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Indeed, all over Europe. The canal has, besides the entrance sets of locks to overcome differences in level, the total rise being ruling size of the locks is 350 ft. in length and 50 ft. in width. IRON: New York....

THE German Rolling Mills Convention has been dissolved finally on account of internal dissensions, due chiefly to the present unfavorable condition of the iron trade and the difficulty of restraining competition. No effort will be made to renew its existence, but several local associations are to be formed, one including the Westphalian mills, another the Silesian ironmasters and so on.

Reports have been current of the sale of a large quantity of pig irongenerally put at 100,000 tons-by the Tennessee Coal, Iron and Railway Company for export to Europe. That the transaction had been closed was positively asserted. We are, however, authoritatively informed that no such sale has been made. The company is feeling the improvement in demand, having just put two of its idle furnaces in blast, while two more are being made ready

An example of the socialistic tendency in England is to be found in a bill just introduced in Parliament by Mr. KEIR HARDIE, who is one of the labor representatives in that body. This bill provides for the nationalization of all mines, their purchase from the present owners by the nation and their operation under the direction of a government bureau. Of course the bill stands no chance of passage, but that it should be introduced and considered at all is a significant matter.

THE Lehigh Valley Railroad strike has been formally declared at an end, a compromise having been arranged through the intervention of the New York and New Jersey State boards of arbitration. As usual in such cases both sides claimed an advantage in the settlement.

Latest advices, however, are that the closing of the strike is still in some doubt, as the men had expected to return to work in a body, but found that the company would receive their applications only as individuals, and refused to discharge the men whom it had hired to take their places.

An English authority estimates the loss to that country during the six. teen weeks of the great strike of the coal miners at no less than \$166,000.-000, of which \$91,000,000 fell directly upon the miners themselves and upon the iron-workers and other artisans who were directly affected by the stoppage in the production of coal. The loss to mineowners, ironmasters and other manufacturers, and to the railroad companies, accordto this statement, was \$66,000,000, while the remaining \$9,000,000 is accounted for in the higher prices paid by ordinary consumers. The sum total is enormous, but the estimate is possibly not a greatly exaggerated one.

THE use of electricity as a motive power for vehicles on streets and roads has seemed to be one of the obvious appliances of this agent, which has been delayed chiefly because of the difficulty in finding a suitable form of storage battery for the purpose. The use of such batteries for street cars and launches has proved successful, and it is now stated that carriages run by electric motors have been put in actual use in Berlin, Germany. These carriages, according to a brief description, have three wheels, the main axle having two, while a third one in front is used for steering. They carry power enough in storage batteries to run a considerable distance, and have so far worked well.

THE death of Prof. JOHN TYNDALL removes one of the greatest and most thorough of the scientific men of our day too soon, since he seemed but lately, though almost an old man, fit for years of useful work. He had, if not genius, at any rate a love of knowledge for its own sake, a keenness in observation and indefatigable perseverance and industry which went in practical results beyond the usual achievements of genius. We but express the feeling of every student of science, every admirer of what is admirable in its great world, when we express our deep sorrow at the untimely death of this eminent and honest worker. His death has removed one of England's glories, a benefactor, and an example for imitation to the scientific world.

THE opening of the Manchester Ship Canal, on December 7th, marks the near completion of one of the greatest engineering works undertaken in England for many years. The object of the canal, as we have explained at different times, is to enable sea-going vessels to reach the great manufacturing city of Manchester and to save the cost of railroad freight and transfer to its mills. The work has been in progress for several years under varying conditions of success and at times of apparent failure, but it is now so far completed that vessels can pass through it and load and unload freight at the great docks which have been prepared at the terminus. The whole scheme is part and evidence of the reaction in favor of water transportation which has recently been apparent in England and, indeed, all over Europe. The canal has, besides the entrance lock, four sets of locks to overcome differences in level, the total rise being 60 ft. The In another column will be found some extracts from President CLEVE-LANDS message, from which it will be seen that he maintains the hope of beneficial results from an international conference. After referring to the adjournment of the Congress he requests authority to reopen negotiations and to ask for the reassembling of the conference whenever the time may seem propitious. He recognizes the fact that a definite proposition for discussion is expected to come from this country, which is deeply interested, in common with the rest of the world, in securing a settlement of currency matters. He does not, however, himself suggest, any plans or proposals to be submitted, leaving that for the future.

The one proposition which seems at the present time to promise a permanent and satisfactory adjustment is that for the establishment of an International Monetary Clearing-House, with which our readers are familiar. This plan continues to gain influential indorsement in many countries, and would certainly form a good foundation for the elaboration of a final solution, by an international conference, of this the most important problem before the world to-day.

THE CRIPPLE CREEK GOLD PIELDS.

With characteristic pliability the enterprise and energy of Colorado has been diverted from its silver mines, temporarily under a cloud, to the vigorous development of its gold resources. Cripple Creek began to give signs of becoming an important mining region at the very time when Leadville, Aspen and the San Juan were being depopulated through the paralysis of silver mining. It is an ill wind that blows nobody good. The energetic spirits of the silver camps transferred their activity to the gold districts, and of these the new region at the back of Pike's Peak offered the best field of operations.

At the present time Cripple Creek is the most lively of Western mining towns; its population is nearly 10,000, its mines number nearly 100, while the field is six miles long by three wide. The output is at the rate of \$3,000,000 per annun and slowly increasing. Like all young mining communities it is pervaded by an atmosphere of life, hope and prosperity which is as infectious as it is inspiriting.

No gold discovery was ever developed under more favorable auspices. In its proximity to a large smelting center, in the accessibility of all of its mines, in the cheapness with which supplies are bought, in the presence of large numbers of able and experienced mining men, in these and in other respects Cripple Creek is a representative modern mining camp.

What its future destiny may be it would be premature to attempt to say. The merchants of Denver expect Cripple Creek to take the place of Leadville and hope that gold mining will have such life put into it as to more than compensate for the partial cessation of the silver industry, and this is in keeping with that sanguine, elastic temperament which has built up the West in spite of all disappointment and in the face of all difficulty.

THE STEEL RAIL COMBINATION.

There have been many reports circulating in the papers of late concerning the welding together again of the pieces of the broken steel rail ring, and claiming that the Maryland and the Pennsylvania steel companies, both now in the hands of receivers, were to join in the new combination and to stop making rails.

It is evident that the court could not recognize an Illegal combination, and that some way would have to be found around the difficulty, for it is also clear that no combination that allowed these two great works to supply the market without control or limitation could possibly be long lived. It was proposed, according to rumor, to lease these works and close them, but this, we were able to state on excellent authority, would not be done. The latest report, stated to be on the authority of the court record, is that the Maryland Steel Company has accepted an offer for 300,000 tons of steel rails, and the Pennsylvania Steel Company one for 100,000 tons, at \$25 a ton, the purchaser putting up as forfeits \$300,000 to be paid to the Maryland Steel Company and \$80,000 to the Pennsylvania Steel Company, should he fail to take the rails.

It is stated further that "the companies bind themselves not to accept any orders for this class of rails until these lots have been taken." In other words, if this be true, the Maryland Steel Company is to receive \$300,000 and the Pennsylvania Steel Company \$90,000 for keeping out of the market this year and not interfering with the rail combination. Of course the purchasers will not take rails at \$25, which can be made at their own works for, say, \$18, and the guarantee or forfeit will simply be the price of peace.

Whether the court can permit its agents, the receivers, to agree or contract not to accept other orders is a legal question, which we do not feel competent to decide; but this disguise of the combination is so "thin" that it is perfectly transparent.

The Maryland Company with free ores should be able, in its magnificent works, to hold its own if it only had a sufficient working capital.

This company can scarcely work as cheaply as the Carnegie or the Illinois steel works, however, but until Alabama has solved the important problem it is now engaged in, of cheaply concentrating and purifying its ores, the Maryland works should have had command of the seaboard market.

SCIENCE WITHOUT NOMENCLATURE.

A letter of Professor Posepny, published in another column, replies to a recent criticism from Mr. T. A. RICKARD upon the nomenclature of his paper on "The Genesis of Ore Deposits." Professor Posepny leaves something to be said which he is, perhaps, too polite to say. But since, as the translator of the paper referred to, I retained in it the terms with which Mr. RICKARD finds fault, I am justified in taking a hand in the debate; and I shall feel less embarrassment than a stranger might feel, because Mr. RICKARD is a personal friend whom I highly esteem, and whose professional writings command my admiration. In the JOURNAL of November 11th, Mr. W. R. INGALLS continues the subject, taking Posepny's terms as his text, whereas Mr. RICKARD had simply used them as a (really inappropriate) illustration.

The trouble with both of these critics is that they do not think clearly. Mr. RICKARD objects to certain terms taken from the Greek, because they are ugly and unnecessary, and suggests several English words which would do as well. Every one of these English words is in common use already, with other meanings than those which Professor Posepny sought to convey. There is no stronger evidence of muddy thinking than the employment of familiar words, with all their misleading associations, to mean something new. Mr. RICKARD's whole criticism in this particular case stands or falls with his suggested substitutes. No matter how ugly he thinks the new words are, if his own are not adequate to replace them, he must submit to the esthetic sacrifice.

Now "primitive" and "original" do not mean the same thing as "idiogenous"; and Professor Posepny, in talking about primitive or original minerals, would have talked vague nonsense. A mineral may be idiogenous, while both it and its inclosing rock are secondary. The same criticism could be applied to the suggestion of "secondary" or "foreign" for "xenogenous." And the deliberate proposal to name a given class of deposits "later" paralyzes criticism. The use of such language in geology would not "conduce to clearness of thought." It would only accommodate those persons who do not think clearly and do not wish to be precise in utterance.

In translating Professor Posepny's paper, I had occasion to try to express his term "idiogenous," for instance, by some English phrase; and I could devise nothing briefer than "contemporaneous in formation with the enclosing rock." Unless Mr. RICKARD can give us a name that tells all that and nothing else, "idiogenous" must stand. With much that Mr. RICKARD has said concerning the bombastic use of scientific terms by people who do not understand them, I heartily agree, of course. Yet some of his illustrations are not pertinent. "Altered" is a poor substitute for "metamorphosed"; "sandy clay composition" is not even English; and "an agricultural implement for triturating the soil" is a very good phrase for describing a class which includes spades, but is not confined to them. Mr. RICKARD is barking in a good cause, but he barks in several cases up the wrong tree.

As for Mr. INGALLS, who is willing to have Greek applied to electricity, but not to geology, and who thinks scientific writing should be picturesque and not pedantic, he too is feeling after a truth, but he is not thinking clearly; and by the time he reaches his crowning illustration his thought is gone entirely. For he actually presents an inscription, the "unquestionably correct" translation of which was, "I have been many times overcome with weariness in this particular employment," and praises as superior the version of Rudyard Kipling. "I am beastly tired!" This vague vulgarity in fact tells nothing at all. It might be uttered by a Yale victor after a football game, or by a dude after no exertion whatever, as well as by a galley slave. It is one of the expressions in which people take refuge who are too lazy or too ignorant to express their thoughts definitely. The language of science would not be enriched by such contributions from cockneydom as that. It must have words which will last

"When the Rudyards cease from Kipling And the Haggards ride no more!"

I will confess that I do not relish, in my old age, the necessity of mastering new technical terms. But when they carry new conceptions, I do not see how I can help myself. I cannot quarrel with the names my neighbor gives to his own children, and certainly do not insist that he shall use my children's names, because they are so familiar to me. For what I desire is, to know the youngsters apart. And my friends RICKARD and INGALLS must either accept the POSEPNY titles for the POSEPNY ideas or deny the POSEPNY paternity and produce older names for the same infants. These particular babes may or may not be "ugly"; at all events they have probably come to stay, and "calling them names" will not prevent them from growing. In time they may even be thought good looking.

R. W. RAYMOND.

NEW PUBLICATIONS.

METRICAL AND ENGLISH MEASURES, WEIGHTS, ETC. By Jno. McGee, C. E New York; the "Engineering News" Publishing Co.

This is a very convenient little book for desk use and for reference. It contains tables giving the equivalents of metric measures and weights in English measures and also the equivalents of boiler and other pressures as generally used in English and metrical measures; tables of areas of right-angled triangles; of horse-powers, units of heat and others which an engineer constantly employs. It is small enough to be carried in the pocket if desired, and has the advantage not always found in books of tables, that the figures are of good size, and therefore easily read.

SEWAGE PURIFICATION IN AMERICA. By M. N. Baker. New York; the "Engineering News" Publishing Co. Pages 192; illustrated.

This little volume is a reprint of a series of articles recently published in the "Engineering News" and contains a description of a number of sewage purification plants in various towns and cities of the United States and Canada. The discussion of this subject is comparatively new here, and many readers will no doubt be surprised to learn that no less than 30 municipalities in this country now have plants of this kind of greater or less extent. The book is a timely one, as the system is growing in acceptance, and there are doubtless many who wish to know something about it.

one, as the system is growing in acceptance, and there are doubtless many who wish to know something about it.

STANDARD TABLES FOR ELECTRIC WIREMEN, WITH INSTRUCTIONS FOR WIREMEN AND LINEMEN, UNDERWRITERS' RULES, AND USEFUL FORMULÆ AND DATA. By Chas. M. Davis. Fourth edition, revised and edited by W. D. Weaver. New York: The W. J. Johnston Company, Ltd. Pages 128. Price, \$1.00.

The fourth edition of this work contains the latest revisions of the insurance rules of the Underwriters' International Electric Association, now almost exclusively used in the United States. In addition to the above rules there has been added an important section on the calculation of alternating current, which, for the first time, brings this subject within the reach of practical men. A number of the tables were prepared expressly for this work. Among these are the tables of alternating current wiring coefficients, those on limiting currents for exterior wiring and on the candle power of arc lamps; the table enabling those for the three standard lamp voltages to be used for any voltage or drop, and several others, including a complete set of wiring tables calculated on a uniform basis of 55-watt lamps. The method of determining the sizes of conductors for incandescent wiring enables feeders, mains and branches to be proportioned as nearly exact as desired. The wiring formulae for motor circuits, etc., are put in a simple and practical form, so as to be easily applied by any one. The formulae for horse power of engines and boilers are published here for the first time. The different values of heating surfaces in boilers being considered, the results they give, it is claimed, are the actual commercial ratings and not the old theoretical horse power.

Resources and Development of Mexico. By Herbert Howe Bancroft.

RESOURCES AND DEVELOPMENT OF MEXICO. By Herbert Howe Bancroft. San Francisco, Cal.; The Bancroft Company. Pages 326; illustrated.

Resources and Development of Mexico. By Herbert Howe Bancroft, San Francisco, Cal.; The Bancroit Company. Pages 326; illustrated.

In this volume the author has given us the results of observations made during two years of study and travel in Mexico. In the gathering of facts he had exceptional opportunities, the government and State records being open to him, while official help from different quarters was extended. His intention has been to give the reader a view of Mexico as it is to-day, with some consideration of the possibilities of future development. In this he has succeeded, though many wiil be inclined to think that he takes somewhat too favorable a view of Mexico as it is. Much progress has been made in late years, and it is a country of great resources, but it has hardly yet reached the standard on which Mr. Bancroft would place it. Naturally it is one of the richest cauntries in the world, but there is still great room for improvement in many respects.

The book presents a large amount of information and is well arranged. It has chapters treating of the general geography of the country; of intellectual development, communications, mines, agriculture, stock-raising, commerce, manufactures, material development, labor and immigration. The chapter on mines and mining seems to us rather brief for the subject. It has been so condensed that, while it contains a great deal of information, it is too much like a catalogue of the mines and mineral deposits, and gives too little in detail. We must admit, however, that if the course suggested had been followed throughout, it would have swollen the book to an unwieldly size, and we really have no right to demand an exception for one special topic. The mining interest is a very important one in Mexico, and on its development the future of the country depends to a very large extent, as one can realize after reading the volume before us.

Some other interesting chapters are on the intellectual growth of the country, and its present social and economical condition.

some other interesting chapters are on the intellectual growth of the country, and its present social and economical condition. It is in these especially that Mr. Bancroft is inclined to take a very roseate view, both of the present and the future.

The book is generally well written, and while we may not always agree with the author's opinions there is a general air of directness and sincerity about it which inclines the reader to put confidence in his statements. It is illustrated with a large number of reproductions from photographs, generally of good quality, and is, on the whole, a readable and timely book.

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 in another page of the Journal.

Les Moteurs a Gaz et a Petrole en 1892. Par M. Gustave Richard, Ingenieur. Paris, France; Vve. Ch. Dunod. Pages 292; iliustrated.

United States Department of Agriculture: Experiment Station Record.
Volume V., No. 1. Washington; Government Printing Office.
Pages 138.

Annual Report of the Commissioner of Patents for the Year 1892. W. E. Simonds, Commissioner. Washington; Government Printing Office. Pages 776.

California Blue Book, or State Roster, 1893. Compiled by E. G. Waite, Secretary of State. Sacramento, Cal.; State Printer. Pages 332; illustrated.

illustrated.

The Nicaragua Canal; and other Essays on Political and Economic Topics. By Richard H. McDonald, Jr. San Francisco; the 'Californian' Publishing Company. Pamphlet, pages 62.

The Manufacturers of the United States: A Classified and Complete Reference Book for Buyers and Sellers. Fourth and Revised Edition. New York; Manufacturers' Publishing Company. Pages 2,008.

Wyoming Experiment Station: Bulletin No. 14. Geology of the Wyoming Experiment Farms and Notes on the Mineral Resources of the State. By W. C. Knight, Geologist. Laramie, Wyo.; published by the University of Wyoming. Pamphlet, pages 108.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and ddress of the writer. Initials only will be published when so requested. All letters should be addressed to the MANGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

Scrap Mica.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: The undersigned would be glad to receive information and correspondence as to the uses of scrap mica; how it is prepared for market, and what it is worth per ton. If there is a considerable demand for it I would be pleased to hear from consumers.

DAHLONEGA, Ga., Dec. 4, 1893.

W. G. MCNELLEY.

The Santa Fe Copper Company.

EDITOR ENGINEERING AND MINING JOURNAL:

Editor Engineering and Mining Journal:

Sir: Some two years Santa Fe was one of the copper stocks regularly quoted and a little "boom" was created by the giving out of a "tip" on the part of the officials of the company and other insiders that the property was a bonanza, etc. For some months past I have watched in vain for the quotations and it looks as if the property had been quietly swallowed up. Are not the directors obliged by law to give a regularly issued accounting of the standing of the company's affairs? It is of little use to ask for information at the local office, and it is in the hope of getting the facts through your "Journal" that I address myself to yon.

Stockholder.

NEW YORK, Nov. 30, 1893. (The obligation to make reports varies under the laws of different States. Can any of our readers give information relative to the company?—Ed. E. & M. J.)

The Granulating Matte Process.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: As the discussion as to the time when the granulation of slag was first begun is continued in your issue of November 25th, I beg to state that this process is older even than Mr. Browne claims it to be. At the February, 1872, meeting, of the American Institute of Mining Engineers, Professor Egleston read a paper on the uses of "Blast Furnace Slags," in which he credited M. Minary, director of the Franche Furnace Slags," in which he credited M. Minary, director of the Franche Comte Iron Company, not only with granulating slag by tapping directly from the furnace into a trough containing water running at a high velocity, but with the introduction of an elevator to handle the material cheaply. Regarding this latter feature I claim to have been the first to apply it to granulated lead furnace slags in the United States. This was done at the Hanauer Works in June, 1892. I unconsciously followed the plan of M. Minary, and upon applying for patents my agent, Mr. Faber Du Faur, of New York, called my attention to Professor Egleston's article, and while there were a number of minor features adopted by me, perhaps novel and patentable, I deemed the parallesism too great to risk a rejection of my application by the Patent Office. Professor Egleston gave no drawings or details.

R. H. Terhune.

R. H. TERHUNE.

SALT LAKE CITY, Nov. 29, 1893

The Use of International Terms in the Discussion of Geological Questions

EDITOR ENGINEERING AND MINING JOURNAL:

EDITOR ENGINEERING AND MINING JOURNAL:
Sir: In the "Engineering and Mining Journal" of October 14th,
1893, Mr. T. A. Rickard makes a piea "for the greater use of simple
Angio-Saxon English in the discussion of mining and geological matters," and protests against "the rapidly increasing introduction of
long Greek and Latin words." I should not feel called upon to offer
any comments upon his letter, had he not cited my recent paper on
"The Genesis of Ore-Deposits" as an example of the practice which
he condemns. In view of that criticism, I may be permitted to point
out that Mr. Rickard has confounded popular with scientific writings,
and has forgotten that these two classes are addressed to two enout that Mr. Rickard has confounded popular with scientific writings, and has forgotten that these two classes are addressed to two entirely different publics. Moreover, he has overlooked the difference between describing and analyzing single occurrences and synthetically grouping such single facts in comprehensive generalizations, which call for definite and perhaps new conceptions. My paper was not intended to be popular, and is not addressed to miners and foremen; hence Mr. Rickard's criticism is not warranted in that respect.

respect.

It may be his mission to purify the English used by miners, though it ought to be questioned whether the object is desirable or even feasible. My standpoint is totally different. Indeed, for the very reason alleged by Mr. Rickard, I should be glad to replace, for scientific uses, the local terminology of all languages with an international one. In different mining districts within the domain of one and the same language, entirely different terms are employed for

the same thing. The North of England, Cornwall, the United States the same thing. The North of England, Coruwall, the United States and Australia have iunumerable variant uses of English terms; and when these words are employed in scientific writings, addressed to a larger public than that of the immediate locality, the result may be what Mr. Rickard desires in the way of simplicity; but it is to the rest of the world-likely to be simply indefinite or unintelligible. Mr. Rickard has recognized this difficulty, and taken much pains to remody it for American readers; in his papers on Australian mining

Mr. Rickard has recognized this difficulty, and taken much pains to remedy it for American readers, in his papers on Australian mining regions. But scientific discussions addressed to the whole of the scientific public need to be made intelligible to those who speak other languages; and this can be done with relation to geology only as it has long been done for other sciences, by the introduction of universally recognized and precisely defined technical terms.

Naturally, recourse is most frequently had to those languages which have been the principle vehicle of modern culture, and are still taught in most schools, namely, Latin and Greek; but some writers (as for instance, the chemist Mendiljev), in order to escape from the ordinary vocabulary entirely, have taken forms from the Sanscrit, the mother of the Indo-European tongues. It is evidently not always possible to make a new term carry a complete definition of the new idea; on the contrary it may only serve as a mnemotechnic hint, recalling the author's original definition; and, for this purpose, it is comparatively unimportant whether the term has been felicitously chosen or not. I might go so far as to say that a word having no sense in any language could serve as representative of a new definition.

no sense in any language could serve as representative of a new definition.

My paper was writen in German, a language well known as abundantly provided with technical miners' terms. But I am, upon principle, not a linguistic purist; and for many of these terms which did not seem to me sufficiently definite, I have sought to substitute international ones. Moreover, I have been obliged to give new names to the new conceptions which I sought to establish, and which differed from the accepted meanings noted by terms already in use. Some of these names, such as "idiogenous," "xenogenous" and "hysteromorphous" do not please Mr. Rickard. He thinks they are "ugly words," and that "original," "secondary or foreign" and "later" could be used instead. Possibly—provided my explanation were carefully remembered, or a definition were inserted after each word. "Secondary" and "foreign" are certainly not the same thing. But the point which Mr. Rickard entirely forgets is, that I was not attempting to instruct the miners or foremen of this or that district, but submitting my views to scientific circles; and since Science is international, I employed a terminology suited to the public I addressed.

public I addressed.

VIENNA, Oct. 29, 1393.

F. Posepny.

Pig Iron in Warrant Yards.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: On page 556 of your issue of November 25th, under the heading "Iron Market Review," you mention a recent sale of warrants for 13,000 tons of pig iron and remark: "Every one knows that the iron placed in warrant stores is not of the best and it never for various reasons commands an average price for the same nominal

The above statement, I claim, is erroneous in both particulars. The iron in warrant yards is graded more closely than the iron usually shipped from the furnaces direct to consumers, and although warrants at times sell for 50c. to 75c. below the price of iron on cars, warrants at other times have commanded as much as \$2 per term more than the same iron cars. The time and researches cars, warrants at other times have commauded as much as \$2 per *on more than the same iron on cars. The time and reason for this large difference in favor of warrants was in the last quarter of the year 1889, when iron advanced from \$9 to \$14.50 per ton for gray forge in the Birmingham, Ala., district, and when the demand for warrants was far in excess of the supply. At the beginning of this activity there was a difference of 40c. per tou in favor of warrants. It gradually increased until it reached the extreme limit of \$2 per ton. Being in Birmingham a few days during this period, I found the representatives of three New York houses there buying warrants, and knew of \$14 per ton being paid for warrants for gray forge by the same parties, who refused gray forge on cars at \$12.50. The warrants were soon exhausted in the Birmingham district and these same houses commenced to buy pig iron in Pennsylvania deliverable at Perth Amboy, where a warrant yard was opened about that time.

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Pennsylvania furnaces were selling No. 2 foundry iron at \$17.50 delivered at Perth Amboy while warrants on the Metal Exchange were commanding \$19.50. I knew of parties securing 24-hour options on No. 2 iron at \$17.50 and selling warrants against the same at \$19.50 before the options were closed.

It is not likely that this extreme difference will occur often in the future, as there are many more warrant yards to-day than were in existence in 1889. In fact, the difference was the immediate cause of many furnaces deciding to open yards. I heard the general manager of one large iron company say at that time that he was satisfied his company had lost \$100,000 in consequence of not having warrant yards ready during the season of the advance.

The reason for warrants being lower than iron on cars during seasons of depression and decline, when dealers are the only purchasers of warrants, is that consumers, as a rule, will only make contracts for iron delivered in their yards, payable sometimes by cash and sometimes by long notes. The dealers, when they buy warrants to take the iron out to ship to consumers, must have a profit as well as a margin to cover the loss of interest and the risk of bad debts they take in the transaction. The furnace companies, on the other hand, can afford to sell warrants less than iron on cars, as they escape this risk of bad debts and loss of interest, the warrant being cash by certified check on delivery of the document.

Now, as to the relative grading of iron in and out of warrant yards, our rules require that the furnace company yarding the iron must first break and sort it. After this, our inspector goes over the piles carefully marking every pig he finds that is pronouncedly above or below the grade the lot is offered for, and these marked

pieces must be thrown out and replaced when the iron is moved nuto the warrant yard. Our inspectors are under oath to obey these rules and no yardmaster is employed by the warrant company who canuot file testimonials with us from his employers for several years back, as to his honesty as a man and capacity as a grader. In addition, he must give our supervisor a practical demonstration for several days of his capacity. The warrant company receives all qualities of iron into warrant yards, but when the grade is not standard it is so stated in the warrant, and if the yarders of iron are not willing to have it so stated the iron is refused. Over 8.000 tons standard it is so stated in the warrant, and if the yarders of iron are not willing to have it so stated the iron is refused. Over 8,000 tons have been so refused by us in the last four years. We do not claim that our agents are infallible, but having delivered out of yards over 100,000 tous of iron we claim the right to speak advisedly, as to the reliability of our grading. Some time ago we employed the best pig iron inspector we could find in Pennsylvania to inspect all the warrant yards in the country and their contents. His report as to grading was that, in most cases, the iron was superior, and in all cases as good as the corresponding grades on furnace yards. furnace yards.

perior, and in all cases as good as the corresponding grades on furnace yards.

We have occasional complaints as to grade and weights after the iron has left the warrant yard and has gone into the hauds of consumers. As a rule it would cost much less to pay the claims made than to send experts to examine and investigate, but we always investigate first and the result is that most of the claims fall to the ground. These claims are not always honest, but are evidently made by some with the hope of securing a reduction, or delaying payment. In several instances we have found the rejected iron to be the best iron of the grade in the complainant's yard. In others, we have found the condemned iron had never been through the warrant yard. In still another case, a large lot of iron was rejected by the consumers, who were receiving iron from the furnace yard and from the warrant yard at the same place, and claimed that the rejected metal was from the warrant yard. We investigated the matter by tracing cars, and found that all of the iron from warrant yard had been received as up to grade, and that all of the rejections were iron shipped from the furnace yard.

I trust you will give this correction publicity.

GEO. H. HULL,

President American Pig Iton Storage Warrant Company.

New York, Nov. 28, 1893.

THE MONEY OF THE WORLD.

A new table prepared for the report of the Director of the Mint makes some important changes, based on reports recently received, from the table published earlier in the year. The principal changes are an increase of about \$300,000,000 in gold—chiefly in the United \$tates, Germany, Austria-Hungary, Russia and Egypt—and a decrease of \$100,000,000 in silver, the net result of larger amounts allowed to India, China and Japan, combined with a reduction of \$200,000,000 in France, the last-named decrease having been made on the authority of M. de Foville, who recently made a very careful investigation into this question. The new table is as follows:

Total in thousands of dollars.

