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See Page X

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THE PNEUMATIC CYANIDE PROCESS
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Increased Copper Production.

It has been evident for a long time that the copper production of the world would increase enormously and in consequence of the universal economic law of supply and demand, and we are now beginning to see where this additional supply will come from. All over the world, existing mines are being developed as rapidly as time and capital will permit. New copper districts, moreover, are coming into prominence in various places. In our present issue, for example, we mention districts which are likely in the near future to become important producing regions.

It will be a long time yet before the supply of copper is so far diminished as to endanger the profits of good companies; but that such a time will come is unerringly predicted by the economic history of all ages. The copper industry, however, is likely to suffer from competition of another sort before over-production causes trouble mainly, from the threatening rivalry of aluminum. Elsewhere in this issue we print a startling prophecy as to that made by Nikola Tesla.

Resumption of Kaffir Mines.

The occupation by Lord Roberts's army of the Transvaal in July has had the effect of speeding the collapse of the war in South Africa, and it has been certain for a long time that the production of gold by the Witwatersrand mines will again reach the large scale. No authentic prices for the gold have been received concerning the condition of the mines, but the general belief is that no serious damage has been done to them. A few of the mines have been operating throughout the war, and these ought to be ready to be put into more active service in a short time. In other cases the machinery may have deteriorated somewhat from disuse, but these mines can be made within a short time as effective as ever.

Some surprise is shown at the failure of the London speculative public to boom the shares of the Kaffir mines at this time. Stocks have recovered considerably from the slump at the outbreak of the war, but no boom has recently ensued. Such phenomena have been expected by many experts who have been watching the war. Various good reasons account for this comparative stagnation. Apart from the uncertainty as to the exact condition of the mines, the state of complete re-absorption of operations, the labor market, etc., grave anxiety is felt as to the burden of taxation that will be placed upon the companies. Elsewhere in this issue, we print an instructive and interesting article on this subject.

Southern California Minerals.

The production of minerals by the counties south of the sixth standard line is hardly realized even by residents of the section. Estimated production for 1914 made some time ago by one of the editors of the Journal with reference to the southern counties and the whole state made a better showing for the south than the official figures warrant, but the exact official figures are sufficiently significant, and the people of the state generally seem not to appreciate the real situation. This ignorance was brought forcibly to the attention of Southern California, when a representative from Congress from one of the northern districts stated, "there is practically no gold or silver there (in the southern country)."

As a matter of fact, the southern portion of the state, according to figures furnished by A. A. Cooper, State Mineralogist, produced minerals to the value of $633,347, of which $1,541,785 was gold, $134,413 silver, and $4,707,839 other minerals, including petroleum oils, etc.

Commodity futures in 1914 state producing over one million dollars in minerals, three of them were south of the line mentioned. When it is stated that San Bernardino and Los Angeles counties rank ahead of the rest of the state, it is to be remembered that the counties of Mono, Amador, Calaveras and Placer, some of the importance of the mining industry of the south may be acquired.

The average value of the minerals produced in the nine counties of the south is $799,261, as compared with an average for the fifty-two counties of the state of $663,202, or about $14,541 per county. The showing is still better for the south, if the average mineral production covers only the remaining forty-three counties; $338,235 would be the figure in that case, as compared with $799,261 for the nine southern counties.

The Iron and Steel Situation.

As everyone is aware, there is a rising market, so everyone declines to buy on a falling market. Fearful that an eighth or a quarter may escape him, the wary speculator huddles in his cell like a mouse. But if the rock has been reached as nearly as he can gauge it, that stage of the game is surely not far off in the present iron market, unless all signs fail and all precedents unwind. Steel rails are still far above normal price, and the rails are still at a considerable discount, but many iron and steel staples have now reached a level that ought to be inviting to reasonable buyers. The underlying demand for iron in its various forms is enormous, however, and little the market reflects the fact at the moment.

Hon. Abram S. Hewitt, quoted in length at the Manufacturers' Record, points out the insignificance of the new demand for iron. Declaring that the world is practically rebuilt about every thirty or thirty-five years, he illustrates the statement by citing the fact that his firm thirty-five years ago furnished the iron work for the first iron fireproof office building erected in New York, and that the building is now being demolished, to be replaced by another iron structure more in keeping with the times. Iron and steel are now going into so many new uses, continues Mr. Hewitt, that we may reasonably look for an accelerating rate of growth as compared with population rather than for a decrease. Steel car manufacturing industry of only a few years ago, an infant industry, is already consuming about 400,000 to 500,000 tons of steel a year. These cars, carrying 100,000 tons of ore instead of the 50,000 or 50,000 they carried in wooden cars, are running heavier gauges, heavier and stronger bridges, and so their introduction almost forces the gradual rebuilding of many of our railroads. Large office buildings, even costly private dwellings, are now almost exclusively framed of iron. The whole world is busy in building ships for war as well as for commerce; every town must needs have its waterworks and sewerage systems; electric railways are no longer confined to cities, but are spreading out into suburban districts, and connecting smaller municipalities. The appetite for iron and steel seems almost insatiable, and while the iron ore situation will be kept going in such a manner as to give it little chance of reaching the depths we had a few years ago. The increasing consumption of iron and steel, the increasing cost of production in Europe and the competition of those industries in stone, brick, and cement will go down into such depths as we had a few years ago.

The increased consumption of iron and steel could be expected to increase the cost of production in Europe and the competition of those industries in stone, brick, and cement will go down into such depths as we had a few years ago. The increased consumption of iron and steel could be expected to increase the cost of production in Europe and the competition of those industries in stone, brick, and cement will go down into such depths as we had a few years ago. The increased consumption of iron and steel could be expected to increase the cost of production in Europe and the competition of those industries in stone, brick, and cement will go down into such depths as we had a few years ago. The increased consumption of iron and steel could be expected to increase the cost of production in Europe and the competition of those industries in stone, brick, and cement will go down into such depths as we had a few years ago. The increased consumption of iron and steel could be expected to increase the cost of production in Europe and the competition of those industries in stone, brick, and cement will go down into such depths as we had a few years ago.
The Standard Oil Company, well naturalized, is one of the Oil Capitalists on either side of the Field—Will the Octopus Apply its Oil Methods to Mining?—Freedom within the Oil Monopoly—Thousands of Miles of Pipe Lines—Oil City in Extremities—The High Rate of Oil Wages—Contestable Hook and its Great Repeine.

About nineteen points baseless rumor to one part solution of fact must be said of the oil proportions. In several oil stories concerning the Standard Oil operations in the copper industry. With a little imagination and a bit of fancy, there has been hard to get at. It is not doubted that the group of capitalists roughly referred to as the "Standard" are the masters of the situation. At Price's Park, which seeks to acquire large blocks of stock in important copper companies, it is said there is a scheme to establish a trust of large blocks of stock. It is said that there are no buyers at intervals of 25 to 50 miles to enforce the trust and prevent the Trust test; this has to be lifted over a mountain, 1,594 feet high, and there are eighty oil pumps, stationing, and 60,000 barrels of oil, flowing through them, 16,000 other barrels going to and from refineries on boats and trains. Every one of these does the same, and the pipes become gummy with paraffine. It would cost a lot to dig up these wells and wash them, and the oil companies are not likely to do it. If the Trust tries to stop this, the Trust will be found to be a failure, and the oil companies will again go their way.

Oil CITY nothing but oil.

Oil City is a town of 8,000 people, and it seems to defy scrutiny. Most of its 12,000 people ought to make oil, but they don't. They are pretty busy in the industries that ought to make oil, in the railroad freight sheds, and they have to get out the Derrick and Bullard, the two well-knobs of the city, and the oil companies are in the position of being the booking agents. They have a monopoly of the oil business, and they do not sell it on the open market. They sell it on the open market, and the oil companies are not likely to do it. If the Trust tries to stop this, the Trust will be found to be a failure, and the oil companies will again go their way.

THE STANDARD OIL COMPANY.

Although it may be true that the oil region as American as you will find, the towns contain considerable number of Irish and the Catholic population, and the Standard Oil Company has not bought the Russian oil fields—yet.

THE MINING AND METALLURGICAL JOURNAL

June 15, 1910

WERDIST WAGE-PAYING OIL COMPANIES...
The Age of Aluminium.

