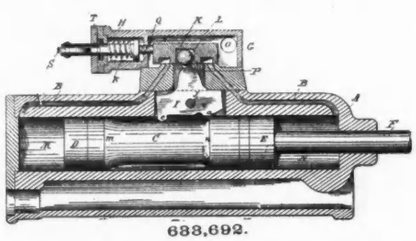
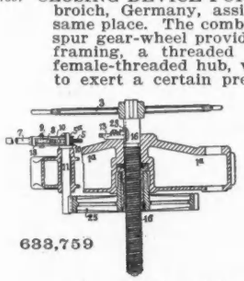


633,692.

steam, a tappet to move the valve each way, and a spring arranged to press against one end of the valve and move it in one direction in advance of the tappet's action, thereby producing short strokes of the piston and of the drills attached thereto.

633,743. ALLOY. Wilfred Van Wart, Franz W. Popp, and Joseph J. Bradley, Birmingham, England. An alloyed metal consisting of aluminum, copper, zinc, tin, silver and phosphorus, the percentage of aluminum being from 90 per cent. upward.

633,759. CLOSING DEVICE FOR FILTER-PRESSES. Ludwig Hirt, Grevenbroich, Germany, assignor to the Maschinenfabrik Grevenbroich, same place. The combination of an end framing, a female-threaded spur gear-wheel provided with a hub movably mounted in the said framing, a threaded pressure-spindle passing through the said female-threaded hub, with means for rotating the pressure-spindle to exert a certain preparatory pressure on the end plate of the



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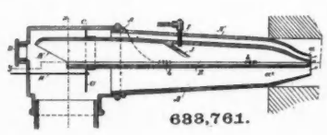


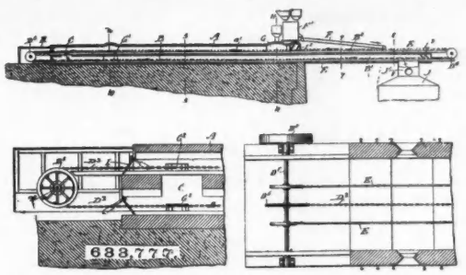
633,761.

system of filter plates or frames and a locking device for locking the pressure-spindle from rotation, combined with means for causing the final efficient pressure of the spindle.

633,761. OIL-BURNER. August Johnson, San Francisco, Cal., assignor to the Oil Fuel Saving Company, same place. An oil-burner consisting of an exterior tube having the flattened transverse discharge-opening at the front, an interior segmental tube, the upper part of which coincides essentially with the curvature of the interior of the outer tube and having a flat bottom, said tube being compressed to form a transversely-extended discharge-nozzle within the nozzle of the outer tube, an oil-supply pipe leading into the upper part of the inner tube, a spreading deflector upon which the oil is received and by which it is distributed within the inner tube and an air-supply pipe opening into the rear of the two tubes.

633,777. CALCINING FURNACE. Charles M. Allen, Basin, Montana. A furnace provided with a plurality of hearths located one above the other, the uppermost hearth being shorter than the hearth beneath it, leaving one end of the roof of the lower hearth exposed to form a drying-floor capable of freely taking up the high heat emanating from the burning material traveling through the lower hearth, to expel the moisture from said material during its travel over said floor and previous to its entrance into the upper hearth.

633,789. GAS AND AIR MIXER. Louis T. Bulley and Albert W. Johnson, New Haven, Conn. A mixing-chamber having means for the admission of gas and air, an independent receptacle, a connecting-tube, for conveying the carbureted gas from said chamber to said receptacle, and valve mechanism partaking of the movement of



633,777.

said receptacle for proportioning the gas and air supply into said mixing-chamber.

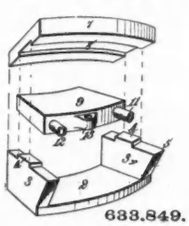
633,841. PROCESS OF MAKING SOLUBLE ALKALINE SILICATES. Fritz Henkel, Dusseldorf, Germany. The process consists in mixing six parts of a solid alkaline silicate with one part of water, and strongly heating the mixture until the water has disappeared and a homogeneous mass is formed, which mass cakes and is then easily soluble in cold water.

633,832. SURVEYOR'S COMPASS. Rudolph J. Goeppinger, St. Francis, Ark. A compass, comprising a casing having a graduation, a needle arranged to indicate thereon, and a retaining device or stop projecting into the path of the needle and movably mounted on the casing so that it may be brought in registry with different points of the graduation.

633,849. COOLING DEVICE FOR FURNACE-WALLS. Guy R. Johnson, Embreville, Tenn. The combination with a protective jacket comprising a segmental bottom provided at its opposite ends with upright sides having upwardly-projecting lugs formed on their upper edges, a segmental top grooved upon its lower side to fit said lugs and fitted upon the upper edges of said sides, and a cooling-plate removably fitted in said jacket and provided with means for maintaining a circulation of a cooling medium therein.

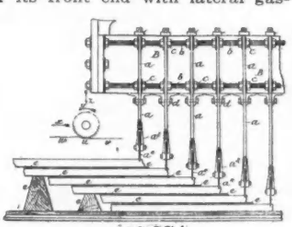
633,850. STEAM SHOVEL OR EXCAVATOR. Peter N. Jonte, Cincinnati, Ohio. The combination of a platform, a mast pivotally mounted and adapted to be swung in a vertical plane to a vertical or to an inclined position, a jib having pivotal connection with the platform connected at one end to the mast, a bucket or shovel carried on the outer end of the jib, and means for moving said mast pivotally in a vertical plane.

633,859. BLOWPIPE. Theodore G. Lewis, Buffalo, N. Y., assignor to the Buffalo Dental Manufacturing Company, same place. In a burner for a blowpipe, the combination with a casing having gas and air inlets or chambers, of a gas-delivery nozzle communicating with said gas-inlet and provided near its front end with lateral gas-



633,849.

633,859



633,974

outlets, an air tube or nozzle arranged within said gas-nozzle and communicating with the air-inlet of the burner-casing, and a confining-hood surrounding said gas-nozzle and separated therefrom by an intervening gas-space and closed at its rear end and on all sides.

633,895. MACHINE FOR GRINDING SURFACES OF METALS. George W. Packer, Chicago, Ill. The combination of a main frame, a rotary grinding-stone supported thereon, a supply-hopper, a main carriage provided with devices for automatically moving the blanks to be ground from said hopper and delivering them to the grinding-stone, said main carriage being yieldingly held against the stone and automatically adjustable to compensate for the wearing away of the stone.

633,941. DREDGER FOR PULVERULENT MATERIAL. James W. Arrott, Jr., Allegheny, Pa. A dredger or sifter consisting of a screen or sieve and a supporting-handle, in combination with a pneumatic agitator attached to the dredger and adapted to vibrate the sieve.

633,954. DUST-COLLECTOR. Paul Eberwein, Jackson, Mich. The combination with an upper chamber which receives the dust-laden air and a lower chamber which receives the separated dust, of upright filtering-chambers arranged between said chambers and communicating therewith, and upper and lower cut-off devices, arranged to open the passages.

633,974. APPARATUS FOR CUTTING STONE. Farquhar M. McLarty, Greenock, Scotland. One or more disk-like cutters mounted so as to be free to rotate and each having a circular series of teeth extending entirely around the periphery thereof, the line of the apex of each tooth extending across the periphery of the cutter, and the side or sides of said teeth being inclined in a longitudinal direction; means for applying thereto a force to cause the said teeth to enter the material, and means for imparting a traversing movement to the said cutter or cutters such that when the apparatus is in operation the said teeth successively enter the material forward of each other and break off successive portions in a rearward direction.

GREAT BRITAIN.

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

Week Ending September 2d, 1899.

21,568 of 1898. MINING MACHINE. C. Koerte and J. Atkinson, Leeds. In coal cutting machines, improved arrangements for cutting new roads.

2,443 of 1899. GAS VALVE. S. P. Bowen, Middlesborough. Improved valve for controlling the flow of gas in coke ovens.

10,685 of 1899. PEAT BRIQUETTES. L. Galecki, J. Lopatin and P. Lopatin, Warsaw, Poland. Process for working peat, cleansing it from impurities and making it into briquettes.

Week Ending September 9th, 1899.

17,204 of 1898. CLEANING BLAST FURNACE GASES. G. Zschokke, Kaiserlautern, Germany. Improvements in the apparatus for catching solid particles from blast furnace gases.

12,630 of 1899. ROASTING FURNACE. J. L. H. Hinz, Giessen, Germany. Improved shape for the longitudinal ribs of roasting and calcining furnaces.

PERSONAL.

Mr. George O. Bradley was in Butte last week.

Mr. A. W. Kinney of Los Angeles, Cal., is now located at Cripple Creek, Colo.

Mr. A. B. W. Hodges is superintendent of the Granby smelter at Grand Forks, B. C.

Mr. Titus Ulke has been seriously ill in Philadelphia, but is now regaining strength rapidly.

Mr. Frederick G. King, representing Eastern parties, is inspecting mines in Shasta County, Cal.

Mr. H. C. Woodrow of St. Louis, Mo., who is interested in mines in California, is in San Francisco.

Prof. W. S. Keyes, after a 10 days' sojourn in Utah, left Salt Lake City a week ago for San Francisco.

Mr. Thomas Clark of El Dorado County, Cal., has sailed for South America to take charge of the Playa del Oro Mine.

Mr. C. L. Lang, late of Sonora, Cal., is now assistant superintendent of the Gold Belt Mining Company at Doniphan, Idaho.

Mr. E. S. Moulton of Boston, Mass., is in Gilpin County, Colo., looking after his interests in the Gilpin Boston Gold Mining Company.

Mr. Chas. T. Arkins, chemist in charge of the Rose Gold Cyanide Mill, Victor, Colo., will shortly leave for the East on a six weeks' vacation.

Mr. C. Erbsloh, a representative of the Krupp works at Essen, Germany, is visiting the principal manufacturing centers of this country.

Mr. Chas. A. Fry, chief engineer of the Link Belt Engineering Company of Philadelphia, Pa., has returned from a 2 months' trip abroad.

Mr. William Exley Miller of Edinburg, Scotland, secretary of the Arizona Copper Company, has been visiting the company's property at Clifton, Ariz.

Col. N. E. Linsley, with 2 assistants, has gone up the Duncan River, British Columbia, to examine a large group of mines for the Jay P. Graves Syndicate.

Mr. D. C. Jackling has been in Butte and Anaconda and at Puget Sound and Northwest points and will return to Salt Lake City in a few days via San Francisco.

Mr. Alex. Dick, formerly of the Jaggers Mine, Nova Scotia, and more recently of the Velvet Mine, Rossland, now has his permanent headquarters at Rossland.

Mr. E. E. Linthicum has succeeded Mr. D. R. P. Dimmick as resident manager of the plant of the United States Pipe and Foundry Company at Anniston, Ala.

Mr. Theophilus King and Mr. D. M. Brewster of Boston, Mass., were in Gilpin County, Colo., last week. Both gentlemen are interested in the Cook Mining Company.

Mr. Louis Janin last week was at Butte, where he is expert for the Boston & Montana Company in its legal battle with the Montana Ore Purchasing Company.

Mr. J. Tarbet of Salt Lake, who is interested in mining properties in Shasta County, is in San Francisco. He is accompanied by Messrs. A. J. Schumacher and William McDermott.

Mr. Reginald N. Truman, late with the Mountain Copper Company of Shasta, County, Cal., has been appointed general manager of the Ray Copper Mines, Limited, of Riverside, Pinal County, Ariz.

Mr. William P. Boger, draftsman for the Cambria Steel Company, at Johnstown, has resigned to become superintendent of rolling mills at Lebanon, Pa., for the American Iron and Steel Manufacturing Company.

Mr. James W. Shields has been appointed chief engineer with the South West Connellsville Coke Company, to succeed Mr. Robert Ramsey, Jr., who is now superintendent of the Standard coke plant of the H. C. Frick Coke Company.

Mr. Robert Ruoff, of London, Eng., assistant mechanical engineer of the Simmer & Jack Mine of the Consolidated Gold Field Company, South Africa, has been looking over the surface plant of some of the great Lake Superior copper mines.

Major Leckie, consulting mining engineer of the Republic Mine, Republic, Wash., has been on a visit to Rossland, B. C. Major Leckie has been consulting with Mr. Jackling, of the Mercur Mine, to increase the mill capacity of the Republic.

Ex-Senator Warner Miller, of New York, Mr. James McNaught, attorney for the Northern Pacific Railway, and Mr. W. H. Jeffery, mining engineer, of Rossland, have been examining some valuable mineral deposits in the Slocan Division of British Columbia.

Mr. A. Ekman, the mineralogist in charge of the mineral department of the California exhibit at the Paris Exposition, is in San Francisco. The basis of the California exhibit will be derived from the State Mining Bureau, and it is proposed to add to this the choicest specimens which may be collected from the various counties.

Mr. Arthur L. Collins, consulting engineer of the Smuggler-Union Mine at Telluride, Colo., has been appointed general manager of the property, to succeed Mr. Charles W. Miller, resigned. Mr. Benjamin B. Lawrence, president of the company, and Bulkley Wells, secretary and treasurer, recently spent several days looking over the property.

Mr. W. B. Wilson, recently superintendent of the Elkton Consolidated Mining Company at Cripple Creek, Colo., is now superintendent of the Le Roi Mining Company at Rossland, B. C. We regret that, owing to the mistake of a correspondent, Mr. Wilson's title was given as "underground superintendent" in a recent issue. The word "underground" was superfluous.

Dr. Franklin R. Carpenter, who has been a prominent figure in mining affairs in the Black Hills District of South Dakota for a number of years, has resigned his position as general superintendent and manager of the Deadwood & Delaware Smelter. Dr. Carpenter did much to bring the process used at the smelter to its present efficiency. His resignation is said to be connected with the recent sale of the Deadwood & Delaware mining ground and smelter to the Golden Reward Company. Dr. Carpenter expects to go to Denver.

Prof. Benjamin Ide Wheeler, the new President of the University of California, assumed active charge at Berkley October 2d. The members of the faculty and the students greeted him formally. He was introduced by Prof. Bernard Moses. October 25th, there will be inaugural ceremonies and a celebration. President Gilman of Johns Hopkins University and President Jordan of Stanford are to make addresses. Prof. Gilman was president of the University of California about 25 years ago, and superintended its removal from Oakland to Berkley.

SOCIETIES AND TECHNICAL SCHOOLS.

Montana Society of Engineers.—A meeting of the Society was held in Butte, September 9th, By a vote of 56 to 6 it was decided to change the headquarters of the society from Helena to Butte. A meeting of the society will be held in Helena, October 14th. A. S. Hovey is secretary.

Engineers' Club of St. Louis.—At the meeting of October 4th 16 members and 3 visitors were present. Messrs. Fogarty, Fay, Bilharz, Ringer, Cordes and Beardslee were elected members.

The paper of the evening, entitled "Development of the Automatic Machine for Metal Working," was then read by Mr. H. S. Wilson. The probable incidents that led to the invention of the earliest and crudest form of machinery was given, together with short descriptions of the machines. The author then went on to give brief descriptions of more modern forms of automatic machines, showing how automatic machines of yesterday become semi-automatic or non-automatic to-day by reason of constant improvement. The machines for automatically making a large variety of articles were briefly described and some of the wonderful results achieved with them noted.

Societies and Technical Schools

American Chemical Society—New York Section.—At the regular monthly meeting, in the rooms of the Chemists' Club, October 6th, the chairman called attention to the generally prosperous condition of the society. A paper was read by Wm. McMurtrie on the "Year's Progress in Applied Chemistry." The paper was discussed at some length. He was followed in a short address on "Filters for Purifying Public Water Supplies," by Allen Hazen. A paper on "The Mordanting and Dyeing of Silk" was read by Raphael Granja, which provoked some discussion. Prof. C. A. Doremus read a paper in tribute to the memory of Robert Wilhelm Eberhard Bunsen.

The chairman announced that the Executive Committee had invited the Philadelphia and the Lehigh Valley local sections to hold a joint special meeting with the New York Section during the coming month.

Engineers' Club of Philadelphia.—At the meeting of September 16th, 42 members and visitors were present. The secretary announced the death of Mr. Walter D. Heston, while on a surveying trip in Central America. Messrs. A. Hale and J. Percy Webster were elected to active membership, and Mr. Arthur B. Stitzer to junior membership.

Mr. Wm. C. L. Eglin exhibited and described a set of instruments which he had arranged especially for testing underground cables, consisting of a galvanometer whose indications would not be disturbed by street vibrations, a small dynamo producing a current of high voltage, and a battery to operate the same—all contained in a box which can be readily transported in a wheelbarrow. He also exhibited and called attention to the sensitiveness of a Thomson reflecting galvanometer in operation, and described the principles of the D'Arsonval galvanometer, which had been applied in his modification to render the instrument adaptable to practical work. The details of the apparatus exhibited and the general subject of galvanometer testing were discussed by Messrs. E. A. Scott, Carl Hering, A. H. Manwaring, F. Schumann and others.

INDUSTRIAL NOTES.

The Tidewater Steel Company has the Wellman Steel Works at Chester, idle for 8 years, in operation again.

The Salisbury Carbonate Iron Company, of New York City, has blown in its Copake furnace at Copake, N. Y., after making extensive repairs.

The Jeanesville Iron Works, through its Denver manager, A. Middlebrook, reports an order for 2 No. 7 sinkers and 1 station pump from Salt Lake.

The M. C. Bullock Manufacturing Company of Chicago, Ill., recently took orders for 2 hoisting plants, also for mining machinery to go to Australia.

The Pneumatic Cyanide Process Company has sold its rights in Boulder County, Colo., to M. F. Leech, of the Manila Mining and Investment Company.

H. M. Whitney, of the Dominion Steel and Iron Company, is authority for the statement that 2 of the 4 furnaces to be built near Sydney, Nova Scotia, will be in blast by January 1st,

The Garvin Machine Company of New York City has received a large order for machine tools for the shop equipment of the Sao Paulo Light, Heat and Power Company's plant at Sao Paulo, Brazil.

The Universal Fuel Company of Chicago, it is stated, is negotiating for the erection of coke ovens under the Hemingway patents at Oskaloosa and Ottumwa, Iowa, to make coke from Iowa coal.

The Brown Hoisting and Conveying Machine Company of Cleveland, O., has secured a contract to supply 3 big traveling cranes for the plant of the Dominion Iron and Steel Company, of Sydney, Cape Breton, Nova Scotia.

The Virginia Iron, Coal and Coke Company, of Bristol, Va., will soon put in blast its Bristol, Radford and Max Meadows furnaces, after extensive improvements. The company is also preparing to blow in its Graham Furnace.

The firm of Dutilh-Smith, McMillan & Company, with general offices in Philadelphia and London, will handle the export trade of the American Car and Foundry Company, and will also deal in bridge and structural material.

The Denver Engineering Works, of Denver, Colo., has shipped 2 carloads of ore cars and electric hoists to Old Mexico and 6 cars of smelter machinery for Atlanta, Ga. This is the first smelter machinery to go into the South from Denver.

The Colorado Iron Works, of Denver, Colo., has an order for a 42 by 140 in. steel jacket copper furnace from the United Globe Smelter, in Arizona, and two 40 by 140 in. copper furnaces with cast iron jackets for the Montana Ore Purchasing Company, of Butte, Mont.

The Illinois Steel Company's rail mill at South Chicago, Ill., rolled 1,318 gross tons of rails in 12 hours recently, making 136 tons in the last hour, while the Joliet works in one day turned out 2,099 tons of billets, 4,050 tons of wire rods and 708 tons of merchant mill product.

The Walter Steel Company, recently organized with $100,000 capital, has taken over the Walter Steel Plant at Reading, Pa., and will make malleable iron and steel castings. The officers of the company are: Andrew Bryson, president, and Henry R. McElligott, secretary and treasurer.

The prospectus of the Birdsboro Iron and Steel Company, incorporated in September under New Jersey law to take over the works of E. & G. Brooke Iron Company, of Birdsboro, Pa., states that the $3,000,000 capital is all subscribed. The officers are: Robert E. Brooke, president; Colonel A. Louden Snowden, vice-president.

The Robert Aitchison Perforated Metal Company of Chicago has recently secured orders as follows: Special perforated brass for use in the United States Navy Yard, at Mare Island, Cal.; sizing screens for an iron mine in New York State, and a large order of perforated steel. The company has almost doubled its factory force in the past 3 months.

The consolidation of the salt industry of Michigan under the management of the National Salt

Company, of New York City, as noted last week, puts that company in control of probably 95% of the salt output of that State, amounting to 4,500,000 bbls. annually. This, it is said, makes the National Salt Company's total available output 10,500,000 bbls. per year.

The New York Shipbuilding Company, with an authorized capital of $3,000,000, has been incorporated under New Jersey laws. The incorporators are Henry G. Morse and George L. Brown, of Woodbury; William G. Randle, of Chester, and Charles F. Hall and William F. Gronan, of Wilmington. William G. Randle, formerly captain of the steamship "St. Louis," of the American Line, is superintendent of the new company.

The firm of Fraser & Chalmers, of Chicago, has furnished hoists to the following Michigan copper mines: Mass Consolidated, 2 hoists, 24 in. by 48 in. cylinders, direct-acting; Elm River, 2 hoists, 14 in. by 18 in. cylinders; 2 hoists, 7 in. by 10 in. cylinders; Winona, 1 hoist, 14 in. by 18 in. cylinders; Copper Range, 2 hoists, 14 in. by 18 in. cylinders; Trimountain, 1 hoist, 14 in. by 18 in. cylinders, 2 drums, 5 in. diam., 4 ft. face, 700 ft. 1 in. rope each drum.

The Chicago Pneumatic Tool Company of Chicago, Ill., has received an order for 26 additional pneumatic tools, including drills, hammers and riveters, for the Union Iron Works, San Francisco, and also orders for additional pneumatic tools at several of the United States navy yards. The Pressed Steel Car Company of Pittsburg, Pa., after trying 10 of the company's riveting hammers has ordered 60 more. The company, through its New York office, has secured a contract for a lot of pneumatic tools for the Sanyo Railway in Japan. The outfit includes three 50 H.P. electric motors, three 50 H.P. belt-driven air compressors, 3 large air receivers and a full equipment of pneumatic riveting, drilling, calking and chipping tools, hoists, etc.

The H. K. Porter Company of Pittsburg, Pa., builder of light locomotives, reports business as extremely good, and its shops running to their full capacity. Among contracts the company is filling are 4 steel works locomotives for the Illinois Steel Company; 4 steel works engines for the Virginia Iron, Coal and Coke Company of Bristol, Va.; 1 steel works engine for the Lukens Iron and Steel Company, Coatesville, Pa.; a 36-in. gauge, 8 by 14 cylinder, back truck engine for the Ferrocarril de Oblatos of Mexico; a 7 by 12 in. cylinder, back truck 30-in. gauge engine, for Cuba; 2 28-in. gauge compressed air motors for the Pennsylvania Coal Company, Dunmore, Pa.; a standard gauge air motor for G. B. Markle & Company, Jeddo, Pa., the fifth machine furnished this concern; a 20-in. gauge air motor for the Societe des Mines de Golden River of Damascus, Cal.; 4 steel works engines for the American Steel and Wire Company; a 30-in. gauge engine for the Raritan Copper Works, Perth Amboy, N. J., and a 30-in. gauge machine for the Ray Copper Mines of Riverside, Ariz.

The Pennsylvania Malleable Iron Company of Pittsburg, Pa., is erecting at McKee's Rocks, a plant for manufacturing malleable castings. Contracts have been placed for the entire plant, which may be in operation by January 1st. The Pittsburg Bridge Company has the contract for the main building, which will be 640 by 220 ft. In addition to the main building there will be a brick building, 60 by 100 ft., a pattern and carpenter shop, and another building of the same size for the storing of patterns. Sandy Ridge Fire Brick Company has a contract for 500,000 fire brick, for the annealing ovens and cupolas. The Root's Company of Connersville, Ind., has the contract for the blowers. The Auto-Gas Engine Company of Chicago will furnish 6 gas engines of 65 H. P. each. The gas engines will drive the electrical generators to work the overhead cranes, blowers, conveying machinery, etc. The capital stock of the concern is $600,000. Most of the output will be taken by the Pressed Steel Car Company. The officers are: S. White, president, and D. O. Holbrook, secretary and treasurer. Dr. R. G. G. Moldenke, of the McConway-Torley Company of Pittsburg, will be general superintendent.

TRADE CATALOGUES.

The October number of "Machinery and Supplies for Mills and Mines," published by Charles E. Billin & Company, of Chicago, Ill., contains descriptions of the Bartlett concentrator, the Elmore hand rock drill and the Kent mill.

Miners candlesticks in 5 patterns are shown in an oddly bound little pamphlet called "Miners' Supplies," sent out by the Ludlow-Saylor Wire Company of St. Louis, Mo. The pamphlet also contains cuts of double crimped mining cloth, which the company furnishes in all grades of steel, brass and copper, taking especial pains to produce cloth for the use of chlorination and cyanide plants. The company states that its trade in candlesticks has been very large and is increasing while its mining cloth department is rushed with orders.

The Abner Doble Company of San Francisco, Cal., has published an 1899 edition, 64 pages, of its catalogue about "Improved Rock Drilling Machines." The company states it has had nearly 50 years' experience in working iron and steel and 5 years' experience in the manufacture of rock drills and has designed a drill to fulfill all the requirements that may be met in mining as carried on on the Pacific coast. As in all reciprocating motors the efficiency of the valve gear covers the efficiency of the entire machinery, in these drills the valve is a very important feature, being a comparatively small, light balanced slide valve of the D type, operating independently of the piston. The valve, it is stated, does not move until the blow has been delivered, making the machine a dead stroke drill. It possesses the very valuable features of a variable stroke, enabling the operator to govern the length of the stroke anywhere from ½ to full length, by means of the feed screw, the machine working as well at half as at full stroke.

Manufacturers of Portland and hydraulic cements will find much interesting information in Catalogue No. 15, published by the Gates Iron Works, of Chicago, Ill. This 30-page pamphlet is entitled "Cement Machinery," and contains descriptions of the Gates rock and ore breaker, the Gates crushing rolls, the Jenish ball mill, the Clark tube mill, Gates rotary kilns, "Ideal" pan pulverizers, slurry pumps, etc. Of these devices, the Gates gyratory crusher and the company's standard rolls are in too wide use to need special comment. The advantages claimed for the Jenish ball mill, used in many European cement works, are that it is a complete self grinding machine working continuously and occupying but little space, gives a uniform product, allows little dust to escpae, is economical of power, is subject to but little wear and tear, while the wearing parts can be quickly replaced. The Clark tube mill is offered to the public by the company as the highest type of modern tube mill, great pains having been taken to make its automatic discharge dustless and its bearings dust-proof. The mill may be had with a lining of hard iron plates, porcelain or wood, according to the substance to be ground and the method of grinding. The company's rotary kiln for calcining cement clinker has a chain drive, more flexible than gearing, and the cylinder has but 2 carrying rings, making it easier to keep in line than kilns with 3 rings. The Gates Iron Works states that it believes this catalogue is the first to show a complete line of modern cement machinery made by one firm. The firm is prepared to make complete plans for mills, equip and erect mills and turn them over in successful operation.

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.

ALASKA.

Douglas Island Gold Mining Company.—The company recently shipped from Seattle 30 tons of machinery for the property it bonded not far from the Treadwell Mine. The outfit included a 60-H. P. boiler, hoist pump, air compressor and drills.

Philadelphia Crude Ore Company.—It is stated that this company will develop sulphur deposits said to be found on the volcano of Makushin, 10 miles west of Dutch Harbor. A tramway will run down the mountain to Captain's Harbor. The sulphur is said to be of good quality.

ARIZONA.

(From Our Special Correspondent.)

Under the 10 years' tax exemption act, 19 declarations of intention to build railroads in the Territory were filed in September. The last Legislature also exempted from taxation for a period of 15 years all reservoirs, canals, and for storing and distributing water for mining, manufacturing and farming. Under this provision only a few declarations have yet been filed.

Graham County.

Arizona Copper Company.—This company reports for the month of August a production of 817 tons black copper. For the 6 months of the fiscal year, from March 1st to August 31st, the total output was 4,782 long tons of black copper.

Pinal County.

(From Our Special Correspondent.)

Ray Copper Company, Limited.—This company has, it is said, over 300 men employed. Surveys have been completed and construction on the narrow gauge road 6 miles long from the mines to the Gila River at the mouth of Mineral Creek is expected to begin. The Gila is to be bridged and a standard gauge railroad built to Red Rock. A large reduction plant is proposed on the Gila River.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Bunker Hill.—Arrangements are being made to resume sinking at this mine, north of Amador. Superintendent C. R. Downs has men repairing the roads. Lumber for buildings and the shaft is being hauled to the ground. The property has laid idle for 7 years.

Keystone.—The rich pocket discovered on the 800-ft. level, east of the old shaft, in Amador City, still holds out.

Kern County.

(From Our Special Correspondent.)

Black Hawk.—This Randsburg mine is stoping on the 130 ft. Ore is high grade.

Hector.—In this Ransburg claim, worked under lease by Rose, Fisher & Funk, a 4-ft. ledge has been developed.

Stanford.—At this Randsburg mine a drift is being run on the 150 ft.; and on the 100 ft. at the end of the 90 ft. drift $40 ore is being hoisted.

Mariposa County.

(From Our Special Correspondent.)

Ferguson.—This old mine, 23 miles northeast of Mariposa, which once yielded over $1,000,000 in free gold, has recently been bonded to J. F. Joseph and associates of Sonora. The old 1,500 ft. tunnel, on the vein, is being cleared out. The intention is to continue this tunnel 1,500 ft. more. The quartz in the old workings varied from 1 to 20 ft. wide, yielding about $20 per ton free gold. There is a 10-stamp mill on the ground. The Merced River furnishes free power.

Nevada County.

(From Our Special Correspondent.)

Murchie.—This quartz and hydraulic mine, near Nevada City, has been leased by B. T. Vivian, E. Beedle, M. B. Morrison and W. B. Davis, who will begin work at once. This property was known as the Lone Star, and comprises 359 acres, with 2 systems of veins. Considerable work has been done, mostly on the Big Blue vein and the Independence claim. The ore is low grade.

Plumas County.

(From Our Special Correspondent.)

Jamison.—This mine, 2 miles south from Johnsville, is running with a full force of men, about 60, and 20 stamps are dropping continuously. The company owns one of the finest water rights in the State, consisting of 4 natural lakes, with 1,000 miners' inches capacity ditch, delivering water under a 500-ft. head.

San Diego County.

(From Our Special Correspondent.)

Dewey Mining and Milling Company.—This company has been incorporated with a capital stock of $1,000,000, par value $10 per share. The directors are: J. A. Heath, S. G. Ingle, W. R. Farnsworth, F. P. Frary, Geo. Putenbaugh, J. S. Ackerman and F. L. Doolittle, all of Los Angeles. The company proposes to develop the Little Charlie, Dewey and Bonanza claims in Grapevine District.

Shasta County.

(From Our Special Correspondent.)

Black Diamond.—At this group of mines near Furnaceville, on North Cow Creek, tunnels are being driven, roads built and preparations made for an electric plant and smelters. Five of the 14 miles of road are completed and work on the main tunnel progresses rapidly.

Bowery Belle.—This property, located between Iron Mountain and Shasta, has been bonded by H. C. Woodrow for $40,000. The property comprises 7 claims owned by Kahnny & Burgbacher. The 600-ft. tunnel has developed a large body of low grade sulphurets, some of which have been shipped to the smelter. Ten men are employed.

The Recorder at Copper City has also been bonded by H. C. Woodrow and C. C. Bush for $10,000.

Iler.—At this mine, 3 miles northwest of Keswick, on the spur of Iron Mountain, a rich and extensive body of ore 10 ft. wide is reported opened. Nineteen men are at work.

Siskiyou County.

(From Our Special Correspondent.)

Gum Boot.—The mill at the head of Mill Creek, 9 miles east of Scott Bar, is fitted with the latest machinery. It has been running 4 weeks with satisfactory results. Thirty men under E. D. Baker are building a road to Yreka, about 20 miles distant. The vein averages 5 ft. between walls of blue slate.