,		U	ncovered		Per	capita	
Countries.	Gold	Silver.	paper.	Gold.	Silver.	Paper.	Total.
United States	\$661,000	\$624,000	\$469,000	\$9.81	\$9.25	\$6.96	\$26.02
United Kingdom	540,000*	112,000	127,000	14.17	2.94	3,33	20.44
France	800,000*	500,000	110,000	20,89	13.05	2.87	36.81
Germany	618,000†	215,000	84,000	12.51	4.35	1.70	18.56
Belgium	54,000	54.900	54,000	8.85	9.00	8.85	26.70
Italy	96,000+	16,500	179,000	3.16	.54	5 89	9.59
Switzerland	15,000	15,000	12,000	5.17	5.17	4.14	14.48
Greece	500	3,000	23,400	.23	1.36	10.63	12.99
Spain	40,000†		105 000	2.28	8.86	6.00	17.14
Portugal	40,006*	10,000	49.000	8.51	2.13	10.42	21.06
Roumania	200†	100	25,000	.04	.02	4.54	4.60
Servia	3,000+	1,900	4.500	1.56	.86	2.05	4.27
Austria-Hungary	124.000	85,000	157,000	3,00	2.06	4.53	9 59
Netherlands	19,000+	56,000	37,000	4.13	12.17	8.05	24.34
Norway	7,200+	1,700	4.300	3.60	.85	2.15	6.60
Sweden	6,600+	4,900	1.50	1.38	1.02	. 31	2.71
Denmark	14,200	5.400	6,200	6.45	2.45	2.82	11.75
Ruseia	422,000	41,000	550,100	3,40	.33	4.41	8.17
Turkey	50,000#	44,000	*****	1.27	1.12		2.39
Australia	105,000*	7,000		24.12	1.63		26.00
Egypt	127,000*	15,000		17.65	2.20		19.8
Mexico	5,000*	50,000	2,000	. 44	4.38	.18	5.00
Cent. American states.	500t	8.000	4.000	. 15	2.42	1.21	3.78
So. American states	45,000t	30,000	600,000	1.31	.87	17.49	19.6
Japan	80,700†	81,300		1.99	2.11	****	4 00
India	*****	950,000	37,000		3.31	.13	3.4
China		725,000	*****		1.80		1.80
The Straits	*****	110,000			28.94		28.9
Canada	14.000*	5,000	29,000	2 92	1.04	6.04	10.00
Cuba	19,000	1,500		11.87	.94		12.8
Haiti	2,000†	2,900		2 00	2.90		4 90
Total	3,901,900 \$	3,931,100	\$2,700,000	• • • • •	••••		••••

* Estimate, Bureau of the Mint. † Furnished through the United States representatives abroad.

Among the other authorities consulted in preparing the ameuded table are the Credit Lyennais; Haupt, Raffalovich, Sir Charles Fremantle, the reports of the Indian Currency Commission, and the Russian Ministry of Finance.

The stocks of gold in Austria-Hungary have been increased on account of the large purchases made by that country to carry out its monetary reform, to which we have frequently referred, and that of Russia has also been placed higher in view of the continued buying by that country. buying by that country.

Refuse Burning in England.-There are now 55 towns and cities In England which destroy their garbage and solid refuse by burning, and 570 furnaces are employed for this purpose. In many cases the heat from these furnaces is used to produce steam, and the power i employed in pumping water and in running electric light and power plants, and for other purposes.

THE ORION MILL IN THE TRANSVAAL.

The Orion Company's gold mine is the first of the Transvaal mines which the traveler passes on his way up from the coast to Johannesburg. The mine is situated on what is known as the Black Reef, and is about eight miles south of Johannesburg. The formation is very flat, and the workings will nowhere be more than about 100 ft. in depth. The company, having thoroughly proved the property by hiring an adjoining mill, recently decided to put up a first-class mill of its own.

ing an adjoining mill, recently decided to put up a first-class mill of its own.

Several difficulties presented themselves, one among them being the flatness of the ground, and another the Cape Railway line, which cuts the property in two. The first was overcome by raising the mill by means of masonry foundations for the piles instead of setting them in the ground as usual, thus securing sufficient fall for the tailings for some time without using any elevating appliances. The second was met by the construction of an inclined bridge over the railway and wagon road, up which the trucks are hauled by an automatic rope haulage. This haulage will be extended along the whole length of the property, and power will also be taken from it at various points for winding and pumping, so that there will only be one englne and boiler station on the property. The general arrangement is shown in the accompanying sketch.

The mill consists of 40 heads of stamps, and an interesting feature is that 20 of them will be of English (Sandycroft) and 20 of American (Fraser & Chalmers) manufacture. One-half of the mill will be fitted with automatic feeds, and the remainder will be, for the present, fed by hand. There are two Blake stonebreakers, 15 in. by 10 in., and the ore bin capacity is about 600 tons. The engine is equal to glving off about 120 actual H. P., and there will be two Babcock & Wilcox boilers. Provision has been made for the addition of a condenser, and also for a fuel economizer, and the whole will be lighted by electric light. The crushing capacity of the mill will be about \$79,000. This mill was erected from the designs of Mr. C. T. Roberts, of Johannesburg.

Centigrade and Fahrenhelt Scales.—Mr. G.Watmough Webster gives in "Chemical News" the following easy rule for converting thermometrical degrees: To reduce a number of degrees centigrade to Fahrenhelt: Double the number and subtract one-tenth of the result. Fahrenhelt: enhelt to centigrade: Increase the number by its ninth part and halve

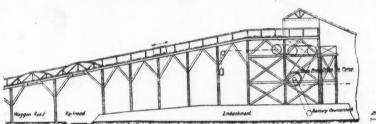
THE WORLD'S PRODUCTION OF GOLD.

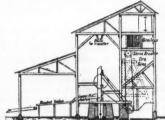
Written for the Engineering and Mining Journal by Walter Renton Ingalls.

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The only recent statistics of the production of gold in the world are those compiled by the Director of the United States Mint, and published in the series of volumes entitled "Production of Gold and Silver in the United States." This publication has received the warmest commendation of statisticians, both at home and abroad, and its statements are generally accepted. Its value is increased also by the promptness with which it is issued, each volume appearing in the early part of the year foliowing the one treated; but for this very reason it is impossible to give the returns of other countries completely, many of them, indeed, being two or three, or more, years late with their own official reports. The Director of the Mint states all his authorities carefully, and when an estimate enters into the computation it is so indicated, This is the proper statistical method, as it enables the results to undergo criticism and verification. The Director of the Mint, himself, corrects his figures for past years as he receives new or better information; there is consequently always a variation in the statistics for recent years from one volume to another, and sometimes the change is very important. In the Mint Report for 1892, the production of gold in the world in 1890 and 1891 is given as \$113,149,600 and \$120,518,800 respectively, while in the previous volume the figures for these years are reported as \$120,475,300 and \$125,299,700. The great discrepancy between these statements is to be explained thus: Formerly it was the custom to credit the Chinese Empire with a gold-product varying from \$3,500,000 to \$9,500,000 annually. These estimates, which were first introduced into the statistics in 1883, were based on the authority of Ivan C. Michels until 1886, and then on the exports of gold to England and to British India. It was assumed that the gold exported in excess of the amount was of Chinese production, but this was criticised by such high auth

that gold is produced in China, and any statistics of the world's





THE ORION MILL, TRANSVAAL, SOUTH AFRICA.

the result. The necessary substraction or addition of 32 at the proper stage is performed in the usual manner.

The Walrand Bessemer Process.—Considerable difficulty has been The Walrand Bessemer Process.—Considerable difficulty has been experienced hitherto in the utilization of Bessemer plants of small dimensions for the production of steel castings by reason of the tenuency of the metal to diminish a temperature toward the end of the blow. With a view to overcoming this tendency substances have been introduced into the bath substances whose rapid combustion creates high temperature. For the acid Bessemer ferro-silicon is employed, and for the basic Bessemer ferro-phosphorus is used; still, a pronounced success could not be obtained as long as the practice was to add the forms, illigon or forms, phosphorus during the boiling ployed, and for the basic Bessemer ferro-phosphorus is used; still, a pronounced success could not be obtained as long as the practice was to add the ferro-silicon or ferro-phosphorus during the boiling period, because the combustion of the silicon or phosphorus is delayed through the presence of a large quantity of carbonic oxide and because considerable heat is carried off by the large volume of gas. Perceiving this, M. Walrand, Paris, says the London "Iron and Coal Trades Review," decided to make the addition after the carbon had been blown out and thus create a second blow. This important modification has been investigated by Herr R. M. Daelen, Dusseldorf, a well-known German metallurgist, and he reports that its success is complete. The addition of about 5% of fused ferro-silicon increase the temperature of the blow in a few minutes by 200° C., and makes it possible to carry on the elimination of what carbon there is still in the bath to a further point without introducing into the bath excessive quantities of oxygen. Therefore only a slight addition of ferro-manganese is required for expelling the gases, which, besides, is facilitated by the high temperature. The process as invented by Messrs. Walrand was developed in a practical way in the foundry of Messrs. Legenisel Fils, Paris, and the trial proving successful, the proprietors of the Hagen Steel Works, Hagen, Westphalla, put up two converters, having a capacity each of 1,100 to 1,500 lbs., and producing per turn 4 to 5 tons of steel castings. Herr Daelen states that at these works hard and soft steel castings have been made with perfect regularity. Test pleces cut from the castings have shown a tensile strength of 59,700 to 71,100 lbs. per square inch and an elongation of 25 and 22% respectively. Herr Daelen is of opinion that these Bessemer steel castings can be made more cheaply than crucible steel castings. He also states that the Bessemer converter may be started and stopped as readily as a cupola in a foundry, which cannot be done in the case of

production which do not take that country into account are incomplete. Dr. John A. Church, who spent several years in China recentiy as mining engineer for the Viceroy Ll Hung Chang, wrote in the "Mineral Industry" for 1892 as follows: "China appears to have an extensive gold field in Manchuria and Corea, and perhaps also in Yunnan and Kwei-Chao. The two former are in the extreme north and the two latter in the extreme south of the Empire. It is reported that the northern mines have been thrown open to foreign methods of work, but the oppressive peculiarities of local government will probably prevent the effectual opening of the mines by foreigners." Dr. Church states that, although mining in Manchurla has been prohibited hitherto, from \$1,500,000 to \$2,000,000 worth of gold finds its way to Pekin every year. This estimate was based on the difference between the exports and imports of gold from and into China as reported by the Imperial Maritime Customs.

The constant excess of the Chinese exports of gold over the imports has been a subject of discussion ever since statistics showing it were first compiled. Mr. E. McKean, statistical secretary of the Imperial Maritime Customs, has attributed it to the amount of gold brought clandestinely into the country by Chinese passengers from America and Australia. Without doubt, more or less gold in the form of dust and bars enters China in this manner, and it is further known that some is brought secretly into the country from Siberla. Whatever may be the amount of these clandestine imports it is morally certain that they have also been exported clandestinely from the countries in which the metal was turned out, and probably escaped count in their records of production.

Important evidence on the subject of gold in China was recently contributed by Mr. W. Beauclerk, of the British Legation, at Pekin, in a report to the Foreign Office at London, from which the following paragraphs are reproduced:

"A large amount of gold comes to Pekin as dust from the washings

In a report to the Foreign Office at London, from which the following paragraphs are reproduced:

"A large amount of gold comes to Pekin as dust from the washings on the Chinese side of the Amoor River, and partly smuggled across the Russian frontier. It is melted down in Pekin in the shape of small bars of 10 taels weight, about the size of a sponge-cake finger blscuit, and has nominally a percentage of 98½ pure gold.

"The recent severe fluctuations in exchange have produced much gambling in gold here, and doubtless elsewhere in China. Foreign bankers buy gold bars to remit home in lieu of bills of exchange. By this system of 'legitimate banking' every transaction is covered at once. Native bankers cannot do this, so that they hold the gold till its value is favorable to them, trusting to luck that the Exchange

^{*}Abstracted from article in London "Engineering."

may not go against them before they are forced to part with their bullion. The native banker has this advantage over his foreign competitor, that the latter must purchase gold at its present real value, while the former issues paper to the full amount of his credit. "In Pekin there must be a huge amount of hoarded gold, for the officials who, in many cases, make very large fortunes out of their places, buy gold bars and secrete them, fearing to put their money into banks because their superiors would discover its existence and confiscate the whole of it. Consequently, the officials are ready to pay a considerable premium for gold bars, and the Pekin market for gold always ranges from 1% to 2% higher than that of Shanghai. When silver is very cheap, and gold correspondingly dear, the possessors of these hoards of gold realize a part of their property and buy in again on the recurrence of a low market."

From this it is evident that not only does China produce gold, but also that she has a stock of the metal which is brought out under

From this it is evident that not only does China produce gold, but also that she has a stock of the metal which is brought out under certain favorable conditions.

Another opinion on the subject is furnished by Mr. G. Jamieson. Acting Consul-General at Shanghai, in a report to the British Foreign Office on the effect of the fall in value of silver on prices of commodities in China, written under date of August 5th, 1893. He says on page 14 of this report: "The amount of gold sent out of the country during the last 10 or 15 years must be considerable, and it is a question of some interest to ascertain where it comes from. A certain quantity is simply a re-export of gold brought by returned emigrants from San Fransisco and Australia, but the bulk of it is a genuine export of the country itself. So far as we know no gold mines are now worked to any extent within the bounds of China proper. A small amount finds its way down from the Russo-Siberian frontier, and from certain gold washings in the Amoor River, but that cannot be much. The gold for export comes mainly from the private hoards of wealthy Chinese, where it may have been for generations in the shape of bracelets, hairpins and other ornaments, being tempted out by the unprecedentedly high price now paid for it. There is also a considerable amount of gold in the shape of bars which pass, especially in the North, as an article of commerce. It is said that one of the principal uses to which such bars are put is to serve as the medium in which presents are made to high officials. It is well known that provincial officials returning to the capital after a few years' service must conform to time-honored custom, and an innocent looking flowerpot with a few gold bars under the roots of the plant is the most acceptable form in which the necessary gratification can be made. In one form or another a very considerable amount of gold exists in China, and I apprehend that there gratification can be made. In one form or another a very considerable amount of gold exists in China, and I apprehend that there will be, so long as the present rate of exchange lasts, a continuous export to Europe."

will be, so long as the present rate of exchange lasts, a continuous export to Europe."

On the other hand there is evidence that not all of the gold exported from China is recorded. Thus Mr. C. T. Gardner, Consul at Hankow, says under date of Mareh 21st, 1893, in Report No. 1,231, to the British Foreign Office: "A large quantity of gold, which does not appear In the customs returns, is now being exported from China. The depreciation of silver tempts the natives to sell their hoards, but instead of sending it through the regular chanuel of the customs and by steamers they, through fear of robbery, prefer to carry it in small parcels hidden in their baggage, or give it in charge to a native employee of the vessel, who gets a commission for his trouble." It is clear from the foregoing testimony that China should be credited in statistical compilations of the production of gold in the world with the amount of the net exports from the country, for in not actually produced there it has probably come from other countries in which it has not been recorded, and on being exported it is added definitely to the world's supply of the precious metal. The net exports of gold from China since 1888, in which year a statement of the movement of treasure was first prepared by the Imperial Maritime Customs, is given in the following table:

Year.	Net exports, Haikwan Taels.		nge ex- nge on ndon.	Average ex- change on New York.	Net exports, dollars.	Net exports
1888	1,678,000	48.	8¼d.	*\$1 14	\$1.932.020	2,908
1889	1,625,000	48,	8¾d.	1.15	1,868,750	2,812
1890	1.783,000	5s.	21/4d.	*1 26	2,246,580	3.380
1891	3,693,000	4s.	11d.	1.70	4,431,600	6,638
1892	7,332,000	4s.	4d.	*1.06	7,771,920	11,634

* Calculated from English Exchange at £1 = \$4.87.

These are the only official figures relating to China,* and the authority of those used by the Director of the Mint previous to 1892 is questionable. The statistics used by him as representing the production of China are reproduced in the following table:

Year. 1883	Value .\$5,355,000	Year. 1886	Value. \$3,650,000		Value.		Value. \$5,330,000
1884 1886	6 222 000	1887	9,500,000	1889		1891	

In revising the statistics of the production of gold in the world in accordance with the criticisms of Dr. Soetbeer and Professor Suess by eliminating the Chinese figures from his list the Director of the Mint corrected only those for 1890, 1891 and 1892. The statistics given in the last report are not uniform, therefore, because those for years previous to 1883 and subsequent to 1889 do not take into account the production of gold in China at all, while those for

the years 1883-1889, both inclusive, credit China with an undoubtedly over-stated production. Obviously the Chinese figures for the years 1883 to 1889 should have been dropped out of the list together with those for the years since 1889, pending the substitution of more correct ones. Before making a new statement of the world's production of gold, however, it is necessary to call attention to certain other important errors in the last mint statistics.

Russia is credited with a production of \$24,125,000 in 1891 and \$23,546,000 in 1892, the authority being a dispatch from the American Minister at St. Petersburg, who stated that the figures were official, but there was a mistake somewhere for the ometal figures subsequently published showed a large increase in the output in 1892. The production of unrefined gold in Russia in 1890 was 39,369 kilos; in 1891 it was 39,010, and in 1892 it increased to 43,138, these figures being taken from a table in the official catalogue of the Russian Section at the Chicago Exposition. The production of refined gold in 1890 was previously reported as 2,155% poods, or 35,309 kilos, and in 1891 it was given as 2,014¼ poods, or 32,993 kilos. The value of the output of fine gold in Russia in 1890 and 1891 would be \$23,466,361 and \$21,927,148, respectively. Assuming that the 43,138 kilos of crude gold produced in 1892 was 860 fine, which has been about the average in recent years, the product of fine gold in that year was 37,099 kilos or \$24,635,995.

The Director of the Mint based his South African figures on the authority of the Kimberley correspondent of the London "Mining World," who stated that the output of gold in the whole of the Trunsvaal in 1892 had been 1,290,000 oz. valued at \$4,535,000, which is equivalent to \$22,069,578 or \$17.10 per oz. The official figures reported by the Witwatersrand Chamber of Mines show that the actual output was 1,325,394 oz., of which 1,210,868 oz.,* coming from Johannesburg was valued at \$20,929,361, while the remainder, calculated at \$17.50 per

The world's production of gold from 1883 to 1892, both years inclusive, as reported by the Director of the Mint and corrected in accordance with the criticisms made in this article, is summarized in the following table:

Year.	Mint fig	gures.	Revised figures.		
1 car.	Value.	Kilos.	Value.	Kilos.	
	a. \$95,400,000	143,514	b \$ 90,045,000	135,487	
1884	a. 101,700,000	153,024	b. 95,478,006	143,662	
1885	a. 108,400.000	163,166	b. 103,750,000	156,109	
1886	a. 106,000,000	159,494	b. 102,350.000	154,002	
1887	a. 105,755 000	159,126	b. 96,275,000	144,862	
1888	a. 110,197 000	165,810	c. 103,129.9.0	1 5,176	
1889	a. 123,489.000	185,610	c. 116,357,750	175,079	
1890	h. 113,149,600	70,248	c. 115,404,561	173,645	
- 189;	b. 120,515,800	181,339	e, 122,752.597	184,701	
1892	b. 130.816.60t	196.814	lc. 140.562.53t1	211.499	

a includes exaggerated estimate of gold production of Cbina. b includes no estimate of production of gold in China, c includes estimate of production of gold in China based on net exports.

The statements in the column of revised figures for the years 1891 and 1892 are undoubtedly too high being exaggerated by the great inand 1892 are undoubtedly too high being exaggerated by the great increase in the exports from China of metal produced in previous years and hoarded or held in stock. The increase in the world's production of gold in 1892, however, was very large indeed, each of the great gold producing countries making a much larger outturn than in the previous year, with the exception of the United States, where production was stationary.

gold producing countries making a much larger outturn than in the previous year, with the exception of the United States, where production was stationary.

The probability, at present, is for a further increase in the production of gold, although the phenomenal ratio of increase in 1892 is scarcely to be expected again in 1893. The reports this year from all parts of the world are favorable, however. The Witwatersrand district of the Trasvaal is maintaining its wonderful record of production, while recent developments (no less than the discovery of the Main Reef series at a depth of 2,400 ft. and 4,000 ft. south of the outcrop) have insured the life of these mines beyond a time which auy one can yet foresee. In the meanwhile other districts of the Transvaal (De Kaap, Potchefstrom and the rest) are maintaining an output of \$2,000,000 or more per year, and new fields are being discovered as the wave of prospecting spreads out.

From Australasia, which now ranks the United States as the largest gold producing region of the world, the reports are still of increased outputs in the old districts, like Bendigo, and new discoveries in the vast colony of Western Australia, which is as yet imperfectly explored. In British India, also, production is increasing in 1893, according to the monthly returns of the companies operating in the Colar field of Mysore, whence comes nearly all the gold credited now to the Indian Empire. About Russia but little Information leaks out in advance of the official statistics, and it is impossible to make any forecast. The production of Russia is more uncertain than that of any other country, since its chief source is still the placers, and such a yield is subject to sharper fluctuations than in countries where the more part of the gold is derived from lode mining.

The production of gold in the United States has ranged between the lode mines the output is maintained with much regularity, and there is no reason now to anticipate either a startling increase or decrease in the product. The ten

The "North China Herald" of October 11th, 1889, reported the export of gold from Shanghai in 1886 as 1,748,248 Haikwan taels, and 3,449,853 in 1887. The average rate of exchange in the former year was 5s. (81.29) and in the latter 4s. 10d. (81.18). The experts for the two years were convisient, therefore, to \$2,130,423 and \$4,070,827 respectively. This represents practically the total export of gold from China, since Shanghal is the only important port of shipment to for ign countries (Hong Kong being classed as foreign). The gold collected in the various parts of China is shipped from the ports of Foochow, Amoy, Chefoo, Tientsin (through which nearly all the builtion exported from Pekin passes), and other ports to Shanghai, thence going to Hong Kong, Yokohama, San Francisco, British India and London.

^{*} It is greatly to be regretted that the weight of fine gold is not reported in all statistical compilations of the precious metals.

and an increased production is promised from the gold mines, and the falling off in one way may be compensated by a gain in the other, It is expected, of course, that the resumption of placer mining in California will have an important effect upon production, but it is not likely to be so much as has been predicted. At the time placer mining was restricted, in 1882, the total output of the alluvial diggings was only about \$6,000,000 per annum.* The capacity for production has not increased since that time, and that amount may be taken as the maximum that could be won if work were resumed in all of the idle placer mines. That, however, is improbable. In order to reopen the enjoined diggings, according to the provision of the new law, it is necessary to contsruct impounding dams, etc., which involve a large expenditure of money. Some concerns like the North Bloomfield Company can stand this, but there are many, producing in 1881, which cannot. It is idle, therefore, to expect an enormous increase in California's gold product, as has been foretold, and in any case it will hardly become apparent this year.

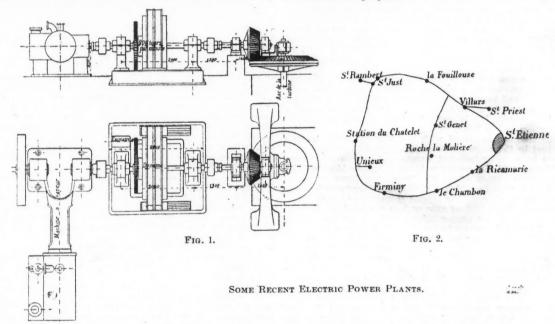
SOME NEW ELECTRICAL POWER PLANTS.

A notable example of the use of water power for the production of electricity is the plant recently erected for the Neuhausen company, at Neuhausen, in Switzerland, by the Oerlikon company. The Neuhausen works, which are near Schaffhausen, and which derive a power from the falls of the Rhine at that place, have, until recently, had in use seven dynamos, four of 150 H. P. each, one of 300 H. P. and two of 600 H. P. each. In order to increase the production of aluminum the company wished to increase in a large proportion the production of electric energy, and for that purpose put in four very large dynamos, making, with the three of the largest of its old machines, a group capable of exerting 3,900 H. P. The four new dynamos are run at a speed of 150 revolutions per minute, and give out 7,500 amperes each, at a tension of 55 volts. The nature of the work

turbine or engine at will. From the power station the wire lines by which power is conveyed, run to St. Etienne in different directions, forming a loop, as shown by the small map Fig. 2, and having several branches to convey current to various points for power and for lighting purposes. While only 900 H. P. will be supplied at first it is expected that this will have to be largely increased, and provision has been made at the power station for the erection of additional units.

Sault Ste. Marie Canal.—The masonry of the new lock was practically completed during the season just closed. The gates for the lock are under contract, and it is now expected that the entire works on the new canal will be finished by the opening of navigation in 1896. On the new canal on the Canadian side of the river the masonry is also completed, and it is expected that the canal will be finished in another year. other year.

Railways in China.—Railway-making is beset with unforeseen obstacles in China, says "Indian Engineering." A line is being made from the interior of Manchooria to the coast, and it was lately proposed to make a junction with Moukden, the chief town. The engineers consulted the Tartar General, and the General, before giving his sanction, consulted the geomancers, who declared that if the line were laid along the proposed track the vertebrae of the dragon that encircles the city would be broken by the nails of the sleepers. Such a contingency was too awful to contemplate, and the general promptly informed the engineers that the thing was impossible. The latter in despair, lodged a protest with Li Hung Chang, who, while commending the caution of his subordinates, expressed it as his opinion that the hidden dragon would suffer no harm, rather otherwise, by the innovation. However, he would refer the matter to the emperor. This struck terror into the heart of the General, and he again consulted the geomancers. Eventually a line was traced some hundreds of miles away from the site at first proposed.



at which they are employed, which requires an absolute continuity of current, renders the work in the construction of these dynamos a particularly delicate one, requiring much care. Fig. 1 shows in outline sketch one of these dynamos; it is vertical and coupled directly to the turbine shaft. At the other end of the dynamo shaft is attached a steam engine for use in case of necessity, as shown in the plan. Each unit formed by the turbine of the dynamo is divided into three stages, the turbine forming the lowest, while the dynamo itself is divided into two stages. The machine is built in such a wey that variations in charge do not perceptibly move the neutral zone of the magnetic field, and the service is, therefore, very simple. The turbines were built by Escher, Wyss & Company, at Zurich. The weight of the inductor and its attachments are balanced hydraulickally in order not to overweight the step bearing.

The dynamos at Neuhausen are of the continuous current variety. Those which are mentioned below, and which are used to transmit power from St. Victor to St. Etienne, are of the triphase type. In 1891 a syndicate was formed at St. Etienne for the purpose of utilizing the falls of the Loire for the production and distribution of power. The fall near the city being insufficient, a concession was obtained of a fall on the Forez Canal capable of developing 900 H. P., with the possibility of a considerable addition.

The power station was established at Chatelet, and is provided also with steam engineer in case the water-power becomes insufficient in time of prolonged draught. The engines, however, will only be used in cases of necessity. The power station has three groups of dynamos of 300 H. P. each. Each dynamo can be driven at will by a turbine or by a steam engine, the latter, as stated above, to be used only in cases of necessity. The axis of the turbine is vertical and that of the dynamo horizontal. The dvnamo runs 200 revolutions a minute, and the shaft is connected by couplings, either with the

Slag Bricks.—The manufacture of bricks from blast furnace slag has attained considerable dimensions in Germany, the Luhrmann furnaces near Osnabruck alone having turned out 5,100,000 bricks. The manufacture has also been taken up by other iron works. The granulation of the slag, the first essential portion of the process—which is substantially the same everywhere—is effected by running the slag along a channel together with a stream of water into a reservoir, in which it is collected. The lime to be mixed with it, in the proportion of one part to six of granulated slag, is slaked with sufficient water to yield a moist sludge, and the two ingredients are thoroughly incorporated in a mill, in which the process is conducted in the following way: The mixed slag and lime are conveyed by a spout, to which a shaking movement is communicated, to a pair of rolls, which stop the access of unduly large fragments of slag or foreign bodies to the mixer proper, and mingle the slag and lime still more thoroughly while reducing them somewhat in size. The final mixing is effected by a set of three drums with radial projections fitting into each other with only a slight amount of clearance, so that the ingredients are brought into the most intimate contact. A machine absorbing 2 to 3 H. P. will serve to prepare the material for 9,000 to 10,000 bricks per shift of 10 hours. The mixture is molded into bricks by a machine, which is provided with a hopper kept filled by the laborer in charge, and an arrangement whereby the quantity necessary to form one brick is let down into the mold and then the aperture closed, while the movable sides of the mold are brought into position by eccentrics, and by this means pressure is exerted upon the mass to shape and consolidate it. The finished brick is pushed out of the machine and the operations of filling the mold and applying pressure are repeated. A machine absorbing 7 to 8 H. P. will turn out at least 9,000 to 10,000 bricks per shift, its capacity being limited chiefly by the time consumed

^{*}The production of gold in California fell from \$18,200,000 in 1831 to \$14,120,000 iv 1883, and then sank to about \$12,000,000.
*Translated and abstracted from "Le Genie Civil."

THE F. L. BARTLETT ZINC-LEAD PROCESS.*

This process is used at Canon City, Colo., for the treatment of argentiferous zinc-lead sulphide ores. The process in general consists in separating the zinc and lead by volatilizing them in the form of a zinc-lead fume, from which a marketable pigment is obtained, while the silver is left behind with the other non-volatile metals, and is collected in a copper matte. The process is based on the fact, discovered by Dr. Bartlett, that when silver-bearing zinc sulphide ores are burned and the zinc is volatilized the amount of silver dragged off with it is much less than was previously thought to be the case. Two methods of treating the ores are adopted according to the proportions of zinc and gangue they contain. Those containing about 25% or more are treated by the first method; those containing about 22% of zinc or less by the second.

The following are examples of ores actually treated at Canon City:

Silver.	Lead.	Zine.	Iron.	Copper.	Silica
1 10 oz.	30%	21	38	0	5
2 25 oz.	18%	25	10	0	18
3 4 oz.	2%	12	24	10	38
4 29 oz.	15%	28	15	6	12

The requisites for the process are: 1. Cheap flaming fuel—e. g., bituminous coal. 2. An iron ore either as oxide or iron pyrites, the latter being especially desirable if it contains silver. 3. A copper ore containing about 3% copper for the formation of the copper matte to collect the silver.