Nikola Tesla Declares that Aluminium will Absolutely Annihilate the Copper Industry, and May Ultimately Conquer Even Iron.

To the June number of the Century magazine, Nikola Tesla has contributed an article giving rise to intense and prolonged discussion. Among other startling assertions he predicts the doom of the copper industry, which will be accomplished, in his opinion, by aluminium. He states that there is no other material as strong as aluminium, although it is not more room-spacious, and that its remarkable ductility may be expected to make it much better than the material qualities of copper. More recently a notable gain was secured in the manufacture of a metal, which contains ten per cent. of nickel with the iron, but there is not much room for improvement in this respect, although discoveries may be expected, but they cannot greatly add to the valuable properties of the metal. In fact, it can be manufactured for a lower cost than copper in the manufacture of machinery. The immediate future of iron depends upon its manufacture and its invaluable mechanical and magnetic qualities. These are such that no other product can compete with it now. In the future, perhaps, aluminium may not be very distant, iron, in many of its new unexplored domains, will have to pass the keeper to another metal, and then the age of copper will come. It is only seventy years since this wonderful metal was discovered by Wohler and has been in the aluminium industry, scarcely forty years old, commands already the attention of the entire world. The progress made in the last few years, in the history of civilization before. Not long ago aluminium was sold at the fanciful price of thirty or forty dollars per pound; today it can be bought in any desired amount for as many cents. What is more, the time is not far off when this price, too, will be considered of great importance; for improvements are possible in the methods of its manufacture.

The Doom of Copper.

The absolutely unavoidable consequences of the advance of the aluminium industry will be the annihilation of the copper industry. They cannot exist and prosper together, and the latter is doomed to the fate of recovery. Expressed in another way, it is cheaper to convey an electric-current through aluminium wires than through copper wires; aluminium is cheaper and in many possible and other uses copper has no chance of success, successfully competing. A further material reduction of the price of aluminium cannot but be fatal to copper. But the progress of the former will not go on unchecked, for as it ever happens in such cases, the larger industry will absorb the smaller one; the giant copper interests will control the pyrites and other aluminium interests, and the slow-moving copper will reduce the lively gait of aluminium. This will only delay, not avoid, the impending catastrophe.

Must Iron also go?

Aluminium, however, will not stop at downing copper. Hundreds of years have passed and we have been in a fierce struggle with iron, and in the latter it will find an expedition not easy to conquer. The issue of this contest will largely depend on whether iron shall be indispensable in electric machinery in the future, assuming the electric current is the primary means of conveying power. The seemingly inapparent difficulties which are now in the way may be overcome. Iron will be done away with. How many branches of industry will be affected wherever the necessity of iron is required, the process of the new metal will be much quicker. For such uses it is in the future. It may be done sooner or later. It is highly probable that in the course of time we shall be able to give it many of those qualities which make iron so valuable.

Increased Copper Production in the South Range.

The great copper district of the Michigan copper country, the most important copper district of the world, has been largely developed in the last few years. The two great mines, the Lake and the Superior, have been developed and are now producing large quantities of copper. The two great mines, the Lake and the Superior, are now producing large quantities of copper. The Lake mine is controlled by the Michigan Copper Mining Company, and the Superior mine is controlled by the Superior Copper Mining Company. The two companies have formed a new company, the Michigan Copper Mining Company, and are now operating the two great mines, which are situated in the Lake Superior district.

The Michigan Copper Country.

The Michigan Copper Country is the most important copper district of the world, and is situated in the Lake Superior district. The two great mines, the Lake and the Superior, are now producing large quantities of copper. The Lake mine is controlled by the Michigan Copper Mining Company, and the Superior mine is controlled by the Superior Copper Mining Company. The two companies have formed a new company, the Michigan Copper Mining Company, and are now operating the two great mines, which are situated in the Lake Superior district.

Facilities afforded by the new road have stimulated production greatly in the region served by the road. The road connects the Michigan Copper Country with the Chicago, Milwaukee & St. Paul Railroad. An excellent map of the Michigan copper country, showing the route of the new road, is made available through the courtesy of the Engineering News.
The Climate of Nome.

Far from Tropical, but Not Altogether Arctic.

In July, 55° Below in February—

A Fine Country for Ducks.

So many contradictory reports have been made concerning the climate of Nome—some of them

A TYPICAL SCENE ON THE NOOME BEACH—FALL OF 1899.

but are more trying, because of the dampness and of the cold winds, from which there is no shelter.

The summer, which is short and generally cool, resembles spring in the northern United States.

The winters will probably average ten or more degrees milder than at the Fortymile and Klondike regions, in the same latitude in the interior.

Nome, 25° E.

Nome, the capital of the Nome district, is located on the Bering Sea coastline, approximately 564 miles (908 kilometers) northwest of Anchorage, Alaska.

The Nome area is a part of the Nome-McClelland Federal Research Center, which is operated by the U.S. Geological Survey.

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October to early April, however, for a period of nearly six months, there are said to be but few days of sunshine, and the thermometer rarely rises above the freezing point. Snow begins to fall on the mountains early in September and on the low country about one month later. The middle of December is the time when blizzards are frequent. They begin early in November and are usually of several days' duration, but some have been known to last for as many weeks in the month of February. They generally come from the north-west, especially in the latter part of the month. The wind is not heavy, but the snow drifts greatly. It comes with the prevailing winter winds, which are usually north-west and, especially in the latter part of the month, west-north-west. A west wind dews clear weather, during which time the northern tip is said to be more constant and often to be more subdued. The fallen snow is peculiarly dry, because of the peculiarities of the winter winds, which form a series of sand-blasts on the land, and a series of sand-snows on the sea. The large snowflakes are usually of a light color, and the fine snow is usually of a deep color, and often of a deep color.

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The siliceous Gold-Belt

This belt lies in the immediate vicinity of Deadwood and Lead City, and covers an area six or seven miles long by two or three miles in width. The formation in which the siliceous ores are found is a nearly horizontal series of sandstones and shales, generally referred to geologists as the Potomac period. These shales and sandstones were not originally gold-bearing rocks, but they have been crushed and mixed in all directions, and through these cracks and fissures gold-bearing solutions have percolated the formation, giving rise to a series of ore-chutes of variable width and thickness, and so numerous that the formation is literally riddled with chutes of ore. These ore-chutes are usually horizontal, and commonly extend for considerable distances in nearly straight lines, following the lines of fissure through which the gold-bearing solution has found its way into the formation.

Within certain limits of the developed area of this formation the formation is so completely mineralized that it is next to impossible to sink a shaft more than thirty, forty, or fifty feet, to drive a drift, spural or winze for the same distance, without striking ore. In other words, the uncertainty which usually attends prospecting for ores seems to be almost entirely eliminated, as ore is found in every tunnel or shaft. Most of these ore-chutes yield ore ranging in value from $10 to $12 per ton; some average $19 or $25 per ton; others have been found ranging in value from $20 to $30 per ton; and the general average value of ore found in this formation is from $15 to $20 per ton. Of such ore, the quantity is at present incalculable, as will be understood when it is considered that we have here a series of sand-blasts, each with its ore-chutes and ore-horizons scattered through it from top to bottom, in many places close together. In others, more widely separated; that this condition obtains over an area of say four miles long by two miles wide; and that the chutes are of variable width and thickness, so that, while it is not possible to make any estimate as to the average width or average thickness, it is evident that the quantity of ore embraced within these limits is enormous.

A Unique Gold-bearing Formation

This siliceous gold-belt of the Black Hills seems unique as a gold-bearing formation. I do not know of any other district in the world where such a series of deposits has been discovered. There is no other district, except, perhaps, the South African gold-fields, where shafts may be sunk with the certainty that here obtains of striking ore. This is so thoroughly understood by the owners of the reduction-plants that they have bought a large area of practically undeveloped territory. Claims, often entirely barren of all evidence of ore, have been purchased as containing only the ore of the country and reduction and reduction-works practically leaves no margin of profit on ores averaging less than about $15 per ton. As the assay-returns from the reduction-works rarely show as large values as the quantities used, the miners of the district do not, as a rule, at-


**Influence of Railroad on Mining.**

**Copyright and Silver Mining.**

**Coal Reciprocally Important.**


The influence of the railroads on mining has not been more important than the influence that the railroads of the industry has exerted on the railroads. The first interest to receive a stimulus were the railroads of mining, on the completion of the Union and Central Pacific railroads. Shipsments of the richer argentineus were made to the year 1872 and 1873, as the railroads of the richer copper and the northern works, and the advent of the Union and Northern Pacific into the world. But not until the railroads came to the railroads was applied with moderately cheap fuel, did the West become the dominant factor in the production of coal and silver which is to-day in the market of the world.