Tuolumne County.

(From Our Special Correspondent.)

The failure of the river water supply has had a depressing effect; in some cases a small force is retained on development work, but some of the smaller mines have closed entirely. Between 500 and 600 men probably are idle. The electric power company's plant has also shut down, leaving Sonora, Quartz Mountain, Jamestown and Stent to burn oil again. Arrangements will probably be made in the near future to increase the water supply.

Altamont.—The report that a rich body of ore has been discovered in this mine near Carters is true. Drifts show a large and rich shoot.

Stanislaus Water Company.—This company has acquired large water rights, including the Keppleman Dam, the San Juaquin County Water Company's Ditch, the rights of M. F. Tarpey and others, rights of the San Juaquin Land and Water Company, including a new dam above Knight's Ferry, rights of way, grants, licenses, easements, etc. The old dam at 6 Mile Bar will ber pelaced by a modern cement dam before the rains set in. The company will probably erect an electric power plant on the Stanislaus River, to furnish power to mines and other enterprises.

Yuba County.

(From Our Special Correspondent.)

New Blue Point Cement Gravel.—The plant contracted for on this property at Smartsville, will have a capacity of 500 tons every 24 hours. The principal machinery is a revolving cylinder, which will disintegrate the gravel, that adheres to the boulders, etc., and discharge automatically the pulverized fine gravel and sand through screens into shaking sluice boxes, catching perhaps 95% of the gold values. Twenty men at present are opening up the property. Wm. Kolman of San Francisco has charge. The property comprises 300 acres of gravel, which is said to yield from $6 and upward per carload. The ditch from Wolf Creek is also owned by the company.

COLORADO.

Clear Creek County.

(From Our Special Correspondent.)

Newhouse Tunnel.—A Roots' No. 7 blower has been put in this tunnel at Idaho Springs to drive out smoke and bad air. It is said to be the largest blower used in mining in the State, and was built especially for the Newhouse people. It discharges 63 cu. ft. per revolution, with from 120 to 200 revolutions per minute. It will be used as an exhaust immediately after shooting. The fresh air will be carried through an air-tight box 25 by 18 in. buried beneath the tracks. The tunnel is in 7,670 ft., and is close to the veins of Seaton Mountain. When completed the tunnel will be about 5 miles long, reaching the Eureka Mine at Central City, 1,500 ft. beneath the surface. The air drills started October 2d, and it is the intention to work night and day shifts soon. The tunnel has been idle for over a year. Contracts have been made, and are being closed to work all veins cut. In the distance it is to be driven there are 1,140 known veins, of which number 200 are mines. The deepest working on the line of the tunnel is the California Mine, the shaft being down 2,300 ft. The greatest depth of the tunnel will be 2,400 ft. below surface. The aveage depth of cutting all lodes will be almost 2,000 ft. The tunnel is 16 by 12 ft. Power will be furnished to anyone desiring to work a property through the tunnel, the object being to have 500 men at work on the various lodes within 12 months.

Gilpin County.

(From Our Special Correspondent.)

Gilpin County Ore Shipments.—During September there were shipped from Black Hawk to smelters and outside points, 326 cars, or 6,030 tons of ore, representing the smelting product and tailings. A shortage of cars kept down the shipments, which, however, show an increase of 800 tons over September, 1898.

Transfers and Mining Deeds.—M. T. Stright to E. Carter, ½ interest Hopeful lode. H. A. Hicks to E. E. Clark and C. Hesselbine, 1/3 interest in Day Spring and Spring Day. R. C. Benight et al. to Sub-Treasury Mining Company, the Sub-Treasury and Cecil lodes.

Cook Mining Company.—On the ground covered by the Black Hawk mill this company will erect one of the largest mill plants in the West, to cost about $100,000. The contract has been given to Hendrie & Bolthoff of Denver, and calls for completion in 4 months. The building is to be 70 by 220 ft., and will enclose 100 rapid-drop stamps, each stamp weighing 1,000 lbs., and dropping 90 times per minute, the mortars to weigh 6,000 lbs. each. The mill will have 24 Woodbury tables. The plant includes a 200-H. P. Corliss engine, 4 100-H. P. boilers, and a large electric lighting plant. The capacity of the mill will be 450 tons per day. M. P. Dalton, Central City, is manager.

Crown Point & Virginia.—Eastern parties have about concluded the purchase from T. H. Potter and E. W. Williams of Central City. Two new 80-H. P. boilers are to be put up. W. K. Knowles of Central City is manager.

Dirigo.—W. T. Scott, et al., of Gilpin, have leased this claim at Wideawake from C. V. Brinkerhoff.

Kansas Burroughs Consolidated Mining Company.—During September this property shipped over the Gilpin Tramway Company's lines 434 cars or 3,690 tons, a daily average of 123 tons.

Modoc.—Colorado Springs operators are going to install a heavier hoisting plant. D Sayers, Central City, is manager.

Never Sweat.—J. P. Wilcox of Cripple Creek is going to put up a shaft house and gasoline engine plant on the property. It is worked under lease and bond.

Pozo.—Lewis & Son have started operations, after an idleness of 3 years.

Pyritic Smelter.—Reports are current that a pyritic smelter is to be built at Black Hawk, and that ground has been secured for the site. There is need for such a smelter to treat low grade ores which cannot stand shipment.

Rara Avis.—Wright & Company of Cripple Creek have bonded this property, owned by Philadelphia parties, and are cleaning out the main tunnel. They will put up a hoisting plant on the deep shaft. E. R. Murphy, Central City, is manager.

El Paso County—Cripple Creek.

(From Our Special Correspondent.)

The situation is very gratifying. A number of new strikes have been made and several new companies have been incorporated. The September production bids fair to be considerably ahead of that of August. One or two new mills are talked of, and also one or two power plants. The capacity of some of the old mills is being increased. The demand for property continues very good, although first class property is hard to get at reasonable figures.

Acacia Gold Mining Company.—In the case of the Free Coinage Company, by the finding of the court the Acacia Company is allowed to extract ore from the vein within the boundaries of the Burns Claim and the Free Coinage Company is not allowed to follow the vein on the dip under the Burns Claim. The court also held that the Acacia Company should pay for the ore it took off the Rising Sun Claim belonging to the Free Coinage Company. This was very little, and was taken out by mistake. Both companies are shipping some good ore, the Acacia being worked under lease and the other by the company.

Gold Sovereign Mining and Townsite Company.—The capitalization has been reduced from 3,000,000 to 2,000,000 shares. There were over 1,000,000 shares in the treasury, and 1,000,000 of these were cancelled. The company's property is on Bull Hill not far from the Union.

Jack Pot.—At a recent meeting of the directors the company's affairs were shown to be in excellent shape. The cash in the treasury is now a little over $90,000, and the royalties coming in from the lessees are a little over $30,000 per month. The Jack Pot claim is worked under lease by men from Creston, Ia., who are making a fortune out of it.

Last Dollar Gold Mining Company.—The property is on Bull Hill near the Lucky Guss. The company, a close corporation, has declared its first dividend. Chas. Waldron is in charge.

Mary McKinney Mining Company.—The 3c. dividend is not a surprise to the well posted mining public. The property consists of a number of claims near Anaconda, and has been producing good ore some time. The company is a close corporation, the stock being owned by a few men, mostly residents of Colorado Springs. Geo. L. Keener is in charge.

Pharmacist Mining Company.—The reorganization is about completed. The following officers have been chosen: James F. Burns, president; W. J. Chambers, vice-president; C. N. Miller, secretary, and Larry Maroney, treasurer. A. D. Jones is also a director. The stock of the new company is to be issued to the stockholders of the old company on the basis of 1 share in the new company for 2 of the old. The mine is worked under lease.

Gunnison County.

Denver & Du Bois.—This tunnel, which is being driven to tap the Pride of Denver Mine in Dubois District, is now in 870 ft., and is making about 18 in. a day. Several small veins have been cut, and the Pride of Denver that will be reached in about 400 ft. further at a depth of 400 ft., has opened a 28-ft. vein at 32 ft. from the surface.

Forrest Hill Mine.—This mine in Tin Cup is being worked with a force of 35 men, and the Freman stamp mill has shipped 6 tons of high grade concentrates.

Hoffman.—This smelter at Marble has blown and is running smoothly.

Union Placer Company.—This company operating in Taylor Park is building a 2-mile flume to get dumping ground for the tailings.

Victor.—This mine on White Pine, owned by the Granite Mountain Mining and Milling Company, recently shipped 3 carloads of silver-lead ore to the Philadelphia mill at Pueblo.

Lake County—Leadville.

(From Our Special Correspondent.)

At no time in the past fifteen years has there been such a general revival of mining. Old propositions are being started up, and new shaft houses and other surface improvements are to be found on every hand. Considerable capital is coming in from outside points, and more is to follow.

Leadville Zinc Output.—The production shows a slight increase; the present tonnage of 70 to 80 tons per day is about the limit, but exploration for zinciferous ores is becoming more general.

Big Six.—The Engelbach Brothers, who recently bought the controlling stock, have subleased the ground on Breece Hill to Copeland & Company, who recently gave up their lease on the Fanny Rawlings. They have about 24 acres of valuable ground and will carry on extensive operations.

Delante Mining Company.—This company, under the management of S. W Mudd, has resumed operations on the Newell shaft, which some years ago was sunk 575 ft. Manager Mudd will push prospecting.

Doris.—This Iowa gulch property after years of development has made its first regular shipment. The ore shows 36 oz. silver and a heavy iron excess.

Fanny Rawlings Gold Mining Company.—The present lease to Aspen parties expires in January, but the company will resume work itself at once. Vice-President Himebaugh and Secretary Bingham concluded details, and the mine will be turned over on October 10th. The lessees have paid the owners some big dividends. Operations are to continue in the present upper levels, but the shaft will be sunk 200 ft. at once, giving a depth of 1,000 ft. A $10,000 plant is to be erected and the old plant is to be moved down hill about 600 ft.

Maid of Erin Mill.—Golob & Colley have leased this mill and will put in 3 Wilfley tables. They are now handling zinciferous ores through the old Tabor Mill, and are increasing their capacity.

San Miguel County.

Tomboy Gold Mines Company, Limited.—This company, owning the Tomboy Mine near Telluride, has been a close corporation, but its shares may soon be sold in open market. It has been incorporated under Colorado laws with £300,000 capital and the following directors: Frank L. Underwood of New York, William Bailey of Los Angeles, John Herron of Telluride, M. B. Gray of Denver, Lord Arthur Butler, Marquis Fernand d'Hautpool and Arthur George Brand of London.

IDAHO.

Boise County.

Stanley Basin.—J. M. Ballantine and J. S. Waters have bought 40 or 50 acres of placer ground in Stanley Basin, near Idaho City, and will work the ground by a flume.

Idaho County.

Iola.—This mine near Warren belongs to Gov. Tanner, John R. Gates and other Chicago men. Over 1,800 ft. of tunnels have been run. The 10-stamp mill is running night and day.

Owyhee County.

De La Mar Mining Company, Limited.—The report of Manager D. B. Huntley, of De La Mar, for August, states that 2,868 oz. gold and 11,631 oz. silver were produced in the month. The total estimated returns were $65,430; expenses, $38,454, leaving a net income of $24,476.

Dewey Tunnel.—Fair progress is being made in this tunnel near Silver City. Air drills are in operation.

Shoshone County.

Mining Conditions.—The mines are busy, nearly all running full forces, and the influence of that gang of thugs and dynamiters known as the Miners' Union is steadily waning. Federal troops still guard the district and many of the men who took part in the outrages of last April remain confined at Wardner awaiting trial. Recently a number tried to escape and the resulting course of discipline they had to undergo caused Ed. Boyce of the Western Federation of Miners to put in circulation a characteristic story of cruelty and abuse on the part of the authorities. It is evident that troops will be kept at Wardner till there is every probability that law and order will prevail after their withdrawal. Mr. T. M. Sovereign has evidently recognized this fact, and has ceased to act as editor of the Wallace "Tribune," the organ of the Miners' Union.

Golden Gate.—This company, 8 miles from Pierce, is putting in a hoist, saw mill, stamp mill and concentrating plant.

Mascot.—This mine is at the head of Gold Creek, 17 miles northwest of Pierce. The company has 9 claims, on which is a steam stamp mill with a capacity of 40 tons a day, and 2 Wilfley concentrators. The company is testing the cyanide process for treating its concentrates. A shaft on the vein is down 50 ft. and may go 500 ft. The ledge is 30 ft. wide and the pay streak is said to average 3 ft.

Morning.—A bad cave-in is reported in the lower levels of this mine at Mullan.

Tiger-Poorman.—J. F. Forbes, of Butte, who owns 10,000 shares of stock, has brought suit to stop the transfer of this mine, near Burke, to the Buffalo-Hump Development Company. Clark & Sweeny, of Spokane, bought the control of the mine from S. S. Glidden and others last July, and later the Tiger-Poorman Company agreed to sell the mine for $210,000 to the Buffalo-Hump Development Company, which Clark & Sweeny had organized to take over the Big Buffalo claim, in the Buffalo-Hump District. Mr. Forbis alleges that stockholders holding 140,000 out of the 1,000,000 shares of the Tiger-Poorman Company had no notice of the proposed sale of the mine.

Washington County.

(From Our Special Correspondent.).

Seven Devils District.—Steady progress is being made in development work. The railroad from Weiser is being pushed by some 1,500 men; 20 miles of track are in operation, and 250 men are working on the terminal section where the road winds about to afford shipping facilities to the Peacock and adjoining properties near the summit of White Monument Mountain and down to the Queen, Blue Jacket and Decorah.

At present the 100 miles of wagon road between Weiser and the mines is lined with 4 and 6 horse freight teams.

The Boston & Seven Devils Company has completed its winter camps on the South Peacock and the Decorah. On the former the old shaft is being changed into a double compartment one. Samples of ore at 100 ft. assayed 51%. The deep tunnel on the Decorah is now in some 500 ft., and has cut the ledge. The company is bringing in a diamond drill for prospecting made by Sullivan Machinery Company, Chicago, pattern H. W. B. Hancock is superintendent.

The Blue Jacket continues to ship high-grade ore, and has been pushing its tunnel into White Monument Mountain over 550 ft., gaining a depth of about 350 ft. There are over 500 ft. of workings.

MICHIGAN.

Copper.

Mining Fatalities.—Mine Inspector Hall's report shows that 13,051 men were employed in the Houghton County mines during the current year, and the number of fatalities was 27—Austrians, 2; Americans, 2; English, 4; Finns, 14; Hungarian, 1; Italians, 3; Swede, 1. Five of the men were killed at the Arcadian; 6 at the Calumet & Hecla; 1 at Franklin, Jr.; 2 at the Osceola; 4 at the Quincy; 2 at the Rhode Island; 3 at the North Tamarack; 3 at the Tamarack, Jr.; 1 at the Wolverine and 1 at the Tamarack. Seven were victims of premature explosions of blasts; 6 by falling down shafts and stopes; 5 by fall of rock; 2 by suffocation by gas from blasts, and 2 were struck by skips. Accidents not fatal reported, 13; proportion of casualties to number employed, 2 to 1,000.

Baltic.—The rock piles about the various pits are about cleaned up. The new mill is to be erected on the Salmon Trout River, near the Atlantic Mill. The new mill will be built for 4 heads capable of treating 500 tons of rock each in 24 hours. The mill will take its water from the Atlantic dam on the Salmon Trout, about 2,000 ft. up-stream, and the auxiliary pump will be put in at the lake shore, about 400 ft. distant, to supply any lack of water during the 2 months of lowest water each year.

Copper Range Railroad.—Work is pushed rapidly. The bridge across Cole's Creek is completed, and the one across Fire Steel River will be completed before long. It is possible that the road will be open to traffic by December 15th.

Rhode Island.—No. 1 shaft is down 178 ft. At the 100-ft. level a drift has been run north 95 ft. A temporary shaft house is to be erected. A hoist and a 10-drill Rand compressor are installed. At No. 2 shaft, 1,200 ft. south, the lode is opened by a 60-ft. shaft and a 30-ft. cross cut at the bottom.

Iron—Marquette Range.

Cleveland-Cliffs Company.—The old Mono shaft, at Ishpeming, has been pumped out after several years' idleness and ore is being shipped to Marquette.

East New York.—Work of reopening this Ishpeming mine is delayed pending the arrival of a new hoist.

Dexter.—This mine, near Ishpeming, now owned by the Minnesota Iron Company, is being unwatered, but mining will not start before 1900.

MINNESOTA.

(From Our Special Correspondent.)

Freight rates are stationary, with a weakening tendency. Labor at mines is a trifle more plenty, and the general situation is excellent.

The new steel steamship "Malietoa," of the Minnesota Steamship fleet, has just broken the steamer record for carrying ore by a cargo of 8,215 net tons, on 18 ft. draft. There is plenty of water out of Lake Superior this year, in fact the channels are better than those out of Lake Huron, and this is one of the causes of the excellent showing made by the lake fleet in a shorter season than last year.

Iron—Mesabi Range.

(From Our Special Correspondent.)

The Lake Superior Consolidated Iron Mines has paid a fee of $13,290 under the so-called Somerville act, as a foreign corporation, but with the announcement that it will probably contest the legality of the act. The company already pays a gross earnings tax on its railway and a real estate tax on its mines, and thinks a corporation tax added is unjust and unlawful. It has an issued capital of $28,272,108, with $30,000,000 authorized. Its stock now sells at about 60% of par, as against about half that a year ago.

Oliver Iron Mining Company.—This company's Oliver Mine at Virginia is to be reopened for stripping and other operations. It has been idle all the year.

Yawkey Explorations.—Drills in the Enterprise, south of the Alpena, at Virginia, are still in ore, after going through 110 ft. of it. Explorations by test pit are still under way near the Biwabik and on Section 4, T. 58 R. 17.

Iron Vermilion Range.

(From Our Special Correspondent.)

Pioneer Iron Company.—This mine at Ely has shipped this season over 300,000 tons and will pass the 400,000 ton mark. It will not reach its minimum of 500,000 tons, owing to the scarcity of men. The mine was full of water when taken by the Oliver Company last season, and the showing is very remarkable. It is now hoisting 1,600 to 1,800 tons a day, with one skip. The stockpiles are gone and all ore shipped comes from the daily hoist. The mine is preparing for great work next year, considerable rockwork is under way, and a body of ore 600 ft. long and as much as 200 ft. wide is being opened into at the 8th and 9th levels. There is coal on hand for more than a year, and timber for 2 years. The new electric motors for tramming work satisfactorily, each pushing 25 tons of ore to the shaft with ease. They are managed by a motorman and a brakeman, the latter spotting cars at the cross drifts where wanted. This successful introduction of electricity has been very pleasing to the company. The Pioneer is pumping about 300 gal. of water per minute, which is the drainage of that mine and the Chandler as well.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—There was very little change from last week. Some fancy ore brought $43.50 per ton, an advance of 50c., and lower grade zinc ores advanced slightly, but lead remained unchanged, selling as for weeks past at $27 per 1,000 lbs. The shut-down is general, fully 80% of the mills being idle, and operators are making repairs and doing dead work. The surplus ore is about all cleaned up, and in a few days there will probably not be a pound of ore unsold in the district.

During the corresponding week last year top grade zinc ore sold at $33.50 per ton, and lead at $22.50 per thousand. The output was greater than that of last week by 1,526,180 lbs. of zinc and 227,160 lbs. of lead, but the value was less by $5,761. For the corresponding 40 weeks of last year the lead output was greater by 4,920,912 lbs., but the zinc sales were less by 62,063,290 lbs., and the value was less by $3,760,178. As compared with the preceding week the sales show a falling off to the extent of 1,650 lbs. of zinc and 416,610 lbs. of lead, and the value was less by $41,806. Following is the turn-in by camps:

	Lbs. Zinc.	Lbs. Lead.	Value.
Joplin	1,574,510	157,550	$37,319
Belleville	271,770	9,030	6,097
Galena-Empire	1,759,950	219,820	35,614
Webb City	207,190	9,930	4,204
Stotts City	282,820	.....	5,656
Alba	87,620	.....	1,340
Duen weg	110,650	41,520	3,114
Hells Neck	72,200	23,790	2,158
Carterville	880,410	159,130	22,404
Cave Springs	133,230	24,000	3,136
Central City	401,750	34,180	8,145
South Jackson	80,200	22,510	1,292
Aurora	1,125,000	.....	16,448
Dade County	210,000	.....	2,150
Barry County	78,480	.....	1,256
Morgan County	41,970	61 330	2,108
Oronogo	396,620	.....	7,078
Carthage	36,480	.....	693
Granby	244,000	12,000	3,554
Lehigh	44,170	.....	928
Total for week	8,044,020	774,970	$165,184
Total 40 weeks	400,358,950	37,171,098	$8,786,446

The shut-down will continue possibly for several weeks, as the Zinc Miners' Association has resolved to settle the relations between the producer and consumers of ore. The directors of the Association state positively that the smelters have little or no ore ahead, and are not carrying stocks of metal, so that if they orders for futures they will be compelled to pay the Association price. The Association is ready to readjust its scale of ore prices whenever the smelter men will meet the directors and submit a statement of what metal is actually selling for. Whenever metal men will meet the producers half way, friction will be removed.

There are several big deals under way at Joplin and Galena, but actual transactions have been rather light. The Pearl C. property at Midway, consisting of the fee of 43 acres of land with a mill and several developed shafts, was reported sold for $50,000. The mine and lease are the property of Judge Waltour M. Robinson of the State Supreme Court, and has paid him over $40,000 in royalties in the last 3 years. The land cost him only a few hundred dollars 6 or 8 years ago. The Rye Bread and Horse Thief mines on the Murphy reserve lease at Empire City have been sold to Indiana parties for $40,000. The lease covers 10 acres, and there is a mill and 3 shafts on the ground. The late owners were W. S. Crane, Robert Sloan and Mike Grundler, all of Joplin. Negotiations are being actively carried on for a tract of over 1,400 acres of land in the very heart of the district, surrounded by great producing mines, and it is expected that the deal will be closed in the near future. There is every indication of extraordinary activity in the transfer of mines and mineral lands this fall.

MONTANA.

Beaver Head County.

(From Our Special Correspondent.)

Horse Prairie Gold Dredging Company.—A dredge went in commission October 3d. It was was designed by E. L. Smith, formerly with the Bannock Dredging Company, now superintendent of this company. Its capacity is 4,000 cu. yd. in 24 hours. The principals in this new venture are Messrs. J. C. Brenner, of Horse Prairie, Charles W. Clark and Frank E. Corbett, of Butte, with whom are associated some Philadelphians. The ground worked is on Colorado Gulch, a feeder of Horse Prairie Creek, which has yielded considerable gold. It was near here, on Jeff Davis Gulch, that Senator W. A. Clark laid the foundation of his fortune in the early 60's. The above is the only company on Horse Prairie Creek or its tributaries.

Flathead County.

Tombstone.—This copper claim near Jennings, 11 miles from Libby, is being developed by the owners. A shaft is down 35 ft. and a drift has been driven 150 ft. There are 2 veins, the larger being 4 ft. wide. The veins are said to run well in copper, with a little silver and some gold.

Way Up.—This claim on the headwaters of Libby Creek, some distance from Libby, is the property of the Montana Kootenai Mining Company, Messrs. Riley and Higgins being the principal owners. But little development work has been done so far. The vein is said to be 12 ft. and the ore a sulphide running $15 gold per ton.

Park County.

A large amount of placer work has been going on at various points in this county during the past season. At Emigrant Gulch near Chico, 25 miles up the Yellowstone River from Livingston, the gold is coarse and the placers have yielded good returns.

Ravalli County.

Ward Placer Mining Company.—Butte men have taken an option on this company's property on Hughes Creek, near Hamilton. If tests being made are satisfactory, dredging machinery will be put on the ground.

Silver Bow County.

(From Our Special Correspondent.)

Anaconda.—At the Bell Mine 2 new hoists are being put in and other surface improvement made.

Baltic.—The copper belt which has made Butte famous may extend right under the city, as a copper vein 4 to 5 ft. wide has been discovered on this mine, close to the Blue Jay, of the Butte & Boston Company. The development work has been very expensive, as the waste rock is pulled away as soon as hoisted. The authorities compelled Col. Leggat to desist from mining on his property, which is within 30 ft. of the county court house, as blasting in the Colonel's shaft interfered with judicial matters, and seriously disturbed not only the judges, but the prisoners in the county jail.

Boston & Montana.—A great deal of work is going on near the Pennsylvania Mine of this company, and the Rarus, of the Montana Ore Purchasing Company, to determine certain points which have caused no end of litigation.

The shaft house at the Diamond Mine is being torn down, as the management intends to erect another. The new hoist being put in has a sinking capacity of over 4,000 ft. The shaft now is 1,700 ft. deep.

Montana Ore Purchasing Company.—Shaft No. 2 of the Rarus is being sunk from the 1,000 to the 1,100 ft. level.

Plymouth.—C. P. Drennan and others are developing this claim. The shaft is down 100 ft. Ore has been struck, but not enough to defray all expenses, as the waste rock has to be carted

away as soon as hoisted, the location being on one of the city streets.

NEW MEXICO.

Colfax County.

Denver.—The Ohio company which is opening this Elizabethtown property has decided to push the tunnel on the Arlington and Florence 600 ft. further. It is now in 300 ft. A wagon road is being built to the properties.

Golden Era.—This group, on Mills Divide, on the northwest slope of Baldy Mountain, has been bonded to W. P. McIntyre, of Cripple Creek, for $25,000. The group includes the Golden Era, the Fairfax, Twin and War Eagle, all patented. The veins are opened by tunnels, showing 3 to 4 ft. of ore. The high grade ore will be shipped out and the other grades treated in the mills near Elizabethtown.

Mountain Queen.—John Johnson has 10 men employed on this mine at Elizabethtown and 2 more arrastras are being added to the 1 now running.

Dona Ana County.

Modoc.—This mine, in the Organ Mountains, has been sold to Chicago men for a price reported as $16,000 cash. The ore is argentiferous galena. The new company will carry on extensive development work.

Santa Fe County.

Gold Standard.—This mine, 3 miles east of Golden, owned by R. M. Carley and Pablo Aranda, is under bond to 2 Colorado men, Davis & McKinney, for $20,000.

NEW YORK.

Washington County.

J. C. Gray.—This slate quarry, at Granville, has been leased to Seth Culver.

NORTH CAROLINA.

Burke County.

(From Our Special Correspondent.)

A sale of 16,000 acres of mineral and timber land to a Pennsylvania syndicate by the South Mountain Mineral and Timber Land Company is reported on good authority.

Puette.—This gold mine near Morganton has struck very rich ore, creating a good deal of local excitement. The quantity is not large, but the ore is holding out under development.

Rowan County.

(From Our Special Correspondent.)

Union.—This copper mine continues to employ about 1,000 men and ship 3 or 4 carloads of copper-gold-silver ore each week. W. G. Newman, the president, is pushing work with vigor.

OHIO.

Harrison County.

Scio Oil Field.—According to the Oil City "Derrick" the new wells no longer are equal to supplying the decline that is taking place in the older wells. In the town lot developments, wells that are no longer profitable are being pulled out and the machinery is being shipped to other sections. The total daily output of the field is but little above 5,000 bbls. There seems a possibility of considerable additional territory along the southern and western borders, but it is very small. At the close of September month, there were only 12 rigs and 19 drilling wells under way in the Scio field, while at the close of February, the count showed 53 rigs in operation and 97 wells drilling. There were 82 productive wells completed in the field in February, and 59 in September.

PENNSYLVANIA.

Anthracite Coal.

Babylon.—This colliery at Duryea, belonging to Simpson & Watson, of Scranton, is running again, the strike having been adjusted by some concessions regarding topping.

Cayuga.—At this colliery, property of the Delaware, Lackawanna & Western Company, an electric haulage plant is to be installed.

Delaware, Lackawanna & Western.—The Sloan, Central and Hyde Park collieries in Keyser Valley, which have been idle for 6 weeks to 6 months, are to start work at once. Each colliery employs about 600 hands. It is stated that this company has surveyed a line to tap Bradford County from Nichols, through Rome, to Le Raysville, a distance of 26 miles.

Greenough Coal Company.—This company has completed arrangements with the Pennsylvania Railroad Company for a 1-mile branch from the main line to the Greenough Colliery, near Shamokin.

Lehigh Valley Coal Company.—Improvements at Packer No. 4 colliery, near Ashland, are being rushed. The company intends to abandon the old breakers at Packer Nos. 1 and 3 and to build a mammoth breaker at No. 4. All coal from Packer No. 3 will be taken above ground by a locomotive and the coal from Packer No. 2 will be taken underground to the new breaker.

Lehigh Valley Coal Company.—This company is working with a diamond drill at Laurel Hill to locate the Buck Mountain seam.

Bituminous Coal.

A syndicate of Bellefonte capitalists, with several Eastern men, has, it is said, closed a deal for the purchase of 125,000 acres of coal lands in Indiana and Armstrong Counties. The price to be paid is considerably more than $1,000,000. The tract includes the entire territory known as the Plum Creek Basin. It is heavily timbered, almost entirely underlaid with a 6-ft. vein of coal. To develop will necessitate the building of nearly 50 miles of new railroad from the town of Indiana. The syndicate will begin extensive operations in the near future.

Monongahela River Consolidated Coal and Coke Company.—This concern has permanently organized and elected directors as follows: J. B. Finley, Henry C. Fownes, George I. Whitney, Capt. S. S. Brown, Capt. William B. Rodgers, Capt. August Jutte, John S. Jones, Hugh Moren and O. A. Blackburn. The board organized by electing J. B. Finley president, George W. Theiss secretary, and George I. Whitney treasurer. The first three members of the board represent the financial interests, the others the coal properties. All are residents of Pittsburg, where the company's offices will be.

Northwestern Mining and Exchange Company.—It is reported that 2,000 employees of this company at Dagus, Arnot and Brockwayville are now out on a strike over a 10% increase demanded in wages. Nearly 1,000 men went out at Arnot 3 months ago.

(From Our Special Correspondent.)

H. C. Frick Coke Company.—This firm has completed a fine compressed air haulage plant at the Leisenring No. 1 plant near Connellsville. A straightaway haulage, about 1 mile long, affords a fair field for the locomotives, made by the Baldwin Locomotive Company. The air compressors are located, one at the top of the shaft, and a secondary one at the terminal of the haulage way.

Reid Brothers.—This firm has worked out the coal from the Uniondale Mine, and is boring to the second Connellsville seam. The result is awaited with interest. The second seam has never yet been worked in the Connellsville region.

W. J. Rainey.—One hundred new bee-hive coke ovens are nearly completed at the Paul plant, which will then have 500, and Rainey is also completing the last section of the 60 new ovens at the Acme plant, on the Warden Farm, near Mt. Pleasant, Westmoreland County. It is probable that Rainey will open general offices in Connellsville before long, his general manager, T. J. Mitchell, having moved there.

Slate.

(From Our Special Correspondent.)

Bangor Star Slate Company.—A perpetual charter has been granted this company. The capital stock is $2,000. The incorporators are David Stoddard, George Stoddard and G. W. Mackey, Bangor, and H. A. Mackey and A. A. Harris, Philadelphia.

Pen Argyl Valley.—Another derrick is being raised here, which will give the valley second place in that vicinity.

A new quarry is being opened on the Davis property, Pen Argyl, west of the West Albion. John Masters has the lease.

New York Quarries.—A large piece of top is being uncovered.

Berks County.

Reading Iron Company.—This company's mine buildings and machinery at the Bartos iron mine were destroyed by fire last week. The loss is not heavy.

Lancaster County.

Nickel Mines.—The new shaft at the old nickel mines near Gap is down 110 ft. It is proposed to sink the shaft deeper than the old ones, which were down 300 ft. About 25 men are at work.

RHODE ISLAND.

Newport County.