The ores containing 25% of zinc and over are crushed to pass a track except and event which provided by an archimedian corporation.

The ores containing 25% of zinc and over are crushed to pass a 4-mesh screen, and are then mixed by an archimedian screw with an equal bulk of fine coal. The mixture is then moistened and charged in lots of 600 lbs. into a furnace, of which the grate consists of perforated plates, the charge being spread on the grate in a layer about 4 in. deep. Air is forced through the charge from below at a pressure of about 2 oz. per sq. in., and a sufficient quantity of air is also forced through openings in the sides of the furnace above the layer of the ore to prevent the formation of sulphuric acid with the hydrocarbon vapor. The burning is completed in about 4½ hours, when the charge, which has not been touched during the operation, is in the form of a sintered mass, ready to go to the blast furnace, containing the silver and other non-volatile metals and some zinc. The sulphur is driven off and all the lead, and most of the zinc is volatilized; being collected in the form of a fume, out of which the pigment is made.

furnace, containing the silver and other non-volatile metals and some zinc. The sulphur is driven off and all the lead, and most of the zinc is volatilized; being collected in the form of a fume, out of which the pigment is made.

Iron pyrites, when necessary for a flux, is charged into a somewhat similar furnace and treated in a similar manner, except that only enough slack coal is used to start the pyrites burning, their sulphur contents being sufficient to supply the requisite fuel heat, while a higher blast (4 oz. per sq. in.) is used, the burning being completed in from three-quarters to one hour.

Sinter from the zinc ore is mixed with the burned pyrite, copper ore, fluxes and fuel in the requisite proportions, and is smelted at a high temperature in a water-jacketed furnace of a greater proportional length than that of the ordinary blast furnace. Most of the zinc left in the charge passes off in the form of a fume which is saved, while the copper matte which collects the silver runs into an outside crucible with the slag, and is tapped from time to time.

The ores containing about 22% of zinc or less are smelted directly in a special furnace with the proper mixture of copper ore, fluxes and fuel. This furnace is water-jacketed and has two rows of tuyeres on each side, the upper ones being about 10 in. above the lower. The lower blast is supplied under a pressure of about 2 lbs. to the sq. in., and is preferably a hot blast. The upper blast is cold and run under a light pressure. The ore and fuel are fed together continuously in a thin layer from 12 to 18 in. deep. For fuel, a mixture of coke and coal screenings is used amounting to one-quarter of the weight of the ore. The blast from the lower tuyeres plays upon the bath of molten matter, scorifying it, and volatilizing all the lead and most of the ziuc, which pass off, through the thin layer of the unmelted portion of the charge, in the form of a fume. The upper tuyeres deliver a blast at the top of the charge, thus serving to keep up the necessary comb

into cars and taken to the refinery. This is subjected to a low, red heat in a closed tube containing a screw, which keeps the material in constant motion. By this means all the deleterious volatile elements are removed and the product is a marketable white pigment containing from 35 to 40% of oxysulphate of lead and from 55 to 60% of zinc oxide.

60% of zinc oxide.

Some ores lose silver heavily and others hardly any, ores containing copper or iron pyrites losing much less than others. As much as 95% has been recovered, but generally the salvage is between 70 and 85%. Theoretically, the loss of silver should be confined to that in the pigment and that in the slags, i. e., in the former about 1 oz. and in the latter 1½ oz., or 2½ ozs. per ton of ore treated; but there is a variable loss somewhere between, which has never been discovered. (Later returns show the silver loss to be under 2 oz. per ton of ores treated, while there was a gain in the lead and gold over the assay of the raw ore.) over the assay of the raw ore.)

The cost of treating the ore at Canon City is from \$5 to \$10 (average cost, \$6), including the production of the pigment and matte. The price of slack coal delivered at the works is 50c. per ton, the coal mines being near the works. The price of coke is \$5 per ton at

Canon City.

The cost of a plant to treat 250 tons of ore per day, producing about 20 tons of pigment and 40 tons of matte, is \$250,000.

IMPROVEMENTS IN IRON MAKING IN ALABAMA.

Reported for the Engineering and mining Journal by Dr. Wm. B. Phillips.

At the fall meeting of the Alabama Industrial and Scientific Society held in Birmingham, Nov. 24, several papers of more than usual interest were read. Mr. Murray, superintendent of the Linn Iron Works, described an improvement which he had been able to make in furnace boilers, whereby the use of a double-decked boiler with cylindrical mud-drum suspended beneath and a modification of the Spectman-Konnedy was humor had resulted in potable corners.

in furnace boilers, whereby the use of a double-decked boiler with cylindrical mud-drum suspended beneath and a modification of the Speerman-Kennedy gas burner had resulted in notable economy. These boilers were in use at the Alice furnaces before they were blown out, and are now used by the Sloss Iron and Steel Company. Mr. A. E. Barton, superintendent of the Eusley Furnaces, read a paper on the grading of Southern pig-iron, in which the change from the old method of 15 grades to the present method with 11 grades was treated in detail. The necessity of maintaining a closer watch in the laboratory upon the products of the furnace, in order to grade properly was insisted upon. The fact is that there has always been here a decided tendency toward a multiplication of the number of grades, whereby ensues a conrusion in the mind of the purchaser and consequent reclamations. The irregularity of the stock, in chemical composition, has much to do with the number of grades, and until we can secure in the ores a greater uniformity of composition we shall always be troubled by the question of grading. Some sales have been made here of late in which a guarantee of silicon content had been asked for and given. This is a hopeful sign, and may be taken to mean that a nearer approach to the sale of iron by analysis has been reached. The improvement in the speed with which analyses of iron are now made has taken away from the seller the plea that analyses were too much delayed to be of practical use in the selling. For instance, by the Ford method silicon may be determined in 12 to 15 minutes, and by the Drown method three silicon estimations may easily be made in 90 minutes, without the use of oxygen, which is required in the Ford method.

Mr. Erskine Ramsay, mining engineer at Pratt Mines, read an exhaustive paper dealing with the question of utilizing coke oven gases and heat for generating steam. Many of the ovens at the Pratt Mines have been provided with a gas flue running the entire length of the battery, and delivering

of the battery, and delivering gas under the boilers. The system in use, which has been most carefully worked out by Mr. Ramsay, is being extended as rapidly as possible, with gratifying results in economy and steam pressure.

Dr. Wm. B. Phillips, consulting chemist for the Tennessee Coal, Iron and Railway Company gave the results of experiments in magnetizing and concentrating the low grade soft red ores of the district. Operating upon 3,000 lbs. at a time the crude ore, which contained 40% of iron and 29% of silica, had been so improved as to yield 57% of iron and 10% of silica. In some cases the percentage of iron had been increased to 60%, and the silica reduced to 9%. The best result had been iron 62% and silica 9%.

It was announced at the meeting that the Tennessee Coal, Iron and Railway Company had decided to build a kiln for magnetizing red ore, and that the capacity would be about 125 tons per 24 hours. According to the quality of this ore the yield, per 24 hours, if magnetic concentrates, would be from 60 to 80 tons. The pattern of kiln adopted is the latest Davis-Colby, with modifications to suit the emergencies of the case, uniform and thorough magnetization. If no unforeseen difficulty occurs the kiln and the accompanying plant will be ready for use by the middle of February.

The experiment to be so soon undertaken will be watched by Southern iron masters with a vast deal of interest, not only on account of the metallurgical questions involved, but also, and, perhaps chiefly, because if it is successful, it wall bring into market a great deal of ore now practically useless. The 12 ft. seam of soft red ore overlying the seams now worked carries too little iron and too much silica for blast furnace use, while the 22 ft. seam lying between Grace's Gap and Lake View, a distance of five miles along the mountain, will also be rendered available for the furnaceman. In this connection the work of Mr. H. F. Wilson, Jr., in locating and tracing the great seams of soft ore on Red Mountain, both above and be in this district that the iron men have been stirred up to the improvement of the ores. It was a result sure to follow upon the improvement of the fuel, for when the maximum beneficiation of the coke was accomplished the very next step was toward the beneficia-

^{* &#}x27;bstrac' of a report by E. W. Hawker, F. G. S., for the Broken Hill Company, of Anstraija. This report was made about one year ago for private use, and is now allowed to be published by courtesy of Mr. F. L. Bartlett.

Fig. 2.

tion of the ores. It is not a matter whose solution can be recorded without the expenditure of thought and money, for at first glance the improvement of the red ores does not present much attractiveness to capital. It is only after unquestionable results have been reached in the laboratory, working with several hundred pounds of ore, and in one case with 3,000 lbs., that the feasibility of the process becomes so apparent as to warrant further and much more extended investigation.

THE ELIMINATION OF SULPHUR FROM IRON.

By J. E. Stead.

Since the first part of this paper was read special experiments have been made to ascertain the exact nature of the change which occurs when fluid oxides of iron act upon fluid iron containing sulphur. The imperfect trial previously described tended to show that provided the cinder is not charged with any large quantity of peroxide of iron, no gas having a smell of sulphurous acid is given off; but as this was not conclusive, a more careful and elaborate experiment was conducted, which is rather more satisfactory. One clay crucible was luted into the upper part of another, so as to produce an air-tight joint. Into the uppermost crucible was securely fixed a long porcelain tube; the whole arrangement in reality constituting a clay retort, with a porcelain tubulure. Before the crucibles were cemented together a mixture of coarsely-powdered sulphurous white iron and basic ferrous sillcate was placed in the lower one. The retort with its contents was then placed into a coke furnace, and was so fixed that the porcelain tube projected through the brickwork quite clear of the fire. To the end of this tube a U tube containing

Fig. 1

ELIMINATION OF SULPHUR FROM IRON.

a caustic alkaii solution was attached, and when ali was thus prepared the furnace was lit. The accompanying sketch (Fig. 1) will make the arrangement clearly understood. As soon as the melting-point of the iron was attained a brisk evolution of gas commenced, which burnt on applying a light with a clear biue flame. The whole of the gas was passed through the caustic liquor, so that every trace of suiphurous acid which might be given off would be absorbed by it. When the gas ceased to be evolved the furnace was allowed to cool, and the spongy mass of cinder and iron crushed, and a sufficient quantity of each was separated for analysis, and the caustic liquor, after acidation and oxidation with bromine water, was examined for sulphurle seid.

action and exidation with bromine water, was examined for sulphur section.

Analysis showed that the amount of sulphur in the metal decreased from 1.83 to 0.586%. The amount of sulphur absorbed by the caustic alkali was equal to 0.0024% on the metal treated, or practically only a trace. It would appear from this that no sulphurous acid is formed directly by the exidizing action of protoxide of iron on the sulphur in fluid iron, but that sulphur existing as sulphide in the iron is found in that state in the cinder. The next question to answer is whether the sulphur is absorbed directly as such, or that sulphide of iron is dissolved out of the metal by the exides of iron.

An experiment was made in which sulphur vapor was passed through ferrous silicate with the result that the proportion of sulphur increased from 0.21 to 1.96, and finally to 2.87%. It would appear from this that basic silicate of iron is capable of absorbing free sulphur; but whether it has the power to withdraw sulphur from sulphite of iron in fluid metal (taking the sulphur and leaving the iron) is a question which requires further investigation. The most probable reaction is that, as basic silicates freely dissolve

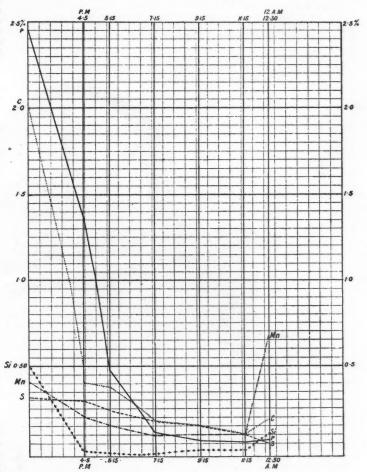
sulphide of iron, that substance is bodily dissolved out of the iron, and that in the puddling process the sulphur is afterward partially converted into SO₂ by oxidation, and escapes in that state.

Samples taken at various periods during the process of the blow in the converter were carefully analyzed, to investigate the action on sulphur in the basic Bessemer process. The result showed a decrease of sulphur from 0.160% in the raw iron to 0.092% in the steel, with an increase in the cinder. The indications are that the greater part of the sulphur is removed in the latter part of the blow.

In the acid Bessemer process about 10% elimination of sulphur was shown, but the results obtained by experiment and analysis were variable, and further trials are needed before any definite opinion can be given.

With regard to the Saniter process* careful analyses were made of crude metal before and after treatment showing a reduction in

of crude metal before and after treatment showing a reduction in sulphur amounting to from 33'4 to 84% of the amount originally in the iron. This confirms the laboratory experiments, and goes far to prove that sulphide of iron is dissolved by the chloride of calcium and lime from the crude iron, and is converted into sulphide of calcium and oxide of iron, and that the oxide so formed then reacts on some of the phosphorus, producing phosphoric acid, which in presence of lime basic slag forms phosphate, the oxide at the same time being reduced to iron, which returns to the bath. It must not, however, be forgotten that any moisture in the chloride of calcium or any carbonic acid associated with the lime will also produce



oxide of iron, and that these will also act as oxidizing agents. The fact

oxide of iron, and that these will also act as oxidizing agents. The fact that the iron and manganese are not in nearly sufficient quantity in the slag to combine with the sulphur present is absolute demonstration that sulphide of calcium must be present.

The reactions in this process are exceedingly complex, and there are changes which occur of which we know little or nothing. It is, however, Mr. Stead's opinion that the sulphide of iron is dissolved out of the metal in the first instance by the free or loosely attached dissolved lime; but he does not care at present, without more extended investigation, to hazard any opinion as to what the subsequent reactions may be. With regard to the belief that a powerful reducing agent is required to be present to effect the removal of suiphur from iron as calcium sulphite, Mr. Stead says that, if reducing agents are required, in fluid raw iron itself you have all the reducing agents needed, so that it is not necessary to look for any such agents outside of the iron carbon, silicon, phosphorus and manganese naturally present in all raw iron.

In the Saniter process for desulphurizing in the basic open-hearth steel furnace, analyses were made of the metal used and of samples

In the Santer process for desulphurizing in the basic open-nearth steel furnace, analyses were made of the metal used and of samples taken from the bath at different stages. These showed a continuous decrease in sulphur, which gradually diminished from 0.310% in the mixture to 0.052 in the final result. These changes and also those in carbon, phosphorus, silicon and manganese are shown graphically in Fig. 2, the diagram giving the proportions at different stages of

[&]quot;Abstract of paper read before the Iron and Steel Institute of Great Britain. Part I. was given in the "Engineering and Mining Journal" for October 15th 22d and 29th, November 12th. 19th and 23th, 1892.

^{*} See "Engineering and Mining Journal" for June 10th, 1893, page 536.

A NEW CLAYTON COMPOUND HIGH DUTY AIR COMPRESSOR

It is now generally the case that builders, who formerly manufactured a general line of machinery, devote all their ingenuity and capacity to some one type which they have excelled in producing. The Clayton Air Compressor Works, of New York, at that time builders of steam pumps some one type which they have excelled in producing. The Clayton Air Compressor Works, of New York, at that time builders of steam pumps and general mining machinery, introduced the first Clayton air compressor in 1871. The rapidly broadening field of usefulness for compressed air created a growing demand for high-class air compressing machinery, and soon caused the Clayton works to discontinue all other lines and concentrate the entire capacity of their plant to the construction of air compressors. Since this time they have made this type of machinery their specialty, laboring constantly to attain a higher plane of general excellence and adopting every improvement that would raise the standard of their machines. Among the numerous special designs which they are continually placing on the market is a compound belt actuated air compressor which we illustrate herewith. This compressor is intended for experimental and other duties in which air is used under pressures as high as 500 lbs. per square inch, where it is preferred to operate the compressor by belt power.

Two parallel cylinders are employed as shown, as in regular pattern of duplex compressor, one cylinder compressing the air to 80 lbs. pressure and transmitting it thence through the cooler shown above the cylinders to the second or high pressure cylinder, which completes the compression. The cooling apparatus combines the most efficient devices known for extracting the heat of compression by an external circulation of extractions of the colling reparatives. The special parts of the propert style of the propert style of the propert style.

for absorbing the heat of compression by an external circulation of water around the cylinders. The suction valves are of the poppet style

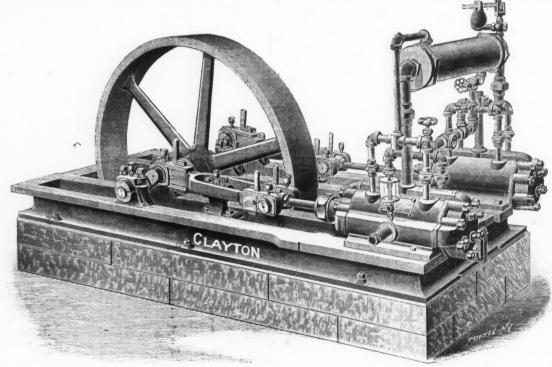
ANTIMONY MINING AND SMELTING IN JAPAN.*

The most important antimony mine in Japan is at Ichinokawa, in Ojoinmura-Nii-gori, Iyo Province, on the island of Shikoku. It is a little more than two miles from the town of Saljo. and three miles from the sea coast. The mine is said to have been discovered 11 centuries ago, but there are no records of early operations in it. At present it is worked by Kawabata Kumasuke and 50 other persons as a private concern.

private concern.

The country rock of the district in which this mine is situated is graphitic sericite schist, belonging to the Archaean. The ore deposits occur in the form of veins, of which there are three principal ones. Two of them, the Tsurubi and Kamebi, are parallel to each other, striking east and west, and dipping south at an angle of about 75°. They often unite, in which case they are very wide and rich. The third principal vein, known as the Yokobi, also strikes east and west third principal vein, known as the Yokobi, also strikes east and west and dips south, but at a moderate angle, never more than 38°, and sometimes only 10°. It is thought that the Yokobi vein intersects the Tsurubi and Kamebi veins at a greater depth than has yet been explored. These veins vary from 1 in. to 3 ft. in width. There are also many workable veins in the district besides those mentioned. All the veins are worked by shafts and levels, the former being from 50 to 150 ft. deep, and the latter from 300 to 2,000 ft. long. The cost of mining averages 5'877 yen (\$5.88) per 100 kin (60 kilos.) of ore.

The ore, which is stibnite of high grade, is smelted at works on the seacoast at Sanchoba, three miles from the Ichinokawa mine and only one-half mile from Saijo. The method of smelting employed is very simple. A crucible with a small hole bored through its bottom is set upon another crucible. The upper is filled with powdered ore, covered and heated from below, coal being used as fuel. The sulphide of anti-



CLAYTON BELT-DRIVEN DUPLEX AIR COMPRESSOR.

and are designed especially for durability and tightness under high duty; they are equipped with the Clayton patent safety stems, absolutely avoiding the possibility of a valve falling into the cylinder, and reducing clearance space to a minimum by permitting the pistons to run close up to the cylinder heads. As an extra precaution the main valve stems are fitted with both flange nuts and jam nuts. The pistons consist of a series of metallic rings of a composition made especially for the requirements of the duty. The connecting rods, bearings, etc., are all in accordance with the latest steam engine practice, and the entire machine represents the continued progress of the house. A similar design of steam actuated compressor is constructed for opera-A similar design of steam actuated compressor is constructed for opera-

Another design of steam actuated compressor is constructed for operation by direct steam connection.

Another design of compressor recently brought out by the same makers, is a triple compression cylinder compressor for liquifying carbonic acid gas, which has many excellent points.

Coal in Arkansas.—During the year ending June 30th, 1893, there were 666,300 tons of coal mined in Arkansas. There were 22 mines in operation, employing 1,752 men. This does not include some small open workings, where coal is taken out for local use.

British Iron and Steel Exports.—The total exports of iron and steel from Great Britain in October, were 243,717 tons, valued at £1,608,708. These exports were made up as follows: 89,928 tons pig iron; 8,518 tons bar angles and plates; 41,467 tons railroad material; 3,128 tons wire; 9,480 tons plate and boller iron; 13,586 tons galvanized sheet; 27,088 tons tin plate; 8,073 tons old material; 14,087 tons unwrought; 23,195 tons manufactures of iron and steel. For the 10 months ending October 31st the total export was 2,478,310 tons, an increase of 194,879 tons over the corresponding period in 1892.

mony in the ore is melted and drains away from the gangue into the lower crucible, whence it is ladled into molds. The monthly production of ore averages 200,000 lbs. and that of antimony sulphide from 150,000 to 160,000 lbs. The sulphide of antimony is reduced to metal and shipped in boxes to Osaka and Kobe, which are the principal markets for the product, both being within 200 miles of the mines. The cost of smelting is 0.385 yen (38½ cents) per 100 kin (60 kilos.) of antimony sulphide and 2.5 yen (\$2.50) per 100 kin of refined antimony.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Supreme Court of Iowa-

Reservation in Deed of Right to Sink Mining Shafts.

Here two parties entered into an agreement releasing to each other Here two parties entered into an agreement releasing to each other certain claims made by each in the grounds claimed by the other, in which agreement the first party reserved, held and enjoyed the privilege of mining and drifting any crevice or range struck by him on his own lands through the second party's ground, with the privilege of sinking shafts on said ground by paying to him an equal one-sixth portion of all mineral discovered or raised on said ground. They shortly afterward transferred their interests, but this reservation continued to be treated as valid by their successors in interest for 30 years. The reservation gave not a personal license merely to the first party, nor an interest for life only, but a continuous right in himself and successors, to work through the land conceded to the second party. Such reservation gave to the first party or his successors in title no Such reservation gave to the first party or his successors in title no right to erect, on the second party's land, houses or shantles, except for use in connection with the working of the mines; and in an action

^{*}Abstracted from "The Mining Industry of Japan," by Wado Tsunashiro.

to quiet title, in the absence of evidence of the purpose for which they were erected, successors in title were entitled to a decree vesting in them the title to houses so erected.—Bonson vs. Jones. 56 N. W.

Supreme Court of Pennsylvania.

Risks of Employment and Negligence of Fellow Servant.

Risks of Employment and Negligence of Fellow Servant.

The mining boss, required by the act of 1885, to be employed by mineowners, with prescribed duties relative to the inspection and care of the mines, is a fellow-servant with the miners at work in the mine, and if the owners have exercised reasonable care in the selection of a mining boss, they are not liable to injuries to workmen resulting from his negligence. Rule 24, Article 12, of the above act, which requires employes of a mine to give notice of apprehended danger to the mining boss, does not make the mining boss he representative of the owner, so as to charge them with constructive notice of information given to him by the workmen; since his duty is the same with or without the provision, to give immediate actual notice of apprehended danger to the owners, and take all proper measures to prevent its occurrence. The length of time during which the mining boss, a fellow-servant with the workmen in the mine, had notice of the apprehended danger of a cave-in in the mine, does not affect the master's liability; since, if the defects warned against are serious, and the mining boss does not correct them, it is the duty of workmen having knowledge to notify the master, and if they do not do so they continue work at their own risk.—Lineoski vs. Susquehanna. 27 At. Rep., 577.

The Use of Hydrometers.—Fr. Maly shows that accuracy in the use of these instruments depends on the state of the spindles. He cleanses first from coarse impurities, and then rubs with a damp (but not wet) cloth. Friction with a dry cloth is useless. The cleansed instrument is then allowed to lie for a time, so as to permit of the evaporation of any adhering molsture.

Water-Wheels of the United States.—In a paper read at the last meeting of the Boston Society of Civil Engineers, Mr. H. W. Hunking estimated that there are 70,000 water-wheels in use in the United States; not over 2,000 of these are at the great water powers, such as those of Lowell, Holyoke, and others, the remainder being scattered around the country at small mills. Competition and the methods of testing adopted have caused great improvements in wheels. The principal points of difference from the old wheels as shown by those to-day are the increase in speed, the use of larger openings, and the use of fewer buckets. fewer buckets.

The paper referred only to turbines and said nothing of the use of impact wheels, which has come into use to a considerable extent and to great advantage where there is a comparatively small amount of water and a great fall.

Mineral Production of Quebec.—In the report of the Department of Crown Lands of the Province of Quebec for the year ending June 30th is included that of Mr. J. Obalski, Inspector of Mines. He states that during the year 132 prospecting permits were applied for and 102 granted, comprising an area of 19,743 acres in surveyed and 130 square miles of unsurveyed territory. The revenue from this source amounted to \$1,675. The sale of mining lands was much greater than the previous year, and the receipts exceeded those of 1892 by \$3,594. The report gives the mineral production of the Province for the year as follows:

Cold owners	950	Magnetic iron, tons	1 550	Miss tons	1 164
Gold, ounces					
Lead, tons	140	Graphite, tons	326	Feldspar, tons	1,000
Copper, tons	50	Ochre, tons		Phosphates, tons	
Copper pyrites, tons58	3.001	Asbestos, tons	7.249	Slate, tons	4,785
Bog Iron ore, tons. 26	3.540	Sernentine tons	300	Granite, cu. ft	00.000

Taking 4,153 as the total number employed in the industry it appears that the proportion of fatal accidents during the year was 1 in 1,034, and one person was injured for every 378 employed.

Ochse's Blasting Cartridge.—A new explosive cartridge in which the principal of electrolysis is involved, has been invented by Dr. Ochse, who was formerly employed at the works of Messrs. Krupp, Essen. The apparatus consists, says the "Iron and Coal Trades Review," of a closed glass tube or ball containing a small quantity of slightly acidulated water, into which two small platinum wires are led. In order to use the explosive a current of electricity is sent through the platinum wires. The electric current causes the water to be reduced into its component elements, hydrogen and oxygen, and also ignites the gaseous mixture. By the ignition of the gases in the bottle or tube a pressure 14½ times greater than that of the pressure inside the cartridge is said to be produced. Messrs. Seenderop & Co., who have acquired this new invention, have during the past five months been manufacturing these glass cartridges, and they now make them having an internal pressure of 400 atmospheres. Upon the ignition of such a cartridge an effective explosive force of 5,800 atmospheres on the square inch is produced. These cartridges are made with different internal pressures, so that any necessary or required explosive force can be obtained. Ochse's Blasting Cartridge.—A new explosive cartridge in which the

Mining Accidents in Great Britain.—The total quantity of all kinds of mineral raised in the Midland District in 1892 was 21,726,122 tons. This was an increase of 12,431 tons as compared with the year 1891. The average number of days worked in the four counties included within the district in 1892 was as follows. Derbyshire, 248%; Nottinghamshire, 238½; Warwickshire, 259, and Leicestershire, 226½. The number of persons employed in the district was 74.657, as against 71.540 in the previous year, and 66,468 in 1890. The quantity of mineral raised last year was about 13,000 tons in excess of that raised in 1891. The number of lives lost in 1892 was 73, the tons of mineral raised per death being 297,618. These figures contrasted

unfavorably with the previous year, when there were only 60 deaths, and the tonnage of mlneral raised per death was 361,894. But the proportion of deaths to tonnage throughout the United Kingdom is much worse still, for the tonnage of mineral raised per death in 1892 was only 195,473, and in 1891 201,934. The colliery accidents in the Midland District in 1892 were 69 in number—including 40 falls of roof, six shafts, and 23 miscellaneous. In 1891 there were only 60 accidents. The non-fatal accidents reported under the Coal Mines Regulation Act during 1892 were as follows: Derbyshire, 385; Nottinghamshire, 180: Warwickshire, 49, and Leicesfershire, 49: total, 663. hamshire, 180; Warwickshire, 49, and Leicestershire, 49; total, 663.

hamshire, 180; Warwickshire, 49, and Leicesfershire, 49; total, 663.

Iron Ores in Quebec.—The only deposits of iron ore in Quebec thus far worked have been the bog or lake ores of the Three Rivers district; although large deposits of Titanic iron ores are known to exist in the Laurentian range of mountains and elsewhere, they have not so far been worked. The bog ores have been worked in small charcoal furnaces and forges at Batiscan, St. Maurice, and elsewhere, since about 1730. Recently the Canada Iron Furnace Company has built a charcoal furnace at Radnor near the village of Fremont, on the Piles branch of the Canadian Pacific railroad. The company also purchased a large tract along the St. Maurice River. It was at first proposed to build a charcoal blast furnace of 25 tons capacity, to make a special pig iron for car wheels, but the possible supply of ore proved to be so large that it was decided to make the furnace of 50 tons capacity. The ore is found in many parts of a district nearly 400 miles long and from 40 to 60 miles wide, extending from a point northeast of the city of Quebec to west of Ottawa. It is found in the lakes and swamps, generally covered by from 1 to 4 ft. of mud and vegetable matter. These beds vary in depth from 10 to 15 ft. and over. In the vicinity of Radnor, at a depth of 15 ft. the indications are as strong at the bottom as at the top. The ore at Radnor shows by analysis, from 40 4 to 49 3% of metallic iron; 0 205 to 0 31 phosphorns, and 0 036 to 0 093 sulphur. It also contains from 8 to 14% silica, from 2 to 4% aluminum, and a small quantity of manganese in the form of oxide.

PATENTS PUBLISHED IN GREAT BRITAIN.

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

WEEK ENDING NOVEMBER 25TH, 1893.

week ending november 25th, 1893.

20,231 of 1892. Firing Mining Cartridges, R. W. Sedgwick, Newcastle, and C. Lamm Manchester.

23,101 of 1892. Recovering Zinc from the Wasle Products of Galvanic Batteries. C. & H. Schreder, London.