**The beginnings of gold and silver mining in the Eastern range of Colorado antedate the arrival of the railroad; but only when the Union Pacific system reached Denver could the sulphurites of Gilpin county, then to be smelted into matts, or the refractory ores of Clear Creek county be assimilated and treated at his furnaces in Black Hawk, used as wood fuel; but the furnaces, for treatment and for railway service became so urgent as to encourage the opening up of the coal fields in the East.

For time Senator Hill shipped his matts to England for separation; but a step in the direction of home exploitation, when the progress of both lead and copper smelting in the West, when Richard Read advocated the Ziegler method for the treatment of gold-bottoms, with modifications, into the works of the Southern and Colorado.

The discovery of Leadville and the active development of both mining and metallurgy in that direction were the most important effects of stimulating railroad building, the exploitation of coal, and the manufacture of coal. There alone in the West, moreover, could iron, coke, and a market large enough to warrant the manufacture of iron and steel—an industry which everywhere has important reflex influences on railroad building and railroad prosperity. The raw material of iron manufacture is by no means confined to Colorado. The iron ore deposits of Silver City, New Mexico, are both extensive and rich, but conditions are not yet favorable for the active economical development of these and other similar iron-ore bodies. There is coal in central and northern New Mexico, but the beds are so fractured and faulted as to have made mining operations impracticable. The coal beds of the Raton range, both in Colorado and New Mexico afford a supply of fuel for both the locomotives and the furnaces of the southwest. The statistics of 1888 gave the production of Colorado, 197,234,000 tons, and of coal in New Mexico, 1,416,980,000 tons. In the coal, the character of the coal being its market, is even more active than coal mining in the Alleghenies. The Wyoming coal mines are credited with 4,065,706 tons. Montana's coal production has reached 1,350,900 tons, and the coal is of a quality which relieves the smelters of drawing any longer a notable supply from the Canadian northwest. Washington, even, contributes over 5,000,000 tons to the eastern demand. Thus these western coal-areas, so replete, contribute, besides the country's fuel requirements about 15,000,000 tons, or nearly 12 per cent of the country's total production.

**Copper interestingly typical.**

Copper has been, after coal, the most essential element of the prosperity of the West to the Western railroads. Its bulk and the large proportion of fuel consumed in the reduction of its ore, and the conductivity of copper as a conductor in the manufacture of Western freight. At the same time the copper and silver mining and growth entirely to transportation facilities.

Though the Longfellow mine in Arizona smelted copper in the days when copper was worth $30 a ton, and shipped small quantities of copper for 700 000 miles away, the copper mines in the areas which had brought merchandise into the Rio Grande, only the exceptionally high price of silver, continued to be driven out until not until the Southern Pacific from the West, and

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**Metallurgical Journal**

**June 15, 1900**

**The Mining and Metallurgical Journal.**

**Protests.**

The owners of the reduction works cut to the bone, and many of the appliances that do not yield more than $10 per ton. Now it is precisely between these and the higher ones, and the values of the largest bodies of ore are such that the difference in the ore produced by one ton ranging in value from $10 to $15 per ton cannot be accounted, $10 per ton. It is, therefore, self-evident that the ore mined in America to obtain mine-operators in order to reap anything like the assurance of producing or selling the ore and to operate their own reduction-plants. This fact is now well understood by those familiar with the ore-owners and ore-supervising very well by the owners of the several reduction-works already mentioned.

**THREE SUCCESSFUL COMPANIES.**

Probable two-thirds of the operating area within the silicious ore-belt already has been purchased by the great companies operating in the district, namely, the London and Philadelphia Smelting Co., the Gold Bond Consolidated Co., and the Horseless Mining Co. The plants of these companies were all started in a small way, from two to ten years ago, and, after more or less chequered careers, have solved the problem of efficient and economical treatment of the ores, but are now in a position to make a profit on their present capacity. From the very outset they have had to work on a 100 per cent capacity, and are still continuing to enlarge it; they have all been buying additional territory, and are continually developing it whenever they are purchased at what they regard reasonable prices; and finally, that each one of these companies now control a works established on the large scale, the ore-belt.

The large companies have accomplished others may now duplicate without passing through the period of experiment and uncertainty which each one of these enterprises was passing through before solving the problem of economical treatment of the ores.

The district is well supplied with transportation facilities by the Chicago and Northwestern and the Chicago, St. Paul, and Quincy railway systems. Ample water power and all other purposes is furnished by streams immediately adjacent to the mills and a few miles from the mines. Water sufficient for chlorine or cyaniding is available at almost every point, which it might be desired to locate much works.

**The Thermo-Hydroporphic Process.**

After nearly three years of honest endeavor and the considerable outlay of capital, says the Australian Mining Standard, the Rev. Joseph Campbell, the inventor of the thermo-hydroporphic process of concentration, has to admit failure. This means a great disappointment to those interested in gravity concentration, and nothing removed from a purely scientific standpoint, has been learned that is not already in the possession of Mr. Campbell with much interest. That the process was not based on false principles, and that the hopes of its success were reasonably founded, is a fair conclusion. First, it is a fair conclusion from the results actually obtained from other ores treated by this method; and, secondly, it is justified by the confidence which many New Zealanders entertain in the outcome. Competent observers watching developments on the spot were impressed with the prospect of success.

**EXPLANATION OF THE PROCESS.**

The process is the process in the passing of water-gas, which is a mixture of hydrogen and carbonic oxide (carbon monoxide) through the metal furnace of 2,000,000 cwt. at Fair. Mr. Campbell holds that these two gases, mixed, act much more harmfully than in a separate state, and that the result is that the uranium, arsenic, sulphur, etc., or various compounds of these elements, are produced at this very important at this very important stage of the process. Cyanide and carbonic acid, and that in each the elements are more harmfully employed is also evident, but that of from 50 to 75 per cent. Still, under these conditions. Another advantage claimed for Mr. Campbell, is that the whole treatment is accomplished in the case of copper, silver and uranium. Mr. Campbell

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*Extract from Paper at Washington Meeting of American Institute of Engineers.*

A precedent in bankruptcy proceedings was established in the Federal Court in Kansas City, Mo., on June 9, when Judge Corliss ruled that companies engaged principally in mining are not subject to the bankruptcy law, inasmuch as they do not receive money from the stockholders, publishing, trading or mercantile pursuits, as a section of employment, and that the occupation of persons, companies or corporations to be subject to bankruptcy proceedings.

The case of the bankrupt estate of the Victoria Zinc Manufacturing Co. of Orogrande, Mo. After this the little enterprise, costing $7,000, the machinery contractors becoming preferred creditors, other creditors attempted to force the company to liquidate, and thus defeat the preferred claims of the machinery men.
Geology of California Petroleum.

A Survey of the State, by Counties, as to Origin of Oil-Bearing Formations.

By W. L. Wallace.

The geological history of oil-bearing petroleum in California ranges from the lower cretaceous to the quaternary, and in different localities the geological history of the cretaceous and the alluvial deposits differs in point of vertical range. In the Puente hills and Los Angeles, the oil-yielding rocks are of the neocene age. These formations were first classed as piocene, on account of the numerous piocene fossils found in them.

On the south side of the valley of Santa Clara river in Ventura and Los Angeles counties, the principal oil-producing formation probably ranges from the neocene to the miocene. On the north side of the valley of Santa Clara river in Ventura county, the oil-bearing petroleum in rocks ranging from the upper neocene to the lower piocene. The oil-yielding formation ranges from the miocene to the uppermost portion of the escocene.

In the vicinity of Bakersfield in Kern county, petroleum is found in formations ranging from the escocene to the neocene, and here the cretaceous and the alluvial sections are more or less interbedded with shale. The principal oil-producing formation ranges from the upper escocene to the lower piocene, and in the lower piocene are the lowest portion of the dark-colored shales, the drab-colored sandstone and the uppermost portion of the piocene.