Compressed Coal Company.—This concern, which is reopening the old coal mine in Portsmouth, with the intention of making the coal into briquettes, is establishing branch offices in various Rhode Island and Massachusetts towns, and sending out trial shipments of its product. At the mine, the incline shaft is now pumped out for about 1,000 ft.; its total length being 1,800 ft. Pumping has proceeded slowly, owing to numerous breakdowns. In the old south workings a 6-ft. breast of coal, of poor quality, is being explored. It was worked 50 years ago, and abandoned. Many improvements have been made in the surface plant since briquetting started, and further changes are not unlikely. A fine carpenter shop has been put up. A large pulverizer made by the Stedman Foundry and Machine Company of Aurora, Ill., has been put in to reduce run-of-mine coal to suitable fineness for briquetting. The surface plant and pump at the north shaft is provided with 3 125 H.P. vertical boilers. The manufacture of briquettes or "eggettes" proceeds intermittently, the material used being culm from the old dumps to which coal tar residuum is added as a binder. A series of revolving blades mix the dust with the previously melted tar, and the machinery seems to work well. The briquettes are bagged, as shipments are largely on trial orders. The chief criticism on the plant that a Pennsylvania anthracite miner might make is the lack of any jigs or other devices to wash the culm or crushed coal. The coal seams in the Portsmouth area carries many small veins of quartz; the coal seams also contain in places more or less "bone" and the coal shows quite a high percentage of iron. These impurities could probably be removed in large part by jigging. Another striking fact is that the company has been using more or less Maryland bituminous coal under its boilers. However, the parties interested are confident that they have a good thing and are not soliciting funds from the public.

Taunton Copper Company.—This company's reduction works at Portsmouth, comprising 8 brick-lined stacks, roasting kilns and a reverberating furnace, erected in 1861 and idle since 1882, has been bought by the Compressed Coal Company. The plant when running had a capacity of about 5 tons of 95% copper daily. Portsmouth coal was largely used for fuel. It is said that the new owners will put in some improved machinery and treat the old slag dump, that is reported by some people to contain 8% copper. It is also said that the slag will be cast into sash weights and made into mineral wool, while the copper recovered will pay the cost. However, it is stated on the best of authority that the slag will average considerably less than 0.3% copper, the management of the old smelter having been in good hands.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

The Eastern company which is erecting the ochre mill in Custer has nearly finished the large stack and reverberatory furnace, and the dry house is well under way. The company has expended about $10,000 already. The plant will prepare the mineral paints found near Custer, and will handle mica.

North Star.—Some good bodies of ore have been cross-cut at a depth of 160 ft.

Vigilante.—The shaft is 260 ft. deep and it will be continued to the 300 ft. level. A drift will be run east at that level to strike the main ledge. The ore is a sulphide, of fair grade.

Lawrence County.

(From Our Special Correspondent.)

Big Missouri.—The Homestake Company has struck a rich vein of ore in this mine, north of the Highland hoist, in North Lead District. No one is allowed to enter the mine. The ore is sacked.

Blacktail Gulch.—R. M. Maloney is enlarging his cyanide plant at the Deadbroke Mill. The Boston & South Dakota Company will soon be ready to start up the 40-stamp mill at the old Minerva Mill. The cyanide annex at the Hildebrand Mill, put in by Gibbs & Cook, is about completed. The framework for the addition to the 10-stamp mill of the Baltimore & Deadwood Company is up. The Dakota Mining Company has completed the cyanide plant at Central City and the first ore has been hauled from the Portland District.

Deadwood-Bear Gulch Mining Company.—Machinery has arrived in Deadwood which will be taken to Bear Gulch District, where the company is sinking a shaft to quartzite. Water has bothered the work.

Grizzly Gulch.—A shaft is being sunk on the Belle Eldon by Genley, LeBrash & Lippie. A. G. Porth is cross-cutting a vertical of ore. Smart & Beemer, of Lead, have opened up a body of low-grade cyanide ore. On the west branch of Grizzly Gulch, a Nebraska company, under the management of A. M. Johnson, of Curtis, Neb., is doing extensive work. A 25-ft. shaft has been sunk and 450 ft. of drifting done in another place. Several small veins of ore have been cut.

Hidden Treasure.—Otto Grantz has shipped a carload of ore to Denver from his rich strike in the North Lead District. Two guards, accompanied the car. Mr. Grantz states that he has another carload ready for shipment.

Kicking Horse.—This group of claims, on the divide between Blacktail Gulch and Polo Creek, owned by George M. Johnson, Matt Johnson and Christian Godfrey, has been bonded by the Golden Gate Mining Company, D. C. Boley, general manager. The consideration is said to be $65,000, with $10,000 paid. The mine joins the Carroll ground on the northeast and the Golden Gate Company has been working in the Maggy for some time. The company now owns nearly 1 square mile of mining ground. The company is figuring on a reduction plant. The ore cyanides well.

Nemo District.—A Boston company has bonded 16 claims in this district owned by J. S. Ross and associates, of Lead. Work is to commence November 1st. Development shows some copper ore.

Red Cloud.—W. T. Liggett of Colorado Springs,

and associates, have begun work on this old mine in Deadwood Gulch, 4 miles west of Deadwood. It is in the phonolite belt.

Wagner.—William Hall of Colorado Springs, Colo., has bonded 6 claims in Sheeptail Gulch for J. A. Twichell of Pittsburg, Pa., Hall to have a 12th interest. A shaft 85 ft. deep was sunk by former owners. The group is owned by John Wagner, wife and 2 sons, and Benjamin Ballou.

Pennington County.

(From Our Special Correspondent.)

Big Hit Mining Company.—This company has been compelled to close down its new concentrating plant, 1 mile west of Keystone, on account of a lack of water.

Holy Terror Company.—The mill remains closed down and will not start up until sufficient wood can be secured to guarantee a steady run. It may not start until the railroad reaches the camp. The Keystone Mill has started again.

UTAH.

Beaver County.

Horn Silver Mining Company.—A. J. Harrison, of New York City, secretary of the company, states that the only dividend the company has paid this year was one of $20,000, March 31st. The report of a dividend in July that was sent out from Salt Lake City was premature.

Juab County.

(From Our Special Correspondent.)

Tintic's Quarterly Output.—For the third quarter the producing mines and their shipments were as follows: Tintic Iron, 272 cars; Mammoth, 249; Bullion Beck, 139; Centennial Eureka, 135; Grand Central, 119; Gemini, 111; Swansea, 94; Humbug-Uncle Sam, 61; South Swansea, 46; Sunbeam, 39; Godiva, 33; Ajax, 14; Four Aces, 13; Corissa, 10; Sioux, 6; Star Consolidated, 5; May Day, 4; Eagle-Blue Bell, 4; Northern Spy, 3; Tesora, 3; Joe Bowers, 2; Lower Mammoth, Utah, Silver Park and Rabbit's Foot, each 1 car of ore, making a total of 1,366 cars of ore. The shipments of concentrates were: Bullion Beck, 45 cars; Mammoth, 21 cars; Sioux Mill, 15 cars. The tonnage for ore and concentrates for the 3 months was 110,300. In this period the Mammoth forwarded 18 bars of bullion and Sioux Mill, 12 bars.

Mammoth.—Reports are flying of a probable change in control. President McIntyre admits that he has been approached, but that his figure is not reached. The mill is again working smoothly.

Tooele County.

De La Mar.—At these Mercur mines a number of diamond drills are at work. The drills are 3-in. Sullivan drills, furnished by the Sullivan Machinery Company of Chicago, Ill., through its Western manager, Roy D. Hunter of Denver.

Salt Lake County.

(From Our Special Correspondent.)

All's Well No. 2.—Exploration on the tract between Fortune-Keystone and Boston Consolidated is proving 2 good copper veins and a mass of quartzite carrying 2½% copper. This quartz material makes a good converter lining. In the drift on the vein from Dederichs' tunnel a 12-in. seam of 40% copper is reported struck. The property is under the control of F. B. Cook & Company.

United States.—A complete map of the workings of the 3 groups of mines—Old Jordan, Niagara and Old Telegraph—which is nearing completion, shows an aggregate of 27 miles of workings, of which Old Jordan contributes over 13 miles. At present 1,200 ft. of new exploration is done monthly.

Summit County.

(From Our Special Correspondent.)

Park City Shipments.—In the week ending October 7th, the smelter products sent forward through the Mackintosh sampler included the following: Silver King, crude, 1,055,425 lbs.; Daly-West, crude, 724,040 lbs.; Ontario, crude, 1,058,070 lbs.; Valeo, crude, 208,510 lbs.; Ontario, Como Tunnel, 64,510 lbs.

September Smelter Shipments.—The Mackintosh Sampler report gives the total output of the Park City Mines for September, as follows: Silver King, crude, 4,577,230 lb., concentrates, 1,918,250 lb.; Ontario, crude, 4,448,050 lb., sulphides—product of Marsac Mill, Russell process—29,964 lb.; Daly-West, crude, 3,956,390 lb.; Apex, concentrates, 216,790 lbs.; Anchor, concentrates, 182,040 lb.; Loring Bros., concentrates, 149,140 lb.; Valeo, crude, 120,380 lb.; Boston Crescent, crude, 38,670 lb.; Wykoff, concentrates, 29,080 lb.; Cooney, concentrates, 27,500 lb.; O'Niel, crude, 3,600 lb.; or all told, 15,697,084 lb. In September, 1898, the total was 8,004,660 lb.; the handsome increase is due to Ontario's larger production and to Daly-West becoming a shipper. There is some rivalry between Tintic and Park City for first place in ore production, and though Tintic claims a larger tonnage Park City leads in value.

Washington County.

(From Our Special Correspondent.)

St. George Copper Company.—Incorporation articles of this company were filed with the Secretary of State at Salt Lake City, recently. Capitalization, $500,000 in $1 shares. Officers and directors are: Clarence K. McCornick, president; W. W. Old, vice-president; Dr. C. Elliott King, secretary-treasurer; Dr. C. M. Garrison and M. J. O'Meara, all of Salt Lake City. The realty embraces Apex, Evening Star, Morning Star, White Elephant, Highland Mary, Hidden Treasure, Lime Stone and Home Station lode claims in Tutsagubet District. This is the old Dixie mine reorganized. It is purposed to move the smelter from the mine to St. George. The mine has been a reliable producer in a medium way.

WASHINGTON.

Ferry County—Republic.

(From Our Special Correspondent.)

Chico.—The shaft is down 140 ft., bottomed in porphyritic conglomerate, like that of the hanging wall in the Republic. A continuation of the Republic vein is expected to be cut at 200 ft.

El Capitan.—A shaft on the open cut, about 400 ft. north of the Lorna Doone shaft, will be sunk to 100 ft. as a double compartment shaft. The quartz from it assays $2 per ton. It is down 45 ft.

Golden Lily.—The crosscut is in 30 ft. and has about 20 ft. further to run to the west ledge. Much trouble is found with water.

Hit or Miss.—The shaft is down 90 ft. The quartz ledge at the bottom is 4 ft. wide, and assays $8 to $10 per ton, according to miners in the shaft.

Troubadour.—A new shaft on the Hit or Miss vein is down 28 ft. The bottom shows fine quartz 3½ ft. wide, with a good footwall, but frozen to the hanging.

Whatcom County.

Coal Mining Progress.—C. F. Owen, State coal mine inspector, states that 80 or 100 men are at work at Camp Larry, on the Palmer cut-off, developing a mine there; two tunnels have been run in veins Nos. 3 and 5, one 300 ft. and the other 480 ft. No. 3 10 ft. thick and No. 5 18 ft., with over 2/3 of the width good coal. A crosscut is to be made, 600 ft., which will connect the 2 tunnels and cut vein No. 4, which lies between veins Nos. 3 and 5. The company is putting in a Robinson coal washer, to separate the dirt and rock. At Lawson the Pacific Coast Company has a new brick engine house and is putting in a new 8-ft. Capelle fan for ventilation.

The old company at the Black Diamond is doing a great deal of work and getting out pretty near 1,000 tons of coal per day.

WEST VIRGINIA.

Lewis County.

New Oil Strike.—A deep well sunk on the Camden tract of 1,600 acres, leased by the Southern Oil Company, 4 miles west of Weston, is considered one of the most important finds of the year in this territory. The well is making between 400 and 500 bbls. a day. The strike is of importance as showing that oil-producing territory extends much farther east than was thought.

Taylor County.

Flemington Coal and Coke Company.—A railroad from Flemington to Waynesburg, Pa., is contemplated. The balance sheet of August 31st gives the following assets: Coal lands, 2,555 acres, taking same on the basis of 1,500 tons of coal to the acre, at, say, 7½c. per ton, $2,874,375. Surface lands, $72,000. Construction account, $288,679. Personal property, $17,582. Treasury stock, $250,000. Cash in treasury, $17,338. Accounts receivable, $39,248. Coal at mines and in transit, $40,000. Total assets, $3,604,512. The liabilities consist of $2,500,000 capital stock; $500,000 bonds; $28,067 loan account; $576,446 surplus account; total, $3,604,512. The cost of a proposed coke plant is placed at $300,000, and the new railroad at $1,000,000. The president of the company is S. L. Simpson.

WYOMING.

Carbon County.

Union Pacific Coal Company.—The company's coal mines at Hanna are running with day and night shifts. The quality of the coal mined is said to be second only to that of Rock Springs.

FOREIGN MINING NEWS.

AUSTRALASIA.

New South Wales.

Broken Hill Proprietary Company.—This company reports for the four weeks ending September 13th, a total output from the refinery of 2,839 tons lead, 36 tons hard (antimonial) lead, 355,881 oz. silver and 1,568 oz. gold.

New Zealand.

(From Our Special Correspondent.)

Many large yields have been reported from Otago dredges during the month of August. The published returns for the 4 weeks ending August 26th gave a total of 5,890 oz., Hartley & Riley's dredge being again by far the largest producer, with about 2,200 oz.—1 week's return being 786½ oz., a record, the previous best being 658½ oz., by the Electric Dredge in 1898. Hartley & Riley's Dredge receives its name from the original prospectors of the upper reaches of the Clutha River, who in 1862 obtained over 1,000 oz. from the river beach which the dredge is now working, but no further work appears to have been done for 37 years. The great majority of the Otago dredges are working on the Clutha River, and the high returns for the past few months are partly due to low water in the river. The Clutha is always much lower in winter than in summer, when it is fed by melting snow from the mountains of Northwestern Otago.

On the West Coast a great many dredging claims have lately been pegged out on the rivers and sea beaches. So far only 1 or 2 dredges have done any work here, although many millions of gold have been won from alluvial workings. The chief quartz-mining yield is that of the Progress Mines, Reefton, whose July return was £7,267 ($36,335), from 1,752 tons.

Quartz mining in the Auckland District continues, and 1 or 2 new producers have published their first returns. The yields reported during the past 4 weeks total £49,514 ($247,570), toward which amount the Ohinemuri District contributed £42,593 ($212,965), the Thames District £3,569 ($18,845), and the Coromandel District, £3,352 ($17,760). The chief producers in the Ohinemuri District were: Waihi, with £23,535 ($117,675) from 8,280 tons; Waitekauri, with £5,811 ($29,055) from 1,997 tons; N. Z. Crown, with £5,580 ($22,960) from 2,838 tons; Whangamata Corporation, with £1,651 ($8,255) from 855 tons (first return); and Waihi-Silverton, with £1,429 ($7,145) from 950 tons. The largest returns in the Thames District were Tauaru Creek, with £1,308 ($6,540) from 1,380 tons, and Kuranui-Caledonian tributers with £1,148 ($5,740) from 71 tons of ore and 200 lbs. of picked stone.

At Coromandel the Kapanza yielded £716 ($3,580) from 57 tons general ore and 148 lbs. picked stone, and the Hauraki £517 ($2,585) from 135 tons of ore and 53 lbs. picked stone.

The Kauri Freehold Gold Estates Company is making its first clean up.

Outside of gold mining, little or nothing of interest to foreign readers can be reported, except a chrome iron ore deposit in Otago. It is stated that 200 tons of ore are now ready for shipment.

Queensland.

The Mines Department reports for the month of August a production of 73,698 oz. gold, of which 72,118 oz. came from quartz mining, and 1,580 oz. from alluvial workings. The total result shows a decrease of 7,883 oz., or 9.6%, as compared with August of last year.

Mount Morgan Gold Mining Company.—For the month of August this company reports 19,421 tons of ore crushed and chlorinated. The result was 11,542 oz. gold, showing an average return of 0.59 oz. to the ton.

Tasmania.

Mount Lyell Mining Company.—This company reports for the 4 weeks ending September 20th a total of 25,255 tons of ore smelted. The result was 826 tons black copper, containing 816 long tons fine copper, 67,725 oz. silver and 2,430 oz. gold. The average result was therefore 3.23% copper, 2.68 oz. silver and 0.096 oz. gold to the ton.

CANADA.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Rossland Ore Shipments.—For the week ending October 5th the outturn of ore from Rossland mines amounted to about 123,000 tons.

British America Corporation.—At the Great Western, a Jeansville pump now keeps the shaft dry. Sinking to the 400-ft. level continues.

At the Nickel Plate, the shaft is nearing the 400-ft. level.

At the No. 1 upraising continues from the 400 to the 200-ft. level. Preparations are being made to construct a tramway about 2,000 ft. in length, and will connect the No. 1 and the Josie at a point a short distance west of the Le Roi compressor. Ore will be conveyed from these 2 mines to the cars on the Great Northern. It will be several weeks before the tram is completed.

Homestake.—Drifting on the ledge is in progress. Mr. G. H. Boyne, the superintendent, reports that good ore has been found in 11 crosscuts, and that indications continue promising.

I X L.—According to Roy H. Clark, mining engineer for this company, a rich ore shoot has been cut. The ore is partly free milling, and small shipments are being made to the Northport smelter.

White Bear.—The shaft at this Rossland mine is to the 350-ft. level. When a 20-ft. sump is sunk drifting work will begin.

Ontario—Rainy Lake District.

(From Our Special Correspondent.)

Foley.—This mine, now the property of the Canadian Mines and Development Company, of Rat Portage, is receiving a new hoist and other machinery.

Golden Star Gold Mining Company.—Ten more stamps will be added to the mill and the shaft sunk deeper. At present workings, about 400 ft. down, a great improvement in the rock is reported. A rich vein 4 to 5 ft. wide is cut.

Gold Winner.—A pay streak 2 ft. wide showing free gold has been struck on this property, in Sawbill Lake region.

Mikado Gold Mining Company.—This company has made a 20-day clean-up off the plates and secured a $7,000 gold brick. The mine is looking well.

Triggs Mining Company.—This company, near Rat Portage, has placed an order for a complete mining plant. A saw mill will also be set up.

Ontario—Port Arthur District.

(From Our Special Correspondent.)

Atikokan Range.—The lands on this range under option by some prominent Americans are to be explored. Capt. Thos. Wiegand has gone in with a crew of men to run a tunnel through the outcrop about 200 ft. Several tunnels will probably be run. The work will take some months. What promises to be a very important find of hematite has been made not far south from the Atikokan.

Ursa Major.—Rapid development is under way at this mine, east of Port Arthur, and the rock is stated to run $15 to the ton.

COAL TRADE REVIEW.

New York. Oct. 13.

Anthracite.

The prospects of the anthracite trade continue to improve, and it looks as if the demand might soon be greater than the supply available at current prices. This is particularly liable to be the case with chestnut coal. This was the size in most demand last winter, and already it is reported that dealers at Chicago and other Western points cannot keep this size in stock. It is now evident that the controlling factor in the hard coal situation until December will be car supply. The soft coal men have been having all kinds of trouble to get even ¾ of the cars they want, and now that fall buying is well started their hard coal brethren are experiencing the same difficulty. For the next 2 months, or until stormy weather reduces coastwise shipments, and the movement to tidewater, there will be lots of complaint about car supply at the collieries.

The mines, even allowing fo rthe great movement of labor from the anthracite fields since last year, can probably get out coal enough, but to get the coal to the consumer will keep railroads hunting for cars. Freight rates up the lakes are firm, but with stormy weather at hand, vessels which have been going up the lakes empty in their hurry to get down grain and iron ore, will begin to carry back coal as a measure of safety. Supplies of coal on docks at the head of the lakes are much below what they should be. In Chicago territory, trade is good. No effort is made to sell coal, prices are firm at the recent advance, yet much coal that arrives goes at once to retailers. A lot of coal will have to come in by all rail before next spring. Points along the lower lakes report the outlook better than for years. In the East demand at Philadelphia and New York has been better than at this time last year.

Sales agents report that the anthracite trade absorbed the August output of about 4,340,000 tons without trouble. What the October production may be it is hard to say, the preliminary estimates having been exceeded by such large figures in August and September. Car supply evidently is going to be the only check on output.

The advance of 25c. per ton by the Reading, noted last week, has not become general. It is certain, however, that selling prices are going to get much nearer quotations than they have been, and an actual increase of 25c. in selling prices is not at all improbable, now that people have the idea that coal is going to be higher.

We quote for free burning anthracite f. o. b. New York; chestnut and stove, $4@$4.25; egg, $3.75; broken, $3.40.

Bituminous.

The situation in the seaboard soft coal trade shows little change, except that the demand for coal is even fiercer than it has been. Everybody wants coal and nobody seems to have any surplus to sell. Producers are doing their best to help out their agents and are running about to get favors from other producers. All sorts of prices and inducements are offered, but the coal is not forthcoming. Some season contracts, however, are working out; as these are filled the situation will be easier. Producers report that contractors are using from 50% to 75% more coal than in previous years; not only are the maximum amounts called for by contracts demanded, but in many cases contractors are asking for more regardless of price. Producers buying from each other to help out customers frequently pay 25c. to 75c. per ton more than the regular figures. The best coals were out of the market first, then the next best grades were bought up and now there is very little of any kind left.

Points along the Sound and beyond Cape Cod continue to clamor for coal. There is an especially insistent call from the shoal water ports, which are beginning to lay in winter supplies. Producers, to supply these ports, are obliged to curtail shipments to consumers who can get coal all the year. The New York harbor trade shows an increased consumption; consumers here generally have limited storage room, but they are keeping their stocks as full as possible. There is some complaint about the city smoke inspectors, and it is freely stated that some concerns fare hard at the inspectors' hands, while others, whose chimneys pour forth much blacker clouds are not troubled. The explanation is that election time is near and politicians are active.

All rail trade is large, though producers are cutting down shipments as much as possible.

Transportation from mines to tide is good, cars going through in a hurry. Car supply continues scant and irregular. In some fields collieries are reported to run only on alternate days in order to accumulate cars.

The coastwise vessel market shows vessels a little scarce and rates stronger. Any shipper offering quick loading, however, can control the situation. We quote current rates from Philadelphia as follows: Providence, New Bedford and the Sound, 70c.; Boston, Salem and Portland, 80@85c.; Portsmouth, 85c.; Lynn and Newburyport, 90c.; Bath, $1; Dover, $1.25 and tonnage; Saco, $1.10 and towages; while rates from the further lower ports are 15@25c. higher.

It is practically impossible to give current prices of coal. Contracts are being filled at last spring's prices, sometimes below $1.50 at Chesapeake Bay ports; while as high as $2.25 has been offered for a poor coal at New York, 75c. over last spring's figures.

Birmingham, Ala. Oct. 9.

(From Our Special Correspondent.)

The coal output is very heavy in this State, but not as heavy as it might be were the railroads able to supply the full demand for cars. A good price is being obtained for the product now. The contracts that are being made are at a more profitable rate than ever before. All indications point to a continuation of conditions for months.

State Mine Inspector J. deB. Hooper estimates the output for this year at the Alabama coal mines at not less than 7,000,000 tons.

There is no trouble at any of the mines in the State, and the many miners are hard at work. The Mine Workers have not taken the ban off of the mines at Milldale and Brookwood, but non-union miners have been secured and there is much work going on at those places. All the coal men are in fine spirits and not a word of complaint is to be heard. The miners are sending no committees any more to the officers of the company ascertaining the price of iron so as to base their mining wages, inasmuch as the highest price under the contract is now being paid.

Chicago. Oct. 10.

(From Our Special Correspondent.)

Anthracite Coal.—The demand for anthracite coal has lessened somewhat, though as yet a considerable tonnage is being placed and strictly at October circular, $5.50 for broken and $5.75 for egg, stove and chestnut. The short supply of coal has occasioned some worry on the part of dealers hereabouts, they being unable to secure sufficient coal on contracts placed in September. As a rule yards are almost bare of certain grades of hard coal. Chestnut coal continues very scarce, with but little hope of any quantities coming in for some time to come. Consumers are willing to pay a premium for nut coal. Coal at retail is lively; retailers have their hands full, and are getting $6.50@$6.75.

Bituminous Coal.—The situation is remarkable from the fact that the demand far exceeds the supply, buyers being unable to obtain nearly a sufficient quantity to meet requirements. It begins to look as though a real famine were on in soft coal. The advent of colder weather brought with it large orders for soft coal, but the market was almost bare, and consumers had to be satisfied with 25 to 50% of their requirements. All over the West and Northwest the lack of soft coal is being severely felt, some manufacturing concerns having had to decrease output because coal could not be had in sufficient quantities to run the works properly. The mines are rushing soft coal to town, but the lack of cars and the enormous demands of the railroads are taking much. Prices are being bid for soft coal that were not thought of six months ago, many consumers having to have a supply of coal at any cost. The demand for the better grades of soft coal for domestic purposes has told on such coals, and there now is a shortage of the same. All over the West the cry is for cars, but as fast as the railroads secure new cars there appears to be a bigger demand for their use in hauling manufactured products. The situation is decidedly in favor of higher prices. Present prices are: Pittsburg, $2.50@$2.60; Brazil block, $2.35@$2.40; Hocking, $2.50; Blossburg, $3.10; Youghiogheny, $2.50@$2.60; Spring Valley, lump, $1.85@$1.90.

Coke is very scarce. Any price is being paid for certain lines. Coke of any quality is in big demand but small supply.

Pittsburg. Oct. 11.

(From Our Special Correspondent.)

Coal.—The Monongahela River Consolidated Coal and Coke Company, the organization of which was perfected on Monday, when officers were elected, will make a general advance in prices in all the markets controlled by it between Pittsburg and New Orleans. A committee was appointed on Wednesday morning to adjust prices. This committee will also put a price on the coal now loaded and ready to go South with the first rise in the rivers. It is estimated that about 20,000,000 bushels are loaded and ready to go out. The present price of river coal is 3½c. a bushel. This, it is said, will be increased about 1c. It is reported that the price for coal at Cincinnati will be fixed at from 5½c. to 6c., and 1c. higher at Louisville. No further advance has been made by the railroad coal combination. The demand for coal is good, but it cannot be supplied, owing to the inability of the railroads to furnish the necessary number of cars.

Connellsville Coke.—Notwithstanding the inability of the railroads to haul all the coke produced, and that many ovens are idle in consequence, more ovens are being built. In addition to those already mentioned, the Duquesne Coke Company on Wednesday let a contract for 100 ovens to be erected at Bradenville. The car shortage again cut down the shipments and operators continue to stock up coke in the yards. Prices are firm, and consumers are all urging heavier shipments. There are now 19,076 ovens in the Connellsville region, of which 17,962 are active and 1,113 idle. The shipments last week aggregated 9,490 cars, distributed as follows: To Pittsburg and river tipples, 2,960 cars; to points west of Pittsburg, 5,039 cars; to points east of Connellsville, 1,491 cars. This is a decrease of 356 cars as compared with the previous week.

San Francisco. Oct. 7.

(From Our Special Correspondent.).

Coal receipts at San Francisco by water in September—not including receipts from Mount Diablo mines and deliveries by rail from Rocky Mountain mines—were 139,654 short tons, showing an increase of 17,745 tons over September of last year. For the nine months ending September 30th the receipts were from the following sources: Eastern, anthracite and Cumberland, 30,251 tons; Washington, 455,184; Oregon, 39,734; British Columbia, 346,861; Australia, 115,416; Japan, 6,350; Great Britain, 80,371; total, 1,074,167 tons. In 1898 the receipts were 1,064,658 tons, showing an increase of 9,509 tons, or 8.9%, this year.

SLATE TRADE REVIEW.

New York. Oct. 13.

Business in September was good, and sales, especially of roofing slate, exceeded those of last year. The movement of roofing slate from Slatington and Walnutport, Pa., in that month aggregated 21,088 squares, as against 15,878 squares in August. The shipments of school slates and blackboards were also larger; of the former 2,474 cases were reported from these two places, as compared with 1,573 cases in August; and of blackboards, 3,959 crates, against 3,448 crates. The shipments from nearly all the other districts were on a larger scale than in August. We give below the total monthly shipments from Slatington and Walnutport for the present year as compiled by us:

	Roofing squares.	School cases.	Blackboard crates.
January.....	13,006	236	1,289
February.....	7,979	1,046	948
March.....	10,644	1,527	1,057
April.....	19,640	1,043	921
May.....	29,700	885	1,283
June.....	20,247	2,264	1,323
July.....	22,255	2,714	3,403
August.....	15,878	1,573	3,448
September....	21,088	2,474	3,950
Total.....	160,437	13,762	17,621

In manufactured slate there has been an in-

creased business done with electrical supply houses. Trade in marbleized slate is limited, owing to the cheapness of Vermont marble.

In the export field business is quieter, owing to curtailed building operations abroad. Statistics show that the total exports of slate from the United States in August amounted to $105,940, a decrease of $20,108 as compared with last year. For the eight months ending August 31st the total shipments were valued at $894,114, showing a falling off of $34,399 from 1898. This decrease would be more pronounced had not the shippers raised the values on their manifests to conform with the enhanced prices in the home market. Nearly all the deliveries made so far were on contract, at prices ruling months ago. Reports from Wales state that the quarrymen are doing a good business. The shipments from Portmadoc, North Wales, in the quarter ending June 30th, 1899, aggregated 29,034 long tons, making 55,907 tons for the half year. In June Carnarvon shipped 7,272 long tons, making a total of 40,842 tons for the half year, against 43,616 tons in the corresponding period last year.

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@8¼

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. thick, and Peach Bottom 25c. extra per square. 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 480.)

New York. Oct. 13.

Heavy Chemicals.—Most business done is for future delivery, the little doing on spot being at advanced prices. Imports this week included 200 drums, 210 casks and 2 bbls. bleaching powder. Importers expect a curtailment of shipments from England when the Boer war is on, as the merchant vessels will be used for transporting troops to South Africa. Receipts of domestic goods at New York this week included 1,055 sacks alkali and 250 drums caustic soda.

The United States imports in August and the 8 months of this year were as follows: Bleaching powder, August, 11,151,453 lbs.; 8 months, 79,216,568 lbs. (73,010,765 lbs. in 1898). Soda ash, August, 3,351,008 lbs.; 8 months, 24,514,142 lbs. (51,215,229 lbs. in 1898). Sal soda, August, 1,982,500 lbs.; 8 months, 4,936,404 lbs. (3,465,922 lbs. in 1898). Caustic soda, August, 1,509,207 lbs.; 8 months, 9,168,549 lbs. (17,428,385 lbs. in 1898). Chlorate of potash, August, 128,681 lbs.; 8 months, 1,127,394 lbs. (3,360,128 lbs. in 1898). We re-exported in the 8 months 713,083 lbs. caustic soda, against 840,500 lbs. in 1898; 1,124,351 lbs. soda ash, against 1,635,645 lbs., and 14,000 lbs. sal soda, against 1,272 lbs. in the corresponding 8 months last year. There were in the bonded warehouses on August 31st 185,600 lbs. bleaching powder, 920,387 lbs. caustic soda and 33,600 lbs. soda ash.

Articles.	Domestic. F.o.b. Works.	Domestic. In New York.	Foreign. In New York.
Alkali, in bags.	77½@82½c.	85@90c.	80@85c.
Caustic Soda, high test	$1.77½@1.82½	$1.85@$1.90	.....
" 98% powd.	.....	3 12½@ 3.50	.....
60@74 % powd.	.....	2.50@ 2.62½	.....
Sal Soda	60@65c.	.....	67½@72½
" conc.	1.35@1.60	.....	1.60@1.65
Bicarb. Soda	1.12½@1.25	.....	2.12½@2.25
" " extra	3.25@3.50	.....	
Bleach. Pdr., Eng. prime	.....	.....	1.65@1.75
other br'nds.	.....	.....	1.50@1.60
Chl. Pot cryst	.. ..	8.75@9.00	9.25@9.37½
" powd.	.....	9.25@9.50	9.50@9.75

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

Acids.—Acetic is in good request, muriatic is moving briskly on contract, and sulphuric is unchanged. Blue vitriol is quiet. Only 50 bbls. oxalic acid were imported this week.