24,109 of 1892. Pudding and Melting Furnaces. J. J. & T. F. Meldrum, Manchester. Sulphate of Ammonia from Gas Liquor, F. M. & D. D. Spence and G. Tissen. Manchester.

164 of 1893. Washing and Sizing Coal. J. Morison, Dalkeith; A. Kesson, D. Campoell and S. Potts, Hamilton, Scotland.

2,300 of 1893. Improvements in Separating Corper from Solutions by Iron. R. Concete a, Grosesto, Haly.

3,785 of 1893. Miners' Safety Lamps. J. Prestwich, Manchester.

5,525 of 1893. Electrolysis of Sult. Cd. T. J. Holland, Tunbridge Wells.

17,602 of 1893. Manufacture of Sulphuric Acid. F. J. Falding, Cleveland, O., U. S. A.

PATENTS GRANTED BY THE UNITED STATES PATENT OFFICE,

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office:

TUESDAY, NOVEMBER 28TH, 1893.

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509.360. Pug Mill. Thomas B, Campbell, Ithaca, N. Y.
509.361. Separator for Brick Machines. Thomas B, Campbell, Ithaca, N. Y.
509.368. Process of Treating Ores. Ernest C. Engelbardt, Deadwood, S. Dak,
509.369. Gas Mixer. Claudius G, Freeman, Louisville, Ky., Assignor to William H.
Mallack. same place.
509.33. Electrically-Operated Jumper Drill. Carl Hoffman, Berlin, Germany, Assignor to Siemens & Halske, same nlace,
Packer for Artesian Wells. George Palm, Butler, Pa.
509.397. Electric Elevator. Charles R. Pratt, New York, N. Y.
509.448. Miner's S fetv Lamp. Carl H. Wolf, Zwickau, Germany.
509.459.
509.450. Llewellyn Park, N. J.
Limeklin. Garwin A, Mace, Menomonee Falls, Wis.
509.474. October S. Milliam Kennish, Wilmington, N. C.
509.475. Antimony Compound and Process of Making Same. Theodor Mayer Feuerbach, Germany.
509.455. Hot-Blast Stove. George W. McClure and Carl Amsler, Pittsburg, Pa.
Klin for Burning Lime or Cement-Rock. Truman K. Nickerson, Maquoketa, Ia.
509.659. Process of Hardening Copper. Philip Helbig, Baltimore, Md.
509.659. Process of Refining Stimes from the Electrolytic Reft aing of Copper. David K. Tuttle, Philadelphia, Pa., and Cabell Whitehead, Washington, D. C.
709.654. Method of and Apparatus for Concentrating Sulphuric Acid. Henry Place.

509,659.

Dup ex Steam Fump. Charles A. Govne, Ashaba, Fal. Assache Buller, self. Francis H. Goyne, Thomas R. Goyne and Arthur H. Goyne, same place.

Method of and Apparatus for Concentrating Sulphuric Acid. Henry Howard. Brookline, Mass.

509,701.

Solotine Plate for Steel Ingot Molds. Benj. Talbot. Peneovd. Pa. Apparatus for Grading Powdered Materials. William W. Gillespie, Stamford, Coln.

Apparatus for Cleaning and Polishing Coated Metal Plates. Richard Lewis, Norristown, Pa., and Gwilym Morgan, West New Brighton, N. Y. Overhead Traveling Crane. William H. Morgan, Alliance, O. Assignor, of three-fourths to Thomas R. Morgan, Sr., Thomas R. Morgan, Jr., and John R. Morgan, same place.

Trolley for Overhead Traveling Cranes. Thomas R. Morgan, Jr., and Morgan, Jr., and John R. Morgan, same place.

509,782.

Machine for Grinding Gangue Containing Corundum. Michael Balmes, Detroit, Mich. Apparatus for Removling Impurities from Smoke. Edward E. Dulier Lordon E. gland.

Machine for Cutting and Polishing Gems. William S. Lockhart, London, England, Assignor to the Automatic Gem and Gold Separator Syndicate, 11d., *same place.

509,822.

Building-Block and Process of Making Same. Theodore S. Pierce, St. Joseph, Mich., Assignor to the Michigan Sand Brick Company, Chicago, Ill., and Grand Rapids, Mich.

PERSONALS

Capt. H. Prideaux, general manager of the Jay Hawk & Lone Pine Company, is in Butte.

Mr. Hermann Thofehrn, mining engineer, who re-cently spent some time in this country, has re-turned to his home in Paris.

Mr. A. L. Mohler has resigned his position as manager of the Great Northern Railroad on ac-count of ill health, and will spend the winter in North Carolina.

Mr. Daniel Kirby has resigned as superintendent of the Enterprise Mining Company, Rico, Colo., having accepted a similar position at the Ute & Ulay mines, at Lake City, Colo.

Carl H. Hand, mining engineer and member of the firm of Carny & Hand, of Butte, Mont., is at present in Pony, Mont., superintending the develop-ment work on the Clipper gold mine.

Mr. Wm. C. Hudson, who has been secretary of the New York Railroad Commission since its first organization, has resigned his position. It is understood that this action was undertaken for political reasons.

The firm of Cary & Moore, analytical and consulting chemists, has been formed in Chicago. Mr. Cary was officially connected with the Exposition, and Mr. Moore was formerly with the firm of Rattle, Nye & Hollis, in Chicago.

Mr. Joseph Wharton, founder of the Wharton School of Finance and Economy, of the University of Pennsylvania, has just supplemented his previous endowments of \$125,000 by a further gift of \$75,000 to the school which bears his name.

Cornelius McLaughlin, a well known mining man, of Park City, Utah, died at that place on November 28th, aged 66 years.

Paul Jousselin, president of the Societe des Ingenieurs Civils de France, died in Paris, November 18th, of pneumonia. He was 63 years old, and had been engaged on many important public works.

Rodman G. Moulton, who died in Sparkill, N. Y.. November 22d, aged 76 years, was for 15 years general sales agent of the Delaware & Hudson Canal Company. He had been out of active busi-ness for some years.

George Payson, who died December 1st, aged 69 years, was for 20 years general counsel of the Western Railroad Association, in Chicago, and probably had a more profound knowledge of patent law than any other man in this country. He represented the Western Association in many important patent cases. portant patent cases

James Colquhoun, for 20 years manager of the Tredegar Iron Works, in Wales, died November 20th at his residence at Weston, England. He retired from business about a year ago. He was an active member of the Iron and Steel Institute and was for some time president of the South Wales Institute of Engineers.

Thomas M. Cleeman, of Philadelphia, died in Guayaquil, Ecuador, November 16th. He went to that place last summer to take charge of the building of the water-works there. He had been at different times in South America for a number of years, having been engineer in charge of construction on the Southern Railroad of Chile, on the Lima & Oroya, in Peru, and on other lines. He was also for some time engaged in the Philadelphia water department, and was principal assistant engineer of construction to the Centennial Exposition.

Exposition.

Edward Martin died at Red Hook, N. Y., on December 3d, aged 83 years. He was born in 1811. He was by education a civil engineer, and for many years he was associated with Robert L. Stevens. of Hoboken, N. J. He went West in 1835, and in his capacity as engineer laid out many railroads. He laid out the Hudson River Railroad from Albany as far south as Hyde Park. At one time he was superintendent of the old Galena & Chicago Railroad. He was the first president of the Rhinebeck & Connecticut Railroad. The first engine that ever drew a train of cars in America was put in running order by him.

in running order by him.

Gen. Wm. Lilly, who died in Mauch Chunk, Pa., December 3d, aged 73 years, was for many years engaged in the coal business in connection with Messrs. Pardee, Markle and J. Gillingham Fell, and accumulated a large fortune. Some years ago he retired from business. At the last election he was chosen Congressman-at-Large from Pennsylvania. He was an engineer of ability and was also a great student of technical and public questions. He was a member of the American Institute of Mining Engineers and of several other technical societies, and took an active interest in their proceedings and discussions.

Joseph D. Potts, of Philadelphia, Pa., died at Milton, Pa., December 3d, aged 64 years. He came of the well known family of ironmasters, but he became a civil engineer, as such being connected

with various railroads, beginning in May, 1852, upon the Sunbury & Erie. Subsequently he was made vice-president of the Steubenville & Indiana Railroad; superintendent of the western division of the Pennsylvania Railroad, and president of the Western Transportation Company. During 1862, 1863, 1864 and 1865 he served as general manager of the Philadelphia & Erie Railroad for its lessee, the Pennsylvania Railroad Company, and from 1865 to 1877 he was president of the Empire Transportation Company, and for some time also of the Erie & Western Transportation Company. In 1877 the Empire Transportation Company sold its entire equipment, plant and good will and closed its existence, Mr. Potts continuing as its president until the final dissolution. In 1874 he became a managing director in the National Storage Company, and in 1879 president of the National Docks Railway Company, resigning both in 1884. He was elected president of the Enterprise Transit Company in 1871. For some years prior to 1885 he was president of the Girard Point Storage Company, of Philadelphia, and continued as a director of the company. He has been from its establishment a large owner and a director in the International Navigation Company, which operates the Red Star Line, the Inman and International Line and American Line of ocean steamers. Mr. Potts became owner of an interest in Potts Brothers' Iron Company, Limited, of Pottstown, Pa., which owns and operates a rolling mill in that place, and in 1890 he purchased the Chester Pipe and Tube Works, of Chester, Pa. In 1880 he purchased the Isabella Furnace property in Chester County, formerly owned by his father. In 1886 he was elected a trustee of the University of Pennsylvania, which position he held at the time of his death.

Chester County, formerly owned by his father. In 1886 he was elected a trustee of the University of Pennsylvania, which position he held at the time of his death.

John Tyndall died in Haslemere, Surrey, England, on December 4th. He was born in 1820 in Leighlin Bridge, Ireland. Tyndall left school in his 10th year and became an assistant to a division of the Ordnance Survey stationed at Leighlin. He acquired a practical knowledge of every detail of this service, and became skillful as a draftsman, a computer and a surveyor. In 1848, in company with Edward Frankland, afterward professor of chemistry in the Royal Institution, he went to the University of Marburg, in Hesse-Cassel, where he studied chemistry under Bunsen. The latter formed a high opinion of the young man's talents, and took great interest in directing his studies, placing the laboratory and all its appliances at his disposal. Tyndall's advancement in scientific attainment at Marburg was uncommonly rapid, and it soon became evident that he had found his true sphere in life in conducting scientific investigations. Besides his work with Bunsen, Tyndall studied physics with Gerling and Knoblanch, and mathematics with Stegmann. Tyndall's hard work in the laboratory with Knoblanch resulted in a series of discoveries in magnetism and diamagnetism; he incorporated in the paper which first made him a name in the scientific world, "On the Magneto Optic Properties of Crystals and the Relation of Magnetism and Diamagnetism to Molecular Arrangement," written in conjunction with Knoblanch, and published in "The Philosophical Magazine" in 1850. The next year Tyndall took his degree, submitting a thesis on "Screw Surfaces" (in German), which won him high commendation, and soon afterward formed the aequaintance of Professor Paraday, to whom he communicated the results of series of experiments of such ingenuity as to lead at once to his election as a Fellow of the Royal Society. In 1850 the December of the British Association for the Advancement of Science and appli

ceived from the air and not spontaneously generated. In 1872, in response to a request signed by many prominent scientific and literary men of America, Professor Tyndall visited this country and delivered 35 lectures, the net income from these lectures amounting to more than \$13,000. Professor Tyndall formed a scholarship fund, the income of which is given to scientific students in Harvard, Columbia and the University of Pennsylvania to further their studies under certain broad conditions in the universities of Europe. Professor Tyndall's writings include many volumes and detached articles in addition to those already mentioned upon the most important branches of physical science. They are marked in general by a style as delightful as it is lucid and energetic, and by a faculty of presenting the results of laborious investigations in a manner to attract the widest attention. His work, in virtue of these qualities, has been of the greatest service in bringing scientific study to the high estate it enjoys in the modern world. Professor Tyndall received the degree of LL. D. from Cambridge in 1855 and from Edinburgh in 1866, and that of D. C. L. from Oxford in 1873.

SOCIETIES AND TECHNICAL SCHOOLS.

General Mining Association of Quebec.—The annual meeting will be held on the second Wednesday in January (10th), and several important papers are promised for the meeting.

Canadian Society of Civil Engineers.—At the regular meeting in Montreal, December 7th, the discussion of Mr. Macdougall's paper on "Domestic Sanitation" was concluded. A paper by Mr. H. F. Perley on a "Cubic Yard of Concrete" was read and discussed.

Engineers' Club of Cincinnati.—At the October meeting Mr. Charles A. Ewing read a paper on "Contractors Versus Specifications," in which he discussed the question from the contractors' standpoint, claiming that they do not receive proper recognition from engineers, but that they are a mistreated and misjudged class of men. He suggested a simplification of the forms of contract and specification as one way of improving this condition of affairs. A very annimated discussion followed the reading of this paper.

lowed the reading of this paper.

Columbia College, New York.—The faculty of Columbia College announces that the first free public course in co-operation with the American Museum of National History is in mining, by Henry S. Munroe, professor of mining. The first lecture was on December 2d. subject, "Prospecting." The other lectures will be on succeeding Saturday evenings on "Development of Mineral Properties," "Coal Mining," "Metal Mining," The second course will be on "Light," by William Hallock, adjunct professor of physics. The fourth course will be given by Charles F. Chandler, professor of chemistry, on "Aluminum and Electric Lighting," The fifth course will be given by Frederick R. Hutton, professor of mechanical engineering, on "The Mechanical Engineering of An Ocean Greyhound" and "The Growth of the Locomotive Engine." Tickets of admission can be procured, without charge, by application to the secretary of the president, Columbia College.

American Society of Mechanical Engineers.—

cured, without charge, by application to the secretary of the president, Columbia College.

American Society of Mechanical Engineers.—The 15th annual convention began in New York December 4th, with a public session, at which a number of addresses were made. On the following day a business session was held at which officers for the ensuing year were elected as follows: President, Eckley B. Coxe, Drifton, Pa.; vice-presidents: C. E. Billings, Hartford, Conn.; Percival Roberts, Jr., Pencoyd, Pa., and H. J. Small, Sacramento, Cal.; managers: John B. Herreshoff, Bristol, R. I.; L. B. Miller, Elizabeth, N. J., and W. S. Russell, Detroit, Mich.; treasurer, William H. Wiley, New York; secretary, F. R. Hutton; assistant secretary, Francis Hoadley. At the evening session papers by Prof. R. H. Thurston, A. K. Mansfield and George S. Morison, were read and discussed. On December 6th and 7th, sessions for reading of papers and discussions of topical questions were also held and the meeting concluded on December 8th. In the afternoons the members visited a number of workshops and other places of interest in New York and the neighborhood. Many papers of interest were presented at this meeting.

INDUSTRIAL NOTES

The Wheeling Coal and Iron Company started its Benwood mill December 4th, employing 500

The Edgar Thomson Steel Works, at Braddock. Pa., resumed work on December 4th, employing 800 men.

The Tudor Iron Works, in East St. Louis, Ill. shut down December 5th for 10 days on account of a lack of orders.

About one-third of the plant of the National Rolling Mill Company, at McKeesport, Pa., shut down on December 2d, owing to lack of orders.

The Berlin Iron Bridge Company, East Berlin,

Conn., is putting an iron roof on the purifier house of the Northern Liberties Gas Works, in Phila-

The entire sheet mill department of the Aetna Standard Iron and Steel Company, of Wheeling, W. Va., resumed work on full time December 4th, employing 1,500 men.

Richards & Co., Limited, Chicago, have issued a new and completely illustrated catalogue of chemical and physical apparatus, including ma-terials and apparatus for assaying.

Mr. B. Lewinson has been appointed receiver of the Coal Economizer and Manufacturing Company, of New York, on suit of some of the creditors. The principal assets of the company are its patents.

The Cleveland Rolling Mill Company's sheet and puddle mills, which have been idle since July 1st, received orders to start up this week, under a reduction of 12% to employees.

William Sellers & Co., Philadelphia, have just completed a hydraulic press for the United States mint in that city. The press has a ram 25 in. in diameter, and can exert a maximum pressure of 4,000 lbs. to the square inch.

The Pittsburg Bridge Company has recently completed a steel tipple for the Alex. Black Coal Company, and has under construction a tipple and head frame for the Berwind-White Coal Company and a similar order for the Ocean Coal Company.

The Curtis Bay Brass and Metal Works have been incorporated, with D. R. Steele, president, and J. H. Farlow, secretary and treasurer, and will build works at Curtis Bay, near Baltimore, Md., to manufacture brass and composition of metal casting of all kinds.

John H. McGowan & Co., Cincinnati, O., have just completed and shipped an order for two large duplex steam pumps of their twin-lever pattern, to Cuba. The order was received on account of the favorable impression made on the purchaser by the working of these pumps at the Exposition.

The C. W. Hunt Company, New York, have in hand at present contracts for a coaling plant at the works of the East River Gas Company, in Brooklyn; coaling stations for the Brooklyn City Elevated Railroad at two points; a coaling station for locomotives for the Boston & Maine Railroad, in Boston, and the equipment of a coal dock for J. Roughan, in Boston.

J. Roughan, in Boston.

The contract for the three light-draught gunboats, authorized by the last Congress, has been awarded by the Navy Department to the Newport News Shipbuilding Company, Newport News, Va., at its bid of \$280,000 for each vessel. This is the first contract given to the Newport News company for naval vessels, as the company has not heretofore bid on any work of this kind. These vessels, as described in the "Journal," October 28th last, will be about 1,260 tons displacement and from 8 to 11 ft. draught, and are intended for special work on the Asiatic and South American stations.

Bids for furnishing the War Department with

on the Asiatic and South American stations.

Bids for furnishing the War Department with 10,000 lbs. of smokeless powder were received from the Pneumatic Torpedo and Construction Company, of New York, at 70 cents per pound for a powder containing 60% of nitro-glycerine, and 80 cents per pound for powder without nitro-glycerine; Herman Waltereck, of Newark, N. J., \$2.20 per pound; Bernard Peyton, of Santa Cruz, Cal., \$1.25 per pound; Leonard Smokeless Powder Company, New York, 50 cents per pound for an initial velocity of 1,960 ft., the price to be increased 1 cent per pound for each 10 ft. additional of initial velocity.

An application for a receiver for the Solar Iron Works, of Pittsburg, Pa., operated by William Clark's Sons & Co., was filed on December 6th, by Knox & Reed on behalf of Elizabeth Clark, administratrix for the late Edward L. Clark, against Jane Clark. The firm was composed of Edward L. and Jane Clark. It began business in 1888 with a capital of \$380,000, of which Jane had \$224,000. She was guaranteed a profit of 10%, or \$22,400 per year, for five years. The defendant received her share of the profits regularly. At the time of Mr. Clark's death he had accumulated net profits exceeding \$268,000, of which he had on deposit in the bank \$100,000, in the firm name. The balance was on bills receivable, book accounts, etc. At and since Edward Clark's death the defendant, it is claimed, has assumed the right to manage the business, and has appropriated to herself the entire assets, including the profits belonging to the deceased. The plaintiff asks for a computation of the partnership.

pntation of the partnership.

At the Columbian Exposition, in Chicago, the Williams Manufacturing Company, the well known tank builders, Kalamazoo, Mich., in connection with the paper mill exhibit, showed two large stuff chests, made from Louisiana red cypress. At their factory are stocks of dry tank lumber, both of Michigan white pine and Louisiana red cypress, up to 30 ft. in length, and special machinery is used, insuring quick and economical, as well as good, work. They already have offices in New York City, Boston and Philadelphia, and to more successfully take care of a fast increasing trade in Chicago, have opened an office in that city. A

great many buildings and factories all over the country are being equipped with tanks for automatic fire extinguishing purposes, and particularly for this trade, the Williams Manufacturing Company have obtained from the builders of the Ferris wheel a number of designs for steel structures to hold elevated tanks at different heights.

wheel a number of designs for steel structures to hold elevated tanks at different heights.

Some excellent work in hard rock tunneling is now being done on the Palisades tunnel of the New York, Susquehanna & Western Railroad, opposite New York. Work has been in progress here for about a year, and the tunnel is to be completed early in 1894. During November, on the east end, under charge of P. F. McLaughlin, there was completed 161 ft. of heading and 186 ft. of bench; the tunnel is for double track, and 27 × 21 ft. in section. The record in the heading is especially remarkable, as it was done by the night shift only. This plan of working with a single shift was introduced by Mr. McLaughlin, and has proved very successful; the main advantage is that after drilling through the night and firing early in the morning the muckers are put at work in the heading to get out the broken stone and the foreman in charge sees that the columns are put up and drills in place ready for the runners to begin work when they come on. The rock is the very hard trap, of which the Palisades are composed. This work was done with 10 Ingersoll-Sargeant drills, size F2, four of them being in use in the heading and six on the bench.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journai" of what he needs he will be put in communication with the best manufacturers of the same. We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufacturers in each line.

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

GENERAL MINING NEWS

ALASKA.

ALASKA.

Alaska-Treadwell Gold Mining Company.—Some time ago a suit was brought in San Francisco by F. O. Downing against W. W. Murray, James Treadwell and others. Downing brought suit to recover a portion of money received from the sale of mines to this company, and claimed that the other defendants had appropriated the money received and refused to account for it. The case was ended last week, the court granting a nonsuit on the ground that the plaintiff did not show that he was entitled to any share in the money.

Chichagoff Island.—A new gold ledge has been dis-

Chichagoff Island.—A new gold ledge has been discovered on this island, according to the Juneau "Mining Record." It is said to be valuable, but definite accounts are lacking yet.

(From our Special Correspondent.)

Alaska-Treadwell Mining Company.—During the month of November the mill ran for 29% days, crushing 19,170 tons of ore. The gold product was \$75,388. There were 440 tons concentrations which yielded \$23,433 included in the above total of the month's bullion product.

ARIZONA.

ARIZONA.

Advices from Tueson state that a 6-ft. vein of coal has been discovered in southeastern Arizona by Dr. Theo. B. Comstock, director of the Arizona School of Mines. The coal is semi-anthracite. Work was begun on December 1st on sinking a new shaft at the site of the late diamond drill borings. The purpose is to confirm the showings of the drill. Later the shaft will be used as an air shaft. The first vein is at 79 ft.

Maricopa County.

Maricopa County.

Phoenix Consolidated Gold Mining Company.—
President W. S. Alley and Superintendent Alexander Trippel stated to the Phoenix "Herald" that in the last six weeks 753 ft. of drifts have been run, 429½ ft. of raises have been made, and 162 ft. of shafts have been sunk, a total of 1,344½ lin. ft. which, it is said, is more than has been done on the property in the past 15 years. While this work is more or less of the nature of dead work, it has been arranged by Dr. Trippel as to answer for development work and is in a part of the mine that has never been prospected before; several new bodies of ore have been opened up that show up well. The work of connecting the Meshacerty property (see "Engineering and Mining Journal," December 2d) is progressing. It requires over 1,500 ft. of track to connect this property with the mill. Twenty of the 100 stamps were started up on November 30th, the balance to follow very quickly.

Yavapai County.

Seven Stars Gold Mining Company.—In New York, December 5th. judgment for \$2,218 on a note given to Richard K. Fox was entered against the Industrial and Mining Guarantee Company. This is the company which, in connection with H. H. Warner, guaranteed a dividend on Seven Stars

stock. It is not the first judgment which has been entered against the company. It may be added that H. H. Warner, who is now in England, is being questioned in a very searching way by some of the stockholders in his patent medicines companies. It is possible that the Seven Stars stockholders there may also have something to say to him.

Yuma County.

Yuma County.

Harqua Hala Gold Mining Company.—The following notice has been issued from the London office by Mr. C. Pakeman, secretary: I am directed to inform you that the board has received a cablegram from the chairman, Mr. Francis Muir, who is at present at the mine, to the effect that, as the result of bad management under the former owners, the present main shaft is insecure and dangerous to life and property. He considers it absolutely necessary that the mill should be closed down on December 1st until the new shaft, already commenced, is sunk. a period which will not exceed three months, and the board have adopted his recommendation. He reports that the mine is looking well, that the developments fully justified the erection of the increased milling power already ordered, and that he is much pleased with the general management. Compressed air drills have been ordered to facilitate the rapid sinking of the new shaft.

CALIFORNIA.

CALIFORNIA. Butte County.

Butte Courty.

Bullion.—A company has been formed at Forbestown, to work this mine, the property of S. K. Reasoner. The officers of the company are: Frank Willet, president: Jesse T. Clemens, treasurer; Chas. Bouvier, secretary; John Pellar, foreman; John Crossman, W. Kendall, Wm. Smitheram and Thos. Stocker, directors.

El Dorado County.

Reports from this country indicate that there is considerable activity among mining men there. The Oro Fino, the Starlight and the Shaw mines are said to be producing handsomely. Many other quartz lodes hitherto considered non-paying are being worked and considerable prospecting is going on.

Mono County.

Bulwer Consolidated Mining Company.—The official letter for the week ending November 26th says that ore is being extracted from the various openings on the 200-ft. level. Crushing began at the Bodie mill on November 21st and 108 tons of ore were crushed up to date, the battery samples averaging \$25.60 per ton and the tailings \$7.57.

Syndicate Mining Company.—This company, at Bodie, made a recent bullion shipment valued at \$2,400.

Placer County.

Big Dipper.—This mine, at Iowa Hill, is employing about 45 men. The new machinery is working well.

Bonanza.—This mine, at Alta, says the Placer "Herald," has its tunnel in about 600 ft. At this distance an upraise of 120 ft. was made, and gravel was struck which is believed to be in the rim of the channel.

Golden Eagle Drift Mine.—This property, at Shady Run, has been sold for \$10,000.

Sierra County.

Sierra County.

Empire.—Work is progressing at this property, in Gold Valley. The shaft is down 220 ft. below the croppings. The ledge is 6 ft. wide to a depth of 200 ft., but within the last 20 ft. it has gradually widened until it is 10 ft. wide at the bottom of the shaft. The ore is said to show high assays. Next spring, says the Downieville "Mountain Messenger," hoisting works will be erected, the mill remodeled and the plant put into active operation.

Siskivon County.

Siskiyon County.

According to the Yreka "Journal" three new quartz mills will be erected shortly in the Salmon River section and new machinery is constantly received at the mines at that region since the completion of the new wagon road. More prospectors and mining engineers, it is said, have recently visited that section than ever before.

Sonoma County.

Great Eastern Quicksilver Mining Company.— This company leased the Mount Jackson mine, near Guerneville, some time ago, and is now working it. The output was 147 flasks last month. The company is working from 35 to 40 men.

COLORADO.

COLORADO.

The Colorado Midland Railway Company has been reincorporated under the laws of the State of Colorado, as the Colorado Midland Railroad Company. It is capitalized at \$8,600,000. The papers state that the stockholders of the Colorado Midland Railway Company and the Aspen Short Linc Railway Company agreed to consolidate their stock, franchises and property on July 28th last at Colorado Springs, and the reincorporation is the result. The incorporators are George C. Magoun, John J. McCook and Thomas Baring, of New York City, stockholders of the Colorado Midland, and James J. Hagerman, of Colorado Springs, and Henry T. Rogers, of Denver, stockholders of the Aspen Short line. The directors named are Thomas Baring, Cecil Baring, Joseph R. Busk, William Libber, George C. Magoun, John J. McCook and

Jerome B. Wheeler, of New York City; Joseph W. Reinhart and B. P. Cheney, of Bos-ton; James J. Hagerman, Colorado Springs, and Charles E. Gast, Pueblo. The principal office of the company will be at Colorado Springs. York City;

Boulder County.

Gold Nugget.—Good progress is being made at this property, in Left Hand.

Chaffee County.

Several prospectors are at work on Seven-Mile Creek. They have just brought down some fine gold ore; the rock is full of free gold.

goid ore; the rock is full of free gold.

Crooked Creek Camp.—Advices from Buena Vista state that Crooked Creek, the new camp, six miles east of Buena Vista, is attracting considerable attention. A vein of free milling gold ore 40 ft. wide, between quartzite and granite, has been discovered which is said to run very high. It crops at surface at different places for 4 500 fc. ore 40 ft. wide, between quartzite and granite, has been discovered which is said to rnn very high. It crops at surface at different places for 4,500 ft. along the vein; this will make a good milling property, as it is very handy to water. Streaks of ore in the vein varying in size from 2 in, to 8 in. assay from \$30 to \$100 per ton.

Gold Cup.—Two carloads of ore recently shipped from this mine, on Tront Creek Range, gave returns of \$20 per ton. This amount was caught on the plates. It is a free milling proposition. The gold is worth \$18 per onnee.

Metsen & Frame have just given a hand on two

Metsen & Frame have just given a bond on two of their gold properties, situated three miles east of Buena Vista.

El Paso County.

El Paso County.

A press dispatch from Colorado Springs states that four mines changed ownership on December 2d, at Cripple Creek, the considerations aggregating \$112.000, as follows: A controlling interest in the Climax, \$12.000; Little May, \$40,000; Australia, \$20,000; Hullirity Placer, \$40,000. The prospect of the early completion of the Colorado Midland Terminal, which will deliver ore to samplers and mills at \$1 to \$1.50 a ton, against \$9 at present, has created a lively demand for mining property. In the past month the sales of mines at the camp have reached a high figure.

Hillside.—The pay streak in this property has

Hillside.—The pay streak in this property has widened out to 3 ft. The owners have been following a spnr vein from 2 to 6 in. in width through solid granite for the past two months and took ont about 1,000 lbs. of ore in sinking 40 ft. on an incline. This ore ran about 10 oz. per ton. The contact between the granite and porphyry has now been reached and the vein widened out to 4 ft.