There are numerous seepages of petroleum in hard, buff-colored escocene shales, but no commercial oil wells have as yet been obtained by drilling in these rocks.

The principal oil-producing formations are found in the foothills of the south Bass river, the alluvial deposits in the basin of the San Joaquin river, and the alluvial deposits in the basin of the Eocene river.

Some oil has been obtained in the Tunita and in the vicinity of the Pajaro river. The alluvial deposits in the basin of the Eocene river are characterized by vertical stratification, and therefore have been extensively utilized.

The oil-yielding formations are extensively developed along the coast of Bolinas bay and Santa Monica bay, and on the back bays of the exposed rocks are either of piocene or of neocene age. In Humboldt county several wells have been drilled from which petroleum is obtained, and the rocks penetrated being either of the undermost portion of the piocene or of the upper portion of the neocene.

North of San Francisco, the scaly-sedimentary deposits crop out along the coast of Bolinas bay and Santa Monica bay, and on the back bays of the exposed rocks are either of piocene or of neocene age. In Humboldt county, several wells have been drilled from which petroleum is obtained, and the rocks penetrated being either of the piocene or of the upper portion of the neocene.

At Stockton, in San Joaquin county, natural gas is found at the mouth of the creek at the point where the sandy pebbles are deposited from wells permeating strata of quartziferous sandstone.

At Marysville, in Butte county, natural gas is found at the mouth of the creek at the point where the sandy pebbles are deposited from wells permeating strata of quartziferous sandstone.
A Suit for Rich Noble Claims.

Advisers were received at Victoria, B. C., on June 8, from Cape Nome, that John Doe will bring suit on partnership grounds against K. O. C. He claims to have been a partner in Doe Mines in the Nome sandstone and shale, which appear to occupy a position between the Nome and Eocene formations.

It is probable that these oil-yielding localities have their counterpart in a similar formation in the vicinity, which have been mentioned, for the geological formations constituting these oil-yielding localities extend across the coast range from San Diego county to Humboldt county.

We have not yet obtained sufficient geological evidence to determine the subject matter of the suit, but we do know that the following oil fields: Those on the south side of the Santa Clara river, those north of Santa Fe, those at the mouth of the Santa Clara, those on the north side of the Donner river, those near Santa Barbara, Kern, Santa Clara, and San Mateo counties. But the data already accumulated warrant the assertion that the oil measures in the localities referred to are of tertiary age.

A System of Legalized Robbery—Scandalous Royal Concessions—Five Per Cent Regularly Stolen From Mines Nationalized By High Cost of Living.

The cost of the war in South Africa has been ruinous to the fortune of the mineral owner. He can no longer afford to pay money rents for his mines, nor can he afford to pay the cost of mining and transportation of the ore. But in South Africa there is no regular system of taxation to keep the miner in the 'trenches.' The cost of mining and transportation of the ore is simply charged to the miner, and the miner is not allowed to deduct from the cost of his production the cost of his ore. The government, on the other hand, is under the obligation to keep the miner in the 'trenches.' The miner, therefore, must be content to work for a lower price than he can afford to pay for his ore.

President Kruger's and his followers, he says, have established a system of government concessions which surpass, if possible, anything in Spain's colonial possessions as gigantic opportunities for official stealers and racketeers. These are forming out to individuals, under the pretense of promoting the industries of the country. One man has been given a concession for the manufacture of sweets and confections, another for the manufacture of tobacco, and so on. Through these concessions, this man or that woman will be able to control the selling price of certain commodities.

The railroad is a royal concession, which pays dividends to its directors in the amount of two hundred per cent each year. The selling of dynamite is another, and this concession and the railroad have been extremely oppressive to the mine-owner. Dynamite, which can be delivered at the mines for thirty-nine cents a pound, costs the mine-owner eighty-five cents. The granting of these concessions was practically in the hands of the government, and it has been carried to such length now that it is an open, flagrant scandal.

Another evil has been the "tonton labor system." No mine-owner to-day can secure labor without first obtaining an agreement with a chief of a tribe, who agrees to furnish so many laborers for the mine at a bonus of from $50 to $50 per head, the rate of wage contracted for being seventy-five cents a day, or three or four times as much as that paid to laborers in the rest of the world. The money is not paid to the chief laborer, however, but to the mine-owner.

Again, the selling of liquor to the natives has been a constant practice to every Ullander who employs laborers. It is against the law to sell liquor to natives, and yet every mine-owner has been in the habit of selling his liquor to high-paid black laborers, being so entirely incapacitated for work during the week by drunkenness. Appeals to Pretoria have been in vain, and as the Secret Service men are the principal agents of liquor, it follows that no arrests are made for illicit selling of intoxicants.

Moreover, these mine-owners estimate that five per cent of their total output of gold is stolen, in the shape of "harmless". It has been practically impossible to secure conviction of thieves, even when taken red-handed in robbery, because it goes to prove, the Secret Service Department of the government, on which millions have been expended annually during the last few years, has not been able to obtain the information which, if held, would make him the chief agent of this system. The gold is sold, while high officials are the principal bankers of the illicit, and well-protected, gains.

It is no wonder that the mine-owner kicks against the teeth of this every year. He pays heavy land taxes, taxes on improvements, on capital, and poll taxes. He pays perfectly frightful prices for everything he wears and eats. His railroad expenses, for credit, are the highest in the world. The decoration and furniture of his house are secured at abnormal prices. In fact, one of the most profitable mining industries, he has silently permitted himself to call his attention to this, knowing that he was furnishing practically the entire revenue of the country, and building up the fortune of every buyer who came inside the charmed official circle—the golden ring of Kruger. Yet, with all this, he was denied the right of any representation in the government. If the South Africa had a say in the administration, it would have meant the death-blow to many corrupt practices. It is this, and is struggling now, in a last grand fight, to keep England out, the Ullanders in his control, and land development in South Africa in his clutches.

The mine-owner contributes hardly a thing to the treasury of his government. The laws have all been framed so that he shall never bear the land tax, and they are maintained with the nation's guiding hand. He may even (if hard up) borrow money from the British government, usually, of from 15,000 to 15,000 acres of unfertile, arid land, over which is a new cattle grazing of no value, with half an acre of slightly cultivated garden-patch, if he states that he needs it for improvement. With his slowly habits of mind and body, it is no wonder that he is content with this government and believes implicitly all that Paul tells him.

Not a cent of money could be raised by the mine-owners, because of the terrific growth, and the figures used in expressing the money invested stagger the mind. It costs from two to three million dollars to put down the preliminary shaft of several thousand feet to the gold-bearing reef and another million dollars to get it into the mine. In some cases, the miners have eaten up twenty millions before they have returned a cent of profit. The net returns, however, have never exceeded the cost in ten years, and the mine has not yet reached full production. When the miners warn their employers of twenty per cent, some having reached still higher figures.

When the mine-owners, talk of monthly outputs of $60,000,000 of gold at $9,000,000 and over—the poor man with a little change in his pocket sadly jingles it together and wishes he was rich. In these mines the average pay for a white man is $5 a day; chemists, engineers, and other professional men receive salaries all the way from $5,000 to $6,000 per annum; but they all agree that the cost of living is triple that of the high-priced mining-regions of the United States. It would certainly seem that such a system is designed for the benefit of a hundred thousand natives, and has over fifty thousand wide-awake white men engaged in it, devoted to the survival and extermination of the aboriginals, under a decent system of government, and with some of the privileges we enjoy in our own land. One hundred and twenty-five years ago a large proportion of these men are our cleverest and ablest—American Indians—Americans who believe in American ideals.

A Desert Smelter.

For some time past it has been known that a smelter was to be built at the Needles in San Bernardino county, California, for ore having been made between quite a number of miners in adjacent camps and the surrounding country.

The buildings have been completed and the outfitting of the machinery is in place, though not yet sufficiently. The great smelting machinery will soon be on the ground, and when the plant is operated the old clown silver and copper and de-silvered lead. The details of the arrangement have been published with sufficient particularity to arouse the suspicion in fact, but we are assured on high authority that the rumors are altogether baseless.
Liquid Fuel for Motive Power.