The exports of acids from the United States in August amounted to $12,653, and for the 8 months to $105,195, against $111,340 in 1898. The exports of copper sulphate in August amounted to $349,858 lbs., valued at $18,154, making 25,631,191 lbs., valued at $1,126,641 for the 8 months, against 12,321,881 lbs., valued at $390,964, in 1898.

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

Acetic, com. No. 8.	$1.62½	Nitric, 38°.....	$3.75@ 3.80
Blue Vitriol, best	5.00@5.25	Nitric, 40°.....	4.00@ 4.05
Chamber, 50°, ton.	11.50@12.00	Nitric, 42°.....	4.62@ 4.65
Muriatic, 18°. ..	1.50@ 1.20	Oxalic.....	5.75@ 6.00
Muriatic, 20°. ..	1.25@ 1.30	Sulphuric, 66°....	1.10@ 1.15
Muriatic, 22°.....	1.40@ 1.50	Sulphurous, 100% SO_2 anhydrous.	8.00@10.00
Nitric, 36°	3.50@ 3.55		

Cobalt Oxide.—The combination has advanced its price from $1.76 to $2 per 100 lbs. in large lots and $2.10 for smaller quantities. The increased cost of manufacture has made this advance necessary.

Brimstone.—No arrivals. Spot best unmixed second $22@$22.50 per ton, and shipments $21.15; thirds, $19. The Anglo-Sicilian Sulphur Company has declared a dividend of 6d. per share on the ordinary stock. The imports of brimstone into the United States in August were 11,109 tons, making 86,914 tons for the 8 months, as against 130,986 tons in the corresponding period last year. We re-exported in the 8 months 473 tons, against 860 tons in 1898.

Pyrites.—Imports this week at this port were 4,500 tons from Huelva, Spain. Deliveries are principally on contract. The United States imported 32,803 tons of pyrites in August, valued at $118,800, or $3.62 per ton, against 22,183 tons, valued at $66,323, or $2.99 per ton, in the same month last year. For the 8 months ending August 31st the imports aggregated 201,812 tons, valued at $683,064, against 51,633 tons, valued at $155,358, in 1898.

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; American, 42% to 44%, and Pilley's Island, N. F., 50%.

Fertilizing Chemicals.—Demand is light, and prices show little change. We imported 1,905 bags sulphate of ammounia at this port this week, 3,500 bags sulphate and 1,500 bags muriate of potash. Latest advices from abroad quote the Beckton brand of sulphate of ammonia for October to December delivery at £11 10s. ($55.86 per long ton), while there are practically no stocks. In London outside makes are quoted £11 11s. 3d. ($56.16); Hull, £11 10s. ($55.86), and Leith, £11 10s.@ £11 11s. 3d per ton.

In New York sulphate of ammonia is selling at quotations below:

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.	.....	3.00@3.05
" " bone..... "	....	2.85@2.90
Blood, dried, h-gr, Chi. per unit N.Y.,	$1.75	... . 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.... "	15.00@15.50	21.00
" concentrated.. unit.	1.45@1.50	1.90@1.95
" bone.. ..... ton.	.....	20.00@21.00
Bone, steam ground... "	... ..	20,50@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.—Demand is very quiet, and quotations for all positions are nominally $1.65 per 100 lbs. Odd lots can doubtless be had at $1.62½. The United States imported 18,708 tons nitrate of soda in August, and 81,437 tons during the 8 months, against 98,212 tons last year. We re-exported in the 8 months 870 tons, against 437 tons in the same time in 1898.

Saltpeter.—The market is featureless. Crude is worth 3½@3⅝c. per lb., as to quantity, and refined 4¼@5¼c., as to quality. The arrivals in September are reported at 2,013 bags, against 9,091 bags in the same month last year. Consumption in September amounted to 4,160 bags, against 8,582 bags last year. Stocks on hand October 1st were 6,540 bags, against 6,823 bags at the same time last year. Adding the expected arrivals, we have an apparent visible supply of 12,041 bags, as against 13,144 bags in 1898.

Phosphates.—A fair demand exists at home, while abroad superphosphate manufacturers are reluctant to buy in any large quantity at ruling prices. The shipments from Savannah, Ga., in September amounted to 13,891 tons, most of which went to Germany. The total shipments from that port for the 9 months ending September 30th were 64,458 long tons, all for the foreign market. The movement from Punta Gorda, Fla., in August and September amounted to 7,385 tons, all foreign, making the total shipments for the 9 months 64,531 tons, of which 25,666 tons went into domestic consumption. The phosphate shipments from Bone, Algeria, in August amounted to 25,295 tons, making 172,591 tons for the 8 months.

The United States imported in August 3,959 tons crude phosphates, making 62,474 tons for the 8 months, against 17,224 tons in the 8 months last year, and 4,726 tons in 1897. The exports of domestic phosphates in August amounted to 85,089 tons, and for the 8 months to 611,639 tons, against 355,877 tons in the same period last year.

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. ($13.84 per long ton); Florida pebble, (68@73%), 7½d. ($10.50 per ton); Florida Peace River (58@63%), 7d. ($8.40 per ton); Tennessee high grade rock (78@80%), 7½d. ($11.85 per ton); Algerian, 63@70% rock, 7¼d. ($9.38 per ton), and 58@63% rock, 6¾d. ($7.80 per ton). Charters noted are as follows: 1,754 tons from Tampa to Hamburg, private terms; 2,514 from the same port to the Mediterranean, private terms; 999 tons from Punta Gorda to Baltimore, at $2.25; 893 tons from Port Royal to the same port, at $2.45, and 626 tons from Charleston, S. C., to the same, at $2.50.

We quote: Florida high grade, 75@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 phosphate rock, $4 f. o. b. mines for export, guaranteed 75% bone phosphate of lime and 3@4% iron and alumina (ex-vessel New York, $9@$10); and $2.50@$2.75 f. o. b. for mixed blue-gray Hickman County rock, guaranteed 65% bone phosphate and not over 3% iron and alumina. The difference in the price of this phosphate and Florida high grade is owing to the higher percentage of iron and alumina in the Tennesse rock. Concentrated phosphates, 13@15% av., P_2O_5, 60@62½c. per unit at sellers' works. Acid phosphates, $6.25 per ton for 14% in bulk f. o. b. Charleston, S. C.

Liverpool. Oct. 4.

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

There is no fresh development to report in heavy chemicals since our last advice. Soda ash is in good request at varying prices, according to destination, the maximum range for tierces being about as follows: Leblanc ash, 48%, £4 10s.@£4 15s.; 58%, £4 15s.@£5 per ton, net cash; ammonia ash, 48%, £4 5s@£4 10s.; 58%, £4 10s.@ £4 15s. per ton, net cash. Bags are 5s. per ton under price for tierces. Soda crystals are steady at £3 2s. 6d. per ton, less 5% for barrels, with special quotations for a few favored markets. Bags, 7s. 6d. per ton under price for barrels. Caustic soda is strong at the following range: 60%, £7 10s; 70%, £8 10s.; 74%, £9; 76%, £9 5s.@ £9 10s. per ton, net cash.

Bleaching powder is now held for £5 10s. and upwards, for hardwood packages, as to market, while unbarred makes are unobtainable.

Chlorate of potash is neglected, while quotations are nominally unchanged at 3½@3⅝d. per lb. for crystals and 3⅝@3¾d. per lb. for powdered, as to quantity.

Bicarb. soda is selling at varying prices, according to destination, ranging from £5 5s.@£6 15s. per ton, less 2½%, for the finest quality in 1 cwt. kegs, with usual allowances for larger packages.

Sulphate of ammonia is lower at £11 16s. 3d.@ £11 17s. 6d. per ton, less 2½% for good gray, 24@25% in double bags f. o. b. here, as to quality. There is rather a better feeling at the close.

Nitrate of soda is firmer at £7 17s. 6d.@£8 per ton, less 2½% for double bags f. o. b. here.

Valparaiso, Chile. Aug. 26.

(Special Report of Jackson Brothers.)

Nitrate of Soda.—Just after closing our last report all telegraphic communication with the nitrate districts was cut off. At that time there were sellers of 95%, September-October delivery, at 5s., and for delivery in 1900 at 4s. 11d., ordinary terms; but when the communication was re-established on August 24th producers had raised

their prices again to 5s. 2d. for September-October 95%, although no improvement had taken place in the European market to warrant the rise. Business has in consequence been impossible. Rumors are prevalent that the prospects of a combination are brighter, although yet far from being an accomplished fact. The production for July is advised as 2,623,000 qtls., making a total of 14,058,000 qtls. for the 7 months, as against 15,894,000 qtls. during same period last year. The consumption during the same 7 months has been 22,690,000 qtls., as against 20,655,000 qtls. in 1898. We quote: 95%, September-December, 5s. 1½d.; 1900, 4s. 11½d., and 96%, 5s. 2½d., all ordinary terms, sellers. The price of 5s. 1½d., with all around freight of 28s., stands in 7s. 1¼d. per cwt., net cost and freight, without purchasing commission. Reported sales during the fortnight aggregated 22,000 qtls., all 95%.

IRON MARKET REVIEW.

NEW YORK, Oct. 13, 1899.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Oct. 14, 1899. F'ces.	Tons.	Week ending Oct. 13, 1899. F'ces.	Tons.	From Jan., '98. Tons.	From Jan., '99. Tons.
An' racite	27	19,925	45	39,150	906,251	1,378,032
Coke.....	145	190,850	196	238,550	7,999,357	8,861,914
Charcoal.	20	5,975	25	6,450	241,834	225,672
Totals..	192	216,750	266	284,150	9,147,442	10,465,618

The market has been comparatively quiet, with unchanged conditions. For material of all kinds for near-by delivery the quotations depend very much on the necessity of the buyer. For next year's business there have been comparatively few contracts closed during the week. Bessemer pig for the second and third quarters of 1900 has sold at $24.50, Pittsburg delivery. For same deliveries, time and place, $22 is paid for No. 2 foundry, $21@$21.50 for gray forge. Steel billets have been rather uncertain. The price in Pittsburg is about $40 for December delivery, but contracts for next year have been placed at $2 less.

The pressure for finished material is less than it has been, and some Eastern mills have been looking for contracts for next year's work.

There is increasing complaint about railroad service. The supply of cars is short and much delay is caused by the want of facilities for carrying freight offered.

The furnace reports of conditions for October 1st show an increase of about 12,000 in the weekly capacity of the stacks active. This brings our current rate of production up to about 14,750,000 tons yearly. Since October 1st several furnaces in the South and East have gone into blast, and before the end of the month we shall be making pig iron at the rate of at least 15,000,000 tons a year.

Birmingham, Ala Oct. 9.

(From Our Special Correspondent.)

Notwithstanding rumors to the contrary, there has been no change recently in the pig iron market in this district as to quotations. The market is very firm and steady. No. 1 and No. 2 foundry are growing more scarce every week. Two furnaces have gone into blast in the immediate vicinity of Birmingham within the last 9 days, the Tennessee Coal, Iron and Railroad Company blowing in a furnace at Ensley and the Sloss Iron and Steel Company blowing in 1 right in the city.

The production right now is heavy, but not more than is needed. The shipments are heavy and the stocks on hand are decreasing rapidly. There are some good sales being made and the order books of the various companies are filling up. A prominent furnaceman is quoted as saying that the Tennessee Coal, Iron and Railroad Company had orders on their books for iron to the amount of nearly 650,000 tons, which with the amount that will be required for the steel plant at Ensley will mean all the iron that can be manufactured by that company next year with the present furnaces. The company is selling through next year, and at near current prices. The Sloss Iron and Steel Company has sold up through the first 6 months of next year. The Woodward Iron Company has also sold up pretty well, and the Republic Iron and Steel Company is selling their product ahead or using it in their own mills in the district.

The following statement is made as to furnaces in blast in the Birmingham District: Four furnaces at Ensley, 5 at Bessemer, 2 Alice (city), 1 Oxmoor, properties of the Tennessee Coal, Iron and Railroad Company; 2 North Birmingham furnaces and 2 city, properties of the Sloss Iron and Steel Company; 2 Woodward furnaces, properties of the Woodward Iron Company; 1 Vanderbilt furnace, property of the Tutweiler Iron and Coal Company; 2 Thomas furnaces, properties of the Republic Iron and Steel Company.

The work of repairing the second Oxmoor furnace is nearing completion, and it is believed the furnace will be ready for the torch within the next fortnight or so. The work on the Alabama Consolidated Iron and Coal Company's furnaces at Ironaton and Gadsden is being rushed, and in a few weeks they will be ready to go into blast. The same company is about to let the contract to repair the Mary Pratt furnace in this city. The work of repairing the Trussville Furnace is being rushed. A report from Sheffield and Florence is to the effect that all furnaces not in blast there are being rapidly repaired, while in the Anniston District preparations are being made to put the furnaces thereabouts in runing order.

While the preparations on the furnaces are being conducted the raw material supply is being closely watched. The Tennessee Coal, Iron and Railroad Company and the Sloss Iron and Steel Company are developing immense bodies of brown ore lands in the neighborhood of Russellville. The Sloss Company has purchased 2 McClannahan washers, capable of handling 500 tons of ore a day. The same company have developed a limestone quarry at North Birmingham capable of producing enough flux for their 4 furnaces in this immediate district. The Alabama Consolidated Iron and Coal Company is working up ore and limestone properties in the vicinity of their furnaces.

The coke supply is being well attended to. As has been stated before, over 1,000 new coke ovens will be in operation in this State before next spring. The Birmingham Mineral Railroad is now relaying track between Bradford and Palmer, in order to get to 103 coke ovens which will supply the Trussville Furnace with coke.

The following quotations prevail in this district: 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.

Buffao, Y. N. Oct. 10.

(Special Report of Rogers, Brown & Co.)

The foundry iron market in this district continues firm and active. There have been slight advances in some brands and in others a slight concession. A few odd lots have been offered in this district, which, together with iron from new furnaces at a trifle lower prices, has caused quite a little buying. Several fair-sized lots have been sold for delivery this year by new furnaces, and for the first half of next year by others. We quote for cash f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $24@$24.50; No. 2, $23@$23.50; Ohio strong softener No. 1, $23@$23.50; No. 2, $22.50@$23; Jackson County silvery No. 1, $31; Southern soft No. 1, $23.50; No. 2, $22.50; Lake Superior charcoal, $24@$25; coke malleable, $23.50@$24.

Cleveland, O. Oct. 10.

(From Our Special Correspondent.)

Iron Ore.—The general fear prevails here among vessel men that the shipping season on the lakes will close unusually early. Already it is reported that vessels in crossing Lake Superior become well covered with ice. It is also true that vessel men who have large contracts for carrying ore are away behind. It therefore is very doubtful whether as much ore will be delivered on the Cleveland docks as was expected several weeks ago. This accounts for another advance in carrying rates from the head of Lake Superior. The price now offered is $1.85 per ton. Those who have large quantities of ore to get down are glad to enter into contracts at the above-named figures, while as high as $2 are again being asked. The rates from Escanaba still remain at $1.35, and from Marquette at $1.65.

The year's prices for ore as made at the opening of the season are as follows: Specular and magnetic ores, Bessemer quality, $4@$4.25; specular and magnetic ores, non-Bessemer, $3.25@$3.75; red hematite ores, Bessemer quality, $3.75@$4.25; red hematite ores, non-Bessemer quality, $2.75@$3.25.

Pig Iron.—The pig iron market continues very firm under a good demand, which taxes all efforts at production. Producers are already beginning to raise the question as to whether or not the production of the first six months of next year is not pretty well sold up. Another condition which will in all probability affect the price of iron is the shortage of coke. Several of the furnaces were idle during several days last week because of a shortage of fuel, and it may result in some of the manufacturers being short on their contracts. No higher prices for iron are reported than were quoted a week ago, but they are likely to go higher.

The following are the present quotations for iron f. o. b. Cleveland: Lake Superior charcoal, $24.50; Bessemer, $23; No. 1 foundry, $23; No. 2, $22.50; No. 1 Ohio Scotch, $22; No. 2, $21.50; gray forge, $19.

Philadelphia. Oct. 12.

(From Our Special Correspondent.)

Pig Iron.—Brokers and furnace representatives have so little unsold iron for the next 3 months that they have hardly anything to say. There are buyers for all kinds of pig iron for early or any sort of delivery. Those who could accept contracts are evading buyers and declining to negotiate. The iron market is very strong and could be safely quoted higher than it is. No. 1 X is $24, No. 2 $23, gray forge $20, but there are buyers ready to pay more for desired deliveries. Makers of Bessemer have propositions before them this week for remote deliveries. There is nothing in sight to indicate that producers are catching up to the market, and much to prove that requirements are galloping ahead.

Muck Bars.—New orders are slow coming.

Billets.—There have been some big deals in billets for next year, but the parties concerned are unwilling to give a single word as to quantity or price. Current quotations are $41@$42, and for best next year's deliveries $38@$39.

Merchant Bars.—There was but little done this week. Managers want to catch up before taking much more business. Tested iron and special steel bars are being run on just now for early winter delivery. The stores are stocking up again.

Skelp.—Enough business has been offered within a month to keep mills going for two or three months, but only about half of this business was accepted.

Nails.—Country retailers have stocked up pretty well and jobbers say they do not look for any further advance.

Sheets.—No. 28 is 3.80@3.90c. Prices firm and mills are keeping their customers better supplied than for months. The mills will rush manufacturing all winter, to have some stocks to fall back on in the spring.

Merchant Steel.—Small users of merchant steel are buying to load up. Our agents are sending in a large number of small orders from machine shops, hardware manufacturers and the like. They have no knowledge of any contemplated advance.

Plates.—Advices to-day from 3 large plate plants are to the effect that business for December and January is crowding in fast at prices that are virtually made by buyers. Boiler plate sold at 3.30@3.40c. New business is waiting its turn. Prices are moving up and quotations are hard to give. Some wild rumors are flying about concerning export orders of plates.

Structural Material.—What is true of plates is true of shapes, but prices are several dollars a ton less. There is more work crowding along than can be taken care of. Angles are 2.50c.; beams, channels and tees, 2.60@2.80c., and even more.

Steel Rails.—The railmakers are reticent, as usual, but it leaks out that girder rail business is lining up nicely for winter and spring delivery. Standard sections are $33@$35.

Old Rails.—A large business has been done with Southern roads in old iron rails at private terms; ordinary quotations are $25@$26.

Scrap.—Very little scrap can be had. All concerns producing scrap are sold up. Prices are just what buyers make them, and the supply is not one-fourth what the demand calls for.

Pittsburg. Oct. 11.

(From Our Special Correspondent.)

There is practically no change in prices of iron and steel, but the buying for next year's delivery is heavier than it has been for some time. Sales are being made up to July 1st, 1900, principally for Bessemer pig iron. The highest price quoted for Pittsburg delivery is $24.50. A higher figure than that is only obtained when the consumer is anxious to secure a quick shipment and is willing to pay a premium. There are still a few small lots of Bessemer pig that may be had for this year's delivery, for which fancy prices will likely be obtained. Scrap iron is in great demand, and prices have advanced during the week from $1 to $3 a ton. Old rails have gone up to $32, and it is said that as high as $34 has been paid for old iron rails. It was rumored that prices of structural shapes were to be advanced, but the report was denied by a leading manufacturer, who said they preferred to keep prices down to the present basis; but there is room for an adjustment.

Pig Iron.—A few small sales were made during the week, and it is believed that a few lots can be had for this year's shipment. There is no change in prices, except where the buyer pays an advance for prompt shipment. Bessemer, Pittsburg, is quoted at $24@$24.50; Valley, $23@$23.75; No. 1 foundry is $22.50@$23; No. 2, $21.75@$22.25; gray forge, $21@$21.50.

Steel.—The demand for billets has increased during the week, but it did not have the effect of putting the price above $40. It is said—but the report is not verified—that higher prices have been offered. It is certain, however, that manufacturers have had more inquiries during the week. No billets have been sold for next

year at $40, but some sales have been made at within $2 of that figure. Slabs are still selling at about $1 higher than billets.

Bars.—There is no change in the price of bars, but the demand is slightly better than last week. Steel bars are firm at 2.50c. for future delivery, while for present shipments a much higher price is obtained. Iron bars are selling at about the same price, but the price is not as firm as for steel bars.

Sheets.—The sheet market is stronger than last week, but prices remain the same. No. 28 gauge is quoted at 3.20@3.30c. and galvanized sheets are still quoted at 70 and 10% off, with a 15c. freight allowance.

New York. Oct. 13.

The domestic iron market shows no falling off in activity. Foreign trade feels the high prices. We note a shipment of $140,000 worth of agricultural machinery to Argenta, and orders for $12,000 worth of machine tools from Germany.

Pig Iron.—Pig of all kinds is hard to get. Foundrymen who must have it are not in a pleasant frame of mind.

We quote for anything like delivery this year, Northern brands, tidewater delivery: No. 1 X foundry, $24.50; No. 2, $23.75; No. 2 plain, $22.25. Southern brands, New York delivery: No. 1 foundry, $23.75; No. 2 foundry, $22.75; No. 1 soft, $22.50; No. 2 soft, $22; No. 3, $21.

Warrant irons show few changes since last reported. Alabama No. 2 foundry remains at $18, but No. 3 has fallen to $16@$16½; No. 4, $15½@$15¾; gray forge, $15½@$15¾.

Bar Iron.—Demand shows no falling off, and the market is very firm. We quote refined iron as high as 2.30c. in large lots on dock, and common, 2.05c.

Plates.—Mills are sold far ahead, demand is as active as ever, and prices are very firm. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 3.10c.; tank, 3/16-in., 3.20c.; shell, 3.25c.; flange, 3.40c.; marine, 3.40c.; firebox, 3.50c.; universals, 2.95c. These quotations are for delivery some months ahead. Tank ¼-in. plates for immediate delivery are quoted up to 4c.

Structural Material.—Demand continues very active and, of course, prices are just as firm. We quote for large lots at tidewater: Beams, 15-in., 2.50c.; tees, 2.55c.; channels, 2.55c.; angles, 2.45c., with much higher figures for prompt delivery.

Steel Rails.—There is nothing new in the situation. Quotations nominally are about $35@$36 for standard sections f. o. b. Eastern mills. Smaller rails nominally may be quoted: 12-lb.; $40; 16-lb., $40; 20-lb., $38; 30-lb., $38; 40-lb. to standard, $37, with the usual advance for small orders.

Wrought Iron Pipe.—Discount on all sizes grow nearer list prices. Latest discounts are 4 10s and 5% for large lots on dock.

Nails.—Nails have been in good demand, and the market is firm. The New York prices for wire nails are: Car-load lots on dock, $3.10; less than car-loads on dock, $3.15@$3.25; small lots from store, $3.30@$3.40. Cut nails are quoted on dock in car-load lots, $2.65@$2.75; smaller lots, $2.70@$2.80.

Old Material.—All kinds of scrap are in great demand, and yards are pretty well cleaned out.

METAL MARKET.

NEW YORK, Oct 13. 1899.

Gold and Silver.

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

	August.		Year.	
	1898.	1899.	1898.	1899.
GOLD.				
Exports	$15,296,811	$3,283,378	$110,535,475	$29,566,494
Imports	1,955,908	2,059,062	9,679,113	32,218,843
Excess	I. $13,340,903	I. $1,224.316	I.$100,856,362	E. $2,652,349
SILVER.				
Exports	3,551.743	2,843,910	19,098,528	20,012,421
Imports	4,798,478	3,992,970	34,281,397	35,116,39[illegible]
Excess	E. $1,246,735	E. $1,149,060	E.$15,182,869	E.$15,103,969

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 October 12th, 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	$4,054	$2,461,004	$728,665	$82,802	I. $1,811,087
1899..	11,558,715	12,067,159	22,335,257	2,921,276	E. 18,905.537
1898..	6,973,695	90,726,672	26,893,634	2,419,864	I. 59,279,291
1897..	48,127,162	7,496,541	31,567,410	1,838,140	E. 70,359,897
1896..	40,417,348	57,108,436	31,071,031	2,231,207	E. 12,148,736

Exports of gold consisted only of a few small lots; imports were from London and the West Indies. Exports of silver were chiefly to London; imports were from the West Indies and South America.

The United States Assay Office in New York reports the total receipts of silver at 116,000 oz. for the week.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars	$ .47½	$ .49
Peruvian soles and Chilean pesos	.42½	.44½
Victoria sovereigns	4.85	4.89
Twenty francs	3.85	3.90
Twenty marks	4.74	4.80
Spanish 25 pesetas	4.78	4.84

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	56.77	29.74	64.79
February	27.44	59.42	25.89	56.07	29.68	64.67
March	27.48	59.64	25.47	54.90	28.96	63.06
April	27.65	60.10	25.95	56.02	28.36	61.85
May	28.15	61.23	26.31	56.98	27.86	60.42
June	27 77	60.43	27.09	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.[illegible]4
October	.....	.....	27.90	60.42	26.77	57.57
November	.....	.....	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	11.93	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	.....	12.41	.....	17.42	.....	3.78	.....	4.98
Nov	.....	12.86	.....	18.20	.....	3.70	.....	5.29
Dec	.....	12.93	.....	18.30	.....	3.76	.....	5.10
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 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.

Financial Notes of the Week.

The speculative markets are still uneasy, but general business still continues good, and is very little affected by stock exchange conditions.

The United States Treasury has given notice that it is prepared to anticipate payment of all interest falling due on United States bonds during the present fiscal year; that is before June 30th, 1900. On all such advance payments of interest due after November 1st, a discount at the rate of 2.4% a year will be made. The total amount of interest coming due in the period named is over $25,000,000. The avowed object of this action is to relieve stringency in the money market. Of course, only a part of the interest will be taken in advance, as small holders, guardians of trust funds, etc., will generally prefer to collect their interest at the usual dates. This action is approved by Wall Street, but it is really much to be regretted. The stringency of which so much has been said, exists only in the speculative markets, and has really had a beneficial effect in checking wild speculation, and bringing within bounds a movement which was beginning to assume dangerous proportions. There has been, and is, no difficulty in finding money for legitimate business operations. Moreover, it is a step backwards toward that thoroughly unsound and unsafe condition when the money market was dependent on the condition of the Treasury. We have had enough of that in times past, and we know how the power it puts in the hands of a secretary can be abused through bad judgment, for personal or political reasons. The bull party in Wall Street approve, but conservative business men generally will agree that Secretary Gage has made a great mistake.

The silver market has been steady and dull, showing only small fractional changes during the week, and closing at 26¾d. in London.

The statement of the United States Treasury on Friday, October 12th, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date of last week:

	Oct. 5.	Oct. 12.	Changes.
Gold	$255,044.493	$257,358,552	I. $2,314,059
Silver	4.972.867	6,821,892	I. 1 849,025
Legal tenders	16,167.220	16,048,647	D. 118,573
Treas notes, etc	1,299,174	1,201,060	D. 98,114
Totals	$277,483,754	$281,430,151	I. $3,946,397

Treasury deposits with national banks amount-

Imports and Exports of Metals.

Port.	Week, Oct. 11.		Year 1899.	
	Expts.	Impts.	Expts.	Impts.
***New York.**				
Aluminum.....long tons	4	.....	331	12
Antimony ore... " "	.....	.....	.....	1,365
" regulus.. " "	.....	‡35	.....	520
Brass ..... " "	.....	.....	92	.....
Chrome ore..... " "	.....	.....	2,038	.....
Copper, fine ..... " "	1,463	344	43,374	20,308
" matte.. " "	.....	.....	556	878
" ore..... " "	.....	.....	.....	37,364
" ash..... " "	.....	.....	.....	187
" sulphate " "	.....	.....	11,433	.....
" other... " "	.....	.....	.....	135
Cop-nickel matte " "	.....	.....	.....	53
Ferro-mangan'se " "	.....	.....	.....	278
Iron ore ..... " "	.....	.....	.....	50
" pig, bar, rod " "	179	.....	5,319	3,153
" pipe..... " "	634	.....	22,828	.....
" plates, sheets " "	.....	.....	748	146
" other..... " "	.....	.....	1,144	.....
Lead ..... " "	608	1,000	43,410	44,718
" ore..... " "	.....	.....	.....	941
Manganese, ore. " "	.....	.....	.....	5,148
Metals, old scrap " "	163	‡54	4,158	3,590
Composition.. " "	.....	.....	5.929	140
Nails. ..... " "	228	.....	15,268	.....
Nickel ..... " "	50	.....	1,542	100
" Ore ..... " "	.....	.....	.....	4,020
§Railr'd material " "	.....	‡100	7,122	3,427
Rails, old..... " "	.....	.....	15,417	.....
Spiegeleisen..... " "	.....	‡49	.....	511
Steel bars, plates " "	1,969	‡185	37,985	13,126
" rails..... " "	.....	.....	43,979	155
" hoops... " "	.....	.....	831	.....
" wire..... " "	1,262	.....	31,432	998
" not speci'd. " "	174	‡94	24,733	11.243
Tin ..... " "	.....	145	.....	22,868
" dross or ashes " "	3	.....	63	.....
" and black plates" "	....	‡127	.....	26,537
Zinc..... " "	.....	.....	272	358
" dross..... " "	.....	.....	437	.....
" ashes, skim " "	18	‡10	2,020	191
" ore..... " "	.....	.....	6,972	.....
" oxide..... " "	124	.....	3,384	288
†Baltimore.				
Alumina ..... bags	.....	.....	.....	3,479
Antimony regulus...casks	.....	.....	.....	286
Chrome Ore.....long tons	.....	.....	.....	2,300
Copper, fine..... " "	1,019	167	28,644	1,521
" matte... " "	.....	.....	.....	.....
" sulphate " "	15	.....	1,562	.....
" pipe.....	.....	.....	100	.....
Ferro-manganese " "	.....	30	.....	2,016
Ferro-silicon..... " "	.....	...	184	95
Iron pig, bar, etc. " "	.....	.....	1,209	5,581
" ore..... " "	11,356	.....	.....	200,127
" pyrites..... " "	.....	.....	.....	41,107
Manganese ore.. " "	5,430	.....	.....	53,181
Metals, scrap.... " "	.....	.....	4,604	21
Nails ..... " "	21	.....	674	.....
Pipe, iron & steel " "	111	.....	10,278	.....
Spiegeleisen..... " "	.....	.....	.....	1,028
Steel, bars, pl'es. " "	443	...	32,834	.....
" wire ..... " "	53	12	1,011	23
" rails..... " "	4,770	.....	58,585	276
not specified.. " "	.....	7	2,739	17
Tin..... " "	.....	.....	563	.....
" dross..... " "	.....	.....	.....	.....
" and blackplates" "	.....	.....	.....	2,317
" other..... " "	.....	.....	43	.....
Zinc..... " "	.....	.....	25	5
" dross ..... " "	19	.....	231	.....
" skimmings.. " "	.....	.....	131	.....
***Philadelphia.**				
Antimony.....long tons	.....	.....	.....	10
Chrome ore..... " "	.....	.....	.....	3,060
Copper ore..... " "	.....	.....	.....	32,940
" old..... " "	.....	.....	.....	11
Ferro-manganese " "	.....	.....	.....	1,442
Ferro-silicon ... " "	.....	.....	.....	160
Iron, pig..... " "	.....	‡100	.....	2,720
" ore..... " "	.....	‡9,640	.....	203,623
" pyrites..... " "	.....	.....	.....	5,250
Manganese ore.. " "	.....	‡6,731	.....	66,618
Steel sheets..... " "	.....	.....	.....	510
Spiegeleisen..... " "	.....	.....	.....	2,070
Tin ..... " "	.....	150	.....	1,030
" and black plates" "	.....	259	.....	4,112
Zinc dust ..... " "	.....	.....	.....	.....
" ore ..... " "	.....	.....	3,093	.....