Gilpin County.

Gilpin County.

Fisk Gold Mine, Limited.—This company has been formed with a capital of \$1,000,000, in \$5 shares, of which 134,000 are offered for subscription in London, England. The prospectus states that the object of the company is to purchase the share capital of the Fisk Gold Mining and Milling Company, of Blackhawk, and an adjoining property, known as the Teller Fisk mine. The vendor states that mining operations were commenced about two years ago, and the gross output for the first 17 months amounts to about \$150,000. The Fisk Mining and Milling Company is said to have paid dividends at the rate of 24% per annum for the last two quarters of 1892, although, according to the report of Mr. P. Coulson Bnun, the machinery in use was inadequate for its requirements. During 1893, Mr. Bnun adds, quarterly dividends have been paid at the rate of 45% per annum in addition to a large bonns, and the net profit for the first seven months' working was \$88,000. For Angust and September the net profit is given as \$16,500 and \$20,500. Fifty thousand dollars will be set aside as working capital. The purchase price is \$950,000—\$400,000 in cash and \$330,000 in fully paid shares, and the balance in cash or shares at the directors' option.

Lake County. Gilnin County.

Lake County.

Take County.

(From our Special Correspondent.)

The Johnnie, Rawlings, Eliza and Little Vinnie are located on Breece Hill, on the south end of the gold belt and adjoining Iowa Gulch, where the Lillian property is situated. A shipment made from the latter mine within the past two weeks of 46 tons had a value in excess of 4 oz. of gold to the ton.

the ton.

Between these two points is the Antioeh mine milling 100 tons daily of low-grade ore, which proves that there is a gold-producing belt extending from Iowa to Evans Guleh, lying parallel to and immediately above the silver-lead-producing belts of the district of Leadville.

belts of the district of Leadville.

El Capitan.—This property, located on Taylor, has been thoroughly developed this season and will be worked this winter. The ore will be treated by the Huntington process, by which it is thought that 80% of the value will be saved. The vein has been opened np for 90 ft. and ore running from 1 to 90 oz. in gold is being mined. The work of the mill, which has just been erected will be watched with interest, for if it can make as large a saving as claimed, it means a great deal for the mines of Taylor Hill.

Fanny Rawlings.—This mine is now shipping about 30 tons daily, and the Eliza, adjoining it, 15 tons daily of ore similar to that of the Little Johnnie.

Thex Mining Company.—This company is operating the Little Johnnie mine with success and is

shipping about 150 tons daily of ore, carrying over \$25 worth of gold to the ton.

Little Vinnie.—This mine, operated by Ronald Morrison, has disclosed the Little Johnnie gold ore

chute.

Union Mining and Leasing Company.—The work begun a year ago by this company of unwatering that section of Fryer Hill, where its properties are located, has been successfully completed, and the El Paso, Bangkok-Cora-Belle, Tip Top, Jamie Lee, Forepaugh and Olive Branch, which were flooded for several years, have been drained. The work of drainage was earried on through the El Paso shaft, which can easily handle 2,000 gallons of water per minute. In this property they are now drifting for the known Alpha ore chute, and a 160-ft, drift is being run. In the Jamie Lee and Olive Branch the same ore chute exists and the Lee is already shipping some 40 to 50 tons of ore daily.

White Cap.—The lessees working this prop-are doing nicely and some good lead ore is b-mined and shipped. There are also streaks of just opened up that run well in gold.

Pitkin County.

Pitkin County.

Bonnybell Mining Company vs. Durant Mining Company.—The suits of John C. Bates, representing the Bonnybell against the Durant company have been withdrawn, each side paying its costs. It is understood that by the terms of the settlement the property in dispute and now in the hands of Bates, is to be retained by him. He is to resume operations when the price of silver justifies, paying Hyman a portion of the proceeds.

Difficult District —Late advises from Aspen

paying Hyman a portion of the proceeds.

Difficult District.—Late advices from Aspen would indicate that Difficult gold camp, 18 miles southeast of Aspen, is rapidly coming to the front as a producer of the yellow metal. Assays from the Ripperton, owned by W. E. Ladd, Edward Hardy and L. J. Reilly, are said to go over 9 oz., and the owners claim they have a large body of this, averaging no less than 24 in. Unless the heavy snows interfere, a carload will soon be shipped as a test to the Denver smelters. Supplies have been sent in to prosecute work all winter. winter.

plies have been sent in to prosecute work an winter.

St. Joe and Mineral Farm.—November 17th the sheriff took possession of the St. Joe and Mineral Farm and the Champion Empire properties on attachments got out by Byron E. Shear and David H. Moffat, of Denver. The claim of the former is on the Champion Empire and is somewhere in the neighborhood of \$55,000. The claim of Mr. Moffat is against the Mineral Farm, and will foot up close to that of Shear. Both properties have been under the management of B. Clark Wheeler for nearly a year past. Other attachments are expected to follow. On November 29th the case of J. J. Hagerman, to have a receiver appointed for the St. Joe and Mineral Farm and to enjoin, S. S. Hansbrough and the company from working the property and to restrain the company from paying certain of its debts, came up before Judge Rncker, of the District Conrt, and was thrown ont of court. This is a victory for B. Clark Wheeler.

IDAHO.

Boise County.

Boise Ccunty.

(Reported for the "Engineering and Mining Jonrnal.")

Grimes Creek Bed Rock Flnme Company.—Capt. J
T. Hey, representative of English capitalists, and
S. Clarke Bowen, from London, accompanied by
J. B. Hastings, mining engineer, arrived in Centreville November 19th. Mr. Bowen is half owner
in this company, which holds placer claims from
300 to 600 ft. wide, extending nine miles along
Grimes Creek and three miles along Granite Creek.
In 1863-67 this portion of Boise Basin was thronged
with miners working the creek, hill and bar claims;
the first were 200 ft. along the creek bed; the second 100 ft. front and back to summit of hill: the
third 200 ft. front and back to foot of hill. It
is claimed with wages \$5 and \$6 per diem and
50 cents to \$1 per 24 hour-inch for water, the
ground was so hurriedly worked that but half the
gold was saved, while portions of the creek bed
dumped upon by both hill and ereek claims were
not worked at all. Since this first washing the
ground has remained untouched, protected by tailings from claims higher up the creeks. The gravel
is 300 to 600 ft. wide, 20 ft. deep, of finviatile and
drift origin, consisting of 60% sand and 40% cobble, the largest of the latter reaching 10 in. in
longest diameter, but nsnally much smaller. With
proper facilities for storage of water, a high head
can be obtained, the working season extending
from March 1st to November 1st. Forests of pine
trees border the streams. The London syndicate,
after receiving Mr. Hastings' report, will decide
on the practicability of laying wooden shinees in
the granite bedrock snitable for working with the
high water of spring and low water of summer an i
fall.

Coeur d'Alenes.

Coeur d'Alenes.

Bunker Hill & Sullivan Mining Company.—At this mine, according to the Wallace "Miner," about 165 men are employed, and there are also about 35 contractors and 30 men employed around the concentrator, making a total of 230 men in all. Only the day shift is working in the mine, but a part of the mill is running full time with a double shift.

Last Chance.—The mill and concentrator started up last week and are now running with one shift. There are about 20 men employed in the mine, but only in the upper workings, as no more can be put in the lower levels until the pending lawsuit is in the decided.

INDIAN TERRITORY.

Choetaw Coal and Railway Company.—A dispatch from Philadelphia says that there is a prospect that the eonnecting link between the two sections of this company's lines will shortly be built. At a meeting of the board of directors, held in Philadelphia, Pa., on December 4th, a representative of the Standard Oil interest stated that he would like to have an explicit statement of the company's condition, and that if it was satisfactory the money to build 125 miles link to a connection with the Missouri, Kansas & Texas would be forthcoming. Francis I. Gowen, one of the receivers, is preparing the statement.

IOWA.

At a meeting of coal miners in Des Moines on December 6th, over 1,000 miners, employed in 11 mines, were present. It was decided to order a general strike unless the operators reseind their decision to keep back two weeks' pay instead of one, and demanding pay every two weeks instead of monthly.

KENTLOKY

KENTUCKY.

Bell County.

Southern Land Improvement Company.—Thomas Haskins has leased a portion of the Moss track from this company and is now sinking a shaft for coal.

MICHIGAN.

Iron-Marquette Range.

Lake Superior Iron Company.—Shafts 6 and 7 of this company resumed work December 4th with a full force, and it is said that the company will nerease its force to 1,000 men before the close of the year.

Swanzey Mine.—A small force were set at work in this mine last week, after a stoppage of about two months. The men are employed at present in a shaft which is to be sunk about 200 ft. farther than at present.

Winthrop Iron Mine.—A number of the men in this mine struck last week, demanding a guarantee of \$1.50 per day on contract. Later, most of them returned to work, an arrangement having been made, but a few remained out.

Iron-Menominee Range.

Appleton.—The new cross-ent at this mine, according to the Norway "Current," is 276 ft. long, and last week had passed through 6 ft. of first-class ore with no signs of a termination of the

Keel Ridge.—At this mine the drift east from the shaft has been driven 508 ft., and a cross-cut is being driven north from the end of the drift. No large body of ore has yet been reached, however.

Pewabic.—The fire in this mine reported last ceek was less extensive than was at first feared and has now been extinguished. The damage is ot very great.

MINNESOTA.

Duluth.

(From onr Special Correspondent.) (From onr Special Correspondent.)

Exact shipments of iron ore from this connty for the year, lake and rail, have been as follows: Minnesota Iron Company, 805,258 tons; Zenith, 14,417 tons; total Vermilion Range, S19,675 tons. Messba Range over Duluth & Iron Range road. 102,410 tons; Duluth, Missabe & Northern road. 520,565 tons; total, 622,975 tons. It is expected that official announcement of the double tracking of the latter road, as well as of the contract for a new Messba line for the former, will be given in a few weeks. The Duluth & Iron Range expects to decrease its 136-ft. grade up from Lake Superior by a new line a few miles long, on which surveyors are now at work. There have so far been very few sales of ore for next season, practically none except to the Roekefeller syndicate.

Iron—Messba Range.

Iron-Mesaha Range.

(From our Special Correspondent.)

Bnekeye.—A contrast for the extension of the Dulnth & Winnipeg road to this mine, has been declared off and delayed until spring.

Franklin.—At this mine, a mile east of the town of Virginia, a townsite has been platted to be called Franklin. Hoisting ore is going on rapidly.

Hale—The event towns of the sub-loses of this 'Hale.—The exact terms of the sub-lease of this property by the Thomas Iron Company eall for a minimum annual output of 50,000 tons a year for buyers. The Standard Ore Company, lessee, is to do the mining for the Thomas people.

Mesaba Chief.—An option for sale of this property, expiring December 1st, has been renewed, it is stated, for a short term.

MISSOURI.

Jasper County. (From our Special Correspondent.)

The past two weeks of mining operations in this lead and zinc belt have been fairly active and the production large. The prices paid for zinc ore

have not quite met the expectation of the producers, as two weeks ago it was expected that the price of zinc ore would not fall below \$20 per ton, but the past week shows a slight decline, and we have to report the average price of the entire district at \$18.50 and \$19.50 for choice lots with one exception, as the buyer for the Pittsburg & St. Lonis smelting took 250 tons from the Rex Mining and Smelting Company land at \$20 per ton. Lead ore has remained firm at \$12 per thousand; we find upon investigation that there are very large stocks of lead ore on hand, as one camp alone has over 3,000,000 lbs. of lead ore in bins, holding for an advance in price. Following are the sales of ore from the different camps for the past two weeks: Joplin mines, 4,043,320 lbs. of zinc ore and 762,580 lead, value \$52,333; Webb City mines, 1,482,770 lbs. of zinc ore and 178,240 lead, velue \$16,728; Carterville mines, 3,620,380 lbs. of zinc ore and 401,050 lead, value \$41,340; Zincite mines, 187,800 lbs. of zinc ore and 11,270 lead, value \$2,006; Oronogo mines, 78,750 lbs. of zinc ore and 90,340 lead, value \$2,253; Alba mines, 73,550 lbs. of zinc ore, value \$6,276; Stotts City mines, 120,5524; Granby mines, 498,281 lbs. of zinc ore and 294,000 lead, value \$2,0125; district's total value \$135,524; Granby mines, 498,281 lbs. of zinc ore and 111,060 lead, value \$6,276; Stotts City mines, 139,590 lbs. of zinc ore, value \$4,000 lead, value \$1,09; Wentworth mines, 51,010 lbs. of zinc ore, value \$1,09; Wentworth mines, 51,010 lbs. of zinc ore, value \$1,09; Wentworth mines, 51,010 lbs. of zinc ore, value \$1,963; Aurora (Lawrence County, Mo.) mines, 1,965,990 lbs. of zinc ore and 388,160 lead, value \$19,618; lead and zinc belt's total value for the past two weeks \$164,949.

MONTANA. Jefferson County.

Jefferson Connty.

Agna Frio.—At this mine 75 men are employed and six carloads of ore a week are being shipped. Bald Butte Mining Company.—This company has just completed the work of putting in 20 stamps and a new boiler at its mine near Marysville. At the month of the mine a new pump and a large rock crusher have been put in, which will be operated by electric power transmitted from the mill about a mile. The improvements have cost about \$25,000. The mine is working a full force. East Pacific.—This mine has resumed work and has 20 men employed.

Hope Mine.—This mine is now doing well and the workings will be extended. The ore carries considerable gold, the gold being greater in value than the silver.

Iron Age Minc.—This mine, near Winston, has been leased to W. S. Dodge, who has 10 men at work and expects to increase his force shortly.

Never Fear.—At this mine a small force is working and has now a tunnel driven 340 ft. on the ein. They are now taking out some good gold

Sunrise.—Geo. Ferrell and others have leased this mine in Weasel Gulch and have begun shipping ores to the smelter at Helena.

Lewis & Clarke County.

Dandy Mine.—Work has been resumed on this gold property, near Helena, and a small force will be employed through the winter.

Madison County.

Easton Mine.—This mine, near Virginia City, is reported as doing well; it has a Bryan crusher which will work from 25 to 40 tons a day, according to the hardness of the ore. There are four vanners, to which the ore goes from the crusher. The concentrates are shipped to Omaha for smelting

Lucas Mine.—A shaft is to be sunk 200 ft. on this property. The owners have purchased machinery which is now being shipped to the mine.

Silver Bow County.

Alice Mining Company.—This company now has about 125 men at work, 75 of them being in the

Boston & Montana Mining Company.—The machinery has been taken out of the East Colnsa shaft and removed to the west shaft. The east shaft will be used hereafter for veutilation only. The temporary stoppage caused by the break in the Wickes tunnel of the Northern Pacific Railroad lasted a few days ouly, as the company made arrangements to have the ore hauled to the Great Falls smelter over the old switchback road.

Falls smelter over the old switchback road.

Clarke Group.—The mines owned by W. A. Clarke and others have been sold to a syndicate, in which Mr. Clarke will retain a large interest, according to the Butte "Inter-Mountain." The mines include a series of properties in the copper belt, extending in a continual line from the Anaconda mine to Missoula Gulch. They are known as the Odin, the Stewart, the Clear Grit. the Banker, the Oro Butte, the Acquisition, the Black Rock and some smaller property. It is said also that the new company will develop the mines considerably and will also enlarge the Butte Reduction Works.

Comanche Mine.—The second payment of \$50.

Comanche Mine.—The second payment of \$50,000 has been made to P. A. Largey, Chas. S. Warrent and others, former owners, by the Boston parties, who purchased the mine for \$200,000. One-fourth of the purchase price was paid down and the remainder was to be paid in three quarterly

installments, the second of which has just been met.

met.
Custer Mine.—This mine is under bond to Patrick Mulleu, who has a force at work and is said to be taking out good ore.

Eveline.—In the cross-cut on the 275-ft, level the vein was struck at a distance of 93 ft. from the shaft. The vein is about 5 ft. in width and carries some 12 in. of ore rich in gold. There are now 45 men employed in all.

Moulton Mill. This will is treating about 1.500

45 men employed in all.

Moulton Mill.—This mill is treating about 1,500 tons of ore monthly, chiefly from lessees. A number of the smaller mines are shipping ore.

Speculator Mine.—This mine, in the Basin district, has been bouded to Marcus Daly, James Shields and others.

NEVADA. Elko County.

Following are copies of the latest weekly official letters from Tuscarora mines: Navajo—There is no change to note in the stopes above the 350-ft. level, or elsewhere in the mine. Belle Isle—The cross-cut from the No. 2 raise, 250-ft. level, has been extended 12 ft. The stopes are looking about the same.

Eureka County.

Eureka County.

(From our Special Correspondent.)

Diamoud Mine, Eureka.—The working force has again been increased to 34 men, and on November 24th the teams resumed hauling ore to the railroad depot for shipment to Salt Lake. It is understood that from 20 to 30 tons a day will be shipped from now on through the winter.

Eureka & Palisade Railroad Company, Eureka.—This company received for transportation to Salt Lake City, Utah, and the Selby Lead and Smelting Works during the month of October, 1,044 tons of ore, as follows: From Eureka district, from the Eureka Consolidated mine, 25s tons; Richmond mine, 102 tons; Hamburgh mine, 139 tons; Jackson mine, 120 tons; Dunderberg mine, 81 tons; Diamond mine, 25 tons; Bullwhacker mine, 22 tons; Silver Connor mine, 15 tons; Dead Broke mine, 11 tons; McGarry mine, 13 tons; total Eureka district, 786 tons. From Unjon district, 28 tons.

Storey Connty—Comstock Lode.

Storey County-Comstock Lode.

Savage Mining Company.—The latest weekly official letter says: On the 1,100 level we are extracting fair-grade ore from the 11th up to the 21st floor. The north drift from the station on this level was advanced 18 ft., total length 56 ft.; face in quartz and porphyry. During the week we have hoisted 201 cars of ore, shipped to the Nevada mill 210 tons and milled 120 tons. Car samples average \$24.74. Battery samples average \$23.37. Bullion yield for the week \$1,988.28. Shipped to the United States mint at Carson, November 25th, 274 lbs. of crude bullion. The Nevada mill stopped from the 22d to the 25th inst. On the 1,050 level the east drift was advanced, making its total length 45 ft.; face in quartz and porphyry.

(From our Special Correspondent.)

The following is the weekly tabulated statement of ore hoisted from Comstock mines and milled, with the average car and battery assays, bullion product at a company of the company of the

Ore H'st'd			Av. Bat'ry Assay.	Builion for Week.	Total.
371	30.88				
10	54				388 ⁴ 274 ⁶
	H'st'd	H'st'd S'mple Assay. 37 ¹ 30.88 12 ² 22.31 10 3	H'st'd S'mple Assay. 371 122 22 31 54	H'st'd S'mple Mil'd Bat'ry Assay. S71 30 88 122 22 31 .	H'st'd S'mple Mil'd Bat'ry for Assay. S71

125 Cars. 3 Holsting of ore discontinued on the 17th 6 Crude builion.

West Consolidated Virginia & California Mining Company.—Active operations in the mine began December 1st under the superintendency of H. W. Taugerman, an old Comstocker. Work will be carried on through the old Consolidated Virginia shaft, and the drifts from the 850 to the 1,100 levels will be reopened. These drifts were not extended originally into the west ledge on account of water being encountered which the Gould & Curry pump was unable to handle. They were run prior to the connection of the underground workings of the Comstock mines with the Sutro tunnel. Any water that may be encountered now will not be an embarrassmeut as it will be drained through the tunnel. M. W. Fox, president of the West Consolidated, is at present on the lode and will remain for a few days nutil work is well started. In no mine on the Comstock will work be more eagerly watched than that to be carried on in this mine. It is the property of great expectations.

Yellow Jacket Mining Company.—In the upraise from the 1,100 to the 1,000 level, 60 ft. up, a small body of rich gold ore was struck last week. The vein is not wide, but all the assays made show the ore to be very rich. This is, doubtless, a part of the gold ledge which runs through most of the south end mines, and which contains much low-grade ore with rich spots scattered through it. The strike made a week ago is 200 ft. north from the Kentuck line.

White Pine County. (From our Special Correspondent.)

White Pine District.—Following are the lots of ore shipped during the month of October: From Hamiltou, by McEllin, 54 tons; F. Paul, 40 tons; C. A. Mathewson, 37 tons; Thos. Cornell, 32 tons; A. Muir, 26 tons; Louis Lani, 26 tons; total White Pine District, 215 tons.

From the Bay State mine, Newark, district, 15 tons.

NEW MEXICO.

NEW MEXICO.
Grant County.

The following items of Grant County mining news are from the Silver City "Enterprise":

Aztec.—Work has beeu suspended on the Aztec tunuel on account of failure of the officials in St. Louis to send out the cheeks to pay the workmen. The workmen on the tunnel, it is said, have not beeu paid since September 1st. Work was stopped at 838 ft. from the mouth of the tunnel, or within 2 ft. of the vein; if the survey is correct the ledge should be reached at 840 ft.

Brockman Mill—John Brockman's mill at Loue

Brockman Mill.—John Brockman's mill, at Loue Mountain, will start crushing ore this week. There are several hundred tons of rich ore out on the dumps and at the mill ready for treatment.

are several hundred tons of rich ore out on the dumps and at the mill ready for treatment.

Illinois Zinc Company.—Assessment work is being done on this company's mines at Hanover. Wm. Swancoat is in charge.

Ivanhoe Copper Mining and Smelting Company.—This company is meeting with success in its operations at San Jose. A carload of copper matte which runs 55% copper, 26 oz. silver and 1½ oz. gold per ton was shipped last week. The mine also produces lead ore and hereafter lead bullion will also be produced. The ore body, so far as explored, shows a width of 20 ft. and only one wall found as yet. Two new 30-ton water jacket furnaces will be erected immediately, to give more facilities for working this ore body. When the new furnaces are complete the output will be two carloads, or 30 tons, per week of copper and lead bullion.

Pacific Gold Mining Company.—This company is working about 12 men on the Pacific veiu. Theore is hauled to the mill above town where it is milled. The mine and mill are under the superintendence of John A. Spiller.

Texas.—Judge J. C. Givens, of Central, is working 14 men on the Texas mine; the ore is of high grade.

NEW YORK.

Eric County

NEW YORK. Erie County.

Another big gas well is in operation in West Seneca, the flow of which is estimated at 1,000,000 ft. a day. The gas sand in the vicinity is very porous, and experts say that gas exists in it in very large quantities. Six wells are now giving satisfactory flows, and from 8 to 12 others will be drilled between now and spring.

OHIO.

It is announced that the Pennsylvania Company has purchased two-thirds of the capital stock of the Cleveland & Marietta Railway Company, together with a large tract of coal land contiguous thereto. The latter is known as the Cambridge coalfield.

Guersey County.

Walhonding Coal Company.—This company has been organized at Cambridge, with \$500,000 capital stock, to mine coal in this county.

PENNSYLVANIA.

PENNSYLVANIA.
Anthracite Coal.

The committee of the Schuylkill Coal Exchange sends us the nsual monthly circular uotice to the effect that the following collieries drawn to return prices of coal sold in the mouth of November, 1893, to determine the rate of wages to be paid, make the following returns: Ellangowan, \$2.484; Indian Ridge, \$2.776; Draper, \$2.564; Bast, \$2.482; Reliance, \$2.716; average, \$2.604. The rate of wages for the last two weeks of November, and the first two weeks of December, 1893, is 3% above the \$2.50 basis.

Crystal Ridge Colliery.—This mine caught fire

the \$2.50 basis.

Crystal Ridge Colliery.—This mine caught fire December 5th and at latest accounts was burning from the foot to the mouth of the slope. Four men and 13 mules were caught below, but a later account says that they were rescued.

Union Coal Company.—This company's Hickory Ridge and Hickory Swamp collieries started up on December 4th, which had been shut down two weeks; they employ 1,200 men and boys.

Rituminous Coal

Bituminous Coal.

Hituminous Coal.

The action of a number of Beech Creek coal operators in making a further reduction in the earnings of the miners by cutting the price paid for yardage 25% threatens another suspension of mining in that regiou. The miners have issued a letter to the operators of Osceola mills and along the Beech Creek Railroad, inviting them to a conference to be held in Phillipsburg on December 9th to consider the question.

The strike at the mine of the Pittsburg & Chi-

The strike at the mine of the Pittsburg & Chicago Gas Coal Company and the Hackett Coal and Coke Company, at Snowden and Gastonville, still continues. A few men were willing to go to work at the company's offer of 60 cents per ton, but the majority stayed out. Both companies state that they will not and cannot pay more.

The joint convention at Pittsburg of railroad operators and miners to arbitrate the price of digging coal in the railroad mines adjourned on December 5th without coming to any conclusion. The operators became disgusted at the action of the employees and left the hall. An attempt was made to fix the rate at 65 cents per ton. This is a reduction of 14 cents in the present scale price. Another meeting is to be held by the miners this week. In the meantime the district will be canvassed. If all the men agree to accept the cut the committee will try to hold another conference with the operators.

Taylor-McCoy Coal Company.—This company's

Taylor-McCoy Coal Company.—This company's mine, near Gallitzin, resumed work recently, after a shutdown lasting nearly five months. The miners accepted a 10% reduction in wages.

a shutdown lasting hearly hve months. The miners accepted a 10% reduction in wages.

A late press dispatch from Pittsburg says that within the uext 10 days it is probable that the 600 miners of the Monongahela Valley will demand a 2½-cent mining rate, and the refusal on the part of the river coal operators to grant it will undoubtedly precipitate a strike. This is the programme arranged by the representatives of the miners who are now at work in the different pools agitating the matter in order that the question may reach an issue as soon as possible. The railroad coal operators of the Panhandie district held a meeting on December 6th and decided to postpone action in the matter by cutting down wages until after the miners' convention, on the 8th. If the miners theu decide to refuse the proposition of making 65 cents a ton the price for mining, the operators will reduce wages to the minimum basis. The lowest rate now paid is 53 cents a ton, and this is the price to which wages will be reduced if the men do not agree to the 65-cent rate.

Oil.

Forest Oil Company.—This company's well, on the Glass farm, south of Venice, is now 11 ft. in the fourth sand, but has developed only a light show of oil so far.

show of oil so far.

Philadelphia Company.—This company's Grubb well, in Onio township, four miles from Sewickley, last week struck oil in the fourth sand, and the well began to flow at the rate of 50 barrels an hour, which later declined to 30 barrels. At latest accounts the well was still flowing steadily with a good pressure, and the company was putting up a 600-barrel tank. The Bowman and the Morgan No. 2 wells are still drilling, but have not shown oil.

SOUTH CAROLINA.

SOUTH CAROLINA.

Phosphates.

Beaufort Phosphate Company.—The large washer which was sunk near Port Royal in the great storm of August 27th has at last been raised, and the machinery found to be pretty well destroyed with the exception of the two pumps. The company has recovered all its bolts except four, which are still on the swamp, some distance from the river.

SOUTH DAKOTA.

Lawrence County.

Comet.—The owners of this mine have leased the hoisting works, formerly used by the Enterprise company, on their property in Carbonate camp. The machinery, etc., has all been removed to the Comet, on Nevada Guich, and will be in operation there shortly. The mine is reported to to be in good shape. A drift is being run along one side of the ore body, from which cross-cuts will be made into the shoot. E. J. Cooper is the superintendent.

Inter-Ocean.—This property at Rear Culch, here

superintendent.

Inter-Ocean.—This property, at Bear Gulch, has been bonded to an Eastern syndicate. The property is owned by W. A. Rinehart and others.

South Dakota Mining Company.—This company has begun operations at its site on Anna Creek.

TENNESSEE.

Bradley County.

Bradley County.

(From our Special Correspondent.)

Blue Springs Mining Company.—Mr. S. W. Divine, of Chattanooga, president, states that his company will erect a 50-ton concentrating plant at the mine, at Blue Springs station; it is now receiving estimates of cost for the same. This company began operations about a year and a half ago. The vein is now developed on the strike for a distance of 500 ft. and on the dip from a depth of 115 ft. and ranging in thickness from 6 to 10 ft. A 20-ton furnace was built for the treatment of lead ore only, as the first assays showed only lead, in paying quantities, but as developments proceeded the percentage of zinc rapidly increased and assay of the slag showed a considerable loss in both metals. Hence it was decided to erect a concentrating plant for the purpose of separating the ore of lead and zinc. An assay from an average lot of ore lately mined is as follows: Zinc, 20.5%; lead, 35.4%; sulphur, 13.1%; sesquioxide of iron, 1.1%.

Lawrence County.

Lawrence County.

Iron City.—The firm of Craik & Fagan are now at work developing the iron mines here; they have 75 men employed and have put in two steam drills and are preparing to put up a washing plant.

Monroe County.

Tellico Mining and Manufacturing Company.—
The receiver has been authorized to lease the irou mines of this company, at Tellico Plains, to Mc-

Donald, Shea & Co. It is said that the contract provides for a royalty of 10 cents per ton.

TEXAS. Webb County.

Webb County.

Mineria Coal Company.—This company, which has its headquarters at Laredo, has purchased a tract of 50,000 acres, including the San Thomas coal mine. It is said that the company has made arrangements for additional capital and intends to work the mines actively.

UTAH.

Salt Lake County.

Salt Lake County.