The scarcity and high price of coal in Europe have led to the consideration of apparatus for using liquid fuel, petroleum, benzine, and gasoline, and competent authorities are regarding the subject seriously. The Russian Government has appointed a special committee under the chairmanship of Mr. Zemskov, a member of the Imperial Academy of Sciences, and a committee has been appointed to Consul-General R. Guenther at Frankfurt. The advantage of liquid fuel, when properly applied, is obvious. There is no smoke, no stoking, no ashes or cinders, no incomplete combustion; the fuel can be burned continuously and instantaneously, and as little as a minute's notice; a more even temperature can be maintained; it can be burned in any part of the boiler and not injurious to its stability. In spite of all this, there is no scarcity of coal and wood, and the smokeless and open-stove, spontaneous combustion, as frequently happens with coal.

It is claimed that petroleum and its manufactures will soon to a great extent supersede the use of coal for marine and the power purposes, and therefore the sale of petroleum becomes of great importance. Statistics show that the United States and France produce annually, 120,000,000 barrels a year, and that the production of outside countries has of late increased to such a degree that they are able to contribute enough now to bring the world's aggregate annual production up to this figure. It is known that the production of Russia is much less than even this would be, owing to the lack of transportation facilities, it being to the advantage of the export nations for whom the lack of transportation facilities, which cause the price to be higher, to continue to sell the crude Russian oil at a loss. This is not true of American petroleum, which has to travel thousands of miles.

What is more, Russia is even more true of Asiatic countries, like Persia. The increased demand will stimulate the exploitation of oil fields in the country, and already companies are trying oil-fired locomotives; one steamship line has adopted it for the boilers of most of its vessels. When oil was first burned in the boilers it was introduced through an open trough or gutters, but in the new system is only employed, and is gaining in favor, since the oil is evaporated by being mixed with hot air. This is said to be an improvement on the method of employing a steam jet. Nothing is the way of a more intensive use of oil for fuel, except the price.

Benzine and gasoline are used for furnishing motive power for many different purposes, and their use is constantly increasing. A benzine-worked locomotive, for instance, has been tested in the American works, near Cologne, has been running in the third level of the Unterhutte colliery, in the Katowice coal district, over a year. With the exception of a slight derangement, which was readily repaired, the machine worked satisfactorily and without interruption. The locomotive weighs 4,900 pounds; the length is nine feet; and the wheels are two feet four inches; height from rail to top, one foot four inches; and gauge, one foot eight inches. It has 6 HP. The work performed by the locomotive is one of its virtues; in one trip of thirteen from fourteen miles, the speed of the engine was 1,276 pounds, or about 120 metric tons a shift. To do this, the consumption of benzine, is about twenty liters. The daily expenditure, including interest on investment and sinking fund, wages of engine driver, benzine, and lubricants, is 1,40; so that the cost of hauling one metric ton (2,000 pounds) is one-half a cent, against two and five-sixths cents with horses. As the engine is closed on all sides, so that the driver can only get at the interior by using a key, the danger of explosions is practically nil. No inconvenience from the odor emitted has been experienced by the miners working in the level.

What is Russia Doing with Siberia?

The Russian Imperial Government seems to regard the Siberian gold mining industry to be very markedly halting between two opinions, observes the Mining and Metallurgical Journal, of London. On the one hand the economical position of the miners has been compared to the drudgery of those dependent on the government, and Finance Minister, seem to indicate their desire to throw open the gold mines to all bona fide industrialists. On the other hand, their jealousy of the foreigner is such, and their love of bureaucratic methods so confirmed, that their desire to refrain from interfering with all sorts of stumbling blocks in the way of regular and profitable development, are so strong that it is becoming very difficult to proceed at all. The result of this curious and contradictory attitude of mind has been to awaken quite a false impression in the minds of many miners anxious to make this new area a reality—so far as anything goes, for it is nothing less—by the publication of elaborate official reports as to gold deposits, and the implications contained therein that all genuine workers will be welcome in Siberia, a sort of leek has been organized in America, and the Russian Consul at San Francisco has been besieged with inquiries as to prospects and localities. Strong in the customary dread of his own government, the Consul has professed entire ignorance of the questions asked, and referred the inquiries to the Russian Embassy in New York, where a similarly unsatisfactory state of mind was found to exist. After sifting the whole question, the agents were brought to face the fact that the only bearing that has been associated with there is a satiety or ratho, than to assist, its growth. The Mining Journal earnestly advises any of its readers who may think of embarking in this hazardous sphere of enterprise to pause, and above all not to give absolute credence to the loose statements which are sometimes current as to the welcome which will be given to prospectors by the official representatives of the White Czar.

Selection Act and Cyanide Solutions.

In the Transactions of the Institute of Mines and Metallurgy for November 15, 1859, are some valuable notes by H. Greenaway upon the extraction of gold and silver in cyanide solutions. The cyanide solution is a valuable aid in the extraction of potassium cyanide solutions on copper, gold and silver ores. Mr. Greenaway's experiments directed to the interesting conclusion that a cyanide solution for dissolving gold and silver is the best, and that the amount of cyanide solution to copper-bearing ores, or the gold, is to the amount of cyanide solution to copper-bearing ores, or the gold, is to the amount of cyanide solution. According to Mr. Greenaway, "was almost incapable of estimation." Mr. Greenaway's discoveries are confirmed by further investigation on the subject.

In discussing Mr. Greenaway's report, the Canadian Mining Journal notes that it is possible to point the fact that no more of little moment in cyanide work, and it has been shown that, in which it is highly desirable, is the velocity of the percolating solutions. It is generally understood that the higher the rate of solution of gold and silver is accomplished when the speed of the solvent is sufficient to remove the gold from the solution around the precious metals particles as fast as it forms. This is true, but the superficial area of the particles has the most influence in this matter, so that the same velocity will not apply in all cases. There is a maximum velocity of solvent at which a maximum amount of solution can be effected, which should be determined for each ore. It should be borne in mind that this velocity is not the same for silver and gold. A leek has been organized in America, such as the velocity for the gold, and consequently at a lower velocity for the silver, very great improvement in (total) extraction can be obtained. The only exception apparently is when the gold and silver are alloyed, when the same velocity will give the maximum possible extraction with that ore.

A Self-Propelling Dredge on the Yukon.

The accompanying illustration shows a self-propelled steam shovel for clearing the river bottoms and elsewhere for dredging the river bottoms for gold. The dredging is done by means of an adjustable elevator consisting of a series of buckets provided with buckets of suitable size and shape for digging. The elevator is pivoted at the delivery end so that it can be raised and lowered to suit the depth of the water. As the material is discharged from the buckets it falls onto a coarse screen or grizzly. The large stones and other worthless matter pass over the grizzly and are discharged back into the water, while the finer and gold-bearing material passes through the screen onto gold-saving tables or other apparatus generally used for gold saving purposes. The elevator is operated by means of a steam or gasoline engine. Suitable hoisting drums are also provided for raising and lowering the elevator and shifting the boat. The boat is propelled by means of a stern wheel driven with a propeller shaft which is driven by the engine, which also furnishes power for the balance of the machine.

The engine and other parts of the equipment are built to suit the capacity and the depth of the water. The entire outfit of machinery for these boats, consisting of elevator, stern wheel drive, drums, engine and boiler, is furnished by the Jeffrey Mfg. Co., Columbus, Ohio.

Ohio Mining Institute.

The programme for the summer meeting has been arranged. The members will leave Columbus on Monday, June 19, in a special car for Toledo, where they will spend the afternoon in witnessing the operations of a new auto-unloader designed to handle cars of the largest capacity. They will then take the evening train to Detroit, spending the following day in viewing the various points of interest in that charming city. On Thursday they will take a trip across Lake St. Clair, with a fish and frog dinner incidentally. The meeting promises to be unusually pleasant and interesting.

Exhibits of Mining Machinery.

It may not be generally known that the Edw. P. Allis Co. of Milwaukee maintains well-appointed mining machinery departments in connection with its New York and Chicago offices. The numerous class of mining machinery products of the Allis Co. would find it most interesting and profitable to visit the Edw. P. Allis Co., No. 96 Liberty street, or the Chicago office at 500 Home Insurance Building. Although many buyers by the two chains and quarters, in the present case they could be served with equal satisfaction at the branches mentioned.
Latest Mining Decisions
Specially prepared for THE MINING AND METALLURGICAL JOURNAL.