Total United States.§§

Articles.	Aug.		Jan.—Aug.	
	Expts.	Impts.	Expts.	Impts.
Antimony.. long tons	.....	257	.....	1,068
" ore.... " "	.....	5 0	.....	1,442
Copper fine " "	10,544	619	66.044	16,779
" su phate . " "	156	.....	11,442	.....
" ore & matte " "	.....	2,122	3,794	6,243
Iron, pig & bar.. " "	15,802	4,510	186,159	31,551
" ore..... " "	8,264	73,555	15.673	371,291
Iron& steel plates " "	3,678	837	44,515	2,243
" " wire " "	11,269	273	74,958	1,893
Steel, billets, rods, etc..... " "	2,589	1,492	62.043	17 847
Steel rails.. .... " "	29,567	.....	159,735	1,125
Lead, pigs, bars & old ..... " "	5	65	46	206
Lead in ore. .... " "	5,821	5,935	48,106	57,068
Nails, cut..... " "	813	.....	6,251	.....
" wire ..... " "	2,913	.....	20,073	.....
Tin..... " "	33	3,284	286	22,693
" plates..... " "	23	6,461	216	38 061
Zinc ..... " "	19	205	5 736	798
" ore .... " "	1,961	.....	16,754	.....

*New York Metal Exchange returns. †By our Special Correspondent. §Not specified. ‡Week ending Sept 29th. §§ 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.

ed to $82,504,657, an increase of $779,447 during the week.

The statement of the New York banks—incluring the 63 banks represented in the Clearing House—for the week ending October 7th gives the following totals, comparison being made with the corresponding weeks in 1898 and 1897:

	1897.	1898.	1899.
Loans and discounts	$571,731,100	$636,380,100	$710,582,500
Deposits	616,737,200	710,806,800	781,158,800
Circulation	15,820,200	15,473,200	15,534,700
Reserve:			
Specie	93,948,500	142,850,600	147,252,400
Legal tenders	73,721,300	53,594,700	48,6[illegible],500
Total reserve	$167,669,800	$196,445,300	$195,932,900
Legal requirements	154,184,300	177,701,700	195,289,700
Balance, surplus	$13,485,500	$18,743,600	$643,200

Changes for the week, this year, were increases of $317,900 in circulation, and $1,351,400 in legal tenders; decreases of $3,590,200 in loans and discounts, $4,205,400 in deposits, $3,484,000 in specie, and $1,081,250 in surplus reserve.

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

	1898.		1899.	
Banks.	Gold.	Silver.	Gold.	Silver.
N.Y. Ass'd.	$142,850,600	.....	$147,252,400	.....
England	158,734,710	.....	163,464,[illegible]30	.....
France	371,602,680	$249,249,820	382,901,155	$236,522,135
Germany	119,810,000	61,720,000	113,300,000	58,370,000
Spain	54,375,000	26,760,000	67,195,000	69,155,000
Aus.-Hun.	175,770,000	62,750,000	183,775,000	63,230,000
Neth'l'ds	21,570,000	32,750,000	13,710,000	2,635,000
Belgium	13,885,000	6,945,000	14,535,000	7,270,000
Italy	73,470,000	11,020,000	77,535,000	7,135,000
Russia	513,760,000	19,295,000	448,240,000	24,420,000

The returns of the Associated Banks of New York are of date of October 7th, and the others are of date of October 5th, 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.

The Treasury Department estimate of the money in the United States on October 1st is as follows:

	In Circulation.	In Treasury.	Totals.
Gold Coin	$646,561,185	$221,271,988	$867,833,173
Silver Dollars	68,755,243	413,867,133	482,122,376
Subsid. Silver	74,045,762	2,477,571	76,523,333
Gold Certif.	98,673,559	36,827,560	135,501,119
Silver Certif.	400,153,881	5,043,623	405,197,504
Treas'y Notes	89,957,175	1,210,105	91,167,280
U. S. Notes	314,954,600	31,726,416	346,681,016
Cur'y Certif.	15,870,000	230,000	16,100,000
Nat. Bank Notes	239,731,781	3,640,422	243,372,223
Totals	$1,948,703,186	$715,794,838	$2,664,498,024

The estimated circulation per capita is $25.45. There was a net increase of $6,572,045 in circulation during September, and an increase of $132,106,794, as compared with October 1st, 1898.

Receipts of specie from Mexico at San Francisco, principally by rail, are reported as follows for the 9 months ending September 30th:

	1898.	1899.
Silver bullion	$441,034	$677,982
Silver dollars	3,438,825	1,412,64
Tosal Silver	$3,879,759	$2,090,828
Gold bullion	632,929	625,531
Total	$4,512,688	$2,726,359

The large decrease in Mexican dollars is to be noted. There has been a light demand for these coins for shipment to China, and prices have been too low to favor their import.

Shipments of silver from London to the East for the year up to September 28th, 1899, are reported by Messrs. Pixley & Abell's circular as follows:

	1898.	1899.	Changes.
India	£3,473,390	£3,894,525	I. £421 135
China	433,756	1,039,563	I. 605,807
The Straits	337,037	203,008	D. 134,029
Totals	£4,244,183	£5,137,096	I. £892,913

Arrivals for the week, this year, were £153,000 from New York, £25,000 from Australia, £13,000 from the West Indies, and £9,000 from Chile; total, £200,000; all bar silver. Shipments were £200,825 to Bombay, and £90,610 to China; total, £291,435; all bar silver.

Indian exchange continues strong, though money in India is somewhat easier. The 50 lakhs of Council bills offered in London were all taken at an average of 16.09d. per rupee. There has been no buying of silver for Indian account, but some gold is reported taken for shipment from Australia to India.

Other Metals.

Daily Prices of Metals in New York.

October.	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.
7	4.86⅛	58	26¾	18¼	17	.....	32½	4.57½	5.50
9	4.85¾	58⅛	26⅛	18¼	17⅛	76 5 0	32⅛	4.57½	5.50
10	4.86¼	58⅛	26¾	18¼	17⅛	76 0 0	32	4.57½	5.50
11	4.86¼	58⅛	26¾	18¼	17	76 0 0	32⅛	4.57½	5.50
12	4.86¼	58	26¾	18¼	17	75 15 0	32¼	4.57½	5.50
13	4.86¾	58⅜	26⅞	18	17	76 0 0	32½	4 57½	5.50

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 ruled quiet but steady, without any special feature. Home consumers do not as yet show any interest in the article, but inquiry from abroad continues satisfactory and quite some business has resulted. Prices remain unchanged from those quoted last week, Lake copper 18½c., electroylitic in cakes wirebars and ingots 17@17⅛c., cathodes 16¾@16⅞c., casting copper at 17c. nominal.

The foreign market is still dominated by the difficulties between England and the Transvaal. Standard copper opened at £76 5s., declined on Wednesday to £76, on Thursday to £75 10s., and the closing quotations are cabled as £76 for spot, and 7s. 6d. higher for three months.

Refined and manufactured sorts we quote: English tough, £78 15s.@£79 5s.; best selected, £80 5s.@£80 15s.; strong sheets, £87 10s.@£88; India sheets, £83@£83 10s.; yellow metal, 6¾@7d.

Tin.—It was quite natural that this article, which is always volatile, should suffer in consequence of the unsettled state of affairs abroad and the higher money market. Fluctuations have been rather wide, the opening quotation on Monday being cabled as £146 10s., while the lowest point was reached on Thursday, £143 15s. The close is again firm at £145 15s. for spot, and £146 2s. 6d. for three months

In our market the buying was restricted to quantities needed to cover immediate requirements, although consumption continues at a fair rate. We quote Straits in carload lots at 32½c. f. o. b. New York.

Lead continues to be in good demand, and inquiry on the part of consumers is reported as very fair. There is no change in prices, the metal being still quoted at 4.55@4.60c. New York and 4.47½@4.50c. St. Louis.

The foreign market has been rather irregular, but in the main the tendency was upwards. Spot lead is quoted at £15 17s. 6d.@£16 2s. 6d. for Spanish, and £16 5s.@£16 7s. 6. for English, while futures are at a discount of 5s. to 10s.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is quiet at 4.47½c. for common, 4.50c. for chemical, and 4.52½c. for corroding. Transactions are very light.

Spanish Lead Market.—Messrs. Barrington & Holt of Cartagena write us as follows: Exchange has been very steady for September, but the price of lead has been rising each week, though silver has not varied. For the month the average price of lead has been 75.81 reales per qtl., equivalent to £13 13s. per long ton f. o. b. Cartagena on an average exchange of 31.09 pesetas to £1, silver having averaged 13.50 reales per oz. The weekly reports were as follows: September 9th, 75 reales per qtl. (£13 10s. 3d. per long ton); exchange 31.08 pesetas to £1. September 16th, lead, 75.75 reales £13 12s. 10d.); exchange 31.08 pesetas. September 23d, lead, 76 reales (£13 13s. 6d.); exchange 31.11 pesetas. September 30th, lead, 76.50 reales (£13 15s. 5d.); exchange 31.09 pesetas. Silver remained at 13.50 reales. The exports of pig lead in September were 1,062,884 kilos to Marseilles, 400,000 kilos to Genoa, and 252,935 kilos to Coueron; total, 1,715,819 kilos.

Spelter.—The disquieting news from the orefields stirred up consumers and a good business has resulted at stiffening prices, and with the present small production it is feared that stocks will, in the near future, not be sufficient to meet the present large consumption. We quote 5.30@5.35c. East St. Louis; 5.45@5.50c. New York.

The foreign market is also firmer and again higher, good ordinaries being quoted at £22 12s. 6d., specials £22 17s. 6d.

Spanish Zinc Market.—Messrs. Barrington & Holt of Cartagena write us as follows: The chief subject of interest during September has been the complete collapse in the price paid for zinc ore at the mines here. Some 3 years ago 30% blende was to be bought at mouth of mine for 3 reales per qtl., at which time spelter was considerably under £20 per ton, while the business was practically in the hands of only two firms. Gradually the price of spelter went up and other buyers introduced themselves into the business; the local prices therefore steadily increased, and at the same time the production in some months has been as much as 6,000 tons. Last year, with the high exchange and increased price of spelter, miners were obtaining up to 20 reales per qtl. for 35 % at mouth of mine. So great was the competition among buyers here that although exchange fell off 30%, there was little or no reduction in local prices. In the month of June spelter averaged over £28, and at this price very large stocks of blende were accumulated here, and only early in this month, when buyers found spelter had dropped to £22, did they seem to realize the position. The result is a complete panic, prices having been reduced 30% in the cost of a few days, and many buyers not even venturing to buy at this figure. It is now probable that some equitable arrangement will be made between buyers and sellers based on the price of spelter. Meanwhile there are over 20,000 tons of zinc ore in stock here, a greater portion of the same having been bought at top prices, which cannot but incur an enormous loss to the holders.

Exports in September were 7,420,000 kilos blende to Antwerp.

Antimony is in good demand. We quote Cookson's at 10½@11c.; Hallett's at 9¾@9⅞c.; U. S. Star and Hungarian, 9½@9⅝c.

Nickel continues on unchanged lines, and no alteration in prices can be reported. We quote for ton lots, 33@36c. per lb., and for smaller orders, 35½@38c. London prices are 14@16d. per lb., 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.

Quicksilver.—The New York quotation has been advanced $1, and is now $48 per flask. The London price has been raised 5s., and is now £8 17s. 6d. per flask; the same figure being quoted from second hands.

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

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

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

LATE NEWS.

According to a despatch dated Cleveland, O., October 12th, the Carnegie Steel Company has contracted with the American Shipbuilding Company for 5 steel steamships of 8,000 tons each. This action of the Carnegie people is stated to be an outcome of a struggle with the interests controlled by John D. Rockefeller of the Bessemer Steamship Company. It will be remembered that when the Rockefeller mines on the Mesabi were secured by the Oliver Mining Company, the lease called for transportation of the ore down the lakes by vessels of the Rockefeller fleet. Since the time these leases were made, the Oliver Company has secured control of many properties on other ranges, particularly on the Gogebic and Vermilion, its available tonnage to be shipped in any one season has enormously increased, and the company doubtless wishes to transport its ore in its own boats so far as possible. It is stated that another reason for the company's action is that the Rockefeller interests by securing contracts with Mitchell & Company, of Cleveland, and controlling the whaleback fleet of 30 vessels of the American Steel Barge Company, has almost a corner on the vessel market for next season. It is also stated that contracts have already been made to carry ore from Lake Superior ports next season at $1.25 a ton. This figure compares with 60c. last winter for this season, and indicates that iron ores may average nearly $2 a ton higher in 1900 than in 1899.

(From Our Special Correspondent.)

Bullion and ore shipments from Salt Lake City, Utah, during the week ending October 7th, are reported as follows: The different smelters forwarded 25 cars, or 1,003,172 lbs. lead-silver bullion; 6 cars, or 260,406 lbs. copper bullion. The ore shipments from the different camps, consigned to smelters outside of the State for treatment in the same week aggregated 83 cars, or 3,121,305 lbs.

Colorado—Leadville.

(From Our Special Correspondent.)

A Y & Minnie.—Lessees Douglass & Newton are shipping steadily and have resumed work on their concentrating mill. The concentrates give a good silver value and also 25 to 30% lead. Crude ore shipments amount to about 1,000 tons per month.

Colonel Sellers.—This proposition is shipping about 300 tons per day of the Sellers dump stuff to Mineral Point, Wis. This material averages about 30% zinc, 5% lead and a small silver value. New Jersey people own the zinc plant and purchased the Sellers at $50,000, largely on the dump showing.

MINING STOCKS.

Complete quotations will be found on pages 476, 477 and 478 of mining stocks listed and dealt in at:

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

New York. Oct. 13.

Prices this week show some recovery. In the coppers Amalgamated sold up to $92⅜, Anaconda, $49¾; Tennessee, $17; British Columbia, $12, and Markeen, $10½, while Union of North Carolina was featureless at $25 to $30. Arizona lead was quoted $8@$8¼.

American Smelting and Refining common was very quiet, but it sold up to $38 from $36½; the preferred shares brought $85¾@$88⅜. Sloss-Sheffield Steel and Iron common changed hands at $41 to $42, while the preferred shares and subscriptions were inanimate, the former at $78½ to $79½, and the latter around $130. Flemington Coal and Coke of West Virginia sold at $30⅜@$31 on report that the shares would be listed on the New York Stock Exchange, as well as in Boston and Montreal. We give in another column an abstract of the balance sheet of this company to be submitted to the different boards.

In the Colorado stocks the Cripple Creek group has been influenced by the large September output, amounting to about $1,731,000, showing an increase of $430,000, or 33% over August, and 19% over September, 1898. In this section Portland is quoted at $2.24@$2.34¾, Elkton at $1.08@$1.12, Isabella at 93@95c., and Jack Pot at 60@65c. Pharmacist—which has been reorganized into the Pharmacist Consolidated Gold Mining Company, capitalized at 1,500,000 shares at $1 each, on the basis of one new share for two old—is selling at 6@7c. for the old shares. Of the new capitalization, 100,000 shares go into the treasury, 600,000 shares to the stockholders in the old company, and the remaining 800,000 shares to the promoters of the new company. In the other Colorado stocks Small Hopes holds at $1.25, and Breece has risen from $1.55 to $1.70.

Standard Consolidated of California is quiet at $3, Brunswick at 28c., Quicksilver common at $1.50, and the preferred at $6.31@$6.75. Ontario of Utah brought $8.25@$8.50, and Horn Silver, $1.20@$1.35. Nothing of interest is doing in the Comstocks.

Miscellaneous dividends declared this week include the Warwick Iron and Steel Company, quarterly of 2% and an extra ½%, payable November 10th, when the stockholders can subscribe to $500,000 new stock in the proportion of one new share for two old. American Steel Hoop Company, regular quarterly of 1¾% on the preferred stock, payable October 31st.

Boston. Oct. 12.

(From Our Special Correspondent.)

Early in the week we were told that speculation was active again and that we were to have a strong market. For a day or two there was some show of improvement; but it was an inside movement entirely. The public did not respond, and when it was clear that the pretence was serving no purpose, it was dropped. Since then the market has been narrow and weak, and there is little prospect of improvement.

To-day the Treasury order for prepayment of interest has been worked for all it was worth—and more. The effect was very small. It is not tight money that troubles the market so much, as the fact that the public realizes that the boom period is over. A good many people are loaded down with stocks which they see no chance of selling at a profit, and they are disposed to drop the whole business, for a time at least.

The Amalgamated Copper Company seems determined to keep to the blind pool system. A recent application to parties who ought to know for information about the Anaconda report for 1898-99 drew out the statement that the report had not been issued, and further that no report would be made this year. Such action certainly furnishes a basis for the unfavorable reports about the present condition of the Anaconda which are in circulation; and further show a very undesirable policy.

3 P. M.—The market to-day has been very slow, without any prominent features. Calumet & Hecla dropped $14, selling at $770. Of other mining stocks, Boston & Montana sold at $360; Quincy, $160; Arcadian, $50 bid; Amalgamated, $90¾ bid; Butte, $77 bid; Osceola, $87½; Fortuna, 55c.; Rhode Island, 6¾c.; Gold Dredging, $25½; Centennial, $33 bid; Parrot, $46½; United States, $31½; Utah, $38; Isle Royale, $45 bid; Michigan, $10; Trimountain, $9½; Victoria, $5; Winona, 3¾; Ysabel, $12½; Cochiti, $17½; Arnold, $11; Adventure, $6⅝. New England Gas and Coke Company sold at $27½. Transactions were not large.

A new stock listed here is that of the North Star Mines Company, which owns several old mines in Nevada County, California, besides a water-supply company. The main office is in New York. There are 500,000 shares at par value of $10 each. The officers are: James P. Hague, president; Wm. L. Bull, vice-president; W. D. Fagan, secretary and treasurer. Old Colony Trust Company is the transfer agent in Boston and the Globe National Bank registrar.

Salt Lake City, Oct. 7.

(From Our Special Correspondent.).

Improvement has continued and the market has a more healthy tone. The end of the new exchange is a good feature. It never ought to have been launched, and the lesson taught probably will not soon be forgotten.

Ajax is a little soft. Bullion-Beck's drop has more to do with John Beck's financial whirligigs than changes at the mines. Centennial-Eureka is retired from the list with full honors. Chloride Point droops lower. There is a report that the mill is not paying expenses. Daisy is weak and discouraging. Dalton & Lark does not budge, in spite of reported ore uncoverings and the likelihood of the Whittemore option being taken up on the 15th. Daly is firmer.

Daly-West declared its first dividend of 20c., or $30,000, payable October 25th, and the shares weakened. Quite a number looked for a $37,500 dividend, and some paid 22c. a share for the forthcoming dividend a few days before the board met. The management is trying to establish a treasury reserve. Dexter continues strong. Geyser-Marion again hit the toboggan after more hopeful reports from the management. Grand Central fails to recover, and did business below $5. There is friction among the officers. Joe Bowers is off a few ponts. Little Pittsburg is out of favor. Mammoth is doing considerable business at advancing figures, though street talk rather favors Grand Central in its suit. Mercur is lower. Hope-inspiring yarns appear in the local papers of improvements in the mines and mill extraction, but it is remembered that like forecasts were made last fall and kept up till after the annual meeting, when dividends were stopped. Another annual meeting will occur in January. Northern Light tumbled below 14, then recovered, and now assumes a bolder front. Buying these shares is like toying with a mule's hind legs.

Ontario is higher; several outside orders are coming to hand. South Swansea softened. Silver King is, if possible, in stronger favor. Star Consolidated has sagged below 50, and attracts slight notice. Sunshine is on the toboggan, and it looks as though the option will pass. Swansea pays the usual dividend October 10th. Valeo is firmer.

San Francisco. Oct. 7.

(From Our Special Correspondent.)

The mining stock market has been dull, but rather firm on the usual small inside business. A few fluctuations have been recorded, but of small amounts in either direction.

Some quotations noted are: Consolidated California & Virginia, $1.45@$1.50; Ophir, 99c.; Sierra Nevada, 67c.; Potosi, 54c.; Chollar, 40c.; Hale & Norcross, 29c.; Yellow Jacket, 27c. A little business was done in Standard Consolidated, with one sale at $3.50.

Sales of mining stocks on regular call at the San Francisco Stock Exchange for the year to date compare as follows:

	1898.	1899.
January shares	157,360	121,955
February	151,055	350,800
March	165,260	272,625
April	203,355	209,215
May	119,535	164,580
June	129,780	201 375
July	55,900	147,340
August	105,030	153,305
September	187,510	136,865
Total	1,266,795	1,758,120

September made rather a poor showing, being the lightest month since January.

The annual meeting of the Consolidated California & Virginia Mining Company has been called for October 16th. The meeting of the Exchequer Mining Company will be held on the same date.

The San Francisco "Bulletin" of Thursday says: "Representatives of a Tripler Liquid Air Company have been visiting the Comstock Company during the last few days. As soon as it can be demonstrated upon a regular working scale that liquid air is valuable in mining operations, there will be a ready demand for it. That day may come. But it can be mentioned here that the writer over six months ago addressed a letter to Prof. Tripler in New York, asking him to cite an instance where his liquid air, or liquid air appliances, had been in steady practical use in cooling, ventilating, blasting or doing other mining work, and no word has been received from the professor in reply up to this time."

London. Sept. 26.

(From Our Special Correspondent.)

The mining market continues to be dominated by the Transvaal crisis. The South African section is being watched pretty closely by professional speculators and holders, but very little is being done. The quotations keep declining slightly, but as there are practically no transactions they have no special significance. The leaders of the market are preparing for the expected war. It is already decided to hang up many stamp mills at the end of the current month, and several companies have announced that they do not consider it advisable to pay the dividends which would otherwise be expected this month. It is not generally supposed that the mines and extracting plants will suffer to any great extent by a war, although they would necessarily be closed down for some time; the Boers, if they do go to war, would naturally expect to win, and therefore they would not attempt to destroy or damage the Outlanders' goose that lays the golden eggs. Altogether, the city views the future with comparative equanimity. Other sections of the mining market share the quietness of the African, and very little is done in West Australians, Americans, etc. Naturally, nobody thinks of starting a new company just now, although several promoters have schemes ready for flotation. For instance, Mr. Whitaker Wright has a nickel proposition ready and I hear of a new company to handle a copper property in Spain which promises to do great things.

A few months ago I mentioned that a company called the Morenci Copper Mines, Limited, had been formed for the purpose of acquiring the Peacock, Hobson and Bumblebee claims, which are situated somewhere in the Morenci-Clifton Copper District of Arizona, but as no prospectus was advertised, the information obtainable was very meagre. I find, now, that the directors are pushing things pretty briskly and they have already commissioned Mr. Arthur L. Pearse, the mining engineer, of London, to go out and report on the properties. Mr. C. A. Ross is managing director at the properties, and Mr. Ben Crawford has been appointed mine manager. When the properties were acquired practically no work had been done on them, and even now they are little more than prospects. There are said to be veins containing copper ore, of which picked specimens assay 20% copper, and it is claimed that one shaft is in solid ore that averages 15% copper. The size of the veins and their continuity, however, have not been proved. At present the chief assets of the company are prospectus and the glory of their neighbors.

Paris. Oct. 1.

(From Our Special Correspondent.)

While our own political troubles are composed for the time, the stock market is disturbed by the high rates for money which are now prevalent in all the Continental markets. The demand in London, and the temporary stoppage of gold shipments from South Africa are at the bottom of this scarcity, which may possibly last for some time.

Copper stocks have fluctuated little, and the changes have been dependent chiefly on the metal market. We continue to have reports of diminished consumption; but for the reasons which I have heretofore given, these do not seriously affect the market. I think that they do not command much belief among actual buyers.

Le Nickel stock continues to bring a good price and there seems to be a very good demand in prospect for the metal, which cannot fail to help the company.

The several French salt companies have finally, after long negotiations, concluded an agreement to regulate production and limit competition. All the companies have joined except the Salines du Midi; but it is thought that this company will also concur after a time. Its stock has suffered from its present refusal; on the other hand, Salines de l'Est—which is the chief speculative stock of this class—have gained in price.

The zinc shares continue to stand well. It is true that the negotiations for a convention of producers have failed, owing to the refusal of the American smelters to consider any proposals. In the present state of the market, however, there seems no need of any regulation. The lead companies are also doing well. The Aguilas Company, a Spanish concern, reports that it has completed the settlement of its debts, and that a dividend may be expected for the current year.

The metallurgical shares are generally higher, notwithstanding the existence and reports of labor troubles. There is again an active speculation in the Russian group; and in this two comparatively new companies—Krivoi-Rog in South Russia, and Czeladz in Poland—are especially prominent. The Huta-Bankowa Company announces for its fiscal year lately closed, a dividend of 150 fr. a share. This is an increase of 50% over the previous year, when shareholders received 100 fr.

The gold and silver movement in France for the 8 months ending August 31st, is reported by the Ministry of Commerce as below:

	Imports. Francs.	Exports. Francs.		Excess. Francs.
Gold:				
1899	206,446,180	79,475,240	Imp.	126.970,940
1898	135,673,667	229,766 232	Exp.	94,092,565
1897	164,816,002	40,519,503	Imp.	124,296,499
Silver:				
1899	128,260,322	146,049,024	Exp.	17,788,702
1898	127,808,322	93,481,153	Imp.	34,327,169
1897	117,132,529	116,827,549	Imp.	304,980

Imports of copper and nickel coins, taken at their face or coinage value, were 52,200 fr., against 60,300 fr. in 1898, and 67,500 fr. in 1897. Exports were 473,400 fr., against 430,200 fr. last year, and 2,508,300 fr. in 1897.

Azote.

STOCK QUOTATIONS.

NEW YORK.

Name of Company	Location.	Par val.	Oct. 6. H.	Oct. 6. L.	Oct. 7. H.	Oct. 7. L.	Oct. 9. H.	Oct. 9. L.	Oct. 10. H.	Oct. 10. L.	Oct. 11. H.	Oct. 11. L.	Oct. 12. H.	Oct. 12. L.	Sales
Adams	Colo..	$10	.12		.12		.12		12		.12				
Alamo	"	1			.09		.09		.09¾		.08		.12	.09½	
Alice	Mont.	5	.60		.60		65		.60		.60				
Amalgamated C	Mont.	† 100	90.50	90.13	91 00	90.88	91.50	91.00	92.00	91.88	91.00	90 50	91.00	90.88	
Anaconda, c.	Mont.	25	49.75	48 75	49.75	49.25	49.75	49.25	49.50	49.00	49.63	49.00	48.00		16,990
Anaconda Gold	Colo..	5	.45		.43		42		.41		44		.46	.44½	300
AnchoriaLel.	"	1	.69		.70		.68		.69		.60		.74	.69	
Argentum-Jun.	Colo..	2	.25		.24		.24		.24		.24				
Belcher	Nev...	3	.20		.20		.20		.30		.20				
Best & Belcher	"	3	40		38		.35		35		.43				1,000
Breece	Colo..	25	1.55		1.55		1.55		1.70		1.55				50
Brit.Col.Copper	B. C..	10	11.75	11.50	12.00	11.50	12.00	11 75	12 13	11.88	12.13	11.88	12 00	11.50	
Brunswick	Cal...	1	.30		30		.27		.28		.27				2,400
Catalpa	Colo..	10	.21		.20		.20		.20		.20				
Choilar	Nev...	3	.35		.20		.40		.35		.35				
Comst'k T., st's	"	100	.04		.04		.04		.04	.04	.04				1,000
do. bonds	"	100	.04		.04		.04		04		.04				
Con. Cal. & Va.	"	2½	1.65		1.70		1.70		1.75		1.75				250
Croesus	Colo..	1	.01		.01		01				.01				
Cr. & Cr. Creek	"	1	.10		.11		.10		.10		.11				8,000
Crescent	"	10	.15		.15		.15		.20		.15				300
Cripple Cr. Con.	"	1	.17		.17		.15		.16		.15		.18	.16	4,500
Crown Point	Nev.	3	.15		.15		.15		.15		.12				
Deadw'd Terra.	S.Dak		.70		.75		.65		.90		.70				100
Dunkin		25													
Elkton	Colo..	1	1.10		1.08		1.12		1.08		1.10				
Eureka	Nev...	20	.30		.30		.30		.30		.30				
Father de Smet	Dak...	100	.10		.10		.10		.10		.10				
Findley	Colo..	1							.16						1,000
Garf. Con.	"	1	.17		.15½		16½		.17		.17½		.20	.17½	2,000
Gold Coin C.Ck	"	1	2 17		2.225		2.225		2.10		2.10				
Golden Fleece	"	1	.27		.28½		.28		.25		.25		.30	.27	
Gould & Curry	Nev...	3	.35		.36		.35		35		.30				
Hale&Norcross	Nev	3	.30		.34		.30		35		.30				
Homestake	S.Dak	100	65.00		65 00		65.00		65.00		65.00				
Horn Silver	Utah..	25	1.25		1.35		1.25		1.20		1.25				100
Iron Silver	Colo.	20	.52		.53		.53		.58		.54				
Isabella	"	1	.95		95		.93		.94		.94		.94	92½	1,700
Jack Pot	"	1	.65		.62				.60		.62				
Jefferson	"	1	.08		.10		.10½		.10		.10		.12	.10	
King & Pemb.	Ont...	10	.18		.18		.18		.18		.18				
Lacrosse	Colo..	10	.16		.16		.16		.16		.16				
Leadville Con.	"	10	.08		08		.09		.09		.08				
Little Chief	"	20	.19		19		.19		.19		.19				
Mexican	Nev...	3	.25		.38		.38		.38		8.				
Mollie Gibson	Colo..	5	.28		28		.27		.27½		27		.29	.27	3,000
Morenci Cop.pf	"	1	1.71		1.735		1.75		1.75				1.70	1 75	6.0
Moulton	Mont.	25	.35		.30		.35		.35		.35				
Mt. Rosa	Colo..	1	.40		.38¾		.37		.39		.39		.41	.39	700
Occidental	Nev.	3	.15		.15		.15		.15						
Ontario	Utah.	100	8.75		8 25						8.50				150
Ophir	Nev..	3	.95		.95		90		.90		.90				
Pharmacist	Colo	1	.07		.06		.07		.07		.06				
Phœnix	Ariz...	1	.09		.08		.09		.10		.09				600
Plymouth Con.	Cal...	10	.08		.08		08		.08		.08				
Portland	Colo..	1	2.30		2.30		2.348		2.24		2.20		2.32	2 38	700
Potosi	Nev...	3	.57		.6		.53		.55		.61	.60			1,900
Quicksilver	Cal...	100	1.50		1.50		1 50		1.50		1.50				
do. pref	"	100	7.00		6.50		6.8		6.75		7.50				800
Savage	Nev...	2½	.20		.35		.25		.24						
Sierra Nevada	"	3	.65		.75	.74	.65		.65		.70				1,000
Small Hopes	Colo..	20	1.25		1.25		1.25		1.25		1.25				240
Specimen	"	1	.11		.11		.10				.10				
Standard Con.	Cal	1	3.10		3.1		3.00		3.0		2 90				
Tenn Copper	Tenn	25	16.00	15.75	16.25	15.50	16.25	15.50	17 75	17 25	17.75	17.25	18.00	16.50	
Union	Colo.	1	.32		.28		.28		.24		.30		.33½	.32½	200
Union Con.	Nev..	2½	.30				.35		.35		33				
Utah Con.	"	3	.13		.10		.10		.10		.10				1,000
Work	Colo.	1	.32	.8	.30		.18		.30		.30		.33	.32	2,600
Yellow Jacket	Nev..	3	.25		.25		.25		.25						

COAL AND INDUSTRIAL STOCKS.