Snipments of ore and builion from Sait Lake City for the week ending November 25th amounted to 1,997,990 lbs., of which 1,056,600 lbs. were bullion and 941,390 lbs. were silver and lead ores. The receipts of ore and bullion at Salt Lake City for the week ending November 29th were \$145,586, of which \$82,486 was in bullion and \$63,100 was in ore. The receipts for the previous week were \$140,514, of which \$89,604 was in bullion and \$50,850 was in ore. The receipts of Mingo bullion for the same time were \$30,936; Hanauer bullion, \$15,150; base bullion, \$28,600; gold bars, \$7,800. Ore receipts were \$26,000 by McCornick & Co. and \$37,100 by T. R. Jones & Co. Sevier County.

Sevier County.

The Grasshopper and Anna Laura mines, at Richfield, have been bonded and work will commence shortly.

Carbon County.

Carbon County.

Union Pacific Coal Company.—About 250 men employed by this company, at Carbon, in mine No. 2, went out on a strike on November 29th. The complaint of the men was that the company did not furnish sufficient cars to enable the miners to make living wages at the prices paid. Later the officials of the company met a committee appointed by the miners, and it was agreed that the company should furnish sufficient cars to carry the coal as fast as it is mined. The men went back to work on the following day. The output of the Carbon mines is from 35 to 40 cars of coal a day.

FOREIGN MINING NEWS

BRITISH COLUMBIA.

Slocan District.

(From our Special Correspondent.)

(From our Special Correspondent.)

Le Roi.—The returns from 17 tous of ore shipped to the Tacoma smelter have just been received, as follows: Yield in gold, \$42 per ton; cost for mining, \$3; transportation to trail from mine, \$5; railroad freight and smelting charges, \$19; total, \$27 per ton, leaving a profit of \$15 per ton. This mine is now working 26 men. The main tunnel is in ore, iron and copper pyrites.

Pilot Boy Smelter.—Work on the completion of this smelter, on Kootenai Lake, will not be resumed at present, owing to the great cost of shipping fuel and supplies.

War Fagle—This mine has only five monest

War Eagle.—This mine has only five men at work, but the owners are about to increase the force and ship ore.

Texada Island.

Texada Island.

(From an Occasional Correspondent.)

The proyincial government has made a grant for roads on the island, and they are now under construction. The roads are 10 ft. standard width and will make the mineral claims accessible, and put them in communication with Victoria, Nauaimo and Vancouver. Five claims have recently shipped sample lots of ore to the Mechanical Gold Extractor Company, New York, for mill tests. The veins are generally large, running from 5 ft. to 50 ft. in width. The last assay from the Nutcracker claim showed 10.56 oz. of gold to the ton.

GREAT BRITAIN.

Scotland.

At the meeting of delegates of the Scotch miners, held in Glasgow, December 5th, it was decided to call out immediately the 17,000 men whose employers conceded to them the shifling per day, demanded by the union. Over 100,000 men are now idle. When the strike began last week owners of mines employing about 17,000 men granted the demand, and these men continued at work. The union has sent communication to Mr. work. The union has seut communication to Mr. Gladstone, asking the government to intervene in the same way as it did in the English miners' strike to secure a settlement.

MEXICO.

Durango.

Durango.

Compania Minera de la Velardena.—The first 50ton stack of this company has been blown in.
Three more stacks of a similar capacity, says the
"Two Republics," will be blown in during the
present year, making a total daily capacity for the
smelter of 300 tons.

Sonora.

Sonora,

(From our Special Correspondent.)

Work was begun this week at the new coalfields, at San Marcial, and a shaft commenced on
the site of the diamond drill borings. The purpose
is to continue the showing of the drill and later
the shaft will be used as an air shaft. The first

vein is at a depth of 75 ft. If the shaft opens the coal, as the borings showed, a double compartment working shaft will follow. A railroad to Guaymas, 80 miles in length, is under contemplation. The grading will not be heavy.

NEW BRUNSWICK.

Eureka Mining Company.—This company has been organized by F. H. Hall, James Carr and others, at Woodstock, to purchase the property formerly owned by the Britton Mining Company, and to develop the mines and prospect for gold and silver ores. The capital stock is \$290,000.

NEW SOUTH WALES.

An important find of tin ore is reported at Sundown Creek near Tenterfield, and there is considerable excitement over the new district. The mining warden is now making an examination, and has so far reported very favorably.

far reported very favorably.

Broken Hill Proprietary Company.—The directors of this company recently paid a visit to the mine, and it is understood that some important changes will probably be made, especially with reference to opening up the new deposit shown by the surface cutting. In the Darling shaft a drift on the 214-ft, level has been run 290 ft. eastward, opening up a very large body of good carbonate ore.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Dcc. 8.

Statement of shipments of anthracite coal (approximated) for week ending December 2d, 1893, compared with the corresponding period last year:

Wyoming region Lehigh region Schuylkili region	1893, Tons. 484,594 119.954 290,249	1892. Tons, 462,713 134,228 283,323	Diffe Inc. Dec. Inc.	21,88 14,274 6,926
Totals	894,797	880,264	Inc.	14.533

Total for year to date.. 39,857,163 38,619,242 Inc. 1,237.921 PRODUCTION OF BITUMINOUS COAL, in tons of 2,240 lbs. for week ending December 2d, and year from January lst:

	- A	0000	1892.
Shipped East and North:	Week.	Year.	Year.
Phila. & Erie R. R	1.111	73,714	88,280
Cumberland, Md	71.247	3,867,765	2 544 - 07
Barclay, Pa	426	42,373	3,542,567
Broad Top. Pa	9,723	529,949	63,123
Clearfield, Pa	65,969	2 524 100	578,469
Allegheny, Pa		3,534,122	3,692,594
Dearh Check De	17.868	1,150,533	1,183,860
Beech Creek, Pa	39,721	2,536.093	2,083,603
Pocahontas Flat Top	56,306	2,662,193	2,444,207
Kanawha, W. Va	64,712	3,0,2,123	2,176,044
Totals		17,495,165	16,552,687
Shipped West:	Week.	Year.	1×92.
Pittsburg, Pa	26,204	1.124,380	Year.
Westmoreland, Pa	21,333		1,171,:64
Monongahela, Pa		1,701,079	1,635,299
	12,239	646,580	615,416
Totals	59,781	3,472,039	3,411,979
Grand totals	386,864	20,877,004	19,564,666

PRODUCTION OF COKE on line of Pennsylvania R. R. for the week etding December 2d, 1893, and year from Jan-nary 1st, in tons of 2,000 16s.; Week, 48,103 tors; year, 3,646,355 tons; to corresponding date in 1892, 4,085,355 tons

Anthracite.

The anthracite coal trade has undergone some improvement since our last report, and the market is in pretty fair condition to-day. The cold snap of the early part of the week stimulated trade to some extent and dealers report that business during the past few days shows an increase over last week.

some extent and dealers report that business during the past few days shows an increase over last week.

Certain sizes, notably pea and buckwheat, and to a lesser extent chestnut, are reported scarce, but there has been no great difficulty in supplying the demand for them.

The Lehigh Valley Railroad strike is at last ended. On December 6th the company and the men came to an understanding and the strike was declared off. It is difficult to say which side was victorious; it is probable that neither the men nor the company is much ahead. No advantage has been derived by either side and certainly both have suffered monetary losses.

The coal business of the company and of those operators who are obliged to ship their product over the lines of the Lehigh Valley will now resume its normal conditions. The Lehigh Valley Coal Company has certainly suffered considerable inconvenience by the strike, although the trade at large may not have done so. While it is true that the company had large stocks of coal at South Plainfield and Perth Amboy, and comparatively little trouble was experienced in moving them, yet it is also a fact that they were chiefly of sizes for which there was no great demand and they might just as well have been at the mines. Considerable business which, under normal conditions, would have gone to the Lehigh Valley company, was given to other parties, owing to the former's inability to supply the orders. Some of the most important producers on the line of the Lehigh Valley Railroad state that they could sell a good deal of coal for immediate delivery if they had it.

Orders were given to resume work at the idle Lehigh Valley collieries on Thursday. Cars are, and probably will be, for some time, scarce, but what is one's loss is another's gain: the trade at large will not be seriously affected by the conditions enumerated in the preceding paragraphs.

Prices, so far as we can learn, are being fairly

well maintained; in the case of pea and buckwheat, owing to the demand for these sizes, prices are firmer aud somewhat higher.

The Reading official circular rates, subject to the usual commissions, are as follows, f. o. b. at its New York harbor shipping ports:

	Broken.	Egg.	Stove.	Ch	estnut
Hard white ash	\$4.00	\$1,25	\$1.60		84.60
Free white ash	3.90	4.15	4.60		4.60
Shamokin		4.50	4.80		4.60
Schuylkill red ash		4.50	4.95		4.75
Lykens Valley	5.15	5.80	6.25		5.50
Pea, \$2.75@\$3; No. 1 Buckwheat, \$1.75@\$2.	Buckw	heat,	\$2@\$2.2	5;	No.

Pea, \$2.73@\$2: No. 1 Buckwheat, \$2@\$2.25; No. 1 Buckwheat, \$1.75@\$2.

The Reading Railroad reports that its coal shipment (estimated) for last week, ending December 2d, was 340,000 tous, of which 40,000 tous were sent to Port Richmond and 35,000 tous were sent to New York waters.

In Philadelphia, December 4th, the petition of the receivers of the Reading Railroad for authority to modify the existing contract between the Reading company and the Finance Company of Pennsylvania was approved by George L. Crawford, special master in the receivership. The proposed modification of the contract will enable the receivers to obtain advances from the finance company to the amount of \$3,000,000, instead of \$1,000,000 as under the old agreement.

The receivers of the Reading Railroad and Coal and Iron Company on December 1st met interest charges aggregating \$691,245. Of this amount \$617,575 was for interest on the consolidated mortgage of the railroad company and \$23,670 for interest on divisional coal and iron bonds.

Bituminous.

Bituminous.

There has been no change of importance in the soft coal trade since our last report; it continues in a poor condition and the market is weak. There are few orders coming forward from consumers. Some of the companies are getting enough of them to keep running full. Others have curtailed shipments more or less, according to the demands upon them.

ments more or less, according to the according to the them.

The greater portion of the business continues to be done from the upper ports. Georgetown, we understand, is closed for the season, so far as coal shipments are concerned. All-rail business continues good and there is comparatively quite an inquiry for all-rail delivery from the main lines to foreign roads to northern parts of New York and the Eastern States.

We hear of several companies which have been the West for new business.

foreign roads to northern parts of New York and the Eastern States.

We hear of several companies which have been directing their atteution to the West for new business, in view of the effects which the Wilson Bill, in the event of its becoming a law, might have on the Eastern soft coal business. Thus far these efforts have not met with encouragement, nor is it likely that they will be attended with success.

The tonnages of a great majority of the companies are in excess of the total production of 1892. It must be remembered that last year the trade suffered from serious blockades, which has not been the case this year, and also that the deliveries during the early part of 1893 were very heavy to make up for the light shipments during the close of 1892.

The late snowstorm affected the transportation

The close of 1892.

The late snowstorm affected the transportation to some extent, but even without the snow, transportation during the past week has not been as good as it was during the fortnight preceding it.

The car supply has been fair, and only fair. The lack of orders at the shipping ports has kept the vessels in fair supply. Rates, however, have remained about as they were last week. We quote ocean freight rates as follows from Philadelphia: To Boston, Salem and Wareham, \$1; Providence, New Bedford, New Haven, Bridgeport and Allyn's Point, 90c.; Portland, \$1@\$1.05; Portsmouth, \$1.05; Lynn, \$1.10@\$1.25; Newburyport, \$1.15; Bath, \$1.05; Bath, bare have been some more orders from Santher Santher

There have been some more orders from Southern ports during the week, which have fallen to the commission houses which generally place them with the different companies. It can scarcely be said that these orders were in the open market.

NOTES OF THE WEEK.

NOTES OF THE WEEK.

It is reported that surveys and purchases of coal lands between the Beech Creek district and Pittsburg seem to indicate the building of a link between the Beech Creek line and the Pittsburg-Mc-Keesport line. A declaration of trust for nearly 12,000 acres of coal lands has lately been made to Robert H. Sayre, formerly president of the South Pennsylvania and a member of a syndicate which secured options on Somerset County lands some time ago. These options expired, but Mr. Sayre's agents have since bought the tracts outright. Agents of the Berwind-White Coal Company are also said to have purchased outright about 20,000 acres of Somerset coal lands at prices ranging from \$30 to \$40 per acre.

Boston.

Trade in anthracite is of very limited proportions. It is getting along to that point in the season where shipments would naturally fall off. The yards throughout New England are said to be very well stocked. Prices are maintained by the companies, but individual miners are offering at 20c. under schedule rates.

Companies' prices f. o. b. net New York, are: Stove, \$4.45: egg, \$4: free broken, \$3.75; and chestnut, \$4.25. Individuals' white ash coals are:

Stove, \$4.25; egg, \$3.85; free broken, \$3.75; chestnut, \$4.25. Lykens Valley (at Philadelphia) broken, \$4.90; egg, \$5.55; stove, \$6; and chestuut, \$4.25. The stocks of bituminous at the mills are large, over 250,000 tons more being shipped into New England this year thau last. When it is realized that many of our mills are shut down, some conception of the state of affairs here can be gained. Prices are as last quoted. On cars here Cumberland is worth \$3.85 per ton; New River and Pocahontas, \$3.85; Clearfield, \$3.50.

Rates from all ports south of New York are held firm, but there is some shading from there. Rates are: From New York, 65@75c.; from Philadelphia and Hampton roads, \$1; from Baltimore, \$1.10; to Sound points, 10c. less than the foregoing.

A few cold days we had this week caused a little spurt in the retail demand for coal, but it has disappeared. Prices are firmly maintained as follows: Stove, \$6.25; nut, \$6.25; egg, \$6; furnace, \$5.75; Franklin, \$7.75; Lehigh egg, \$6.25; Lehigh furnace, \$6; soft coal, \$3.75@\$4.

Buffalo.

Buffalo.

Buffalo.

Dec. 7.

(From our Special Correspondent.)

The anthracite coal trade continues in the same condition as was reported a week since, except that many orders have come in from nearby interior points, in consequence of the severe weather causing a good demand for fuel. Prices unchanged. Bituminous coal is in fair demand by manufacturers, and the figures of dealers are stoutly maintained. The season of navigation is nearly closed; therefore the demand for vessels' use is getting less and less every day. Quite a fleet arrived here Tuesday and occasionally a coal-laden vessel departs, but every charter made is called the "last" one. Buffalo and vicinity experienced severe cold and afterward snowstorms last Saturday and Sunday—blocking trade and hindering railroad and vessel trausportation. Monday was clear, cold and fine, so was Tuesday. Yesterday the wind was high and squally and temperature very cold; not at all desirable weather for navigating the lakes. The Sault Ste. Marie and Welland canals are closed by ice, as are many lake ports.

The shipments of coal westward by lake, from Buffalo, from November 27th to December 3d, both days inclusive, as per Custom House manifests, aggregated 72,750 net tons, distributed as follows: 46,100 net tons to Chicago, 10,500 to Milwaukee, 2,950 to Toledo, and 3,200 to Gladstone. Some of the vessels included in this statement are still in port; part loaded, part unloaded. The rates of freight were 60c. to Chicago and Milwaukee, 35c. to Toledo and 40c. to Gladstone. The final statement of the shipments of coal by lake for the season and the points of destination is in course of preparation.

The following statistics were prepared by Mr. William Thurstone secretary of the Buffalo Mor.

35c. to Toledo and 40c. to Gladstone. The final statement of the shipments of coal by lake for the season and the points of destination is in course of preparation.

The following statistics were prepared by Mr. William Thurstone, secretary of the Buffalo Merchants' Exchange, showing the coal trade of Buffalo for the season, thus far, of 1893, as compared with preceding years: Railroad receipts and shipments of coal at Buffalo not reported by request. Receipts of coal by lake thus far this season, none. Shipments of coal westward for month of November, 1893, 436,330 net tons, as compared with 469,248 net tons in 1892 and 353,330 net tons in 1891; for the season to December 1st, 1893, 2,626,037 net tons, as compared with 2,813,880 net tons in 1892 and 2,396,380 net tons in 1891. The receipts of coal by canal for the month of November, 1893, 3,887 net tons, as compared with 6,622 net tons in 1892 and none in 1891; the total receipts for the season, 69,932 net tons, as compared with 53,451 net tons in 1892 and 817 net tons in 1891. The shipments of coal by canal for the month of November, 1893, 1,726 net tons, as compared with 3,637 net tons in 1892 and 5,317 net tons in 1891; the total shipments for the season, 19,337 net tons, as compared with 3,637 net tons in 1891. The aggregate shipments of coal by lake this season to December 1st show a decrease of 187,843 net tons, as compared with 1892, and an increase of 229,050 net tons, as compared with 1892, and an increase of 229,050 net compared with 1892, and an increase of 229,050 net compared with 1892, and an increase of 229,050 net compared with 1892, and an increase of 229,050 net compared with 1892, and an increase of 229,050 net compared with 1892, and an increase of 229,050 net compared with 1892, and an increase of 229,050 net compared with 1892, and an increase of 229,050 net compared with 1892 to Recember 1st aggregated 3,008, 120 net tons, as compared with 2,004,266 net tons in 1892; 2,507,522 net tons in 1891; 2,176,585 net tons in 1890 and 1,629,197 ne

Chicago. (From our Special Corr spondent.)

(From our Special Corr spondent.)

Considerable disappointment is felt among the shippers as to the result of the recent cold and stormy weather. Expectations were great that it would wonderfully aid the market, but so far there has been hardly any perceptible increase.

One retrieving feature is that salesmen who are on the ground in the country districts have been sending in quite an increase of orders, more so, in fact, than they have done in a number of months

past. The increase in the mail orders is but triffing. Prices are being badly shaded, but on a fairly firm basis at the shaded prices, 25 cents on anthracite and 35 cents on bituminous.

The Spring Valley Coal Company, of Spring Valley, Ill., said to be one of the largest coal companies in the State, owning 33,000 acres of coal lands, is in trouble. The attorney-general charges that the company has no legal existence; that by its own act its charter was allowed to lapse; that consequently it cannot legally own or operate coal lands or mines or transact any other business, and that it has been enjoying the rights and privileges of a corporation under the laws of the State of Illinois for several years without having any legal warrant therefor. It is charged further that the company has been a taxdodger from its organization; that for two years it paid no personal taxes whatever; that it has never paid any taxes on its coal lands.

Anthracite prices are: Lehigh lump, \$6.25; large

whatever; that it has never paid any taxes on its coal lands.

Anthracite prices are: Lehigh lump, \$6.25; large egg, \$5.85; small egg, range and chestnut, \$6.10. Retail prices per ton are: Large egg, \$6.75; small egg, range and chestnut, \$7.25.

There is some talk here over the action of the Hocking and Indiana block operators in abandoning their position in asking 10c. additional on box cars. The cause is not stated. The bituminous coal market shows many signs of weakness despite the cold snap, the sales being less than usually reported at this season of the year. Everybody seems to be making one ton of coal last for four. Prices of bituminous coal per ton of 2,000 lbs., f. o. b. Chicago, are: Youghiogheny, \$3.40; Pittsburg, \$3.35; Hocking Valley, \$3.10; Brazil block, \$2.70; Illinois lump, \$2; Indiana lump, \$2. The coke trade advances slowly, but steadily, and it is thought that activity will soon prevail. Connellsville operators are holding firmly to \$4.40; crushed, \$4.50. West Virginia foundry, \$4.40; walston furnace, \$4.10; foundry, \$4.35.

Pittsburg.

(From our Special Correspondent.)

Coal.—The week past has been an eventful one so far as the coal interest is concerned. The rise in the Ohio River enabled coalmen who had light barges loaded to forward them to the lower markets; the water being not quite sufficient caused a loss by sinking of from 500,000 to 750,000 bushels of coal, a portion of which will be eventually recovered. The entire shipment will aggregate 12,000,000 to 13,000,000 bushels. The heavy coal boats are waiting for more water. This is the first run of any size that left since last May; most of the fleet have arrived at Cincinnati and are on the way back with empties. Some 6,000 river miners may go out on a strike; they want a uniform rate in all the pools, and believe the present coal shipment will help their cause. Railroad miners will await the result of Friday's convention before taking action; they have been offered 65c. per ton. How the matter will be decided will be learned later; at this writing it looks like a strike.

Connellsville Coke.—A big coke war is on and the indications can that the extreme will he a (From our Special Correspondent.)

How he matter will be decided will be learned later; at this writing it looks like a strike.

Connellsville Coke.—A big coke war is on, and the indications are that the outcome will be a fight to the finish, and there may be further slashing of rates until somebody goes to the wall, or throws up the sponge. The fight is not of the strong against the weak; it is not an attempt on the part of the big fish to swallow the little fish, but a determined and probably final battle for supremacy between the big operators, and the outcome will be watched with deep interest by consumers. The H. C. Frick Coke Company is paying \$1 per 100 bushels, and its haulers \$1.95 per day, and all other wages in proportion. In addition to this the Frick company has provided for the families at its idle works and did not allow any of them to want for the necessaries of life while the works were idle, nor did they charge them any house rent. The McClure Coke Company was equally liberal.

Week's shipments aggregated 69,300 tons, distributed as follows: To Pittsburg, 1,650 cars; to points East, 900 cars; to points West, 1,300 cars; total, 3,850 cars. Western shipments increased 75 cars; Eastern decreased 30 cars; Pittsburg increased 75 cars; Eastern decreased 30 cars; Pittsburg increased 75 cars; a net increase of 120 cars over previous week. Present rates for various kinds are: Furnace coke, f. o. b. cars at ovens, \$1.25 per ton; crushed coke f. o. b. cars at ovens, \$1.55 per ton; crushed coke f. o. b. cars at ovens, \$1.50 per ton; crushed coke f. o. b. cars at ovens, \$1.50 per ton; crushed coke f. o. b. cars at ovens, \$1.50 per ton; crushed coke f. o. b. cars at ovens, \$1.50 per ton; crushed coke f. o. b. cars at ovens, \$1.50 per ton; crushed coke f. o. b. cars at ovens, \$1.50 per ton; crushed coke f. o. b. cars at ovens, \$1.50 per ton; crushed coke f. o. b. cars at ovens, \$1.50 per ton; crushed coke f. o. b. cars at ovens, \$1.50 per ton; crushed coke f. o. b.

IRON MARKET REVIEW.

NEW YORK. Friday Evening, Dec. 8, 1893. Pig Iron Production and Furnaces in Blast.

	1	Week	ending	From	From		
Fuel used.	Dec	9, 1892.	Dec. 8	3. 1893.	Jan., '92		
	F'ces	Ton'.	F'ces.	Tons.	Tons.	Ton 4.	
Anthracite.	71	31,046	35	16 410	1,620.142	1.331.881	
Coke	136	131.405		60,507	6,486,814	6,172,655	
Charcoal	44	9,705	25	5,170	503,167	374.416	
Totals	251	172.156	119	82.117	8,610,123	7,878,952	

Pig Iron.—All reports to the contrary notwith-standing, there has been no change whatever in the conditions which have prevailed in this market for several weeks past. While many dealers report more inquiry for pig iron, a careful canvass of the

trade fails to show that the volume of husiness done

trade fails to show that the volume of business done during the past week is appreciably greater than during the preceding week or the week before, nor are prices firmer or higher than they have ruled of late. It is precisely those persons who are the most bitter in their complaints of the Wilson Tariff Bill and the evil results which will follow its passage, who are talking of firmer prices—an inconsistency which is hard to explain.

During the week sensational reports have been current to the effect that the Tennessee Coal, Iron and Railroad Come any had sold 100,000 tons of pig iron for shipment abroad. This statement has been published by numerous papers. We are enabled to state authoritatively that no sales for exports have been made, all rumors to the contrary not withstanding. The report probably originated from the extract from a letter of President Baxter, of that company, which we published last week in this column, and which has been twisted and distorted out of recognition. out of recognition.

out of recognition.

The tidewater prices of the Thomas Iron Company are as follows: No. 1, \$14.50 per ton; No. 2, \$13.50; No. 3 or No. 2 plain, \$12.75. For regular brands we quote as follows: Northern brands: No. 1, \$13.75@\$14.25; No. 2, \$12.50; gray forge, \$12. For Southern Iron we quote: No. 1, \$13@\$13.75; No. 2 F, \$12@\$12.50; No. 1 soft F., \$12@\$13; gray forge, \$11@\$12-ali at tidewater. Seotch Irons are quoted: Coltness, \$21.53@\$22; Eglinton, \$19.50@\$20; Snimmerlee, \$2.50@\$21.

Billers and Rods .- No sales in either billets or rods are reported this week. Quotations are nominally as follows: Domestic billets, \$19@\$20; foreign billets, \$28@\$20; tidewater. Wire rods, domestic, \$28@\$29; foreign, \$39@\$40, tidewater.

Manufactured from and Steel,—Prices continue low and no sales of any consequence are reported. We quote nominally as follows: Angles, 1·70@1·85c.; axles, scrap. 1·75@2c. delivered; steel, 1·75@2c.; bars, common, 1·40@1 50c.; refined, 1·50@1·85c. on dock; beams, up to 15 in., 1·70@2c.; 20 in., 2·00@2·25c.; car truck channels, 2@2·10c.; channels, 1·75@2c. on dock; steel hoops, 1·75@1·9c., delivered; links and pins, 1·70@1·80c.; plates, flange, 2@2·10c.; firebox, 2·5@2·8c. 5 flange, 2·10@2·25c.; marine, 2·50@2·75c.; sheared, 1·81@2·10c.; shell, 1·75@1·95c.; tank, 1·55@1·75c.; universa; mill, 1·65@1·80c.; tees, 2/@2·15c., all on dock.

min, 1 00@1 80c.; tees, 2@2 15c., all on dock.

Merchant Steel.—We do not hear of any improvement in this market. It is quiet, with prices unchanged from last week, as follows: Tool steel, \$6.50@\$6.75 and upward; tire steel, \$2@\$2.10; toe calk. \$2.30@\$2.40; bessemer machinery, \$2.10@\$2.20. Bessemer bars, \$1.60@\$1.70; open hearth machinery, \$2.25@\$2.30; open hearth carriage spring, \$2.10@\$2.20; crucible spring, \$3.75@\$4.

Old Material.—Nothing of interest bas transpired in this market. We do not hear of any sales of importance. Nominal quotations are as follows: Old iron rails, \$12@\$13; No. I wrought scrap at \$9.50@\$10, both delivered to vessels at this port. Other quotations are as follows: Old steel rails, \$8@\$10; old wrought tubes and pipe, \$7.50@\$8.50; wrought turnings at \$30@\$9.25 delivered at mill.

Rail Fastenings.—This market continues very quiet. Quotations are nominally: Fish and angle plates, \$15@\$15.80 at nill; spikes, 1.80@1.90c.; bolts and square nuts, 2.25@2.45c.; hexagonal nuts, 2.45@2.60c., delivered.

plates, \$15.@\$15.80 at mill; spikes, 1'80@1'90c.; bolts and square nuts, 2'25@2'45c.; hexagonal nuts, 2'45@2'260c, delivered.

Steel Rails.—Reports from Philadelphia state that orders have been placed with the Pennsylvania Steel Company and its Sparrow's Point branch, known as the Maryland Steel Company, for 400,000 tons of steel rails at \$25 for delivery during 1894, of which 100,000 tons go to the former and 300,000 tons to the latter company. The buyers, whose names are not given, but who may be supposed to be the members of the new rail association, are said to have given honds for \$30,000 to the Pennsylvania Steel Company and \$300,000 to the Maryland Steel Company, in order to protect the companies in the event of the buyers failing to take the rails. The companies are bound by the contracts to "accept no orders for rails until the buyers have taken the lots in question." In other words, neither the Pennsylvania nor the Maryland Company will under this arrangement be allowed to run in competition with the combination. At the offices of the companies in this city the report was neither confirmed nor denied, but from a person who stands near to the officials we learn that, as given above, it is practically correct. Many interesting questions arise in connection with this new and sensational move, not the least pertirent of which is, whether the court will permit such an arrangement. Being in the hands of receivers, neither company could enter directly and openly into the pool or "combine." but this new arrangement is so transparent an evasion of the law that it is doubtful whether it would hold if op, osed. Further comments are made in our editorial pages.

A United Press dispatch from Harrisburg, Pa., says that General Manager Felion has centirmed the report that the l'ennsylvania Steel Company will shut down its large plant at Steelton, with the exception of the bridge and construction departments, employing about 600 men, from December 23d to February 1st. He says the shut-down is owing to lack of orders,

Spiegeleisen and Ferromanganese.—We do not hear of anything doing in either spiegel or ferro,

Quotations are nominally: 10 to 12% spiegel. \$22@ \$22.50; 20%, \$25@ \$25.50; 80% ferro, \$55.50@ \$56.50,

NOTES OF THE WEEK.

The committee appointed to represent the creditors of the Pennsylvania Steel Company, in accordance with the resolutions passed at the meeting last week, consists of Alfred Earushaw, A. J. Cassatt, C. N. Weygandt, Philadelphia; Wm. C. Freeman, Cornwall, Pa.; W. J. Ramey, Cleveland, O.; Charles M. Stewart, Baltimore, and Howland Davis, New York. This committee will meet with one representing the stockholders to prepare a plan for reorganizing the company. pany.

Buffalo.

(Special Report of Rogers, Brown & Co.)

(Special Report of Rogers, Brown & Co.)