Where the lessor of an undivided interest in a mine sued the lessee’s co-tenant for refusal to allow the lessee to take any ore after a lease which had expired, such action was not recoverable for the loss of prospective profits, but must rely upon the specific terms of the contract. Empire Mining & Milling Co. v. Tomblin Mill & Mining Co., 106 Fed. Rep. (U. S.) 916.

In an action to quiet title to mineral land, where the complainant, from the original locator to defendant, under which he claimed, was shown to be without color of title, the comainant lost it, it was not prejudicial error to allow him to testify as to when the instrument was made, and whether, before payment of his purchase price, the defendant, who had purchased the land from the complainant, knew of the existence of the complainant’s adverse claim. F. W. Bailey v. McCarthy, 90 Pac. Rep. (Cal.) 1007.

The complaint in this action stated the boundaries of a mining claim, and the notice of location posted by him for the locator gave the same boundaries, it was not improper to require him to state on cross-examination whether the notice also contained a statement that the notice was for a claim to the same boundaries. Simmons v. McCarthy, 90 Pac. (Cal.) 1002.

Under the rule that where a lode mining claim is located across, instead of along, the vein, the original locator of the vein is the owner, there, and the end lines side lines, the owner is entitled to all the right which would have belonged to him if they had originally been located as such, including the right to follow the vein, irrespective of the line being within the face boundaries of his claim beyond the vertical plane passing through such lines. Empire Milling & Milling Co. v. Tomblin Mill & Mining Co., 106 Fed. Rep. (U. S.) 916.

Unpaid compensation for an express allowed § 5959, providing that no payment may be made by the owner to any contractor before the expiration of 90 days from the completion of the structure, may be against any mechanic’s lien unless such payment has been distributed among those who labored or furnished materials in the structure. A contractor constructed a stamp mill and tramway in connection with a mine for defendant, and the payment for the structure was made to plaintiff, the contractor. Held, that a judgment might be rendered against the owner, and the lien for the amount in excess of the contract price necessary to satisfy the mechanic’s lien, even though the contractor did not sue for the amount due was due to the contractor. Watson v. Noonday Min. Co. et al., 69 Pac. Rep. ( Ore.) 504.

Laws 1895, § 395, authorizes a nonjoining co-tenant of mining property to recover the share of the net profits of the mine, or his proportionate share of all ores on the dump, on payment or tender of the costs of mining the same in a minor-lier manner. If plaintiff had to which he had no right of access, plaintiff was entitled to an injunction pendente lite requiring defendant to continue to work such mine, though he failed to tender his proportionate share of the cost of mining the ore. Held, that the right of access was by plaintiff’s inability to ascertain what ore was being extracted and to aggregate the amount of such tender. Butter v. Be & Consol. Min. Co. v. Montana Ore Purchasing Co. et al., 66 Pac. Rep. (Mont.) 199.

Laws 1895, § 592, authorizes a tenant in common to sue for an injury to the property by a co-tenant, and Laws 1895, § 134, amending the same, declares that nothing therein shall prevent the recovery and enjoyment of mining property by co-tenants, or the operation of the same, subject to accounting to a nonjoining co-tenant for net profits, not being entitled to his proportionate share of the ore on the dump, on payment or tender of the cost of mining the same. Held, that a tenant not joining in the operation of a mine, and suing for damages resulting from the extraction through another mine, owned by his tenant in common, to which plaintiff had no right of access, was entitled to an injunction pendente lite requiring defendant to refrain from such removal, though defendant offered to account for ore extracted therefrom. Butter v. Be & Consol. Min. Co. v. Montana Ore Purchasing Co. et al., 66 Pac. Rep. (Mont.) 1039.

The complaint in this action states that the defendant corporation, being a mineral company, lends money to miners, in the usual way, and after a miner leaves its employ, the amount lends him for materials furnished for improvements on land, and that every contractor having the use of the buildings or property for another, shall be held to be the agent of the company. A contractor constructed a stamp mill and tramway in connection with a mine for defendant, and the material man filed lien against the property. In an action to enforce the lien, judgment was given against defendant for the amount, directing that the miner shall pay such money to defendant, and that any surplus of the proceeds should be paid defendant, with no provision for an execution or judgment upon the security therefor. Held, that as the defendant was a party to the contract, plaintiff could not maintain a suit without the recitals in the judgment of the amount found to be due. Watson v. Noonday Min. Co. et al., 90 Pac. Rep. (Ore.) 504.

An Atlantic Shipping Port
Greenwich, Conn., and N. J., may become one of the greatest coal shipping points on the Atlantic coast. It is said it is the intention of the State to improve the harbor facilities at that place, consisting of a new breakwater as well as piers extending far into the river. These piers are to be used not only for the loading of freight on the vessels, but for putting ears on floats and for the loading of soft and hard coal into vessels.

COPPER NOTES
COPPER RANGE: Although the stock of this company has been selling at a low level, yet reached (37), President Painje declares that, if he can get his loan, the road is paying its operating expenses, and that the mine is promising. Four-three-compartments engine tender has been placed in service a month, and other development work is going on rapidly.

MIDWEST JERSEY COPPER: A discovery of copper at Arlington, N. J., aroused much interest a few weeks ago, and now M. B. Wallace of East Orange, N. J., thinks location is being made at the bottom of a well. The well was a few feet deep and in deepen it, ten feet of solid rock had to be penetrated. Nothing but some of the debris, Mr. Wallace had the rock assayed, the result of which was that it contained 5.56 per cent of silver and ten per cent of copper.

BOSTON & MONTANA: M. Donohue, general manager of the Daily & Huitson Company, and Mr. Daly’s right-hand man since the organization of the Amalgamated Co., has resigned. The bulk sales will be assumed by Park Kipecoe, the Boston & Montana general manager. The Supreme Court has issued the injunction asked for by the Boston & Montana against the Montana Ore Purchasing Co., restraining the latter from working in the disputed territory. Mr. Heineut, however, put 200 men to work there on June 4, basing his right to do so on the verdict he had received in the District Court.

TRADE NEWS
A. G. Godfrey recently shipped to Mexico some of his well-known Milt dry gold savers.

The Baker Iron Works of Los Angeles is profiteering in competition with its rival in the activities in Southern California. Much of the machinery by the new plants has been supplied by this old and reliable concern.

F. W. Braun & Co. of Los Angeles are sending out to their customers a handsome private mailing card embossed in bronze zinc, illustrating some of the assaying specialties handled by this house.

Thomson & Boyle may be safely regarded as one of the leading pipe manufacturing concerns of the west coast. Their order book at present is unusually congested at this time with demands for steel, mixing pipe, cyanide tanks, air pipe and hydraulic monitors.

The Pacific Tank Co. of Los Angeles and San Francisco are unusually busy at their San Pedro works, on account of the immediate demands in Southern California. A wide variety of teaching, solution, syrup, and water tanks and extraction boxes, constitutes the output of this company.

The Taylor Iron & Steel Co., High Bridge, N. J., is filling a large contract for steel wheels to be used on the sugar beet plantations of Snowdon Island. They will be shipped around Cape Horn to San Francisco and consigned to the Hawaiian Commercial and Sugar Co., of Hawaii.

Russell & Kinsey, manufacturers of the Little Alaska Gold Washer, follow up placer discoveries with new interest, and the company will render excellent service at Cape Nome this summer. The machine weighs 8 fly pounds, takes up
THE MINING AND METALLURGICAL JOURNAL

June 15, 1900

Minorin and Metallur&gical Journal

Charles R. Adams, with offices in Jacksonville, Fla., is secretary of the Southern Phosphatic Mining Co. at Early Bird, and mine about 15,000 tons this year.

A. H. Tarbet of Salt Lake City, representing the Salt Lake Consolidated, has leased the Buffalo group of mines, twenty-three miles north of Ely, Nev., in the Merrill district.

W. S. Elder and R. F. Stebbins of Dendwood, S. D., are interested in a deal for the erection of a cyanide plant on the American Express property in Sheep Spring Valley. The plant will cost $25,000, and it is expected that E. H. Lingle of Denver, Colo., is interested in the proposition.