Name of Company	Location.	Par val.	Oct. 6. H.	Oct. 6. L.	Oct. 7. H.	Oct. 7. L.	Oct. 9. H.	Oct. 9. L.	Oct. 10. H.	Oct. 10. L.	Oct. 11. H.	Oct. 11. L.	Oct. 12. H.	Oct. 12. L.	Sales
Am. Sm. & Ref.		$100	36½		36½		37½	36½	39¼	38			37½		2,422
" " " " pf		100	86	85¾	86		86⅞		88	87	88¾	87½	88		3,970
Am.S &W Co n		100	51⅛	49½	50⅝	49⅝	53¼	50⅝	54¾	52¾	54½	53¼	52⅝		53,04
" " pf'r n		100	95	94¾	95½	95⅝	96⅞	96	97¾	97	97	96½	96		5,535
Central of N. J.	N. J	100	119¾	119¾	120¼	120	120½	120	120	119½			119		3,900
Col. C. & I. Dev	Colo.	100													
Col. Fuel & I.	Colo.	100	56	54¾	55⅝	54½	55½	55	56¼	54¾	5 ¼	53¾	54½		9,575
Col. & H.C.& I.	Ohio..	100	19	18½	19		19½	19					17½		830
Del. & Hud.	N. Y.	100	123½	122⅝	123¼	122½	122¾						121¾		1,782
Federal Steel		100	54⅞	53⅞	54⅝	53½	55¾	54½	55¼	54⅝	55¾	54½	54½		54,825
" " pf		100	78		78		78¾	78	78¾	77¾	79	78	78		5,207
National Lead	N. Y.	100	29½		29½		30½	29¾	31¾	30½	31¼	30¾	30		8,289
" " pf	Md...	100									111¾				520
National Salt		100	47	46½	47	46	46½	45½	47	46	47	46	47½	46½	
" " pf		100	80	75			75	73	75	73	75	73½	75	78	
N. Y., Ont. & W.	N. Y..	100	25	24⅝	24¾		24¾	24⅝	25	23¾	24¾	24⅞	24		4,607
Reading, 1st pf.	Pa....	100	59⅛	58⅛	59¼	58¾	59	58⅝	59	58	58¾	58	57½		18,852
" " 2d pf.	"	100	33	32½	33¾		32½		33¼	32⅞	32¾	32			8,670
Republic I. & S.		100	27	26¾	26¾		27½	26¾	28¼	27¼	28	27½	27½		4,565
" " pf		100	73½		71		72⅝	72	73	72⅝	73		72		2,370
Standard Oil Tr		100													
Tenn.C.,I.&R.R.	Ala...	100	116⅛	115¼	116½	115	116¼	115	118½	114¾	117½	115½	114½		19,11

† Ex-dividend.

BOSTON, MASS.†

Name of Company.	Par val.	No. of shares.	Oct. 5. H.	Oct. 5. L.	Oct. 6. H.	Oct. 6. L.	Oct. 7. H.	Oct. 7. L.	Oct. 9. H.	Oct. 9. L.	Oct. 10. H.	Oct. 10. L.	Oct. 11. H.	Oct. 11. L.	Sales
Aetna, cons. g.	$25	100,000	4.25						4 75				4.63		770
Adven'u'e,Cons	25	100,000	7.00		7.00	6.50	7.00		7.00		7.00		7.00	6.13	665
Allouez	25	80,000													
*Am. Z., L. & S.	25	60,000	59.00	53 00	58.00	54.00	57 75	57.50	57.50				54.00		1,712
Anaconda	25	1,200,000			49.88								49.50		30
Arcadian, c.	25	150,000	50.5	49 75	49 50	48.50	50 00		52.50	50.00	51 50	50 00	52 00	50.00	1,294
Arnold, c.	25	60,000	11.0		11.50		10 75		11.25	10.75	10.50		11.00		960
Ashbed	25	40,000	1 00		1.25	1.00									200
Atlantic, c.	25	40,000							29.00		28.75				60
Baltic, c.	25	100,000	25.00		25 38	25.00	25.00		24.75	24.00			24.50		940
Bingham, c.&g.	10	190,000	17 00	16 00	16.75	16.50							16.00	15.25	1,120
Bonanza, g.	10	300,000	1.88		1.75				1.88	1.75			1.75	1.63	985
Boston & C. C.	2	200,000	.40		.40		.42½	.40	.45		.50	.45	.52½	.50	11,700
Bos.&Mon,Tr R	25	150,000			355		356	352	365	355	360		360		438
Breece									2 50						200
British Col.	5	200,000			11.50	11.88	12 00				12.00	11.75			425
Butte & Bost., c	10	200,000	76.00	75.00	75.00		79.00	78.00	80.50	78.00	80.50	79.00	80.00		983
Cal. & Hecla, c.	25	100,000	795		795	790	790	780	790		790		784	770	175
Catalpa, s.	10	300,000					.40								2,000
Centennial, c.	25	90,000			34.75	33.25	34.00	33.50	34.00	33 50	33 75	33 50	33 00	32 50	1,542
Central Oil	25	59,720	23 75	23 38	24 38	23 75	24.25	24.00	24.13	23.75	24.50	24.38	24 50	24 00	3,694
Cochiti, g.	10	150,000	17.00	6.13	18.00	16.88	18.00	17 75	18 00	17.75	17.75		17.75	17.00	5,479
Copper Range	10	100,000			37.00				37.00		37.00				100
Crescent, s.	10	300,000													
Dominion Coal	100	150,000	47 25	46.50	47.00		47.00		47.00	46.00	47.50	46.00	47.00	47.25	4,255
do. pref	100	20,000													
Federal Steel	100	464,843	54.25	53.25	54 63	54.25	54.38	54.00	55 88	54 00	55 88	54.63	55 50	54.50	8,155
do. pref	100	532,610					79.13		79 00	78.25	78.00		79.25		245
Franklin, c.	25	100,000	18 00	17.50			18.00		18 00		18 00		18.00	17 75	282
Gold Coin, g.	5	200,000			.50				.50	.45	.45				450
Humboldt, c.	25	40,000			1.75										75
I. Royal Con. c.	25	100,000					44.00	43 00	46.00	44.00	45.00				842
Mass., Con	25	100 000	11 50	10.00							11.00	10.00			570
Mayflower	25	100,000	4.25	4.00	4.75	4.50	4.50		5.00	4.13			4.50		965
Melones	10	167,577											2.75	2.80	150
Merced, g	15	100,000													
Michigan	25	100,000	11.00				10 00				10.50		10.00		342
Mohawk, c.	25	100,000							.22½		21.50	1.00			140
Napa	7	100,000													
New Idria	5	100,000							12.50						100
N.A.Gold Dre'g	10	100,000					26.00	25.50					25.50		25
Old Colony, c	25	100,000			9.75	8.00	9.50		9.75	9.50	9 50	9.00			846
Old Dominion,c	25	150,000	33 00		33 00	32 50			33.00		33.50	33.00	33.00	32.63	1,400
Osceola, c.	25	93,000			85 00	84.00	85 50		87 25	85.00	86.50		87 50	86.50	550
§Parrot, s c	10	229,850	48.00	47.50	47.25	46.75			47.25		47.50	47 00	47 00	46.50	520
Pioneer, g.	10	100,000	3.00						2 75		2.86		3 00		400
Quincy, c.	25	100,000	158	155			158		160		160		160		258
Rhode Island	25	100,000	6.00		6 5	6.00	6 50		7.25	7.00	7.00		7 00	6.75	1,165
Santa Fe, g. & c	10	250,000	12.75		12.50		12 50	12.13	12 75	12 50					1,875
San. Ysabel, g.	5	130,000	2.75		12.88	12 75			12 88		12 75	12.50	12.80		920
Tamarack, c.	25	60,000			222		227	222	228	225	228		225	223	868
Tecumseh, c.	25	80,000	5.50	4.75					5.25						180
Tri Mountain	25	100,000	9.75		10.00	9 00			10.00	9.00			9.75	9 25	443
Union C. L.	25	80,000			5.50								5.50		235
United States	25	250,000					32.25	31 50	32 00	31.75	31.50	31.88	31.75	30.00	3,735
U. S. Oil	25	100,000	47.00	45 50	46.00	45.38	46.00	45.25	46.50		46.50				2,218
Utah Cons,g &c	5	300,000			38.63	38.50	39.00	38.50	39.25	39 00	39.00	38.00	38.13	38.00	1,920
Victor	5	200,000													
Victoria	25	100,000	5 00		5 50	5 25	5.50	5 25					5 00		310
Washington	25	40,000	2.88	2.25	2.88	2 S									420
White Knob	100	50,000													
Winona, c.	25	100,000					0.00	9 00	9.50				9 50		800
Wolverine, c.	25	60,000	40.50		41.50	40.50	42.00		42.50	41.00	42.00	41.50			345
Wyandotte	25	100,00	4.50							3.50			3.25		170

Official quotations Boston Stock Exchange. Total sales, 66,141 § Ex-dividend.

COLORADO SPRINGS, COLO.‡

Name of Company.	Par val	Oct. 2. B.	Oct. 2. A.	Oct. 3. B.	Oct. 3. A.	Oct. 4. B.	Oct. 4. A.	Oct. 5. B.	Oct. 5. A.	Oct. 9. B.	Oct. 9. A.	Oct. 10. B.	Oct. 10. A.	Sales.
Alamo	$1	.10⅝	.10½	.10⅝	.10½	.10¼	.10¾			09¾	11	.09½	.10½	7,500
Anaconda	1	.45	49	46	.48½		.48	44¾	.45½	.44	.45	.44	.45	9,500
Arg'ntumJ	1	.26½	27	.26¾	.26¾	.25½	.26½	.25½		25¾	.26	.25½	.26	6,900
Cadillac	1	.02¾	.02¾	.02¾	.02¾	.02¾	.03	0.2⅝	.02¾					2 000
C. C. Con	1			.17¼	.17½	.16¾	17½	15¾	.17	.15½	.17½	16½	.17	20,200
Dante	1	20¾	.20¾	.21	.21⅝		.21½	20¾	.21					18,000
ElktonCon	1	1 17½	1.20	1 16¾	1.18	1.15½	1 16	1.13¾	1.14½	1.08	1 08½	1.09	1.10	7,3.0
El Paso G.	1	.39	.42	40	42	39½	.41	.40	43	.39	40	.39½	.40	2,000
Favorite	1	.06¼	.06⅝	.06	.06½			.05½	.06					12,000
Findley	1	.17¾	18	.18	.18½	18½	.18¼	.18	.18¼	.16⅝	16¾	.16¾	.17½	10,000
Golden Fl.	1	.26½			.30	.27	.30		30	.28	30	.28	30	800
Gold Hill	1	.02¾	.03	.03	.03¼	.03¼	0 3¾							57,000
Ing. Con	1	.10⅜	11		.11	.10¾	.11	.10¾	.11					21,000
Isabella	1	.93	93⅝	.93	.93¼	.93	93½	93½	93¾	92	.92¼	.92	92½	19,150
Jack Pot	1	.65	.66	65	65½	.65¼		66	.67	62	.62⅝	.63¾	.63⅞	7,000
Lexington	1	.21¾	.22¼	.21¾	22	22¼	.23	.22	.22⅝					40,000
Magnet R.	1	.05⅝	.05¾	.05¾	.06	.05⅞	.06	05¾	.06					52,000
Matoa	1	.35¾	37	.35	37	.36	.36½		36	.35	.36	.32	.36	7,500
Midway	1	.07½	.07½	.07⅝	.07⅝	.07¾	.08	.07⅝	.07¾					77,000
Mobile	1	.05	05½	05	.05⅝	.04⅞	.05	.04⅝	.04¾					7,500
Mollie Gib.	1	.27½	.28½		.29	.27½	.30	.27½	.28½	.27½	.28½	.27½	.28	3,000
Montreal	1	.13	.13¾	.13	.14	.13¾		.13¾						10,900
Moon-A'c'r	1	.93	.99	.93½	.93¾	90	.95	.80	.82					4,200
Mt. Rosa	1	.40	.42	.42	.45	.42	.46	.39		.39	.40	.39	.40	13,300
New Haven	1		.04½	.04½	.04½	.04¼	.04½	.04½	.04½					18,000
Oriole	1	.07½	07½	.07½	.07½	.07½	.07½		.07½					4,000
Pilgrim C.	1		.09	.07¾	.08¼	.08¼	08½	08¼	.08¾					9,000
Pinnacle	1	.38¾	.39	.38½	.38¾	.36½	38	.38¾	.36¾	.33½	.34	.33	.33½	49,500
Portland	1	2.33		2.35	2.38	2 32	2.36	2.35	2.36	2.24	2.25	2 24	2.27	5,800
Prince Alb.	1	.04⅜	.04⅜	.04⅜	.04⅜	.04½	.04⅝	.04¼	.04½					15,000
Princess	1	.06½	.06¾	.06½	.06¾	.06⅞	.06⅝	06	.06⅝					5,000
Pythias	1	.07⅝	.07¾		08	.07¾		.08	.08½					24,000
Specimen	1	.12½	.14½	.13¾	.14	13¾	.14	.13	.13¾					21,000
Tornado	1	.46½	.47	.46½		.46½		.46½						33,000
Trachyte	1	.09½	09½	.08¾	.09¾	.08¾	.09	.08⅝	.08¾					9,000
Union	1	.32¾	.33¼	.33¼	.33½				31½	.29⅝	.30	.30½	.31	17,500
Uncle Sam	1	04⅝	.05	.05⅝	.05¾			.05½						
Vindicator	1	1 43	1.45		1.45				1 35	1.40	1 45	1 45	1 48	1 000
Work	1	.32	.32¼	.31¾	.32	31¾	32	.31	.31⅜	.30	32	.31½	.31¼	30,800

‡ Colorado Springs Mining Stock Exchange. Sales for three days ending Oct. 5th, 659,350 shares; quotations from Oct 9th and 10th by telegraph.

PHILADELPHIA, PA.

Name of Company.	L'cation.	Par Val.	Oct 5. H.	Oct 5. L.	Oct. 6. H.	Oct. 6. L.	Oct. 7. H.	Oct. 7. L.	Oct. 9. H.	Oct. 9. L.	Oct. 10. H.	Oct. 10. L.	Oct. 11. H.	Oct. 11. L.	Sales
Am. Alkali			3.88	3.75	3.88	3.75	3 75		3.75		3.75		3.75		1,685
" " pf.			2.13												200
Bethlehem Irn	Pa.		60.00		61.00	60.63			61.00	60.37	61.00		61.00		1,065
Bethlehem St'l	"	$50	20.13		21.00	20 38			21 25		21 50	21.00			975
Cambria Iron.	"	50			44.50		44.75		44.75	44.50	44 25		44 75		222
Cambria Steel	I.T.	50	23 50	23.38					24.38	24.00	24.25	23.88	24.13	24.00	6,755
Choctaw. pref.	Pa.	50			47.50				47.50		47.50		47.00		880
Lehigh Val	"	50	26.00		27.00	26.25	27 00	26.50	26.75	26.50	26 75	26.88	26 50		3,431
Penna. R. R.	"	50	65 63	65.38	66 00	65.50	66.00		66.00	65.75	66.00	65.50	65 75	65.50	2,971
Susq I. & S.	"		7 13	7.00	7.13	7.00			7.00		7.00	6 88			4,320
United Gas I.	"	50	159½	159	162		162½		163¾	163½	165		164¾	163	2,075
Welsb. of Can	Can.	100									2.13				200
Welsb. Coml.	"	100							10.00						50
Welsb. Light.	"	100	50.00												110

Total shares sold, 24,429.

VALPARAISO, CHILE.*

Aug. 26.

Name of Company.	Location.	Capital paid.	Sh.Val. paid up.	Last Div'nd. Amt.	Last Div'nd. Date.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat, silver	Chile...	$3,300,000	$100	4 p. c.	1897	19	20	19
Caracoles, silver	"	315,000	100	10 "	1894	5	20	7
Huantajaya (mine) silver	"	1,000,000	100	13 "	1894			
Huanchaca, silver	Bolivia..	8,000,000	25	4 "	1895	30	35	30
Oruro, silver	Chile...	800,000	200			280	290	280
Todos Santos, silver	"	2,000,000	100	1 "	1895	4	5	6
Agua Santa nitrate	"	3,000,000	50	5 "	1898	152	155	151
Antofagasta, nitrate	"	2,000,000	200	3 "	1898	95	100	100
Soc. Internacional, nitrate	"	1,600,000	60					5
Union, nitrate	"	2,000,000	200			65	70	72

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

SPOKANE, WASH.*

Oct. 4.

Name of Company.	Par val.	Prices. H.	Prices. L.	Sales.
Admiral Dewey	$1			
Anaconda	1			
Athabasca	1			
Ben Hur	1			
Black Tail	1	.15½	13½	
Buffalo Hump	1	.11¾		5,000
Buffalo L. Tender				
Cariboo (C'mp McK)	1			
Chespa Blue Jay		02¾	.01¼	2,000
Conjecture				
Crystal		.09¼	.08	
Dardanelles	1			
Deer Trail No. 2	1	.23½	.21	
Evening Star	1	.10½	08	
Gold Ledge		.06¾	06	
Golden Harvest	1	.04	.03	
Good Luck Con				
Hit or Miss	0 05	03	.02¾	
Insurgent	0 10	.05¼	.04¾	
Jim Blaine	1	.04	.03	35,500
Knob Hill				
Lone Pine-Surp. Con.	1	.24½	.22	46,500
Mabel				
Mark Tapley	0.05			
Miller Creek				
Morning Glory	.10	.11	.10	
Morrison				

Name of Company.	Par val.	Prices. H.	Prices. L.	Sales.
Mountain Lion				
Noble Five	$1	.26		
North San Poil				
Novelty	1			
Old Ironsides	1			
Palo Alto	1			
Pearl	1			
Princess Maude	0.10	.13	.07½	
Quilp	1			
Rambler Cariboo	0.25	49	.45	2,000
Rebate	0.10			
Republic (Con)	1			
Res. M & M				
San Poil	1			
Slocan Star	1			
Sullivan		.17	.16½	
Summit	0.10			
Syndicate				
Tom Thumb	1	.17	14	
War Cloud				
Waterloo	1	.11	.10	
Wiarton				
Wonderful				

*Official quotations Spokane Stock Exchange. Total Sales, 85,000.

STOCK QUOTATIONS.

DENVER, COLO.‡

Name of Company.	Par val.	Oct. 2. B.	Oct. 2. A.	Oct. 3. B.	Oct. 3. A.	Oct. 4. B.	Oct. 4. A.	Oct. 5. B.	Oct. 5. A.	Oct. 6. B.	Oct. 6. A.	Oct. 7. B.	Oct. 7. A.	Sales.
Mines:														
Anac'da G..	$5	.50	.....	47	.....	.....	.49	.45	.50	.45	.....	.44½	.....	.....
Arg. J.....	1	.26¼	.....	.26¼	.....	26	.....	.....	.27½	26	.....	.....	.....	3,000
Bankers....	1	.....	16	.14	.15	.....	.....	.....	30	.....	.....	.....	.16	.....
CrippleC.C.	1	.....	.....	.....	17¾	.....	.17½	.15½	16	.....	.16½	.....	.16	.....
Della S....	1	.02½	.....	.....	.....	.03½	.....	.....	.....	.....	.....	.....	.....	.....
Elkton Con	1	1.16	1.19½	.....	1.17¼	.....	.....	.....	1 14	.....	.....	.....	.....	.....
Findley....	1	.25	.30	.26	.....	26	.....	.....	.....	26	.....	.....	.....	.....
Garf. Con..	1	.....	.17	.....	.....	.....	.17	.16½	.17½	.16½	.17	.16½	.17	.....
Gold Coin..	1	.....	.....	.....	.....	2.40	.....	.....	.....	.....	.....	.....	.....	.....
Goldstone..	1	.02¼	.02¾	.02¼	.02¾	.02¼	.03¾	.02¼	.02¾	.02¼	.02¾	.02¼	.03¾	.....
Indepnd'nce	1	.18¼	.....	.17½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ironclad..	1	.06¾	.07¾	.07	.07½	.07¼	.....	.....	.07½	.07	.....	.06¾	.....	2,000
Isabella....	1	.93	.....	.92¼	.93½	.93	.93	.93¼	.....	.93	.93¼	.93½	.....	1,4 0
Jack Pot...	1	.64½	.....	.64½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jefferson..	1	.11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Keystone..	1	.12¾	.13½	13	.13¾	.13½	.13½	.12¾	.....	.....	.....	.....	.....	1,000
LosAngeles	1	.09	.....	.10¾	.10¾	.09¾	10	.10¾	.11	.11¼	.11¾	.09¾	.10¾	80,000
Mollie Gib.	5	.....	.29	.28½	.29	.....	.....	.....	.28¾	.....	.30	.....	.29½	.....
NewZealnd	1	.49	51	.49	.....	48	.....	.....	50	.45	.....	.45	.53	.....
Ophir....	1	.49	.....	.....	.55	.45½	.55	.45	.53	.....	.....	.50	.....	.....
Pharmacist	5	.....	.....	.....	.....	.06¾	.07¼	.07	.07½	.....	.....	.....	.....	2,000
Portland..	1	2.30	.....	2.30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Specimen..	1	.13¾	.....	13¾	.15	13½	.....	.....	.....	.....	.....	.....	.14½	.....
Union Gold	1	.....	.30	.....	.....	.....	.....	.....	.....	.30¾	.....	.....	.31½	.....
Work.....	1	32	.32½	.31½	.32	.....	.....	.31	.....	.....	.....	.....	.....	.....
Prosp'cts:														
C.C Imp....	1	.004	.....	.004	.....	.004	.....	.01	.01½	.004½	0.5½	.004½	...	14,000
Illinois....	1	.01	.....	01	.....	.01	.01¾	.01	.01½	.....	.....	.....	.....	6,000
Old Gold...	1	.....	.02	.01¾	.01¾	.01¾	.....	.01¾	.01¾	.....	.....	.01½	.....	.....
Puritan....	1	.01¾	01¾	.01	.....	.01	.....	.01	.....	.01¾	0.	.....	.....	21,000
Miscell.:														
Acacia.....	1	.24½	.25	30	.30¾	27	.29	.26¼	.....	.....	.....	.26	28	.....
Alamo.....	1	10	.....	.10	.10¾	.10	.10½	.10	.....	.....	.....	.....	.....	.....
Aola.....	1	.04¾	.05	.....	.04¾	.....	.....	.....	.....	.04	.....	.....	.....	.....
Battle Mt..	1	.35	.36	.....	.....	.....	.36	.....	.....	.....	.35¾	.....	.....	.....
Bob Lee....	1	.....	.....	.03¾	.....	.....	.07	.06¾	.....	.06	.....	.....	.06¾	.....
C. C. & M...	1	.....	.....	.14¾	.15	.....	.15	.15¾	.16¼	.....	.17	.15	.....	6 000
De Beers....	1	.....	.....	.....	.01¾	.....	.....	.....	.....	.....	.....	.009	.....	.....
Des Moines	1	.....	.....	.05¾	.05¾	.05	.....	.05¼	.05¾	.....	.....	.....	.....	1,000
Favorite...	1	.....	.....	.06	.....	.06¾	.....	.16	.06¾	.....	.....	.....	06	.....
G'ld'n Eagle	1	.50¾	.60	.52	.....	.50	.....	.50	.....	.50	.....	.52¾	.58	.....
Goldstone...	1	.0.¾	.02¾	.02¾	.02¾	.02¾	.02¼	.02¼	.02¼	.04¾	.02¼	.02¾	.02¾	12,000
Gr'nite Hill	1	.30	.32	.30	.34	.28	.32	.....	.....	.....	.....	.....	.....	.....
Magnet R...	1	.05¾	.....	.05¾	.....	.16	.06¾	.05¾	.....	.....	.06	.....	.06	2,000
Mobile.....	1	.04	.05¼	.....	.....	.....	05¼	.04¾	.....	.....	05¾	.....	.....	.....
Mt. Beauty.	1	.....	.10	09¾	.09¾	09¾	.09¾	.....	.09¾	.....	.....	.....	.....	2,000
Trachyte...	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wh.of For.e	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

‡ Official Quotations Denver Stock Exchange. Total sales, 152,400 shares.

SAN FRANCISCO, CAL.

Name of Company.	Location.	Par. value.	Oct. 5.	Oct. 6.	Oct. 7.	Oct. 9	Oct. 10.	Oct. 11.
Alpha Con.....	Nev.	1.00	.04	.04	.04	.04	.03	.04
Alta.....	"	2.00	.04	.04	.04	.05	.04	.04
Andes.....	"	3 00	.11	.12	.12	.12	.11	.10
Belcher.....	"	3 00	23	.25	.25	.22	.22	.23
Best & Belcher.....	"	3.00	39	.40	.40	.38	.36	.....
Bullion.....	"	1.00	.04	05	.05	.05	.04	04
Caledonia	"	3.00	.74	73	.74	.....	.68	.70
Challenge Con.....	"	3.00	.29	.33	.35	.32	.29	.30
Chollar.....	"	3.00	.39	.42	.42	.40	.39	.39
Confidence.....	"	3.00	70	.77	.80	.76	.75	.8.
Con. California & Virginia...	"	2.50	1 45	1.45	1.75	1 70	1.65	1.65
Cons. Imperial.....	"	1.00	.02	.02	.02	01	.01	.01
Crown Point	"	3.00	.17	.19	.18	.17	.15	.15
Gould & Curry.....	"	3.00	37	.37	.39	.38	.36	.35
Hale & Norcross	"	3.00	33	35	.35	.37	.36	.37
Julia Con.....	"	1.00	.03	.03	.03	.03	.03	.03
Justice.....	"	2.00	.07	.07	.07	.08	.07	.08
Kentuck Con.....	"	1.00	.03	.03	.03	.03	.03	.13
Mexican.....	"	3.00	.35	.35	.36	.32	.30	.30
Occidental Con.....	"	3.00	.21	.21	.20	.20	.20	.20
Ophir.....	"	3.00	1.09	1.00	1.00	.94	.9.	.87
Overman.....	"	2.00	.21	.22	.22	.19	.18	.19
Potosi.....	"	3.00	.53	.56	.57	.58	.57	.58
Savage.....	"	2 50	.26	.26	.27	.27	.25	.25
Seg. Belcher & M.....	"	2.00	.05	.04	.04	.04	.04	.03
Sierra Nevada.....	"	3.00	.68	.70	71	.69	.67	.62
Standard.....	Cal.	10.00	3 20	3.10	3.05	3.05	3.05	3.05
Union Con.....	Nev.	2.50	.39	.40	.41	.38	.37	.38
Utah Con.....	"	1.00	.12	.12	.13	.12	.11	.12
Yellow Jacket.....	"	3.00	.27	.29	.30	.28	.26	.28
.....								
.....								
.....								

Official telegraphic quotations of San Francisco Stock Exchange

TORONTO, ONT.*

Name of Company.	Par val.	Oct. 3. B.	Oct. 3. A.	Oct. 4. B.	Oct. 4. A.	Oct. 5. B.	Oct. 5. A.	Oct. 6. B.	Oct. 6. A.	Oct. 7. B.	Oct. 7. A.	Oct. 9. B.	Oct. 9. A	Sales
Ontario:														
Alice A....	$1	.09	.12½	.08	.15	.08½	.15	.08	.13	.09	.10½	.08	.14	500
Empress....	1	03	04¾	03¼	.04½	03	.04½	.02½	.04½	.02¾	.04	.02½	.04	13,500
Golden Star	1	35	36½	.36¼	.37½	.35½	36¾	32	.35¾	.33	.34	.30	.34½	22,000
J. O. 41....	1	0 ½	.03	.02	.03¼	.02¾	.03	.02¼	.03¼	.02¾	.03¼	.....	.....	1,000
Saw Bill....	1	.10	25	.12	.20	.10	.20	.12	.20	.12½	.20	.10	.25	1,000
British Col.:														
Athabaska..	1	.37	41	.35	.39½	.36¼	.4.	.35	.40	.35	.40	.35	.40	.....
Big Three..	1	14	18	14½	.17	.14	16½	.15½	.20	.15¼	.20	.15½	.19	4,000
Bran.& G C.	1	.25	3.	.26	30	.26	3.	.24	.30	.26	.29	.25	.30	4,500
Dardanelles	1	.11	.13	.12¾	.13½	.11¾	.12¾	.11	.12¾	.11¼	.13	.11	.12¾	5,500
Deer Park..	1	.03¾	.06	.04¾	.05	.03½	05	.04¼	.04¾	.04¼	.04	.04	.05	11,0.0
DeerT'lNo 2	1	.20	23	.20¾	.21¼	.2.	.21¾	.20	.23	.20¾	.22½	.20¾	.23	23,0.0
Dundee.....	1	12	20	.10	16	.11¾	2.	.10	17	12	15	12	15	1,000
FairviewCp	0 25	06¾	07¾	.06¾	07¾	.04¾	.07¾	.06¼	.07¾	.05¾	07¾	.06¼	.07	34,000
Minnehaha.	1	.15	17	.15	.18	.5	.17	.14½	.17	12	.16	14	.16	1,500
Monte Crist	1	.04	.06¼	.04¼	06	04	.06	.03½	.05¼	.04¼	.06	.04	05	560
Morrison...	1	.14	.28	.15	.18	14	.18	18¾	.16¾	.13¼	.16	.13	.16¾	13,000
N'rt'n Belle.	1	.01¾	.02¾	.01¾	.02¼	.02	.03	.0 ¾	.02¾	.01¾	.02¼	.01¾	.02¼	4,10.
Novelty....	1	.02¼	04	.02¾	.03¾	.0 ¾	.03¾	.0 ¾	.03¾	.03¾	.03¾	.02¾	.03¾	18,575
Old Ir ns'es	1	1 06	1.15	1.08	1 15	1 10	1.15	1.05	1.19	1 11	1.18	1 10	1. 6	800
Rathmullen	1	.07¾	.08¾	.07¾	.08¼	07	08	.07¾	08¾	.07½	.08¼	.07½	.08¼	27,000
Republic...	1	1.15	1.18	1 15	1.24	1.17	1.20	1. 7	1.21	1 17	1 19½	1.15	1.19	9,700
St. Elmo...	1	.03	.07	.03¾	.06	.03¾	.06	03	.07	.03	07	.03	.06	5,5.0
St. Paul ..	1	01½	03	01¾	.02¾	0	.02	0 ¾	.02¾	01	0 ¾	.....	.....	7,000
Van Anda..	1	07½	08	.07¾	.08¼	.07¾	.08¼	.0 ¾	.08¾	07¼	.08	.07¼	.08¾	86,500
War Eagle..	1	2 85	3.10	3.00	3 15	3.02	3 09	3 00	3.10	3 00	3.12	3.02	3.12	.....
Waterloo...	0.10	.10	12	.10¾	.11	.10	.1.	.10	.11	10	16	.10	1.	5,200
White Bear.	1	.03¼	04¼	03¾	04	.03¾	04	.03¼	.04	03	04	.03¼	.03¾	25,300
Winnipeg..	1	27	.31¾	.25¾	.30	.25	29	.25	.29¾	27	29	26	.30	6,500
Wonderful.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	02	.06	3,000
Develop Co.		.03¾	.05	.03¾	.04¼	.03¼	04¾	03¼	.04¼	.03¾	.04½	03½	04¾	31,000
B.C.G.Flds	1	.06	07	.06¼	.06¾	.05¾	.06¾	.06	.07	.06¼	.06¾	.06	07¼	2, 00
Can. G. F S.	0.10	05	.07¼	05¾	.06¾	.06	07¾	.05	.07	.05¼	.06¾	.06	.07	10,500
Gold Hills	1													

*Official quotations of the Standard and Toronto Mining and Industrial Exchanges. Total shares sold, 312,675.

SALT LAKE CITY, UTAH.* Oct. 7.