There has a fair volume of business during the week past, mainly in the line of contracts for delivery beginning after the first of the year. The fact that some of the big buyers were in the market brought a host of sellers into the field competing keenly for the business which was offered. Under these circumstances, prices did not show the strength that was anticipated. The following list gives the range of prices, with slight concessions granted in a few instances on sales which were made attractive by quick delivery and spot cash. We quote for cash f. o. b. cars Bnifalo: No. 1 X foundry strong coke iron, Lake Superior ore, \$13.25; No. 2 X loundry strong coke iron, Lake Superior ore, \$12.75; Ohio strong softener No. 2, \$12.75; Jackson County silvery No. 1, \$16.80(@\$17.30; Jackson County silvery No. 2, \$16.30(@\$16.80; Lake Superior charcoal, \$15.75; Tennessee charcoal, \$15.75; Southern sott No. 1, \$12.75; Alabama car wheel, \$16.50(@\$17.50; Hanging Rock charcoal, \$18.50(@\$20.

Chicago.

(From our Special Correspondent.)

The unsatisfactory state of the Chicago pig iron market still continues. The number of inquiries received is greater than for some time past, but the sales continue to run exceedingly small, buyers just sales continue to run exceedingly small, buyers just purchasing enough for present purposes, notwithstanding the wonderfully low prices now ruling. Consumption has increased a trifle, but it is now almost a certainty that the winter will be a quiet one. At the Bay View Works of the Illinois Steel Company there are now employed 1.500 men, all of this number having been set to work December 1st. While the market indications show improvements, there is not a sufficient demand to stimulate buying or present market prices.

Pig Iron.—There has been no marked improvement the past week, although there has been a nice run of small orders irom car load lots up to two and three hundred tons. Charcoal iron continues in slight demand, but few sales being made. In sales, Northern and Southern coke irons have been about equally divided. Quotations per gross ton t. o. b. Chi-

Northern and Southern coke irons have been about equally divided. Quotations per gross tont. o. b. Chicago: Southern coke, foundry, No. 1, \$13.65; No. 2, \$12.15; No. 3, \$11.65. Southern coke, foundry, soft, No. 1, \$13.40; No. 2, \$11.05; Lake Superior charcoal, \$15.50@\$16.00. Lake Superior coke No. 1, \$13.50; No. 2, \$12.25@\$12.50; No. 3, \$12.00@\$12.25. Lake Superior Bessener \$14; Lake Superior Scotch, \$13.75@\$14.25; American Scotch, \$15.50@\$16. Ohio silveries No. 1, \$16.50; No. 2, \$16. Onio strong softeners No. 1, \$16.50; No. 2, \$16. Onio strong softeners No. 1, \$16.50; No. 2, \$16. Standard Sonthern car wheel, \$18.25@\$18.75.

softeners No. 1, \$16.25; No. 2, \$15.75; Tennessee charcoal No. 1, \$16.50; No. 2, \$16. Standard Sonthern car wheel. \$18.25@\$18.75.

Structural Iron and Steel.—A new viaduct at Milwaukee and a few small buildings in Chicago represents the only new husiness in sight. Quotations, car lots, f. o. b. Chicago, are as follows: Angles, \$1.70@\$1.80; tees; \$1.95@\$2.05; universal plates, \$1.70@\$1.80; sheared plates, \$1.70@\$1.80; beams and channels, \$1.75@\$1.85.

Plates.—There has been no increased inquiry and no material change in the market the past week. Warehouse business remains light. Prices are: Sheet steel, \$2.15@\$2.35; tank steel, \$1.85@\$2; sheet irou or steel, \$2.25@\$2.50; firebox steel, best, \$4.00@\$4.50; flange steel, \$2.35@\$2.50; tirebox steel, best, \$4.00@\$4.50; flange steel, \$2.35@\$2.50.

Merchant Steel.—Some soft steels are moving in special shapes. Contracts are still coming in for present and future deliveries, but not in large enough quantities to create any marked nifference in the present slow condition of the market. Tool steel remains inactive. Quotations are: Tool steel, \$50@\$675c. and upward: tire steel, 1783@190c.; toe calks, 2720@2*30c.; Bessemer machinery, 200@2*10c.; Bessemer bars, 170@1*90c. open hearth machinery, 2*00@2*10c.; open hearth carriage spring, 2*10@2*25c.; crucible spring, 3*50@3*75c.

Galvanized Sheet Iron.—Warehouse and mill business continues very moderate, with but small chances of early improvement. Discounts are steady at 70, 10 and 5% off on Juniata, and 70 and 10 and 7½ on the former, and 10% off on the latter.

Black Sheet fron.—There is no further movement in sheet iron, but indications point to an early improvement. One firm tested the market here this week but found it was impossible to do anything under present conditions. Prices are: No. 27 common, 275c.; jobbers quote 295@3c. for same gauge of iron; steel sheets remain same as last week, 10c. higher per 100 lbs.

Bar Iron.—A considerable business is now coming in from the agricultural implement manufacturers, They hav

Bar Iron.—A considerable business is now coming in from the agricultural implement manufacturers. They have delayed ordering until the last

moment, and now that they have begun to buy all desi: e immediate deliveries, but few of them placing orders for future delivery. The heavy snowstorm of the past week does not offer a hrighter outlook for the rest of this year. Some interest is springing up in the jobbing trade; indications are that they are carrying a very light stock and will probably continue to do so until stock taking is over. Regnlar quotations are: 1:30@1:40c. for iron, and 1:30@1:70c. for iron and steel hars.

Billets.—A small amount of orders continue to come in, but mostly for small lots. The largest sale made for some time is reported, it being one of 7,000 tons. No cail for rods, the quotation being nominal at \$27 at \$27.

Steel Rails.—The agreed price on steel rails is \$25 at Chicago, this having been made at a meeting of the producers. Demand continues for small lots at \$27@ \$29.

Scrap.—Conditions remain unchanged, prices still being very low. Prices are: Railroad, \$10.75; No. 1 forge, \$10; cast borings, \$4.50; wrought turnings, \$6.50; axle turnings, \$3; leaf steel, \$14.50; mixed steel, \$7; tires, \$12.50; iron axles, \$14.50@\$15.50.

Nails.—A light mill trade for steel cut nails continues locally and but a moderate outside demand. Wire nails are 5c. lower. Steel cut nails—prices are \$1.18, and jobbers quote \$1.30 for wire nails, the demand continuing at \$1.30@\$1.45 jobhing stock.

Old Rails and Wheels.—Railroads continue to ofter freely, but find few buyers. Old steel rails are inactive at \$7.50@\$10, while old iron rails find few purchasers at \$14 and a trifle less. Car wheels are meeting with good demand at \$9.75@\$11.

Philadelphia. Dec. 7.

(From our Special Correspondent.)

Pig Iron.—Among the inquiries received this week were some for as high as 2,000 and 3,000 ton lots of forge iron, for immediate delivery. The figures quoted were \$11.75 for ordinary iron. The owners of country mills have been in the city this week, looking up supplies, and within a few days some large contracts, aggregating 20,000 tons, according to the brokers, will probably be placed. In foundries there is nothing whatever to report. Quotations continue at about \$14@\$14.25 for No. 1.

Muck Bars.—The muck bar makers, have dis-

Muck Bars.—The muck bar makers have discontinued seeking husiness, and quotations have declined a little further.

Steel Billets.—Offers have been made at \$19, and sales have been closed at \$19.50 for small lots. The brokers who handle this business say there are prospects for closing some large contracts before the

Merchant Iron.—Two or three mills have shut down on account of the lack of orders. Manufacturers have decided to stop soliciting orders. A great deal of the business which should be placed in Eastern mills has disappeared westward, and if this connection keeps up, it will leave our mills with barely enough work to keep running single turn. The average selling price is \$1.50.

Nails.—A few small lots of nails have been sold to New England parties, through salesmen who are making a final canvass to deplete stocks, which in some instances are quite heavy.

Skelp Iron.—There are rumors of large transactions in skelp iron, but owing to the absence of the principals in the matter it is impossible to give authentic information.

Wrought Iron Pipe.—Small pipes are once more in demand after several weeks of dullness, and it is expected that there will be some business to report in the course of the month.

Sheet Iron.—Card rates have disappeared, and bovers are about able to dictate their own terms. There has heen a further shading in quotations, which puts even very small lots of sheet iron at the prices at which wholesale lots were sold a month ago. The only demand at present is for light sheets.

Plate and Tank.—A very gloomy report has to be made this week, owing to the failure of negotiations started a few days ago, which would, it was thought, result in the placing of some big orders. Brokers now think there will be very little business done until the new year. Quotations may as well be omitted.

Structural Material.—Inquiries for about 2,000 tons have been made within the past three days, most of the material heing wanted for buildings, here and in near by towns. A good deal of office building work is to he undertaken this winter. The expected bridge work has not yet been presented.

Steel Rails.—A very unsatisfactory condition of trade is reported this week. It is said that prices are now firmly fixed at \$24; but this is open to doubt. The brokers report the placing of a few small lots, but there is no movement worthy of

Old Rails.—There are large supplies of old rails offered, but the yardmen have quit buying, and it is difficult to name quotations.

Scrap.—There is an abundant supply of scrap in the yards; much more is being offered than taken.

Pittsburg.

(From our Special Correspondent.)

Raw Iron and Steel.—The market since our last shows no particular change; dealers seem to be

waiting to see what will he the next movement. The present demand for iron and steel is so limited to the actual requirements of consumers that nothing at all likely to happen can effect it to any great extent. The inquiry for iron is very light, and while it seems to be Igradually increasing in volume it has not been sufficient to cause any improvement in

not been suincest to support the prices.

Business in finished material is limited to small orders, although some good-sized lots will soon be wanted. The extreme competition continues, and many mills have practically been forced out of business. In steel rails no large amount of business has been done, and considerable uncertainty still exists as to the exact nature of the agreement between the manufacturers.

Steel —The market continues to show a fair

manufacturers.
Steel.—The market continues to show a fair amount of activity, hut at exceedingly low figures, some heing the lowest ever recorded, while many are of the opinion that the hottom has not heen reached. In steel wire rods, American fives are in steady demand, with liberal sales at an advance. In steel rails, the rise in the Ohio River has enabled the Carnegie Steel Company to forward to the South a large amount of Pittshurg manufactures, as the river rates are considerable less than the rates charged by rail. We report sales: 1,200 tons hillets, December-January, \$16.90 cash, the lowest ever reported.

Coke Smelted Lake and Na tive Ore.	1,200 Billets and Slabs, Jan., Feb., at
Tons. Cash.	mill 17.10
3,000 Bessemer, Dec.,	1,200 Billets, Dec.,
Jan\$11.10	Jan., at mill 16.90
2,000 Bessemer, Dec11.15	500 Billets, Dec., at
2.000 Bessemer. Dec	mill 17.00
Jan11.50	Muck Bar.
1,500 Bessemer, Dec.,	1,000 Neutral, Jan.,
Jan., Feb11.25	Feb 21.20
1,000 Bessemer, Dec., Jan., 11,25	500 Neutral, Dec 21.25 500 Neutral, Dec 21.00
Jan	
Feb11.30	Skelp Iron.
500 Bessemer, Prompt.11.50	425 Narrow grooved.
1,000 Gray Forge, Dec.,	1 32 4 m. 375 Sheared 1 45 1 m.
Jan10.50	300 Wide grooved
750 Gray Forge, next	1.35/4 4 m.
3 mos10.50	
500 Gray Forge10.50	Skelp Steel, 500 Wide grooved1*20 4 m
500 Gray Forge 10.40	
350 Mill	Sheet Bars.
300 Mlll, Dec10.35 250 Mill10.50	Cash.
200 Mill	550 At maker's mlll\$23.00
100 No. 1 Foundry 12.75	Steel Wire Rods.
100 No 2 Foundry11.75	2 000 5 gauge American
100 No. 1 ~11very15.25	at mill 25.00
100 No. 3 Foundry11.00	1.500 5 gauge American
Charcoal.	at mill 24.85
150 Cold Blast 25.00	500 5 gauge American
150 No 2 Foundry 17.30	at mill 25.00
50 No. 1 Foundry18.30	Blooms, Billets and Bar
50 No. 2 Foundry17.00	Ends.
50 Cold Blast, Extra28.00	450 At mill delivered. 12.00
Steel Blooms, Billets and	Old Material.
Slabs.	500 Wrought scrap,
2,000 Billets, Dec, Jan., at mill 17.15	10.15
1.500 Billets and Slabs.	275 Cast scrap, gross a.vo
Dec., Jan., at	150 iron axles, net 15.00
mill	Old Rails.
1.500 Billets, Dec., Jan.,	400 Steel, short pieces 12.25
at mill 17.25	200 Iron rails 15.50

METAL MARKET.

New York, Friday Evening, Dec. 8, 1893.

	-	FICE	OI IS	11101	Por	Ounc			
Dec.	St. Ex.	London Pence.	N.Y. Cts.	Value of sil. in \$1.	Dec	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in \$1.
2 4 5	1.8534 1.8534 1.8536	3115 3115 3115 3115	69½ 69¼ 69¼	*534 *535 *535	6 7 8	4 · 861/4 4 · 861/4 4 · 863/4	32 1 8 32 1 4 32 1 6 32 1 6	695% 697% 695%	·538 ·540 ·538

The market has been firm and advancing on good huy ng orders for the Indian banks, hut closes weaker on large sales from this side at the advance. The rise in exchange has also improved price of silver for shipment.

The United States Assay Office at New York reports the total receipts of silver for the week to he 71,000 ounces.

Gold and Silver Exports and Imports at New York, Week Ending December 2d, 1893, and for Years from January 1st, 1893, 1892.

	Go	ld.	Silv	Excess of Ex.	
	Exports.	Imports.	Exports.	Imports.	
Week			\$758,144	\$1,065	E \$205,917
	70,424 114 61,634,853		30,001 035 20,654,756		E 31,591 103 E 71,049,728

The gold exported for the week went to the West Indies; the silver to Europe, some of it in transit for China. The gold imports came mainly from the West Indies, with some small lots from France; the silver from Jamaica. It will be noted that the gold imports were \$551,162 in excess of the gold exports. During the five days ending December 7th the exports and imports of gold and silver have been as follows: Exports, gold, \$40,123; silver, \$652,410. Imports, gold, \$72,821; silver, \$9,537. All the silver exported went to London. Of the gold exported \$500 was in bullion, and went to London; all the rest was American coin, and went to the West Indies,

NOTES OF THE WEEK.

The husiness situation shows little change. A gradual improvement is apparent, but it grows slowly, and no very marked revival has come yet, or indeed can he expected. The evil men do lives after them, and the mischief the Stewarts and Peffers did in delaying the settlement of the silver question will be felt for some time yet. They ruined the whole industry of the country, and especially the cause of silver. Our market reports indicate a better tendency generally.

It is announced to-day that \$500,000 gold will he shipped on the "Trave" to-morrow (9th) on its way to Berlin. The shippers are Heidelbach, Ickelheimer & Co., who will follow it up with \$500,000 more on December 13th. The shipments will he the first exports of gold to Europe since June 10th. They are made because the high rates and scarcity of money in Germany, with the idle surplus here, will make them profitable.

Tariff discussion continues, of course, and there are the usual predictions of disaster from some of those whose interests will be affected. The general expression, however, from men of all shades of opinion, is that action should be taken with as little delay as possible, in order to give business an opportunity to adjust itself to the new conditions. Very few, even among the extreme high-tariff men, advocate the policy of delaying action in Congress.

The President's message sent to Congress on its reassembling in regular session on December 4th is a plain and ousiness-like document. As generally expected, the President fully indorses the work of the Ways and Means Committee on the tariff bill, and intimates that, to meet the needs of the Treasury, there may be some increase in internal revenue taxes, including a small tax on income from investments in corporate properties and securities.

ments in corporate properties and securities.

The President's recommendations on currency questions are as follows: The recent repeal of the provision of law requiring the purchase of silver bullion by the Government as a feature of our monetary scheme has made an entire change in the complexion of our currency affairs. I do not doubt that the ultimate result of this action will be most salutary and far-reaching. In the nature of things, however, it is impossible to know at this time precisely what conditions will be hrought about by the change, or what, if any, supplementary legislation may, in the light of such conditions, appear to be essential or expedient. Of course, after the recent financial perturbation, time is necessary for the restablishment of business confidence. When, however, through this restored confidence the money which has been frightened into hoarding places is returned to trade and enterprise, a survey of the situation will probably disclose a safe path leading to a permanently sound currency, abundantly sufficient to meet every requirement of our increasing ponulation and business.

In the pursuit of this object we should resolutely turn away from alluring and temporary expedients, determined to be content with nothing less than a lasting and comprehensive financial plan. In these circumstances, I am convinced that a reasonable delay in dealing with this subject, instead of being injurious, will increase the probability of wise action.

The Monetary Conference which assembled at Brussels upon our invitation was adjourned to

delay in dealing with this subject, instead of being injurious, will increase the prohability of wise action.

The Monetary Conference which assembled at Brussels upon our invitation was adjourned to November 30th in the present year. The considerations just stated and the fact that a definite proposition from us seemed to he expected upon the reassembling of the conference led me to express a willingness to have the meeting still further postponed. It seems to me that it would he wise to give general authority to the President to invite other nations to such a conference at any time when there should he a fair prospect of accomplishing an international agreement on the subject of coinage. I desire also to earnestly suggest the wisdom of amending the existing statutes in regard to the issuance of government bonds. The authority now vested in the Secretary of the Treasury to issue bonds is not as clear as it should be, and the bonds authorized are disadvantageous to the government both us to the time of their maturity and rate of interest.

Mr. Cleveland clearly recognizes the need of economy, for his general recommendations are all in the direction of lower expenditures, and he does not advocate any present increase in the navy.

The paragraph in relation to the Monetary Conference is to be noted. Let us hope that before long the United States will he ready to ask for the adjurned session, and that a definite proposition—as for the constitution of the International Monetary Clearing House—may he ready for discussion.

The statement of the New York banks for the week ending December 2d shows increases of \$5,-261,725 in reserves; \$4,288,400 in loans; \$3,375.200 in specie; \$4,894,900 in legal tenders; \$12,033,500 in deposits, and decreases of \$173,700 in circulation. The gain in specie was due chiefly to settlement of Sub-Treasury balances in coiu; that in legal tenders to receipts from interior banks. The increase in loans is larger than has been noted in any week for several months past. The reserves are now \$76,096,900 in excess of the 25% required hy law. The deposits are \$32,483,400 greater in amount than for the

corresponding period of 1892; the specie \$25,269,000 and the legal tenders \$52,455,000 more.

The United States Treasury report on Thursday, December 7th, showed total balances in excess of outstanding certificates amounting to \$94,868,437, made up of \$83,660,906 gold; \$6,390.76l silver; \$3,562,650 legal tenders; \$1,254,120 treasury notes, etc. The total halance shows an increase of \$1,046,884, and the gold an increase of \$340,708 during the week. Silver dollars and hullion on hand December 7th, under the act of July, 1890, were \$153,381,559, against which there were outstanding \$153,364,280 in treasury notes.

The Mint statement for December 1st gives the total amount of money of all kinds in the country, including that in the Treasury, at \$2,226,420,843; amount in circulation, \$1,726,994,290. As compared with December 1st. 1892, this is an increase of \$112,204,024. The circulation is now \$25.57 per capita. The changes during November were increases of \$10,880,000 currency certificates; \$6,336,332 gold coin, and \$2,704,765 silver certificates; decreases of \$10.623,356 legal tenders, \$728,230 silver certificates, and \$1,605,669 national hank notes. This shows a net increase of \$8,449,608 for the month.

Silver exports continue heavy. The "Umbria" on Wednesday took 450,000 oz. for Europe, and the "Majestic" on Thursday carried 535,000 oz. more.

London reports for the week ending December 7th show net imports of £69,000 in gold, the receipts being £127,000 from Egypt and £22,000 from Portugal, while the exports were £30,000 to Roumania. The gold holdings of the Bank of England on December 7th amounted to £25,677.882, an Increase of £985,182 over the corresponding date last year.

The specie holdings of the Bank of France on December 7th amounted in sterling to £68.435.911 gold and £50,839,845 silver, an increase of £743,161 gold and a decrease of £198,902 silver as compared with the corresponding date last year. During the week ending December 7th the bank gained £215,720 gold and £46,280 silver.

Domestie and Foreign Coins.

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

Mexican dollars	Bid. \$.56	Asked . \$.571/6
Peruvian soles and Chilian pesos	.52	.54
Victoria sovereigns	4.87	4.89
Twenty francs	3.87	3,90
Twenty marks	4.74	4.78
Spanish 25 pesetas	4.78	4.82

Metal Exports and Imports.

The exports of metals from the port of New York for week ending December 7th, as reported hy the New York Metal Exchange were:

Total Total Table			
Swansea-MassasoitZinc skimmings	49 t	ons	
Bristol-MassasoitZinc dross	20		
Liverpool-BoliviaOld brass	12	66	
"Old copper	1	66	
Hamburg-MoraviaCopper bullion	1	64	
Amsterdam - Zaandam Zinc oxide	10	4.6	

The imports of metals at the port of New York for week ending December 6th, as reported by the New York Metal Exchange, were: From London, anti-mony, 80 casks.

Other Metals.

Swansea	-MassasoitBars	202	Tons.
44	"	52	44
6.6	"		44
Liverpoo	l-Nomadic Ingo		9,6
66	" Bar		. 66
46	-CuficIngo	ts 50	44
46	-GermanicIngo		10
Hamburg	-MoraviaIngo		66
Havre-N	MohlcanPigs	105	44
	State of CaliforniaIngo		66

Havre-	-La Br	etagi	ne	 	 	 Ing	ots	40	44
• 6		44				Pig	8	15	4.6
Rotterd	am-1	laaso	lam		 	 Ing	ots	30	4.4
40								50	
Hambu	rg-Si	embo	ft	 	 	 Pla	les	75	tons
- 66		**		 	 	 Bar	S	60	
0.6		4 .						10	44
Coppe	r matt	e:		 	 	 -	-		
Liverpo	ol-Vi	rgini	an	 	 	 		160	lons.
4.	-No	mad	ic	 	 	 		105	+4
**	-Ur	nbria		 	 	 		48	6.6
0.6	-Gie	rmar	ic		 	 		105	4.6
Tin	seeme							ition	and

Tin seems to be in a very healthy position and numerous transactions have taken place at from 20 70 to 20 60, the market being steady at the close at 20 70 for both spot and December. Stocks of metal brought in prior to July 1st are rapidly dwindling

brought in prior to July 1st are rapidly dwindling away.

The foreign market has evinced a tendency to move upward, evidently because manufacturers are again entering the market anticipating that the reduction of American duties on tin-plate will enable them to do a larger business than for some time past. Later, prices slightly declined, but as they rule at the close at £76 12s. 6d for spot and £77 5s. for futures they are still far above the parity of values here where nothing could be laid down at less than 21½.

The comparative exports of tin from the Straits

The comparative exports of tin from the Straits settlements for the nine months ending September 30th, as reported to the New York Metal Exchange, were as follows in tons of 2.240 lbs.

		1893.	1892.	1891.
To	United States	3,459	3.388	7,662
**	Great Br.tain	18,816	12,453	12,126
	European Continent	7.338	4.290	3,468
+4	China		1,235	1.573
**	India	1,720	1.102	1,153

Lead.—The trade has been much disturbed by the proposition to reduce the duty, and is doing very little buying. There has been no pressure to sell but prices have nevertheless declined, and we quote at the close, 325@330c. The foreign market, also, is dull, Spanish having to be quoted at £9 8s. 9d.@ £10 and English lead at 2s. 6s. more. At ruling figures there is a general inclination to buy.

The exports of lead from the port of New York during the past week, as reported by the New York Metal Exchange, were as follows:

Destination.	Vessel.	Tons in	bond.
London	Mobile		100
Bristol	Boston City		200

Bristol Boston City 209

St. Louis Lead Market.—The John Wahl Commission Company telegraph us as follows: The position of pig lead since our last report has been one of ease and quietness. Consumers are not seeking for lead, as their supplies ou old contracts have been coming forward pretty liberally of late. Prices have gradually declined and latest sales to-day are at 3·10c. At this figure it is quite safe to say that there are more sellers than buyers.

Aluminum.—The prices, as at present fixed by the manufacturers, are 65c. per lb. for 96% pure and 75c. per lb, for 98% pure metal.

Animony is very dull at about 10c. for Cook.

Antimony is very dull at about 10c. for Cookson's, 9% for L. X., and 9% for Hallett's.

Spetter has been offered rather more freely and prices show a slight decline. We quote 3\%@3'80 New York. The market abroad is firm for good ordinaries at £17 1s. 3d, and for specials at £17 3s. 9d.

Quicksilver.—There is nothing new to report of this market Quotations are: New York, \$37.50; London, £6 7s. 6d.@£6 7s.

CHEMICALS AND MINERALS.

CHEMICALS AND MINERALS.

New York. Friday Evening, Dec. 8.

Heavy Chemicals.—There is little or no chang to report of the heavy chemical market. Without exception the general conditions which prevailed at the close of last week are in force to-day. Caustic soda is rather quiet with no change as to prices or as to the nature of the business doing. Carbonated soda ash is in fair inquiry. Alkali is quiet. with prices a shade firmer. Some sales of bleaching powder for delivery over 1894 are reported; but little spot business is doing.

Quotations are nominally as follows: Caustic soda, 60%, 3'05@3'20c.; 70%, 2'80@3c.; 74%, 2'82½ @3'05c.; 16%, 3@3'10c. Carbonated soda ash, 48%, 1'15@1'25c.; 58%, 1'10@1'20c. Alkali, 48%, \$1.10 @\$1.20; 58%, \$1.05@\$1.15, according to package. Sal soda, English, 1@1'05c.; American, '90@'02½c. Bleaching powder, 2'25@2'50c.

Acids.—There is not much of interest to report of this market. Contract orders for 1894 have not been as numerons as was anticipated in sulphuric acid; for muriatic and nitric there has been an improved inquiry, but actual business has not been very heavy. Prices show no change of importance. We quote this week: Acids, per 100 lbs. in New York and viciuity, in lots of 50 carboys or more: Acetic, in barrels, \$1.75@\$1.87½; muriatic, 10°, \$4; 42°, \$4.50@\$4.75; sulphuric, 75c. @\$1. Mixed acids, according to mixture. Oxalic, \$6.30@\$6.50. Blne vitriol is quoted all the way from \$3.50 to \$3.75; glycerine for nitro-glycerine, 11½@12½c., according to quality and quantity.

Brimstone.—There is no change whatever to report of this market which continues quiet. Prices are unchanged from last week. We quote, best unmixed seconds: On the spot, \$19; shipments, \$17.50. Thirds are 75c. less.

Fertilizing Chemicals.—The market for fertiliz ers continues very dull. No business of any consequence is reported. Owing to the lack of demand prices have undergone a slight decline and we quote this week: Sulphate of ammonia, on the spot, gas liquor, \$3.35@\$3.50; bone, \$3.25@\$3.30. Dried blood, \$2.50@\$2.55 per unit for high grade, and \$2.30@\$2.40 for low grade. Azotine, \$2.50@\$2.60. Concentrated phosphate (30% available phosphoric acid), 75c. per unit. Acid phosphate, 13% to 15%, av. P₂O₃ 60c. per unit at seller's works in bulk. Dissolved bone-black, 17% to 18%, P₂O₃ 90c. per unit. Acidnlated fish scrap, \$15@\$16, and dried scrap, \$25@\$25.50 f. o. b. fish factory; wet scrap, \$15 f. o. b. fish factory; Tankage, high grade, \$26@\$27; low grade, \$22@\$23. Bone tankage, \$23@\$24; bone meal, \$24@\$25.50.

The price of double manure salts as fixed by the syndicate is as follows: New York and Boston, \$1.12; Philadelphia, \$1.14½; Charleston and Savannah; \$1.17 cwt., basis 48@50%, in 50-tou pots on foreign weights and analyses. Sulphate of potash, 90% 96%, basis, 90%; New York and Boston, \$2.07, Philadelphia, \$2.09½; Charleston and Savanuah, \$2.127, sulphate of potash, 96-99%, basis 99%, is \$4% higher.

Phosphates.—Our special Charleston, S. C., correspondent writes us as follows: Everything in the

4% higher.
Phosphates.—Our special Charleston, S. C., correspondent writes us as follows: Everything in the fertilizer line, including phosphate rock, is dull and in a demoralized condition. Quotations are as follows: Land rock, 60% bone phosphate of lime, \$5 f. o. b. vessel; 62%, \$5.25; river rock, 58%, \$6 all kin-dried.

Muriate of Potash.—The prices fixed by the syndicate for 1893 are as follows: New York or Boston, \$1.78; Philadelphia, \$1.80½; Southern ports, \$1.83.

Kainit.—Quotations for shipments are as fol-

\$1.83.
Kainit.—Quotations for shipments are as follows: New York, Philadelphia and Boston, \$9 for foreign invoice weight and test, and \$9.25 for actual weight; Charleston, Savannah and Wilmington, \$9.75 for invoice weight and test, and \$10 for actual weight.

Nitrate of Soda.—There is nothing new to report of this market. Quotations are \$1.80 for spot

spot.
Messrs. Mortimer & Wisner, the well known brokers, send us the following interesting statistics issued under date of December 1st:

	1893.	1892.	1891.
Imported into 1 ports	Bags.	Bags.	Bags.
Imported into A. ports from West Coast S. A Jan. 1, 1892, to date	659,686	609,631	603,102
Imported into Atlantic ports from Europe	16.712	3,175	18,802
	676,398	612,803	621,904
Stock in store and afloal Nov. 1, New York Boston	70,629	76,013	59,349 900
Philadelphia Baltimore To arrive, actually sailed	1,500 227,000	500 139,000	142,000
Visible sup'ly to March 1 Additional charters	299,129 91,000	155,513 250,600	202,249 250,000
Total supply, when shipped	390,129	405,513	452 249
Stock on hand, Jan. 1, 1893	15,454	53,585	36.454
Deliveries past month	43,857	56,806	34,359
Deliveries Jan. 1 to date	619,723	649,878	598,109
Total yearly deliveries Prices current, Dec. 1, 1895	1.80c.	685.158 2°15	631,207 2°10

Included in the deliveries of 1893 are 9,500 bays shipped to European ports.