The National Charcoal, Iron & Steel Co., recently incorporated at Deyer, Del., will erect a plant costing about $50,000. Twenty tons of charcoal and eighty tons of steel will be produced daily.

Extensive operations are being undertaken by the Georgia & Alabama Coal & Iron Co. of Cullowhee, Ga. New mines will be opened which will increase the company's output of ore to about 1,500 tons a day.

P. E. Hall and F. H. Safford of Helena, Mont., have taken a lease on the Mary Emily, a small iron mine in Mineral County, Mont., from J. E. Krouse. The shaft is to be pumped out and sunk to the 1,000 feet level. It is expected that the company will be able to finance the operations.

The Shasta Electric Light & Power Co. has been incorporated at Shasta, Cal., for the purpose of constructing a water power plant on the McCloud River above Bards. George A. Knight, C. E. Green and C. A. Warren are among the incorporators.

A fire destroyed most of the machinery at the Perkia mine, seven miles from Mariposa, Cal. A second stamp mill has been erected, giving the company a capacity of 1,000 tons a day, an increase of 700 tons.

Extensive improvements will be made in the plant of the Republic Iron & Steel Co. at Hazelton, near Youngstown, O. A new 400-ton blast furnace will be erected; the old furnace will be replaced and new and improved engines will be installed.

PERSONAL

F. W. Denton assumed his duties as assistant superintendent of the Atlantic Mining Co. on June 1.

G. B. Crowley and A. Schilder, mining prospectors of Las Vegas, N. Mex., are planning to increase greatly the capacity of the company's pyritic smelter. Two furnaces will be erected, giving the company a capacity of 1,000 tons a day, an increase of 700 tons.

Extensive improvements will be made in the plant of the Republic Iron & Steel Co. at Hazelton, near Youngstown, O. A new 400-ton blast furnace will be erected; the old furnace will be replaced and new and improved engines will be installed.

THE CORRESPONDENCE

California

(From Our Special Correspondent) June 15, 1900

Probably no other mining section of California has made such progress in developing its properties as the Rand district. The large and valuable mines of the region were discovered in 1892 by a few hardy prospectors who had to pack (a western word meaning to carry) water, food, clothing, and supplies. They prospected on foot or on horseback or on mules, many miles over hot, dry, and dusty trails. Their industry and perseverance were well rewarded, and Cape Nome promises to be as permanently productive as the famous South African gold placers on the Cripple Creek mines. Six years ago, the section was a vast wilderness, uninhabited except by coyotes and rattlesnakes who enjoyed a temperature of 125 degrees in the shade during the summer months. To-day, by the help of the railroad, two lively mining settlements with a population of 5,090—Randburg and Johannesburg—with railroad connections and other appropriate amusements of civilization occupy the site. The country around these energetic towns is a rolling nature, the towns themselves lying at an elevation of about 3,500 feet.

Public schools, churches, a newspaper and banks, serve the varied wants of the population. Since the development of the mines, the whole country has changed in the last month for many years to come.

Several other mines make a similar, if not equal, good showing considering the amount of work done on them and amount of capital invested. Among these may be cited the Butte, Kinyara, and Yuma—mines which have made gold pay at an increased annual output from this time on.

Editor of the Journal, I hope to submit detailed reports of other mines here and on the line of the railway toward the Needles. These reports I shall make up with care from material that I mean to gather on the ground in the next few weeks.

Michigan

(From Our Special Correspondent) June 15, 1900

The chief topic of conversation here of late has been the Calumet and Hecla fire, which threatened to become a disaster of great magnitude which may yet prove more damaging than seems probable at this time. This disastrous fire will not be out this day, after the fatal fashion of some earlier Calum-
Ferry & Co. of Buffalo, N. Y., have bought the South Free Coinage lease of seventy-four acres at Middletown, Conn. Mrs. Kate Thorpe of Washington, owner of sixteen lots on the Lehigh Drainage Co.'s tract, has sold six lots for $1,225, the highest price paid. The three districts have been treated by two months of the latter one on which no ore was reported.

WASHINGTON.
(From Our Special Correspondent.)
Seattle, Wash., June 6, 1909.
None is on the tip of every tongue in Seattle nowadays, and it is a matter for people to talk of anything else. The town is experiencing a veritable boom, particularly, of course, in the outlying districts where the almost ever-living branch of trade and industry. Although the demand for and the demand for transportation has been urgent for weeks, the supply has also been abundant, and the Seattle papers are full of advertisements proclaiming the merits of the interlax lines. The scenes at the docks are enlivening and most interesting, as the steamers and sailing vessels depart laden with their merchandise and treasure-hunters. Some complaints have been made that certain vessels engaged in the Noma service have been inadequately inspected, and more numerous complaints are heard that passengers are taken ill in excursions on the Noma. Authorities declare that these criticisms are unfounded, inasmuch as it is not at all certain that some craft have been pressed into service that ought to have been most rigidly inspected before they were placed in such service. On the other hand, the profits in the business are so great under existing conditions that some fine vessels, new or second-hand, have been attracted to the service. On the whole, if one uses reasonable care, he need not have apprehension need be feeling the trip. As to the conditions at the end of the journey, it is not so easy to say.

The steamship Charles A. Lane, named for the California millionaire mine-owner, recently arrived from San Francisco via Cape Nome. Mr. Lane was one of the 250 passengers. His boat is well-named for it has been a great voyage. Mr. Lane also owns in part the steamship Oregen, which sailed from Seattle with 600 passengers about two weeks ago. He is otherwise interested in the Nome trade, and has expended very large sums this spring in seaports and outfitting vessels and steamers for the Cape Nome service. Upon the present trip, the steamer Lane will carry in addition to the passengers, a number of wealthy visitors from San Francisco, who are making the trip to the new El Dorado for pleasure only, and not with the purpose of staying there.

GENERAL NEWS

ARIZONA.

Horace E. Mann, a well-known miner and prospector, has been brought to Phoenix, having become interested in a new mining proposition near Bisbee. The old Dominion mine is said to have produced in May 156,000 tons of copper. Forty carloads of copper bullion were shipped to New Orleans during the month, but a part of this represented the output of the mines in April. A rich gold strike has been made at Lamb City, Cochise county. Assays are said to show the gold is worth $1,500 to $2,000 per ton. The mine is owned by John H. Radcliffe, of Washington, who is making the trip to the new El Dorado for pleasure only, not with the purpose of staying there.

The Pacific Railway Company recently began operating the New York, Wheeling and Lake Erie line.

IDAHO.

Great activity is now reported on the Snake River placer and excellent results are uniformly obtained. Placer mining is at a maximum, and the mining camps are supplied with all the necessary supplies and comforts.

MINNESOTA.

A report comes from Dalhart that in digging through the debris of the Homesteader mine, which had bought for $2,400, Corrigan, McKeen & Co., a Cleveland iron mining company, have found 100,000 pounds of gold on the copper plates of the tumbledown mill. The ore is a fine, bluish gray, about half an inch thick with gold amalgam. The estimated value of the plate is worth $20 an ounce. Residents
of the neighborhood had intended to use these copies of their fortunes, but had found them too heavy and had thrown them back in the waste dumps.

Several picking up of $50,000 in amalgam, most of which has already been sent to the mint, the beggar has been patiently awaiting the tailings from the old mills, that assay $2 to the ton, and are now preparing to treat this by cyanide processes to obtain the gold that is left in the mine.

The Ropes gold mine was a local affluence of its stockholders allayed hard work and Marquette, and they were led to think fairly property value by the money that was coming in per ton and the operation, and finally when the hard times came on and employees got judgment against the mine for $10,000, they got work up their hands. After a year of idleness they sold for enough to pay the claim, and purchased by Corrigan, McGraw & Co. The buyers had no knowledge of value except in the old machinery and possibly the tailings from the mill, and employed a Western expert to look the property over. He had experienced in the substantial value of gold from copper in battery plates and of the absorbent character of copper for certain ores of gold, and before he tested the mine he tried to the plates. Two tons of copper plates, some still in the battery, some worn out and thrown away, were found, and from the first a gold and silver bullion was secured by simply scraping the plates. All were then shipped east and sold for $1,000 or more, and $1,000 or more, have also been found around the old mill. Then the great pile of plates were assayed and found to be worth nearly $100,000 net, and its treatment was no matter.