Stocks.†	No. of shares.	Par val.	Bid.	Asked.	Stocks.†	No. of shares.	Par val.	Bid.	Asked
Ajax.....	300,000	$10	$0.60	$1.50	Homestake.....	400,000	$1	.....	$0 11¾
Alice.....	400,000	25	.50	1.10	Horn Silver.....	400,000	25	$1.00	1.50
Anchor.....	150,000	10	.....	.....	Joe Bowers ...	400,000	1	.16¼	.16¾
Buckeye.....	500,000	1	.....	.....	Little Pittsburg..	400,000	5	.03	.03¾
Bullion-Beck & Ch.	100,000	10	3.82½	4.25	Lower Mammoth	150,000	1	25	.27½
Centennial Eureka	30,000	50	.....	.....	Mammoth.....	400,000	5	2.73½	2.77
Chloride Point....	500,000	1	.18	.39	Mercur.....	200,000	25	7 05	7.25
Daisy..	500,000	1	.19½	.19¾	Northern Light..	400,000	5	.17¼	.18¾
Dalton.....	500,000	5	.....	.....	Omaha.....	300,000	2	.12	.20
Dalton & Lark....	2,500,000	1	.07¾	.10	Ontario.....	150,000	100	8.50	9 50
Daly.....	150,000	20	1.45	1.50	Richmond-An. ..	500,000	1	20	.45
Daly West.....	150,000	20	13.20	13 40	Sacramento	1,000,000	5	.47½	.48½
Dexter.....	200,000	5	2.56	2.70	Silver King.....	150,000	20	50 50	54 00
Eagle.....	150,000	1	.04	.05¼	Star Consolidat'd	500,000	1	.36½	.50
Eagle & Blue Bell.	250,000	1	1.55	1.87½	Sunbeam.....	250,000	1	.62½	.63½
Emerald.....	300,000	1	.....	.....	Sunshine.....	250,000	10	28½	.35
Four Aces.....	250,000	1	.24	.25¾	Swansea.....	100,000	5	3.91	4 05
Galena.....	100,000	10	.31	.35	South Swansea..	150,000	1	1.64½	1 70
Geyser-Marion.....	300,000	5	.25	39	Utah.....	100,000	1	.....	1.00
Grand Central.....	250,000	1	4 95	4 99	Valeo.....	200,000	10	.63¾	.66

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

ROSSLAND, BRITISH COLUMBIA.* Oct. 5.

Name of Company.	No. of shares.	Par value.	Selling price.	Name of Company.	No. of shares.	Par value.	Selling price.
Brandon & Gold. Cr..	1,500,000	$1	$0.28	Lerwick.....	500,000	$1	$0.15
Brit. Amer. Corp'at'n	7,500,000	5	5.00	Lily May.....	1,000,000	1	.10
Brit.Col. Dev. Co....	1,500,000	2½	5.25	Lon.&Van.Fin.Dev.Co	500,000	5	.....
Canadian Gold Fields	10,000,000	0.10	0.10	London B. C. Gold F..	250,000	5	6.00
Caribou.....	1,500,000	1	1.30	Monte Cristo.....	1,000,000	1	.....
Commander.....	500,000	1	.....	New Gold Fields, B.C.	250,000	1	6.00
Deer Park.....	1,000,000	1	.....	Novelty.....	1,000,000	1	.....
Dundee.....	1,000,000	1	.20	Queen Bess Prop....	120,000	5	5.75
Evening Star.....	1,000,000	1	.12	Rambler Con.....	1,000,000	1	.50
Fern.....	200,000	½	.40	Reco.....	1,200,000	1	.....
Gold Fields of B.C...	3,000,000	5¾	.....	Red Mt.View.....	1,000,000	1	.....
Hall Mines.....	250,000	5	3.50	St. Elmo.....	1,000,000	1	.05
Hattie Brown.....	1,000,000	1	.....	St. Paul.....	1,000,000	1	.....
Homestake.....	1,000,000	1	.10	Sarah Lee.....	1,000,000	1	.....
Iron Colt.....	1,000,000	1	.....	Silver Queen.....	1,500,000	1	.15
Iron Horse.....	1,000,000	1	.....	Slocan Star.....	500,000	1	1.40
Iron Mask.....	200,000	1	.75	Vic.Tr MinesDev. Co.	25,000	5	.....
Josie.....	700,000	1	.....	Virginia	500,000	1	.....
Jumbo.....	500,000	1	.10	War Eagle Con.....	2,000,000	1	3.60
Kenneth.....	1,000,000	1	.....	Waverly Mines.....	100,000	5	.....
Keystone.....	1,500,000	1	.....	White Bear.....	3,000,000	1	.10
KootenayGold Fields	20,000	5	.....	Wild Horse.....	400,000	1	.....

*From Our Special Correspondent.

MEXICO. Sept. 29.

Name of Company.	No. of shares.	Last div'd.	Prices. Op'g.	Prices. Cl'g.	Name of Company.	No. of shares.	Last div'd	Prices. Op'g.	Prices. Cl'g.
Chihuahua:					Hidalgo:				
Gloria.....	1,500	.....	$50	$50	Real del Monte..	2,554	10.00	530	500
Durango:					San Francisco Hc	6,000	2.00	190	195
Barradon y Cab....	2,400	.....	40	40	San Rafael y An.	1,200	12.00	1,000	1,020
Cazendelaria de Pan.	1,200	.....	20	20	do. aviado	1,200	2.00	400	410
Capuzaya.....	2,400	.....	30	30	do. del Oro....	3,000	5.00	20	30
Penoles.....	2,500	30.00	2,000	2,000	Soledad.....	960	5.00	300	330
Restauradora.....	10,000	.....	20	20	Sorpresa.....	960	5.00	240	230
Rosario y Anexas..	4,800	.....	10	10	Union Hacienda.	2,000	5.00	360	350
Guanajuato:					Mexico:				
Angustias.....	2,400	5.00	290	280	Coronas.....	500	.....	75	75
Cinco Senores y An	2,000	15.00	340	350	Esperanza y An..	8,000	10.00	1,575	1,600
El Oro.....	500	.....	30	30	Michoacan				
do. pref.	2,000	.....	30	30	Luz de Borda ava	4,000	.....	30	30
Guadalupe Hacie'a	10,000	2.00	230	235	Pueblo:				
Trinidad, aviador .	2,000	.....	48	50	Tlauzingo.....	2,400	.....	27	28
do. aviada.....	400	.....	5	40	S. Luis Potosi:				
Zona Minera de Paz	2,400	.....	55	60	Concep. y An....	2,400	.....	240	205
Hidalgo:					Sta.MariadelaPaz	2,400	10 00	720	840
Amistad y Concord.	9,600	1.47	30	29	Zacatecas:				
Arevalo.....	720	.....	200	200	Asturiana y An..	2,500	10.00	175	180
Bartolome de Med.	2,000	5.00	65	68	Cabezon	2,400	.....	15	15
Carmen.....	1,100	7.75	450	400	C'delar. de Pinos.	2,500	.....	15	180
Luz de Maravillas..	800	.....	100	120	Palma de Somb..	2,400	.....	100	80
Pabellon.....	800	27.89	30	20	.....	.....	.....	.....	.....

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.

PARIS. Sept. 21.

Name of Company.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning.	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Aceries de Creusot.....	France.....	Steel mfrs..	27,000,000	2,000	75.00	2,0 0.00	2,085.00
" " Firminy....	"	" " ..	3,000,000	500	25.00	3,849.00	3,893 00
" " Fives-Lille..	"	" " ..	12,000,000	500	35.00	575 0	572.50
" " Huta-Bank..	Russia.....	Iron & steel	.....	500	.....	4,530.00	4,275.00
" " la Marine...	France.....	Steel mfrs..	20,000,000	500	50.00	1,687.50	1,730.00
" " Longwy..	"	" " ..	.....	500	35.00	1,360 00	1,270.00
Anzin.....	"	Coal.....	.....	.....	230.00	6,06.00	6,050.00
Bische-St. Vaast.....	"	Steel.....	.....	1,000	160.00	3,800.00	3,800.00
Boleo.....	Lower Cal..	Copper.....	.....	500	1.00	2,870.00	2,890 00
Briansk.....	Russia.....	Coal & Iron	.....	500	.....	1,265.00	1,262 00
Bruay.....	France.....	Coal.....	8,000,000	400	1,000.00	49,800.00	48,700.00
Cape Copper.....	S. Africa...	Copper.....	15,000,000	50	1.50	107.50	103.00
Champ d'Or.....	"	Gold.....	3,375,000	25	3.75	45.00	40 00
Courrieres.....	France.....	Coal.....	600,000	200	70.00	2,6.0.00	2,645.00
De Beers Consolidated..	S. Africa...	Diamonds ..	98,750,000	125	15.63	674.00	632.50
Denain-Anzin.....	France.....	Steel.....	.....	500	25.00	1,122.00	1,125.00
Dombrowa.....	Russia	Coal.....	.....	500	12.50	1,020.00	1,010.00
Donetz.....	"	Steel.....	.....	.....	.....	1,292.00	1,290.00
Dourges.....	"	Coal.....	.....	1,000	400.00	26,000.00	27,500.00
Dynamite Centrale.....	France.....	Explosives..	.....	500	12.40	501.00	500.00
Epinac.....	"	Coal.....	.....	2,500	31.25	575.00	575.00
Escombrera-Bleyberg...	Spain	Lead.....	.....	500	35.00	1,115.00	1,105.00
Fraser River.....	Brit. Col'mb	Gold.....	250,000	25	.....	7.00	7 00
Huanchaca	Bolivia.....	Silver.....	40,000,000	125	5.00	53.00	53.00
Lagiasgte Estate.....	S. Africa...	Gold.....	11,750,000	25	11.25	77.50	8 00
Lagunas.....	Chile.....	Nitrates.....	16,250,000	125	12.50	30.00	28.00
Laurium.....	Greece.....	Zinc & lead.	16,300,000	500	30.00	605 00	605.00
Lautaro.....	Chile.....	Nitrates.....	13,750,000	125	.....	109.00	105.00
Malfidano.....	Italy.....	Zinc.....	12,500,000	500	40.00	1,330 00	1,425.00
Metaux, Cie. Fran. de...	France.....	Metal d'lers.	25,000,000	500	30.00	516.00	450.00
Mokta-el-Hadid.....	Algeria.....	Iron	16,312,500	500	40.00	1,228 00	1,250.00
Naptha Baku.....	Russia	Petroleum...	.....	.....	.....	8:0.00	810.00
Naptha, Le.....	"	"	.....	.....	.....	2,0 0.00	2,000.00
Naptha Nobel.....	"	"	.....	.....	.....	667.00	650 00
" " parts.....	"	"	.....	.....	.....	13,325.00	13,200.00
Nickel.....	N.Caled'nia	Nickel.....	10,000,000	250	50.00	398.00	396.00
Penarroya.....	Spain.....	Coal, etc....	.....	500	65.00	2,440.00	2,455.00
Rebecca.....	Colo'do, U.S.	Gold.....	5,000,000	25	.....	5.00	5.00
Rio Tinto.....	Spain.....	Copper.....	40,625,000	125	47.70	1,'95.00	1,189.00
" " preferred.....	"	"	40,625,000	125	.....	158.50	155.00
Rive-de-Gier.....	France.....	Coal.....	.....	.....	.....	22.00	21.75
Robinson.....	S. Africa...	Gold.....	66,750,000	125	12.50	248.00	230.00
St. Etienne.....	France.....	Coal.....	.....	.....	18.00	465.00	470.00
Salines de l'Est.....	France.....	Salt.....	.....	500	11.50	250.00	250.00
Salines du Midi.....	France.....	" etc.....	.....	500	25.00	875 00	875.00
Sels Gem.de la Rus.Mer	Russia.....	" etc.....	.....	500	25.00	545.00	595.00
Tharsis.....	Spain.....	Copper.....	33,750,000	50	8.75	2o8.50	208.00
Vicoigne-Neux.....	France.....	Coal.....	.....	1,000	750.00	24,000.00	24,250.00
Vielle Montagne.....	Belgium.....	Zinc.....	9,000,000	80	30.00	824.00	815.00

STOCK QUOTATIONS.

LONDON.

Sept. 29.

Name of Company.	Country.	Authorized 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	1 0 0	1 2 6
Alaska-Mexican, g	"	200,000	1 0 0	0 4.8	July, 1899	17 6	1 2 6
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	July, "	5 5 0	5 10 0
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2½	Nov., 1899	11 8 3	11 8 9
Chiapas, g., s., c	Mexico	252,500	1 0 0			5 0	5 2 6
Con. Gold Fields	"	300,000	1 0 0			17 6	1 0 0
D. Lamar, g., s	Idaho	400,000	1 0 0	6	May, 1899	3 9	6 3
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 0	2 0
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Aug., 1899	1 0 0	1 2 6
Hall Mines, c., s	British Col.	250,000	1 0 0	1 0	May, 1898	8 9	11 3
Le Roi, g	"	1,000,000	5 0 0			5 18 9	6 1 3
Lillie, g	Colorado	250,000	1 0 0	2½	Oct., 1899	15	1 0 0
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	3 3	3 9
Mountain Copper	California	1,250,000	5 0 0	9 0	Sept., 1899	8 2 6	8 5 0
Newfoundland, c	Newfoundland	250,000	1 0 0			7 6	12 6
Palmarejo & Mexican, g., s	Mexico	800,000	1 0 0			1 6	2 6
Plumas-Eureka, g	California	281,250	1 0 0	0 6	Oct., 1898	1 6	2 6
Richmond, g., s., l	Nevada	270,000	5 0 0	1 0	Dec., "	5 0	6 3
Sierra Buttes, g	California	245,000	2 0 0	0 6	Apr., "	6	1 0
Stratton's Independence	Colorado	1,100,000	1 0 0	2 0	Sept., 1899	2 6 3	2 8 9
Colomb. Hydraulic, g	Colombia	75,000	1 0 0	6	Jan., 1899	3 9	6 3
Copiapo, c	Chile	200,000	2 0 0	6 0	July, 1899	3 1.6	3 17 6
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1899	2 2 6	2 5 0
St. John del Rey, g	Brazil	600,000	1 0 0	1 3	June, 1899	1 7 6	1 8 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
Utah Con. g (High l'nd Boy)	Utah	300,000	1 0 0	rts	Mar., 1898	8 0 0	8 5 0
Velvet, g	British Columbia	100,000	1 0 0			1 1 3	1 3 9
Ymir, g	"	200,000	1 0 0			1 8 9	1 1 3
British Am. Corp	"	1,500,000	1 0 0	rts.	Dec., 1898	1 9 6	1 0 6
Linares, l	Spain	45,000	8 0 0	12 6	Sept., 1899	8 0 0	9 0 0
Mason & Barry, c., sul	Portugal	650,000	2 0 0	5 0	May, 1899	3 15 0	4 0 0
Rio Tinto, c	Spain	1,625,000	5 0 0	1 7 6	May, 1899	18 0 0	45 2 6
" " pref	"	1,625,000	5 0 0	2 5	May, 1899	6 2 6	6 5 0
Tharsis, c	"	1,250,000	2 0 0	11	" 1898	7 15	8 5 0
*Libiola, c	Italy	252,500	5 0 0	1 6	Sept., 1899	1 12 6	1 17 6
Assoc. Gold Mines	W. Australia	500,000	1 0 0	rts	Aug., 1899	11 13 9	11 16 3
Broken Hill Prop., s	N.S. Wales	384,000	8 0	1	Oct., 1899	2 2 6	2 3 6
*Great Boulder, Prop	W. Australia	1,750,000	2 0	6	Sept., 1899	1 18 0	1 19 0
Hannan's Brownhill, g	"	110,000	1 0 0	7 6	Nov., 1899	11 13 9	11 16 3
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	Oct., 1899	16 7 6	16 12 6
Kalgurlie, g	"	120,000	1 0 0	rts.	Feb., 1899	11 7 6	11 12 6
Lake View Consols, g	"	250,000	1 0 0	£1	Nov., 1899	21 7 6	21 12 6
Mt. Lyell M. & R., l., c	Tasmania	975,000	8 0 0	4 0	Oct., 1899	9 17 6	20 2 6
Mt. Morgan, g	Queensland	1,000,000	1 0 0	7	Sept., 1899	5 3 9	5 5 3
Waihi, g	New Zealand	320,000	1 0 0	2 0	Oct., 1899	7 16 3	8 1 3
West Aust. Jt. Stk. L. & F	W. Australia	1,000,000	1 0 0	1 0	Dec., 1898	4 9	5 3
Champion Reef, g	Colar Fields	220,000	10 0	3 6	May, 1899	5 0 0	5 2 6
Mysore Gold, g	"	250,000	10 0	4 0	July, 1899	5 11 3	5 13 9
Nundydroog, g	"	242,000	1 0 0	2 0	" 1899	2 17 6	3 0 0
Ooregum, g	"	145,000	1 0 0	6	Aug., 1899	3 11 3	3 13 9
" pref. g	"	120,000	1 0 0	2 6	" 1899	4 19 0	4 12 6
Angelo, g	Transvaal	275,000	1 0 0	5 0	Mar., 1899	5 17 6	6 2 6
Bonanza, g	"	200,000	1 0 0	1 0	June, 1898	3 17 6	4 2 6
British S. Af., chartered	So. Africa	5,000,000	1 0 0	rts	May, 1899	2 8 9	2 11 3
Cape Copper, c	"	600,000	1 0 0	5 0	July, 1899	4 0 0	4 2 6
" pref	"	150,000	2 0 0	5 0	" 1899	4 0 0	4 5 0
City & Suburban (New), g	Transvaal	1,380,000	4 0 0	8 0	Aug., 1899	4 17 6	5 0 0
Con. Deep Level, g	"	200,000	1 0 0	x all	June, 1898	1 2 6	1 7 6
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	13 15 0	14 5 0
De Beers Con., d	Cape Colony	3,950,000	5 0 0	21	June, 1899	3 15 0	24 0 0
Durban Roodepoort, g	Transvaal	135,000	1 0 0	5	Sept., 1899	5 5 0	5 10 0
Ferreira, g	"	90,000	1 0 0	30 0	Aug., 1899	19 10 0	20 10 0
Geldenhuis Deep, g	"	850,000	1 0 0	8 0	Aug., 1899	8 0 0	8 10 0
Geldenhuis Est., g	"	200,000	1 0 0	10 0	Aug., 1899	5 17 6	6 0 0
Ginsberg, g	"	160,000	1 0 0	5 0	Aug., 1899	2 15 0	3 0 0
Henry Nourse, g	"	125,000	1 0 0	10 0	Aug., 1899	6 17 6	7 2 6
Heriot (New), g	"	115,000	1 0 0	5 0	Sept., 1899	6 2 6	6 7 6
Jagersfontein, d	Orange Fr. St.	1,000,000	5 0 0	9 0	June, 1899	12 10 0	14 0 0
Johannesburg Con. Invst	So. Africa	2,750,000	1 0 0	2 0	Aug., 1899	1 7 6	1 10 0
Jubilee, g	Transvaal	50,000	1 0 0	5 0	Aug., 1899	5 0 0	5 10 0
Jumpers, g	"	100,000	1 0 0	4 0	Nov., 1899	4 2 6	4 7 6
Kleinfontein, g	"	275,000	1 0 0	2 0	Mar., 1899	2 10 0	2 15 0
Langlaagte Estate, g	"	500,000	1 0 0	8 0	Sept., 1899	2 17 6	3 2 6
May Con., g	"	275,000	1 0 0	4 0	Aug., 1899	4 0 0	4 17 6
Meyer & Charlton, g	"	85,000	1 0 0	8 0	July, 1899	4 17 6	5 2 6
Namaqua, c	Cape Colony	200,000	1 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	3 13 9	3 16 3
Rand Mines, g	So. Africa	490,000	1 0 0	15 0	Aug., 1899	29 5 0	29 10 0
Robinson, g	Transvaal	2,750,000	5 0 0	8 0	Aug., 1899	8 0 0	8 5 0
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1898	1 0 0	1 0 0
Sim. & Jack Prop., g	"	5,000,000	5 0 0	4 0	July, 1899	5 0 0	5 2 6
Wemmer, g	"	80,000	1 0 0	15 0	June, 1899	11 15 0	12 5 0
Wolhuter, g	"	860,000	4 0 0	2 0	Feb., 1899	3 12 6	3 17 6
Worcester, g	"	100,000	1 0 0	3 0	July, 1899	2 7 6	2 12 6

*Ex-dividend. §Dividend pending

MEETINGS.

Name of Company.	Location.	Meeting.	Date.	Place of Meeting.
Alliance	Utah	Annual.	Oct. 24.	504 Progress Building, Salt Lake City.
Alpha Con	Nevada	"	Oct 25.	309 Montgomery st., San Francisco, Cal.
Anchor "	Utah	"	Nov. 7.	Para City, Utah.
Ben Hur	Colorado	"	Oct. 20	Colorado Springs, Colo.
Central Eureka	California	"	Oct. 24.	320 Sansome st. San Francisco. Cal
Challenge Con	Nevada	"	Nov. 17	Mills Building, San Francisco, Cal.
Chrysolite	Colorado	"	Nov. 3.	66 Broadway, New York City.
Con. Cal & Va	Nevada	"	Oct 16	309 Montgomery st., San Francisco, Cal.
Confidence	Nevada	"	Nov. 11.	414 California st San Francisco, Cal.
Copper Queen	Arizona	"	Dec. 7	Salt Lake City, Utah.
E. Best & Belcher	Nevada	"	Nov. 22	331 Montgomery st., San Francisco, Cal.
Edwin Booth	Colorado	"	Sept. 30.	1427 Curtis st., Denver, Colo.
Exchequer	Nevada	"	Oct. 16	309 Montgomery st , San Francisco, Cal.
Great Western, q	California	"	Nov. 6.	530 California st., San Francisco, Cal.
N. Gould & Curry	Nevada	"	Nov. 20	437 Pine st., San Francisco, Cal.
Occidental Con	Nevada	"	Nov. 20.	309 Montgomery st , San Francisco, Cal.
Oneida	California	Special.	Oct. 24.	320 Sansome st., San Francisco, Cal
Porthill Copper	W'sh'gton	"	Oct. 14.	1027 Fourth ave., Spokane, Wash.
Puget Sound Iron	California	Annual.	Nov. 15.	530 California st , San Francisco, Cal.
Santa Rosalia	California	"	Dec 15.	310 Pine st , San Francisco, Cal.
Siskiyou Con	California	"	Nov. 4.	306 Pine st , San Francisco, Cal.

ASSESSMENTS.

Name of Company.	Location.	Sec.	Dlq.	Sale.	Amt.	Office.
R. G. W	Utah	2	Aug. 17	Nov. 4	.01	34 W. 2d South st., Salt Lake City.
Acorn	Utah	1	Sept. 23	Oct. 14	.00¼	Wells, Fargo Bank, Salt Lake City.
Alaska	Utah	...	15	Oct. 14	.01½	714 McCornick Bldg., Salt Lake City
Badger Hill & Cherokee	....		27	Oct. 19	3.00	320 Sansome st., San Francisco, Cal.
Eureka Con. D	Cal	20	12	Sept. 30	.00½	1,209 Claus Spreckels Bldg., S. Fra'co
Kate Hayes	Cal	7	26	Oct. 18	1.00	320 Sansome st., San Francisco, Cal.
Belcher	Nev.	....	Oct. 25	.....	.15	Mills Bldg., San Francisco, Cal.
Best & Belcher	Nev.	68	27	Nov. 17	.20	309 Montgomery st., San Francisco.
Bingham Placer	Utah	1	16	Nov. 18	.10	201 McCornick Block, Salt Lake City
Bullion	Nev.	15	24	Nov. 14	05	331 Pine st., San Francisco, Cal.
California Borax	Cal.	1	30	Nov. 28	2 00	310 Pine st., San Francisco, Cal
Con. Cal. & Va	Nev.	14	11	Nov. 1	.25	309 Montgomery st., San Francisco.
Eureka Con.	Nev.	16	10	Oct. 30	.10	Laidlaw & Co., 14 Wall st., N. Y.
Gerrymander	Cal.	..	30	.....	.10	.....
Gould & Curry	Nev.	87	4	Oct. 25	.15	309 Montgomery st., San Francisco.
Marina Marsican	Cal	20	24	Nov. 15	.05	217 Sacramento st. San Francisco.
Salmon River	Mont	.	20	Nov. 15	.02½	19 W. Granite st., Butte, Mont.
Success	Utah	7	21	Nov. 11	.01	617 McCornick Block, Salt Lake City
Sunbeam Con	Utah	24	5 Nov.	Nov. 21	.10	419 Dooly Block, Salt Lake City.
Andes	Nev.	49	6	Nov. 27	.05	309 Montgomery st., San Francisco.
Revenue	Utah	2	6	Dec. 11	.02	419 Dooly Block, Salt Lake City.
Seg. Belcher & Mides	Nev.	24	2	Nov. 22	.05	309 Montgomery st., San Francisco.

DIVIDENDS.

Name of Co.	Date.	Am't.	Paid 1899.	Grand Total.
Alamo, Utah	.....	.....	$2,500	$2,500
Alaska-Mexican	.....	.....	54,000	411,031
Alaska-Treadwell	.....	.....	225,000	4,145,000
Ætna Con	Oct. 2	$15,000	45,000	195,000
Amalgamated Cop	Oct. 16	1,500,000	1,500,000	Fanny Rawlings
American Gold	.....	.....	48,000	434,000
American I. & R. p	Oct 10	568,750	568,750	568,750
American Zn. Mg	Oct. 12	10,000	10,000	10,000
Am. Zinc-L. & Sm.	Oct. 2	20,000	40,000	40,000
Anaconda Copper	Nov. 1	2,400,000	3,900,000	12,150,000
Anchoria-Leland	Oct 16	18,000	72,000	234,000
Apollo Con., Alas	.....	.....	40,000	140,000
April Fool, Nev	.....	.....	11,000	11,000
Argonaut, Cal	.....	.....	183,000	360,000
Associated, Colo	.....	.....	12,000	84,000
Aurora Iron	.....	.....	50,000	800,000
Bald, Butte	.....	.....	97,500	747,141
Bonanza, Wash	.....	.....	5,000	5,000
Bona'za Dev., N. M	.....	.....	1,050,000	1,500,000
Boston-Aurora	.....	.....	15,984	15,984
Boston & Colo. Sm.	Oct. 2	11,250	45,000	.....
Boston-Duenweg, z	Oct. 5	4,000	24,000	24,000
Boston-LittleC Zn	Oct. 1	15,000	60,000	60,000
Boston-Provid'nce	Oct. 2	750	9,750	9,750
Boston Quick, Cal.	Oct. 2	10,000	10,000	10,000
Boston & Cal.	.....	.....	72,000	72,000
Boston & Mont	.....	.....	3,150,000	12,275,000
Breece	.....	.....	30,000	60,000
Bul. Bec. & Champ	Oct. 15	10,000	100,000	2,418,400
Bunker Hill & S.	Oct. 4	21,000	126,000	726,000
Calumet & Hecla	.....	.....	8,000,000	64,850,000
Cariboo-M'Kinney	.....	.....	75,000	311,965
Centenn'l Eureka	.....	.....	120,000	2 150,000
Central Lead	Oct. 16	5,000	50,000	132,000
Champion, Cal	.....	.....	8,500	304,700
Charleston, S. C	.....	.....	100,000	1,945,000
Colorado Sm.	.....	.....	10,000	10,000
Colonial Lead, Mo	.....	.....	205,000	5,716,650
Consolidation Coal	.....	.....	30,000	30,000
Daly-West, Utah	Oct. 25	30,000	30,000	30,000
Delta L. & Z., Mo	Oct. 1	820	2,460	2,460
D'rTr'l No. 2. Wash	.....	.....	23,500	40,000
Doe Run, Mo	Oct. 16	2,500	25,000	85,000
De Lamar, Idaho	.....	.....	$48,000	$2,346,000
El Dorado, Cal	.....	.....	10,000	10,000
Elkton, Colo	.....	$37,500	37,500	694,461
Empire State, Ida	Oct. 16	24,628	192,101	254,003
Fanny Rawlings	.....	.....	20,000	20,000
Ferris-H'g'ty, Wyo	.....	.....	5,000	5,000
Garfield Con	.....	.....	12,000	34,000
Gold Coin, Vict	.....	.....	90,000	240,000
Golden Cycle	Oct. 18	10,000	85,000	238,500
Golden Eagle, Col	.....	.....	5,000	5,000
Gold King, Col	.....	.....	60,000	60,000
Golden M. & Ex	.....	.....	10,000	10,000
Golden Star, Ont	.....	.....	41,000	41,000
Grand Central, Ut	.....	.....	347,500	666,250
Grass Valley Ex	.....	.....	22,500	22,500
Gwin, Cal	Oct. 12	5,000	40,000	91,500
Helena & Frisco	.....	.....	125,000	550,000
Hidden Treas., Cal	.....	.....	3,600	3,600
High Five, Colo	.....	.....	10,000	10,000
Holy Terror	.....	.....	25,000	142,000
Homestake	.....	.....	647,500	7,825,750
Horn Silver	.....	.....	20,000	5,250,000
Isabella	.....	.....	202,500	472,500
Jack Pot	.....	.....	75,000	75,000
Jamison, Cal	.....	.....	11,700	50,700
Lake Superior Ir	.....	.....	84,000	227,860
Last Dollar, Colo	Nov. 1	20,000	20,000	20,000
Lillie	Oct. 2	11,250	112,500	279,110
Little Tiger, Cal	Oct. 16	7,500	17,500	17,500
Mammoth	.....	.....	180,000	1,530,000
Marion Con., Colo	.....	.....	5,000	300,000
M'y McKinney, Col	Nov. 1	30,000	30,000	30,000
Mead, Cal	.....	.....	40,000	120,000
Mercur	.....	.....	100,000	1,341,000
Mo. Zinc Fields, pfd	Oct. 12	2,664	15,984	15,984
Modoc	Oct. 16	10,000	100,000	180,000
Montana, Ltd	.....	.....	28,855	453,700
Mont. Ore Pur	.....	.....	480,000	1,280,000
Moon-Anchor, Colo	Nov. 1	45,000	45,000	306,000
Morning Star, Cal	Oct. 16	7,200	63,600	751,800
Moulton, Mont	.....	.....	20,000	480,000
Mountain Copper	.....	.....	540,000	633,750
Mt. Shasta, Cal	.....	.....	6,000	6,000
Napa Con	Oct. 2	$30,000	$90,000	$1,040,000
New Idria	Oct. 23	30,000	90,000	1,0.000
New York Zinc	Oct. 3	7,000	7,000	7,000
N.Y. & H.-Rosario	Oct. 20	15,000	135,000	1,125,000
North Star, Cal	.....	.....	50,000	550,000
Olive	.....	.....	12,000	12,000
Okanogan, Wash	Oct. 2	3,125	3,125	3,125
Orig. Empire, Cal	.....	.....	50,000	500,000
Osceola	.....	.....	279,000	2,801,500
Parrot	Oct. 12	345,000	897,000	3,035,898
Pennsylvania, Cal	Oct. 8	10,300	47,650	115,875
PennsylvaniaCoal	.....	.....	800,000	14,050,000
Petro, Utah	.....	.....	10,000	27,500
Pioneer, Cal	.....	.....	12,500	62,500
Portland	.....	.....	540,000	2,377,080
Quicksilver (Pref.)	.....	.....	21,500	1,845,111
Quincy	.....	.....	950,000	11,070,000
Rambler Cariboo	.....	.....	10,000	50,000
Raven, Colo	Oct 20	10,000	20,000	89,500
Republic, Wash	.....	.....	157,500	323,000
Royal, B. C	.....	.....	50,000	1,050,000
Sacramento	.....	.....	48,000	133,000
St. Joseph Lead	.....	.....	75,000	2,859,500
Santa Rosalie, Cal	.....	.....	5,000	130,000
Silver King	Oct. 10	50,000	475,000	2,300,000
Small Hopes	.....	.....	25,000	3,325,000
Smuggler	Oct. 16	10,000	100,000	1,195,000
South Swansea	.....	.....	37,500	150,000
Standard, Cal	.....	.....	40,000	3,879,226
Standard, Ida	.....	.....	30,000	1,745,000
Stratton's Inde'ce	.....	.....	488,000	488,000
Swansea	Oct. 10	5,000	50,000	241,000
Tamarack	.....	.....	240,000	5,910,000
Tomboy	.....	.....	80,000	730,000
United Z. & L., pfd.	Oct. 16	20,000	40,000	40,000
Utah, Utah	.....	.....	2,000	179,000
Vindicator	Oct. 20	50,750	177,625	304,500
War Eagle, B. C.	Oct. 16	26,250	262,500	440,250
Weath. Bonanza	.....	.....	1,562	1,562
Wolverine	Oct. 2	120,000	210,000	270,000
Yellow Aster	Oct. 9	10,000	95,000	263,789
Grand Total.			$5,604,479	$31,075,746	206,825,015

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			Dividends. Total Paid.	Dividends. Date and Amount of Last.		
1	Ætna Cons., q	Cal	$500,000	100,000	$5	*				$195,000	Oct	1899	.10
2	Alaska-Mexican, g	Alask	1,000,000	200,000	5					411,031	July	1899	.10
3	Alaska-Treadwell, g	Alask	5,000,000	200,000	25	*				4,145,000	July	1899	.37½
4	Alamo, g. c. i	Utah	125,000	125,000	1	$937	Mar	1898	.00¼	2,500	April	1899	.02
5	Alice, g. s	Mont	10,000,000	400,000	25	*				1,075,000	April	1898	.05
6	Amalgamated, c	Mont	75,000,000	750,000	100					1,500,000	Oct	1899	2.00¼
7	American Coal	Md	1,500,000	60,000	25					727,500	Sept	1899	1.25
8	American Gold, g. s. c. l	Colo	3,000,000	300,000	10	*				434,000	June	1899	.09
9	Amer. Sm. & Ref., pref.	U. S.	32,500,000	32,500	100					568,750	Oct	1899	1.75
10	Am. Zinc, Lead & Sm.	Mo	500,000	200,000	25					40,000	Oct	1899	.10
11	Anaconda Copper	Mont	30,000,000	1,200,000	25					12,150,000	Nov	1899	2.00
12	Anchoria-Leland, g	Colo	600,000	600,000	1	*				198,000	April	1899	.03
13	Appie Ellen, g	Colo	600,000	600,000	1					25,000	Aug	1898	.01
14	April Fool	Nev	500,000	500,000	1					11,000	Sept	1899	.01
15	Argonaut	Cal	2,000,000	200,000	10					340,000	Aug	1899	.10
16	Associated, g	Colo	1,250,000	1,250,000	1	*				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	*				890,000	June	1899	.50
19	Bald Butte	Mont	250,000	250,000	1	*				747,141	Sept	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	*				5,000	Sept	1899	.00¼
22	Bonanza, Dev	NMex	3,000,000	300,000	10					1,500,000	June	1899	3.50
23	Boston-Aurora, pref	Mo	800,000	32,000	25					15,984	Sept	1899	.17
24	Boston & California	Cal	600,000	600,000	1					72,000	June	1899	.06
25	Boston-Little Circle, z	Mo-K	1,000,000	100,000	10	*				45,000	Sept	1899	.15
26	Boston & Mont. Con	Mont	3,750,000	150,000	25	*				12,275,000	Aug	1899	10.00
27	Boston, q	Cal	1,000,000	100,000	10	*				10,000	Oct	1899	.10
28	Breece, i	Colo	5,000,000	200,000	25					60,000	Sept	1899	.05
29	Bullion-Beck & Champ	Utah	1,000,000	100,000	10	*				2,408,400	Sept	1899	.10
30	Bunker Hill & S., s. l	Idaho	3,000,000	300,000	10					705,000	May	1899	.07
31	Calumet & Hecla, c	Mich	2,500,000	100,000	25					64,850,000	Sept	1899	20.00
32	Centen'l-Eureka, g. s. l. c	Utah	1,500,000	30,000	50	30,000	Mar	1889	1.00	2,150,000	Aug	1899	.50
33	Central Lead, l	Mo	1,000,000	10,000	100	*				127,000	Sept	1899	.50
34	Champion, g. s	Cal	340,000	34,000	10					296,200	April	1898	.25
35	Charleston, p. r	S. C	1,000,000	10,000	100	*				200,000	June	1899	2.00
36	Consolidation Coal	Md	10,250,000	102,500	100					5,716,650	Feb	1899	2.00
37	Con. Tiger & Poorman	Idaho	1,000,000	1,000,000	1	*				20,000	Dec	1898	.02
38	Cresus, g	Cal	1,000,000	200,000	5					30,000	Dec	1898	.15
39	Crowned King, g. s. l	Ariz	6,000,000	600,000	10	*				232,000	Dec	1898	.02
40	Deadwood-Terra, g	S. D.	5,000,000	200,000	25	*				1,350,000	May	1898	.15
41	De Lamar, g. s	Idaho	2,000,000	400,000	5					2,346,000	May	1899	.12
42	Delta Lead & Zinc	Mo	100,000	100,000	1	*				2,460	Oct	1899	.00¼
43	Deer Trail No. 2	Wash	1,000,000	1,000,000	1					40,000	Sept	1899	.00¼
44	Doe Run, l	Mo	500,000	5,000	100					85,000	Sept	1899	.50
45	Elkton Cons., g	Colo	1,250,000	1,250,000	1					694,461	Sept	1899	.03
46	El Paso, g. s	Colo	650,000	650,000	1					12,393	Jan	1898	.01
47	Empire State-Idaho	Idaho	1,000,000	100,000	10					229,375	Sept	1899	.30
48	Enterprise, s. l	Colo	500,000	500,000	1					900,000	Sept	1898	.05
49	Fanny Rawlings, g. s	Colo	1,000,000	1,000,000	1					20,000	Aug	1899	.01
50	Ferris-Haggarty, c.g.s	Wyo	1,000,000	1,000,000	1					5,000	Mar	1899	.00½
51	Garfield Con., g	Colo	1,200,000	1,200,000	1					34,000	May	1899	.01
52	Geyser-Marion, g	Utah	1,500,000	300,000	5					96,000	Sept	1898	.02
53	Gold Coin of Victor, g	Colo	1,000,000	1,000,000	1					240,000	Sept	1899	.01
54	Golden Cycle, g	Colo	1,000,000	200,000	5					228,500	Sept	1899	.05
55	Gold King, g	Colo	1,000,000	1,000,000	1					60,000	July	1899	.03
56	Golden Eagle, g	Colo	500,000	500,000	1					5,000	July	1899	.01
57	Golden Reward, g	S. D.	1,000,000	100,000	10					155,000	Feb	1898	.15
58	Grand Central, g	Utah	250,000	250,000	1					666,250	Sept	1899	.24
59	Grass Valley Expl	Cal	100,000	30,000	2	*				22,500	July	1899	.25
60	Gwin, g	Cal	1,000,000	20,000	50	286,000	Jan	1898		81,500	Aug	1899	.25
61	Helena & Frisco, l. s	Idaho	2,500,000	500,000	5	*				550,000	June	1899	.25
62	Holy Terror, g	S. D.	500,000	500 000	1					7,828,750	Sept	1899	.50
63	Homestake, g	S. D.	21,000,000	210,000	100	200,000	July	1878	1.00	5,270,000	July	1899	.05
64	Horn-Silver, g. s. c. sp. l.	Utah	10,000,000	400,000	25	*				95,000	June	1898	.00½
65	Iowa, g	Colo	1,000,000	1,000,000	1					507,500	April	1898	.02
66	Iron Mountain, g. s. l. l	Mont	5,000,000	500,000	10	*				472,500	Sept	1899	.01
67	Isabella, g	Colo	2,250,000	2,250,000	1					75,000	Sept	1899	.04
68	Jack Pot, g	Colo	1,250,000	1,250,000	1					50,700	April	1899	.10
69	Jamison	Cal	3,900,000	390,000	10	144,000	Nov	1896	.17	736,000	Feb	1898	1.00
70	Lake Superior Iron	Mich	2,100,000	84,000	25					279,110	Sept	1899	.05
71	Lillie, g	Colo	1,250,000	250,000	5					1,530,000	Sept	1899	.15
72	Mammoth, g. s. c	Utah	10,000,000	400,000	25	*				300,000	May	1899	.01
73	Marion Con	Colo	5,000,000	500,000	10	*				25,000	Dec	1898	.02½
74	Matoa, g	Colo	1,000,000	1,000,000	1					120,000	June	1899	.20
75	Mead, g	Cal	200,000	200,000	1					1,291,000	July	1899	12½
76	Mercur, g	Utah	5,000,000	200,000	25	*				4,735,000	Oct	1898	1.50
77	Minnesota Iron	Minn	16,500,000	165,000	100	*				13,320	Sept	1899	.17
78	Missouri Zinc Fields, pf	Mo	400,000	16,000	25					170,000	Sept	1899	.02
79	Modoc, g	Colo	500,000	500,000	1					453,700	April	1899	.12
80	Montana, Ltd., g. s	Mont	3,300,000	657,128	5	*				1,280,000	Sept	1899	1.00
81	Montana Ore Purchas'g	Mont	2,500,000	80,000	25	*				261,000	Nov	1898	.07½
82	Moon-Anchor Con., g	Colo	1,750,000	600,000	1					744,600	Sept	1899	3.00
83	Morning Star, g	Cal	240,000	2,400	100	70,800	Feb	1887	.75	60,000	Jan	1898	.02
84	Mt. Rosa, g	Colo	1,000,000	1,000,000	1					6,000	May	1899	.30
85	Mt. Shasta	Cal	100,000	20,000	5					480,000	Feb	1899	.05
86	Moulton	Mont	2,000,000	400,000	5					633,750	Sept	1899	2.16
87	Mountain Copper	Cal	6,250,000	250,000	25					1,040,000	Oct	1899	.30
88	Napa Cons., q	Cal	700,000	100,000	7	*				470,000	April	1899	.40
89	New Central Coal	Md	1,000,000	50,000	20					170,000	Oct	1899	.30
90	New Idria, q	Cal	500,000	100,000	5					7,000	Oct	1899	.25
91	New York Zinc	Mo	700,000	28,000	25					1,110,000	Sept	1899	.10
92	N.Y. & Hon Rosario, s. g.	C. A.	1,500,000	150,000	10	*				550,000	April	1899	.25
93	North Star, g	Cal	5,000,000	500,000	10	20,000	June	1885	.02	20,000	Aug	1898	.00¼
94	Nugget	Colo	1,000,000	1,000,000	1					115,000	Mar	1898	.01
95	Orphan Bell, g	Colo	1,000,000	1,000,000	1					500,000	May	1899	1.00
96	Original Empire, g	Cal	5,000,000	50,000	100	92,500	Aug	1896	1.25	2,801,500	June	1899	3.00
97	Osceola, c	Mich	2,500,000	93,000	25	*				2,090,898	May	1899	1.50
98	Parrot, c	Mont	2,300,000	230,000	10	*				14,050,000	May	1899	8.00
99	Pennsylvania Coal	Pa	5,000,000	190,000	50					105,575	Sept	1899	.20
100	Pennsylvania Cons	Cal	5,150,000	51,500	100	50,051	Feb	1892	.05	5,000	July	1899	.02½
101	Petro, g	Utah	1,000,000	200,000	5					62,500	Mar	1899	12½
102	Pioneer g	Cal	1,000,000	100,000	10					2,347,080	Sept	1899	.02
103	Portland, g	Colo	3,000,000	3,000,000	1	*				1,845,411	May	1899	.50
104	Quicksilver, pref	Cal	4,300,000	43,000	100					11,070,000	Aug	1899	6.00
105	Quincy, c	Mich	2,500,000	100,000	25	*				29,500	Sept	1899	.00½
106	Raven, g	Colo	1,500,000	1,500,000	1					323,000	Sept	1899	.01
107	Republic Cons., g	Wash	3,500,000	3,150,000	1					133,000	Sept	1899	.00½
108	Sacramento, g	Utah	5,000,000	1,000,000	5					2,859,500	June	1899	.50
109	St. Joseph, l	Mo	3,000,000	300,000	10	*				125,000	Feb	1898	1.10
110	Santa Rosalia, g. s	Cal	100,000	100,000	1					2,250,000	Sept	1899	.25
111	Silver King, g. s. l	Utah	3,000,000	150,000	20	3,000	Jan	1897	.02	3,325,000	Feb	1899	.10
112	Small Hopes, s	Colo	5,000,000	250,000	20	*				1,185,000	Sept	1899	.01
113	Smuggler, s. l. z	Colo	1,000,000	1,000,000	1					150,000	Sept	1899	.05
114	South Swansea, s. l	Utah	150,000	150,000	1					3,879,226	Aug	1899	.10
115	Standard Cons., g. s	Cal	2,000,000	200,000	10	99,888	June	1890	.50	1,745,000	April	1899	.06
116	Standard	Idaho	500,000	500,000	1					480,000	Sept	1899	.48
117	Stratt n's Independ'ce	Colo	5,500,000	1,100,000	5	*				241,000	Oct	1899	.05
118	Swansea, s. l	Utah	500,000	100,000	5					5,910,000	June	1899	4.00
119	Tamarack, c	Mich	1,500,000	60,000	25					730,000	May	1899	4.00
120	Tomboy, g	Colo	2,000,000	200,000	10					20,000	July	1899	.50
121	United, z. l., pref	Mo	1,000,000	40,000	25	*				179,000	Jan	1899	.02
122	Utah	Utah	1,000,000	100,000	10	*				1,155,000	Dec	1898	.50
123	Victor, g	Colo	1,000,000	200,000	5	*				253,750	July	1899	.05
124	Vindicator, Cons. g	Colo	1,500,000	1,015,000	1					414,000	Sept	1899	.01½
125	War Eagle, Cons	B. C	2,000,000	1,750,000	1					270,000	Oct	1899	1.50
126	Wolverine, c	Mich	1,500,000	60,000	25	180,000	Mar	1895	1.00	253,789	Sept	1899	.10
127	Yellow Aster, g	Cal	1,000,000	100,000	10	*							

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.		
1	Ada Cons., s. l	Utah	$100,000	100,000	$1	$3,333	Nov	1895	.01½
2	Alliance, g. s. l	Utah	150,000	150,000	1	200,000	Dec	1895	.10
3	Allouez, c	Mich	2,500,000	100,000	25	1,520,937	June	1894	1.00
4	Alpha Cons., g. s	Nev	105,000	105,000	1	319,200	Aug	1899	.03
5	Alta, s	Nev	216,000	108,000	2	3,675,710	June	1899	.05
6	Alta	Utah	750,000	750,000	1	938	Mar	1899	.00½
7	American Quartz, g	Cal	1,000,000	100,000	10	1,000	Feb	1897	.01
8	Anchor, g. s. l	Utah	1,500,000	150,000	10	560,000	Aug	1893	.20
9	Andes, g	Nev	300,000	100,000	3	1,205,000	June	1899	.05
10	Arnold, c	Mich	1,500,000	60,000	25	180,000	Jan	1899	3.00
11	Baliol, g	Cal	1,000,000	100,000	10	55,000	Mar	1898	.30
12	Belcher, s. g	Nev	312,000	104,000	3	3,535,600	Aug	1899	.10
13	Belle Isle	Nev	10,000,000	100,000	100	240,271	July	1896	.10
14	Benton Con. s	Nev	10,800,000	108,000	100	587,023	June	1897	.25
15	Best & Belcher, g. s	Nev	302,400	100,800	3	2,609,803	Aug	1899	.10
16	Bogan	Utah	1,250,000	125,000	10	26,875	Dec	1897	.01½
17	Boston & Cp. Ck., g	Colo	400,000	200,000	2	20,000	Aug	1898	.10
18	Brunswick Cons., g	Cal	500,000	500,000	1	160,000	July	1897	.03
19	Bullion, s. g	Nev	100,000	100,000	1	3,125,000	May	1899	.05
20	Caledonia	Nev	300,000	300,000	3	3,210,000	Nov	1897	.10
21	Centennial, c	Mich	2,500,000	100,000	25	460,000	Mar	1898	3.00
22	Central Eureka, g	Cal	4,000,000	400,000	10	135,942	Sept	1899	.03
23	Challenge Cons, s.g	Nev	150,000	50,000	3	438,000	Aug	1899	.10
24	Chollar, g. s	Nev	336,000	112,000	3	2,076,600	Aug	1899	.15
25	Confidence, g. s	Nev	74,880	24,960	3	545,118	May	1899	.20
26	Con., Cal. & Va	Nev	540,000	216,000	2½	784,000	Oct	1899	.25
27	Cons. Imperial, g. s	Nev	500,000	500,000	1	2,251,000	July	1899	.01
28	Con. New York	Nev	100,000	100,000	1	160,500	Nov	1898	.03
29	Crown Point, g. s	Nev	300,000	100,000	3	2,980,000	May	1899	.10
30	Dalton, s. l	Utah	2,500,000	500,000	5	58,750	April	1899	.01
31	Dexter	Nev	1,000,000	200,000	5	38,000	Apr	1898	.15
32	Diamond Con	Utah	1,000,000	200,000	5	8,000	Mar	1899	.04
33	Eagle, g. s	Cal	500,000	100,000	5	5,000	Dec	1896	.05
34	Eagle, g. s	Ore	1,000,000	100,000	10	6,000	Oct	1898	.01½
35	Emerald	Utah	300,000	300,000	1	3,000	Oct	1898	.00½
36	Eureka Cons., g. s. l	Nev	1,000,000	50,000	20	590,000	Oct	1899	.10
37	Eureka Con. Drift, g	Cal	500,000	500,000	1	182,500	Sept	1899	.00½
38	Exchequer, g. s	Nev	1,000,000	100,000	1	1,020,000	Dec	1897	.05
39	Florence	Utah	1,000,000	200,000	5	1,000	June	1899	.00¼
40	Four Aces	Utah	250,000	250,000	1	5,000	Mar	1898	.01
41	Galena	Utah	1,000,000	100,000	10	10,000	Oct	1898	.10
42	Geyser, s. l	Colo	5,000,000	500,000	10	1,225,000	July	1899	.10
43	Gold Belt, g. s	Utah	500,000	500,000	1	3,012	July	1896	.00½
44	Gold Coin	Colo	1,000,000	200,000	5	10,000	Mar	1899	.05
45	Golden Eagle, g	Nev	400,000	400,000	1	4,000	April	1899	.01
46	Golden Fleece Grav. g	Cal	130,000	130	1000	56,260	Mar	1897	2.00
47	Gold & Silver Carb	Utah	500,000	500,000	1	2,500	Mar	1899	.00½
48	Gould & Curry	Nev	324,000	108,000	5	4,641,350	Oct	1899	.15
49	Granite Hill, g. s	Cal	500,000	100,000	5	124,000	June	1899	.03
50	Great Eastern, g	Utah	1,500,000	300,000	5	6,500	July	1899	.00½
51	Great Western, q	Cal	5,000,000	50,000	100	75,520	May	1899	.15
52	Hale & Norcross, g. s	Nev	11,200,000	112,000	100	5,716,280	May	1899	.10
53	Head Center Con., s. g	Ariz	5,000,000	200,000	25	25,125	Mar	1899	.20
54	Horse Shoe Bar Cons	Cal	6,000,000	60,000	100	85,800	Jan	1899	.05
55	Joe Bowers, Ext. gcls	Utah	112,000	450,000	¼	9,000	July	1899	.01
56	Julia Con	Nev	110,000	110,000	1	1,498,800	Jan	1899	.03
57	Jupiter, g	Cal	2,000,000	20,000	100	80,000	Feb	1898	.20
58	Justice, g. s. c	Nev	210,000	105,000	2	3,662,500	Aug	1899	.10
59	Kentuck	Utah	600,000	300,000	2	30,000	Aug	1898	.10
60	Kentuck Cons., s	Nev	105,000	105,000	1	125,300	June	1898	.05
61	Lacrosse, g	Colo	1,000,000	100,000	10	*			
62	Little Pittsburg	Utah	2,000,000	400,000	5	21,000	June	1899	.00¾
63	Lower Mammoth	Utah	150,000	150,000	1	22,500	June	1899	.05
64	Lucky Bill	Utah	300,000	120,000	2.50	56,400	June	1898	.01½
65	Marguerite, g	Cal	500,000	50,000	10	85,000	Aug	1899	.10
66	Marina Marsicano, g	Cal	1,000,000	100,000	10	49,360	June	1899	.05
67	May Day	Utah	100,000	400,000	¼	4,000	Jan	1899	.00½
68	Mayday, g. s	Cal	50,000	50,000	1	10,000	July	1899	.10
69	Mayflower, g	Cal	1,200,000	60,000	20	6,000	Sept	1898	.05
70	Merced, g	Cal	2,250,000	150,000	15	200,000	July	1896	2.00
71	Meteor, s. l	Utah	600,000	300,000	2	9,734	Sept	1899	.01
72	Mexican, g. s	Nev	302,400	100,800	3	2,268,800	June	1899	.10
73	Montreal	Utah	2,500,000	250,000	10	30,625	April	1899	.05
74	Mt. Diablo s	Nev	5,000,000	50,000	100	150,000	Dec	1898	.10
75	Morning Star, s	Nev	1,500,000	150,000	10	32,500	Dec	1898	.00½
76	Nashville, g	Cal	115,000	11,500	10	2,000	Sept	1898	.17
77	North Banner, g. s	Cal	1,000,000	100,000	10	21,794	Oct	1896	.02
78	North Belle Isle, s	Nev	10,000,000	100,000	100	523,074	July	1896	.10
79	No. Gould & Curry	Nev	100,000	100,000	1	375,000	Dec	1898	.10
80	Northern Light, g	Utah	2,000,000	400,000	5	80,000	July	1898	.10
81	Occidental Cons g s	Nev	300,000	100,000	3	514,179	Sept	1899	.05
82	Ophir, g. s	Nev	324,000	108,000	3	4,635,968	Aug	1899	.15
83	Opohonga	Utah	200,000	100,000	2	1,500	June	1898	.01
84	Oro Cache, g. s	S. D.	1,250,000	250,000	5	6,250	July	1893	.00½
85	Osceola, g	Cal	10,000,000	100,000	100	10,924	Sept	1898	.01
86	Overman, g. s	Nev	230,400	115,200	2	4,141,110	Sept	1899	.05
87	Peer, s	Ariz	10,000,000	100,000	100	215,000	July	1894	.05
88	Peerless, s	Nev	10,000,000	100,000	100	410,000	July	1894	.05
89	Pine Hill, g	Cal	1,000,000	100,000	10	30,000	July	1897	.05
90	Potosi, g. s	Nev	336,000	112,000	3	2,185,200	Sept	1899	.15
91	Powning	Cal	750,000	75,000	10	2,800	Aug	1899	.01
92	Red Mountain, s	Colo	300,000	60,000	5	22,500	Mar	1899	.12½
93	Rescue, g	Nev	100,000	10,000	10	5,500	Feb	1899	.05
94	Reward, g	Cal	64,000	64,000	1	63,680	Nov	1898	.02
95	Ridge, c	Mich	500,000	20,000	25	239,939	Feb	1897	1.00
96	Savage, g. s	Nev	280,000	112,000	2½	7,321,000	Sept	1899	.10
97	Scorpion, s	Nev	100,000	100,000	1	445,000	Dec	1897	.05
98	Seg. Belcher & Mg s	Nev	200,000	100,000	2	373,000	June	1899	.05
99	Sevier, g. s	Utah	1,250,000	250,000	5	50,000	April	1897	.04
100	Shower Con	Utah	2,000,000	400,000	5	8,000	Aug	1899	.02
101	Sierra-Nevada, g. s	Nev	300,000	100,000	3	6,721,910	Aug	1899	.15
102	Silver Hill, s	Nev	108,000	108,000	1	2,220,200	May	1898	.05
103	Silver King, s	Ariz	10,000,000	100,000	100	490,000	Aug	1899	.25
104	Silver Queen, c	Ariz	5,000,000	200,000	25	*			
105	Silver State, g	Colo	700,000	700,000	1	*			
106	Silver State, s. g. l	Utah	100,000	100,000	1	1,000	Sept	1897	.00½
107	Siskiyou Con. s	Cal	2,000,000	200,000	10	46,000	April	1898	.01
108	Snow Flake	Utah	500,000	100,000	5	51,000	July	1899	.02
109	South Fork Con	Utah	50,000	50,000	1	5,000	Mar	1898	.01
110	South Side	Mich	1,000,000	40,000	25	4,000	Jan	1899	.10
111	Star, g. s	Utah	1,000,000	200,000	5	7,000	Feb	1899	.03
112	Success	Utah	30,000	300,000	0.10	9,750	Oct	1899	.01
113	Sunbeam Cons	Utah	250,000	250,000	1	73,125	Oct	1899	.10
114	Tecumseh, c	Mich	1,000,000	40,000	25	40,000	July	1897	1.00
115	Temonj, g	Colo	1,000,000	1,000,000	1				
116	Tetro	Utah	300,000	300,000	1	30,000	Sept	1899	.01
117	Triumph	Utah	1,000,000	100,000	10	1,000	April	1899	.01
118	Union Cons., g. s	Nev	250,000	100,000	2½	2,648,000	Sept	1899	.15
119	Utah Cons., s	Nev	100,000	100,000	1	485,000	Sept	1899	.05
120	Valeo	Utah	200,000	200,000	1	10,000	May	1899	.05
121	Victory, g. s	S. D.	1,250,000	250,000	5	2,625	Nov	1899	.00½
122	Watt Blue Gravel, g	Cal	1,100,000	100,000	10	58,000	May	1899	.03
123	Work, g	Colo	1,250,000	1,250,000	1				
124	Yankee Girl	Utah	250,000	250,000	1	5,000	April	1899	.02
125	Yellow Jacket, g. s	Nev	360,000	120,000	3	5,305,000	April	1899	.15
126	Yellow Jacket	Utah	300,000	300,000	1	1,500	Dec	1897	.00½

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable. This table is corrected up to Sept. 25 Correspondents are requested to forward changes or additions.

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

	Cust.	Meas.	Price.
Abrasives—			
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		"	32.00
Pumice Stone, Am. powd.		lb.	.01@.02
Italian, powdered		"	.01½
Lump, per quality		"	.04@.40
Rottenstone, ground		"	.02¼@.03
Lump, per quality		"	.05@.14
Rouge		"	.17@.30
Tripoli, prepared		sh. ton	20.00
Acids—Acetic, 30% pure		100 lbs.	3.20
30% ch. pure		"	6.90
80% pure		"	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, 30%		"	.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.	2.44@2.46
Refined wood, 95@97%		"	.75@.80
Purified		"	1.20@1.50
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		"	1.25
Ammonia—Aqua, 16°		"	.04
18°		"	.04½@.05½
20°		"	.05@.06
26°		"	.07@.08
Ammonium—Bromide, p'r		"	.52@.53
Carbonate lumps		"	.08@.08¼
Powdered		"	.09@.09¼
Muriate, gran., white		"	.06½
Gran. ch. p		"	.09½
Lump		"	.08½
Gray		"	.06
Nitrate, white, pure (99%)		"	.10½
Phosphate, com'l		"	.12@.15
Chem. pure		"	.60
Antimony—Glass		"	.30@.40
Needle, lump		"	.05½@.06
Powdered, ordinary		"	.05¾
Best		"	.08½
Oxide, com'l white, 95%		"	.09½
Com'l white, 99%		"	.10½
Com'l gray		"	.07@.08
Sulphuret, com'l		"	.16
Arsenic—White		"	.04½@.05
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	16.00
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		"	.02¼
Chem. pure cryst		"	.05
Nitrate, powdered		"	.06
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		"	3.50
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		"	02¾@.03½
Borax—Cryst. and pow'd		"	.07@.07¾
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

	Cust.	Meas.	Price.
Calcium—			
Acetate, pure white		100 lbs.	$1.00
Gray		"	1.25@1.30
Brown		"	.80@.85
Carbonate, ppt		lb.	.05
Chloride, com'l		100 lbs.	.90@1.00
Best		"	1.90@2.00
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.	.10½
White		"	.12½
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	22.00
Sand		"	35.00
Clay, China—Am. com., ex-dock, N. Y.		sh. ton	7.50
Am. best, ex-dock, N. Y.		"	8.50
English, common		lg ton	11.00
Best grade		"	17.00
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		"	1.76
Gray		"	2.25
Smalt, blue ordinary		"	.20
Best		"	.30
Chem. pure		"	5.00
Copperas		100 lbs.	.60@.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		"	.10¾
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.)		"	.11@.11¼
Nitro-Benzole		"	.14
Feldspar—Ground		sh. ton	6.50@7.75
Flint—(See Silica).			
Fluorspar—Am. lump		"	8.00
Gravel		"	7.00
Crushed		"	6.50
Ground		"	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.	.07¼
Com'l, broken		"	.06⅝
White, gran.		"	.08⅝
Nitrate, com'l		"	.06½@.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		"	.01¼@.01½
75@85% binoxide		"	.01½@.02½
85@90% binoxide		"	.02½@.03¼
90@95% binoxide		"	.03¾@.05½
Carbonate		"	.16@.20

	Cust.	Meas.	Price.
Manganese—			
Chloride		lb.	.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		"	.04@.05
Fine		"	.06@.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.	.10½@.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@.26½
Gasolene, 86° @ 50°		"	.16@.18
Neutral filtered, lemon, 33@34 gr		"	.13@.18½
White, 33@34 gr		"	.21@.23
Wool grade, 32 gr		"	.11@.14
Naphtha, 62°		"	.12¾
Deodorized, 76°		"	.13¾
Paraffine, high viscosity		"	.22½@.27½
23½@24 gr		"	.10¾@.11
25 gr		"	.09¾@.10
28 gr		"	.09@.09¼
30@32 gr		"	.08¾@.09
Red No. 1		"	.10¼@.10¾
No. 2		"	.09¾@.10¼
Linseed, domestic raw		"	.44
Boiled		"	.46
Calcutta, raw		"	.60
Graphite, lubricating, Am. dry		lb.	.10
In oil		"	.12
Axle grease		"	.08½@.10
Wood grease		"	.05@.06
Ozokerite—Foreign		"	.06@.08
Paints and Colors—			
Benzine, Sumatra		"	.35@.40
Marbled		"	.27@.28
Chrome green, common		"	.05@.06
Extra		"	.12@.15
Chem. pure		"	.20@.25
Super		"	.10@.12
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		"	.05½@.05¾
English flake		"	.07¾@.08
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		"	.11½@.12
Red lead, American		"	.05¼@.05¾
Foreign		"	.07½@.08
Shellac, "D. C."		"	.26
Native		"	.16
Turpentine, spirits		gal.	.44½@.45
Ultramarine, best		lb.	.25
Vermilion, Amer. lead		"	.14@.16
Quicksilver, bulk		"	.64
Chinese		"	.80@.90
English, imported		"	.70
White lead, Am., dry		"	.05@.05½
In oil		"	.05½@.06½
English, in oil		"	.07½@.08¼
Whiting, common		100 lbs.	1.45
Gilders		"	.50
Zinc white, Am., ex-dry		lb.	.04½@.05
American, red seal		"	.07½@.08
Green seal		"	.08@.08½
Foreign, red seal, dry		"	.07⅞@.08⅝
Green seal, dry		"	.08⅝@.09⅞
Foreign, red seal, in oil		"	.10¼@.11¼
Green seal, in oil		"	.11¾@.12½
Plumbago—			
German, lump		100 lbs.	1.50@2.00
Pulverized		"	2.25
Ceylon, pulv. common		lb	.03⅞
Best		"	.05@.08
Italian, pulv		"	.01¼
Potash—Caustic, ord		"	.05@.05½
Elect. (90%)		"	.05¾@.07
Potassium—			
Metallic, in balls (Ger)		kg.	17.85
Bicarbonate cryst		lb.	.08½
Powdered or gran		"	.12
Bichromate		"	.09½
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
Silicate		"	.06
Prussiate, yellow		"	.19@.20
Red		"	.38
Sulphide, com'l		lb.	.10

	Cust.	Meas.	Price.
Quartz—(See Silica).			
Rosin—Common		bbl.	$1.25
Best		"	3.50
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—			
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		"	.03½
Bichromate		"	.07¾
Bisulphite, com'l		"	.01¾
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@.01½
Sulphate, gran., purl'd		"	.03
Sulphide		100 lbs.	1.75
Sulphite		lb.	.02½
Tungstate, com'l		"	.35
Pure		"	.50
Strontium—Nitrate		"	.07¾
Sulphur—Roll		100 lbs.	2.00
Flour		"	2.20
Flowers, sublimed		"	2.37½
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.	1.10@1.25
Italian		"	1.50@2.00
Tar—Coal		bbl.	3.00
Tin—Chloride		lb.	.13@.15
Crystals		"	.24@.26
Muriate		"	.08
Oxide, white, ch. pure		"	.48@.50
Uranium—Oxide		"	1.80@2.00
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	30.94
Sublimed powder		"	40.46
Sticks		"	33.32
Silicium—Amorphous		100 grms.	2.87
Crystals, pure		"	5.95
Strontium—Electrol		grm.	6.19
Tantalium—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 Sept. 19th. 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.