The Ropes has a record of production before this new find of more than $400,000, proof enough that the mine is a valuable one, but it had never made any money for the stockholders. Corrigan, McKinley & Co. intend to sink the mine deep and make it a paying proposition.

MONTANA

Judge Knowles of the United States Court de- cided on June 2, in favor of the Anaconda, the big mining suit of the Colusa-Parrot against the Ana- conda Company, involving the property of a large body of the Anaconda vein, and the decision is one of the most important ever made in the mining litigation of Montana. Senator W. A. Clark maintained that the Anaconda company had made ore from beneath the Colusa-Parrot, and that there was a union of the Ana- conda and the Colusa-Parrot veins in the 800- foot ledge.

The decision was that the two veins were distinct and were not by the Colusa veins running northwest and southeast through the Harwatt, University, Clarence King of California, and numerous other veins. Portions of the veins were engaged on both sides of the case. Judge Knowles decided that there was no union of the veins, and that the Anaconda company had the right to follow its veins.

At the annual meeting of the Parrot Silver & Copper Co. held in Butte, June 2, a statement was submitted purporting to show the financial standing of the company and the results of last year's operations. The statement records very little, after the fashion of such "reports," but it does appear that the company declared in dividends $40,000 more than the net earnings for the year, as indicated by the statement. The Parrot, of course, is a property that has paid dividends accruing to the benefit of the Anaconda stockholders.

All doubt has been removed as to the intentions of the Anaconda people by their advertisement for bids of 100,000 cents of mercury and 25,000 pounds of masonry for the new smelter. Manager Klepkeho says that the plans provide for the most efficient smelter that ever went into the world, capable of treating 6,000 tons of ore daily.

SOUTH DAKOTA

The new 180-ton cyanide plant of the Cen- p, the mine will be a paying proposition.

STEEL AND IRON

A MONSTER SHAFT: The Republic Iron & Steel Co. and the American Steel Hoop Co. have begun to construct a new shaft of what will probably prove to be the largest mining shaft in the Lake Superior region.

The shaft will be located on the Cinder Mountain Mine, near Iron River. The shaft will be 3,000 feet deep, and will extend 4,000 feet to the west, 3,000 feet to the north, and 3,000 feet to the south. The shaft will be 12 feet in diameter, and will have a capacity of 12,000 tons of ore per day.

The shaft will be equipped with modern machinery, and will have a capacity of 12,000 tons of ore per day. The shaft will be 3,000 feet deep, and will extend 4,000 feet to the west, 3,000 feet to the north, and 3,000 feet to the south. The shaft will be 12 feet in diameter, and will have a capacity of 12,000 tons of ore per day.

The shaft will be equipped with modern machinery, and will have a capacity of 12,000 tons of ore per day.
MINING STOCK QUOTATIONS IN VARIOUS MARKETS

MINOR METALS: The continuous fall in lead within the last few weeks has made buyers unusually wary, and they are reluctant to place orders even at the present low level without special conditions. Copper continues to decline, therefore, standing now at 3.875c. New York. The same conditions characterize the St. Louis market, where the closing quotation was 3.85c. In smelter business has been reasonably active, with transactions effected at 3.875c. New York and 4.25c. St. Louis. Tin has shown more steadiness than usual, though the general trend has been downward, in sympathy with the other markets. At the close, 45c/47 1/2c, was the ruling quotation.

IRON AND STEEL: An upward reaction in the iron market is due and cannot be far from realization. With a Bessemer pig at $20 and Grey forge at $18, basic prices are regarded as normal fairly. It will not be long before the quotations made in the depth of depression a few years ago. Conditions are far from the best here and abroad. In this area we quote the Hon. Abram S. Hewitt on this point. 'Iron and steel, the present level of prices, must rise, which will do well to heed the words of this wise and trustworthy counselor.'

COAL AND COKE: The conditions in the anthracite trade are as favorable as could reasonably be expected at this time of year. Although the production of the first five months of the year amounted to 17.9 million tons as compared with 16.8 million tons, the depletion of the product seems to have come into users' hands, as there are no large visible accumulations at distributing points. This year, moreover, it is altogether likely that production during the dull season will be kept down to fit the market. $2.35 net per ton for the best quality of coke is the New York Harbor price.

The tin market has been somewhat active, according to reports. Demand is at least fair, and the foreign trade is assuming tangible, measurable proportions. The large amount of preliminary work that has been done during this season, and now resulting in actual export cargoes. Clearfield coal may be quoted at $2.50 New York and at $2.75 to $2.80 in the London market. The unsettled condition in the iron trade has naturally affected the coke trade, throwing the supply for the moment out of proportion to the demand. 2,000 coves have been closed at Connellsville, reducing the output about 20,000 tons a week. $2.75 for furnace and $2.50 for foundry may be deemed the ruling quotations.

WANTED—Black Jack or Zinc Lead and other base ores. Parties having one of the kind for sale or properties of this nature to offer will learn something of interest by addressing BOX 2078, San Francisco. Always send complete description.

EXPERT hydraulic and steam engineers experienced in transmission of power by electricity, desired. Address E. S. C., Mining and Metallurgical Journal.

WANTED: Engineer, with mining and assaying experience, to join a prospecting party on reasonable terms. Address, PROSPECTING, Mining and Metallurgical Journal Office.

FOR SALE—Large gold deposit. Will average over $500 per acre. Good for nickel pipe. Twelve miles from railroad, in Arizona. Terms reasonable.

230 ACRES of patented land in one of the richest localities in California for $5,000. It is quartz property, can be worked for silver, gold, and copper. Calcium and cheap water. Three miles from railroad. This is a bargain. Address Box 209, Ixelles, California.

THE METAL MARKETS

The following quotations are those current in New York City, unless otherwise indicated, usually two days before the date of publication. We take pains to verify the accuracy of our figures. —The Mining and Metallurgical Journal.

SILVER: Little business has come from the Continent, and possibly from less in India, so that the London market has been quiet. Some silver, however, is still bought for India on both private and government account. Prices have remained firm, notwithstanding the activity of the market, closing at 68 for bar silver. Mexican dollars are quoted at 47.5.

COPPER: This metal has been weak as for some time past, and not even the threatened stoppage of the supply has been sufficient to reverse the tendency. If the Calumet fire, however, had proved to be as serious as it looked at one time, quotations could hardly have failed to reflect the important fact; for the Calumet and Hecla mine, which furnishes more than a third of the entire world's production. Opinion as to the future course of the market is divided as usual, but no decided immediate change in either direction is expected by the best judges. 106c/107c was the closing price for Lake.

CHEMIST, age 31, with University training and excellent references desires position with mine or smelting works. Address J. W. C., Asheville, N. C.

WANTED.—Gold, Silver, Copper, Zinc and Lead. Would pay $20,000 in developing a large Mining property located in the Territory of Texas, Mexico, on the Pacific Coast. Gold mines are averaging 2.00 per ton, 7.50 Silver from 1 to 38 kilos, Lead from 15 to 30 per cent, Zinc from 20 to 25 per cent. Copper from 15 to 25 per cent. Reports, Maps and Samples sent on request. Water 500,000, sufficient timber close to the mines. Call or address D. P. A., Mining and Metallurgical Journal Office.

MINING ENGINEER, with many years experience in indicating, planning and supervision of large mining enterprises. Desires employment with some mining company. HAROLD FRENCH, Los Angeles Office, M. & M. Journal.

FOR SALE—Two-Steam Steam Mill at Tucson, Arizona. 15-HP, Boiler Pump, and everything complete, set up ready for work in a good condition; used less than six months. Address, DREDGING MINING MACHINERY CO., Kansas City, Mo.
DRYERS
For Concentrates, Lime, Slag, Rock and Clay.
ROBERT O. McLEAN & COMPANY,
The Foundry, Chicago.

RUGGLES-COLES ENGINEERING CO., 39-41 Cortlandt St., N.Y.

THE CUMMER DRYERS.
For Drying Everything Mechanically
Concentrates, ores, coal, bricks, clay, etc.
No Steam is used Hundreds in Operation

F. D. Cummer & Sons Co.,
Cleveland, Ohio

"IMPULSE" WATER WHEEL
Highest Efficiency. Best Mechanical Construction
Never a wheel used but highly commended by user
"A pleased customer is the best salesman"

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