Liverpool.

Liverpool.

Nov. 28.

(Special Correspontence of Joseph P. Brunner & C.)

The supplies of chemicals in the Lancashire district are very limited for early delivery, while at the same time there is not much demand, except for ash and caustic soda.

Soda ash is very scarce for balance of this year. For Leblanc makes quotations are irregular, varying according to quantity, make, market, etc.; the nominal range is about as follows: Caustic ash, 48%, £3 15s.@£45s. per ton: 57-58%, £4 10s.@£5 per ton. Carb. ash, 48%, £3 15s.@£45s. per ton; 58%, £4 10s.@£5 per ton net cash. Ammonia ash, 58%, is in request and makers are so fully sold that buyers have great difficulty in placing orders for prompt delivery. For forward delivery we quote for casks, £4 per ton net cash @£45s., less 2½%; 5s. less for bags.

Soda crystals are quiet at £3 per ton, less 5%. Caustic soda is in fair request, and for December delivery the range of values, according to market, is as follows: 6½%, £8 15s.@£95s.: 70%, £9 15s. @£105s.; 74%, £10 15s.@£115s.; 76%, £11 15s.@£125s. net cash. For parcels under 10 tons, 5s. per ton extra is charged. For prompt delivery a premium is demanded.

Bleaching powder, although in small compass, is dull at £8 10s.@£8 15s. per ton net cash, for hardwood packages. Chlorate of potash is in rather a lifeless state at the moment and nominal value is about 8d. per pound, less 7@71½%. For all 1894, 7½d. less 5% is still the quotation. Bicarb. soda is in fair demand and firm at £7 per ton, less 2½% per 1 ewt. kegs, with usual allowances for larger packages.

Sulphate of ammonia continues scarce and hoders quote f13 15s.@£13 17s. 6d per ton less 24%.

ackages. Sulphate of ammonia continues scarce and hold-rs quote £13 15s.@£13 17s. 6d. per ton, less 2½%

for good grey; 24-25% in double bags f. o. b. here. Nitrate of soda is inactive at £9 5s.@£9 10s. per ton, less 2½% for double bags f. o. b. here. Carb. ammonia—Lump. 3½d. per lb.; powdered, 3¾d. per lb., less 2½%.

MINING STOCKS.

[For complete quotations of shares listed in New York, Boston, San Francisco, Aspen, Colo; Baltimore, Pittsburg, St. Louis, Londod and Paris, see pages 608, 609 and 610.]

New York, Friday Evening, Dec. 8.

Nothing of intrinsic interest has occurred during the past week in the mining stock market. It may be said, without fear of contradiction, that nothing does nowadays. From San Francisco late reports indicate that the market there has recovered somewhat and quotations to-day are slightly higher than in the early part of the week. The local market has not yet responded to this upward moyement.

somewhat and quotations to-day are slightly higher than in the early part of the week. The local market has not yet responded to this upward movement.

There were no features in the week's trading. Some of the stocks which were last week more or less in the light of favorites this week have not been dealt in at all.

The Comstocks have been quiet this week; at the close they rallied somewhat and are now slightly higher. Consolidated California & Virginia advanced from \$3.60 to \$4.15; total sales, 500 shares. Hale & Norcross shows a sale of 100 shares at 90c. Of Ophir 200 shares changed hands at \$1.75@\$1.90; Sierra Nevada advanced from \$1.35 to \$1.60, with sales of 300 shares. Of Yellow Jacket 400 shares were sold at \$1.20@\$1.30; Comstock Tunnel stock continnes in fair demanu; during the week 3,500 shares were sold at 8c. Other sales were 200 shares of Union Consolidated at \$1.10@\$1.25; and 200 shares utah at 25c. Consolidated Imperial shows a transaction of 500 shares at 10c.

Of the California stocks Quicksilver Mining Company, which had not been traded in for some time, this week returns to the Exchange with sales or 100 shares of the common stock at \$1.63. Brunswick Consolidated was quiet this week; sales, as officially reported at the Consolidated Stock and Petroleum Exchange, amounted to but 100 shares at 7c. The superintendent of the Brunswick Consolidated Gold Mining Company writes as follows from Grass Valley, under date of November 30th; Work has been going on steadily since my last report. We have had some very good ore from the 700 drift. The ledge varies in width from 4 to 8 in. The drift has been extended 8 ft. since my last report. We have had some very good ore from the 700 drift. The ledge varies in width from 4 to 8 in. The drift has been extended 8 ft. since my last report. We have had some very good ore from the 700 drift. The ledge varies in width from 4 to 8 in. The drift has been extended 8 ft. since my last report.

drift which shows a good-sized reag.

Horn Silver advanced from \$2.25 to \$2.75; 600 shares changed hands.

Phoenix of Arizona was rather quiet this week; 900 shares were sold at 53@60c. In our mining news column will be found an item of interest concerning this company.

Boston.

(From our Special Correspondent.)

The copper stocks have been active and buoyant

(From our Special Correspondent.)

The copper stocks have been active and buoyant this week with higher prices all through the list. Boston & Montana has been the leader with saies of over 12,000 shares at an advance from \$26½ to \$30½, with reaction on realizing sales to \$28½ to-day. The advance is due to the improved condition of the copper market, both at home and abroad, and the probability that the company may be able to resume dividends early next year.

Butte & Boston has also shared in the advance and records sales of \$,000 shares, from \$10½ to \$11 with reaction to \$10 on latest sales. The Lake Superior mines have all been strong and there have been more orders to buy than for a long period, and all show a good advance over last week's sales.

The investment or dividend-paying stocks have been most sought for, while the speculative list has also shared in the general upward movement.

Calimet & Hecla advanced from \$297 to \$305, with large sales at \$300. It is reported that the ore vein in the perpendicular shaft was struck at a depth of 3,250 ft. and proves to be very rich in copper.

ore vein in the perpendicular shaft was strick at a depth of 3,250 ft. and proves to be very rich in copper.

Tamarack has steadily risen from \$147 to \$165 and is in demand at the latter price, with sales of about 500 shares. It is currently reported that the lower levels are showing rich in copper and will add largely to the income of the company.

Quincy was quiet but strong at \$125@\$125½, an advance of \$10 over last week.

Osceola was steady and advanced from \$30 to \$313/4 with later sales at \$31/4 on the report that a dividend of \$1 per share was forthcoming, which proved correct, the directors having declared the dividends to day, making \$1,847,500 as the total of dividends to this date.

Franklin was in fairly good request at \$126/8, \$125/8, reacting to \$12. The product for November shows an increase of 10 tons over corresponding month last year.

Atlantic sold up to \$12%, and fell off to \$12. The advance in this stock seems to be over for the present.

Kearsarge also came in for large dealings and advanced from \$8½ to \$9½, but lost nearly all fo it in the later dealings.

Tamarack, Jr., was strong with buying orders from good sources. The stock did not respond to the upward movement as fully as the others, but there is no amount of stock offered, and it is liable to advance rapidly when it starts, and \$25 is named as the figure. Sales from \$20 to \$20% with reaction to \$19½ and later sales at \$20½. Wolverine sold quite freely at \$2¾(a\$3½, latest sales at \$3.

Central made its bow for the first time the cur-

sales at \$3.
Central made its bow for the first time the current year, if memory serves, and recorded a sale of 100 shares at \$12½, and later advanced to \$15 for 250 shares. This stock is largely held in New York, and but little of it finds its way into this

York, and but little of it finds its way into this market.

The low-priced copper, non-productive mines and which are purely speculative, are begging to be inquired for and should the market continue active we look for a good deal of activity in this class. Sales of the following were quoted this week: National, at 75c.@\$1; Alonez, 45@50c.; and Bonanza, at 20c. For Mesnard, 45c. is bid: Pontiac, 25c.; and Tecumsch, 50c. Arnold sold a short time since at 60c., and is said to be pushing development work rapidly and expects to be producing copper early next year.

next year.

3:00 P. M.—The market was inclined to be heavy after the noon hour, and Boston & Montana declined to \$27%. Butte & Boston was steady at \$10. Quincy declined from \$125 to \$116 on small sales, and Tamarack fell off from \$165 to \$162. Tamarack, Jr., dropped to 19½ and Wolverine to \$25%. Centennial steady at \$4½@\$4%.

San Francisco.

(From our Special Correspondent.) (From our Special Correspondent.)

Mining stocks have remained active during the week and the prices have fluctuated sufficiently to make trading interesting. The tendency of the market as a whole, however, has been downward and at the close to-day a further shading off in prices took place. It is scarcely likely that the price of leading stocks will go much lower just at present. The mere fact of work being started in the West Consolidated Virginia mine, in addition to the Rule drift being run in Consolidated California & Virginia, is sufficient to send prices up a point or two. or two

To-day at the opening of the Pacific Board Consolidated California & Virginia opened at \$3.70, but declined under the sale of 500 shares to \$3.55.

In the big Board the stock recovered and sold steady to noon. In the afternoon a sharp decline took place to \$3.35, the leader selling at the close \$3.25 bid. Ophir sold to-day for \$1.70; Mexico for \$1.15; Sierra Nevada for \$1.35, and Union for \$1.50.

95c.
In the middle group of Comstocks there was considerable activity to-day. Best & Belcher sold for \$2.35; Chollar for 75c.; Gould & Curry sold freely for \$1.20, but later in the day, under moderately heavy sales, sold down to \$1.05. Hale & Norcross sold for 75c.; Potosi and Savage 90c.

Norcross sold for 75c.; Potosi and Savage 90c. each.

The recent strike in the Yellow Jacket upraise has had the effect of depressing the stock rather than sending it to a higher point. To-day in early session it sold for \$1.35, but shaded off during the afternoon to \$1.05.

The balance of the Gold Hill and sonth-enders have been very quiet this week. The ruling rates to-day were as follows: Belcher, 80c.; Bullion, 40c.; Crown Point, 80c.; Justice, 20c.; Kentuck, 20c.; Overman, 40c.; and Segregated Belcher, 20c. In outside stocks nothing has been done.

San Francisco, Dec. 8 (By telegraph).—Opening quotations to-day are as follows: Best & Belcher, \$2.70; Bodie, 35c.; Belle Isle, 5c.; Bulwer 5c.; Chollar, 70c.; Consolidated California & Virginia, \$4; Gonld & Curry, \$1.25; Hale & Norcross, 95c.; Mexican, \$1.25; Mono, 15c.; Navajo, 10c.; Ophir, \$1.95; Savage, 85c.; Sierra Nevada, \$1.65; Union Consolidated, \$1.20; Yellow Jacket, \$1.35.

Loudon.

Loudon. Nov. 28.

The amount of business still continues very restricted and hardly anything of a speculative character is to be seen. South African shares have been generally dull and lifeless. American mining stocks have received, perhaps, rather more attention than usual and some investment buying has taken place. The stock to feel this return to legitimate business the most is Jay Hawk, which has improved by a shilling during the past week or 10 days, and now stands at 9s. 6d. The result of the announcement from the Harqua Hala company, given in our mining news column, is that sellers of the shares have made their appearance and the price has fallen considerably, viz., from 15s. to 11s. The long neglected Golden Leaf stock has found buyers among those in the inner circle, and the price has risen from the nominal "rubbish" price to a figure, which, though low, shows that buyers have some expectation of a new and more hopeful departure. Though no official information

of the cause of this revival, there is reason to believe that the company are negotiating to acquire an interest in a new property by placing their plant at the disposal of the owners thereof. The Golden Gate Alliance Syndicate, Limited, has been reconstructed under the name of the Golden Gate of California, Limited. The capital of the new company is £80,000, in shares of £1 each, the same as that of the old one, and the shares are issued as 17s. 6d. paid, leaving 2s. 6d. per share to be called up. The reason for this reconstruction is that money will be thus provided to enable the directors to purchase an adjoining property, through which a ledge runs, that they are working on the Lucky Bob claim. Mr. Alfred Boswick, a large shareholder, has been appointed to the board of directors. At the meeting of sharcholders sanctioning the change, there was a good deal of adverse opinion expressed on Colonel McLaughlin's management of the mine, but the reconstruction scheme was carried through in spite of their opposition.

The new Montana company does not appear to

management of the mine, but the reconstruction scheme was carried through in spite of their opposition.

The new Montana company does not appear to be in a very prosperous condition, to judge from the report just issued, for the period from December 15th, 1892 (the date of reconstruction), to June 30th, 1893. The company has made a total loss of £19,243 during this period. More than half this loss is accounted for by extraordinary expenses. The lawsuit against them by the St. Louis Mining and Milling Company has cost £7,249, and the reconstruction expenses amounted to £2,033, while £861 has been spent on permanent improvements. Of the remaining loss, £7,653 is accounted for by expenditure out of revenue on prospecting development and shaft work. The realized value of the yield was \$228,385. On the publication of this report the shares of the company fell 6d. and now stand at 2s.

The Bonanza Gold Mining Company, working a property in California, and which has only recently been formed here, report that the mill commenced running on November 20th. The mill capacity is 70 tons per 24 hours. The ore is estimated to yield \$8 per ton and the expenses are not expected to be more than \$1.50 per ton. The ore now in reserve is calculated to be worth \$900,000 net.

net.

DIVIDENDS.

Osceola Consolidated Mining Company's dividend of \$1 per share (\$50,000), payable December 30th, to stockholders of record December 9th.

CURRENT PRICES. | Cadmium Iodide-# lb...... \$5.50

Chalk—\(\psi \) ton	5 6
Precipitated, # b	6 1
Domestic, # ton	i
Chrome Vellow—# b	0 0
Chrome Iron Ore-# ton, San	"
Chromody w Dune 201h 25@ 1	0
Commercial, \$1b	6
Cobalt—Oxide, # b \$1.60@\$1.70	9
Vitriol (blue), ordinary, # b. 031/4@.033/	4
Nitrate, * b	5
Best, \$\\$\ 100 lbs\$1.35@\$1.50	0
Corundum-Powderea, # b 0416@.0	9 1
Flour, \$1h	3 1
Emery-Grain, * b. (* kg.)041/2@.0	5 1
Flour # b	4
Feldspar-Ground, # ton\$6.00@\$10.0	Ö
Fluoranar-Powdrd No. 1 2 ton \$200 \$3	ňl
Lump, at mine \$6@\$	8 4
Lump, at mine \$6@\$ French Chalk— Fuller's Earth—Lump, \$ ton, \$16@\$2 Glauber's Sait—in bits., \$ b01@.01.1 Glass—Ground, \$ b	0
Glauber's Sait-in bhis., # b01@.011	4
Glass—Ground, & B. (9@,10 Gold—Chloride, pure, crystals, & oz. \$12,0 pure, 15 gr.,c. v., \$40z. \$5.4 liquid, 15 gr., g.	0
pure, 15 gr., c. v., # doz. \$5.40	Ŏ
nquia, 15 gr., g.	٥.
8, v., % doz	0 4
Oxide, # oz\$27.2	5
Gypsum—Calcined, * bbl \$1.25@\$1.50 Land Plaster	0 7
Lodina Possiblimed 39 oz 200 9	2 1
Iridium—Oxide & b \$90	0
Iridium-Oxide \(\pi \)	
Kieserite—# ton	6
White, English, # h., in oil., 08460.083	2
White, American, in oil, \$\varphi\$ b., 06\\(\phi\)(0.8\\\\) White, English, \$\varphi\$ b., in oil 08\\(\phi\)(0.8\\\\\\\) Acetate, or sugar of, white 06\(\phi\)(0.6\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	3
Nitrate	2 8
Acetate, or sugar of, white	8
Litharge—Powdered, % b051/4@ .071/4	
Litharge—Powdered, # b 054@.074 English flake, # b	6
kilos\$14.75	5
Calcined, \$\pi\$ ton of 2,240 lbs\$22.00	8
kilos. \$14.7? Calcined, \$\psi\$ ton of 2,240 lbs. \$22.00 Brick, \$\psi\$ ton of 2,240 lbs. \$27.50 Manganese—Ore, per unit. 23\alpha, 25 Oxide, ground. \$\psi\$ 023\alpha 023\alpha 024 Mercuric Chloride—(Corrosive *\psi\limin_{matel} \$\psi\$ h. \$2\alpha \alpha 23\alpha 25\alpha 2	3
Oxide, ground. # b	8
Powdered # g	3
	1
Metailic Paint-Brown # ton. \$20@\$25	7
Metailic Paint—Brown \$ ton. \$20@\$25 Red\$20@\$25 Mica—In sheets according to size.	1
1st quality, # b	

### ### ### ### ### ### ### ### ### ##	
Nitre Cake—# ton. 0134@30134 Washed Nai Oxf'rd, Lump, #b.065@.0034 Washed Nai Oxf'rd, Lump, #b.065@.0036 Umestic, # ton. \$12@\$20 Oils, Mineral— Cylinder, light filtered, # gal. 14@.16 Dark steam refined, # gal. 14@.16 Dark steam refined, # gal. 14@.16 Phosphorus—# b. 50@.55 Precip, red, # b. 50@.55 Precip, red, # b. 50@.55 White # b. 50@.55 White # b. 50@.55 Precip, red, # b. 50@.56 Platinic Chioride—Dry, # oz . 37 Plumbag O—Ceylon, # b	
Domentic, \$\foraller{\partial}\$ ton. \$\frac{12225}{200}\$ Oils, \$\frac{\partial}{\partial}\$ Cylinder, light filtered, \$\partial \text{gal}\$ 14@.16 \text{ Dark filtered, \$\partial \text{gal}\$ 14@.13 \text{ Extra cold test, \$\partial \text{gal}\$ 24@.24 \text{ Dark steam refined, \$\partial \text{gal}\$ 24@.24 \text{ Dark steam refined, \$\partial \text{gal}\$ 24@.24 \text{ Precip., red, \$\partial \text{ b}\$	
Domentic, \$\foraller{\partial}\$ ton. \$\frac{12225}{200}\$ Oils, \$\frac{\partial}{\partial}\$ Cylinder, light filtered, \$\partial \text{gal}\$ 14@.16 \text{ Dark filtered, \$\partial \text{gal}\$ 14@.13 \text{ Extra cold test, \$\partial \text{gal}\$ 24@.24 \text{ Dark steam refined, \$\partial \text{gal}\$ 24@.24 \text{ Dark steam refined, \$\partial \text{gal}\$ 24@.24 \text{ Precip., red, \$\partial \text{ b}\$	Ochre—Rochelle, \(\) b
Cylinder, light filtered, \(\psi gal. \) 14@.16	Domestic, % ton \$12@\$20
Phosphorus	Cylinder, light filtered, \(\mathbf{g} \) gal14@.16 Dark filtered, \(\mathbf{g} \) gal10@.13
Bromide, domestic, \$\psi\$ 1b.	Dark steam renned, # gal.,
Bromide, domestic, \$\psi\$ 1b.	Precip., red, # b
Bromide, domestic, \$\psi\$ 1b.	Platinic Chloride—Dry, % oz \$7 Plumbago—Ceylon, % b04@.06 American, % b
Bromide, domestic, \$\psi\$ 1b.	**Potassium—Cyanide, ** lb., C. P
Carbonate, \$1b., by casks, \$2%.04\(2\) 04\(2\) 05\(6\) 04\(6\) 05\(6\) 04\(6\) 05\(6\) 04\(6\) 05\(6\) 04\(6\) 05\(6\) 04\(6\) 05\(6\) 05\(6\) 06\(6\) 05\(6\) 06\(6\) 05\(6\) 06\(6\) 05\(6\)	Bromide, domestic, \$\psi\$ lb
Pumice Stone—Select lumps, bid 3:4@.15 Original cks., \(\) \(b \) \\ \text{.01} \\ \text{.02} \) \\ \text{.03} \\ \text{.04} \) \\ \text{.01} \\ \text{.06} \) \\ \text{.03} \\ \text{.06} \] \\ \text{.06} \\ \text{.01} \\ \text{.06} \] \\ \text{.06} \\ \text{.06} \] \\ \text{.06} \\ \text{.06} \\ \text{.06} \] \\ \text{.06} \\ \text{.06} \\ \text{.08} \\ \text{.06} \\ \text{.06} \\ \text{.08}	Carbonate, # lb., by casks, 82%.04\\(\frac{181}{2}\)@.19
Pumice Stone—Select lumps, bid 3:4@.15 Original cks., \(\) \(b \) \\ \text{.01} \\ \text{.02} \) \\ \text{.03} \\ \text{.04} \) \\ \text{.01} \\ \text{.06} \) \\ \text{.03} \\ \text{.06} \] \\ \text{.06} \\ \text{.01} \\ \text{.06} \] \\ \text{.06} \\ \text{.06} \] \\ \text{.06} \\ \text{.06} \\ \text{.06} \] \\ \text{.06} \\ \text{.06} \\ \text{.08} \\ \text{.06} \\ \text{.06} \\ \text{.08}	Caustic, # lb., pure slick
Pumice Stone—Select lumps, bid 3:4@.15 Original cks., \(\) \(b \) \\ \text{.01} \\ \text{.02} \) \\ \text{.03} \\ \text{.04} \) \\ \text{.01} \\ \text{.06} \) \\ \text{.03} \\ \text{.06} \] \\ \text{.06} \\ \text{.01} \\ \text{.06} \] \\ \text{.06} \\ \text{.06} \] \\ \text{.06} \\ \text{.06} \\ \text{.06} \] \\ \text{.06} \\ \text{.06} \\ \text{.08} \\ \text{.06} \\ \text{.06} \\ \text{.08}	Bichromate, # lb
Soapstone—Ground, \$\psi\$ ton \$\cos \\$ Block and slab according to size. Sodium—Prussiate, \$\psi\$ b	Pumice Stone—Select lumps, b031/2@.15 Original cks., # b
Soapstone—Ground, \$\psi\$ ton \$\cos \\$ Block and slab according to size. Sodium—Prussiate, \$\psi\$ b	Pyrites—Non-cupreous, p. units. 10@.11 Quartz—Ground. \$ ton\$6.00@\$10.0
Soapstone—Ground, \$\psi\$ ton \$\cos \\$ Block and slab according to size. Sodium—Prussiate, \$\psi\$ b	Lump. # b
Soapstone—Ground, \$\psi\$ ton \$\cos \\$ Block and slab according to size. Sodium—Prussiate, \$\psi\$ b	Rubbing stone, # b03½@.04 Sal Ammoniac—lump,in bbls., # b.80½ Salt—Liverpool, ground, # sack700
Soapstone—Ground, \$\psi\$ ton \$\cos \\$ Block and slab according to size. Sodium—Prussiate, \$\psi\$ b	Domestic, fine, # ton\$7.6\$7.6 Common, fine, # ton\$4.50@\$t Turk's Island, # bush26@.25
Sodium—Piussate, # b	Sait Cake—# ton\$10 00@\$15.00 Saitpeter—Crude, # b031@.04
American No. 1, \$\psi\$ b	Soapstone—Ground, # ton \$6@\$ Block and slab according to size. Sodium—Prussiate, # h
American No. 1, \$\psi\$ b	Phosphate, # b
American No. 1, \$\psi\$ b	Hyposulphite, & cwt., in casks \$1.70 \(\psi \)1.80 Strontium—Nitrate, \(\psi \) b
American No. 1, \$\psi\$ b	Flour, * b
American No 2	Tale—Ground French, * b0114@.0114 American No. 1, * b
American, No. 2, \$ b	Terra Alba—French, #b
	American, No. 2, \$ b

_	
6	Tin-Crystals, in kegs or bbls14@.15
9	Muriate single 076.19
	Muriate, single
4	Vermitten Imp Fredick 20 20
	Am. quicksilver, bulk
4	Am. quicksilver, bags58 @ .60
0	Trieste
	Chinese. 85 @ 1.00 Trieste. 90 @ .95 American. 114/@ 13 Zinc White-Am, Dry, # b044/@ .05 Antwerp, Red Seal, # b064/@ .07 Paris Red Seal, # b078/@ 08
8	Zinc White—Am., Dry, * b 041/2@ .06 Antwerp, Red Seal. * b
4	
9	Muriate solution
5	THE RARER METALS.
	The prices given below are the prices at
7	works in Germany, and are per gramme except where otherwise stated:
Ô	44
2	Barium (ex amalgam) 2.12
0	" (per electrol.)
2	Cadmium (metallic), " 2 75
4	Calcium (per electrol) 5.25
9	Section Sect
	Chromium (fus.) 40 (cryst.) .75 Cobalt (metallic), per kilo .10.00 " (pure), per kilo .40.00
6	Cobalt (metallic), per kilo10.00
2	" (pure), per kilo40.00
4	Erbium-\ttrium (oxydat.)10.00
5	Did mium (pelv.)
5	" (pulv.)
á	" (pulv.). 35.00 Glucinum (pulv.). 7.00 " (cryst). 10.75
1	Indium 5.00
	Lanthanum (puly) 6 00
	Indium
	Lithium (ln glob.)
	(wire)
	Wanganese (fusum)
5	Molybdenum (pulv.)
1	Niobium (pulv.)
1	Palladium (wire)
1	Paliadium (wire) 1.06 (pulv.) 1.00 Potassium (metal), per kilo 27.50 Rir dium 1.63 3.00 2.00
	Hir dium
5	Rubid1um 6.25
3	Huthenium 2.50 Hubidium 6.25 Selenium (cryst.) .50 (precipitates) .624
	Sodium
8	Sodium 60% Strontivm (per electrol.) 7.25 "(ex amalgam) 3.25
1	Tantalum 4.75
	Tellurium (fusum)
,	Thallium
	Tantalum
	Uranium
)	Vanadium
-	

,	DIVIDE	NEW IND-PAYING		MINING	STOCK	QUOTATION NON-DIVIDEN	IS.	
NAME AND LOCATION OF COMPANY.		ec. 4. Dec. 5.		SALES.	NAME AND OF COM			Dec. 7. Dec. 8. SALES
Adams, Colo				L. H. L.	Alpha Nev.	H. D. H.		n. L. H. L.
Allce, font					Alta, Nev	og. Colo		
Bulcher, Nev			[Astoria, Cal., Augusta, Ga.			
Beile Isie, Nev					Barcelona, No	onds		
Caledonia, S. Dak					Best & Belche Bonanza Kln	g, Cal.		
Carysolite, Colo					Brunswick, C Bullion, Nev.	nds		100
C Morado Central, Colo C mmon wealth, Nev Comstock T. bonds, Nev scrip., Nev Cown Point, Nev Cown Point, Nev					Castle Creek, Chollar, Nev.	Idaho.		
Cons. Cal. & Va., Nev		8.60	3.70 3.80	4.15 3.90 500	Con. Imperial	Nev		.0808 3,500
Daadwood, Dak Enterprise Eureka, Cons., Nev								
Father de Smet, Dak					Emmett, Colo Exchequer, No	ev		
Guld & Curry, Nev Grand Prize, Nev Hale & Norcross, Nev H mestake, Dak Horn-Sliver, Utah				100	Independence Julia, Nev	, Nev		
Homestake, Dak Horn-Silver, Utah	2 7			2.75 600	King & Pembr Lacrosse, Colo	oke		
Independence, Nev					Mexican, Nev.	of Col		
Kentuck, Nev					Monitor, Colo. Monte Cristo,	Rep. of C.		
Mono					N Commonwe	aith Nov		• • • • • • • • • • • • • • • •
Mono. Mt. Diablo, Nev Navajo, Nev N. Belie Isle, Nev								
Ontario, Utah Ophir, Nev Overman, Nev		1.75	1.90	-200	Phoenix of Ari Potosl, Nev	Colo		
Quicksilver, Pref., Cai	12 00			100	Rappahannoel S. Sebastian, S.	ller, Nev		
Pymouth, Cai Quicksilver, Pref., Cai Com., Cal Qincy, Mich R bbinson Cons., Colo Syrage New	1 00				Seg. Belcher, N	Jev		
Savage, Nev Sierra Nevada, Nev Silver Cord, Colo	1.35			1.60 300	Shoshone, Idal Sliver Hill, Ne	ho		
S.lver King, Ariz					Sutro Tunnel, Syndicate, Cal	Nev		
Small Hopes, Colo Standard Cons., Cal Yellow Jacket, Nev	1.30 1.3)		1.30	400	Tornado Con., Union Cons., N	ho	1.10	200
*Ex-aividend. + D	ealt in at New	York Stock Ex.	Uniisted securiti	es. ‡Assessment par	d. Assessment usares sold, 7,300.	npaid. Dividend snares sol	1, 1,900. Non-aividend s	nares soid, 5,400.
			BOS	TON MINING		TATIONS.	-	
				Dec. 7. SALES.	NAME OF CO.			Dec. 6. Dec. 7. SALES.
Atlantic, Mich	12.00 12.00	12.25 12.00 12	0.00	12.00 680	Arnold, Mich.,			.4550 600
Breece, Colo	27.00 26.25 27.50	27.25 28 63 27.50 29	00 28.50 30.25 28.50	29 50 27.88 12,403	Brunswick, Ca	Mone 10 50 0 50 10 50 10	10.03 10.03 10.00 10.00	
Breece, Colo	29158 300	12 50	15 00	350	Colchis, N. Me:	E	4.00 3.85 4.50 3 75 4.	50 4.13 4 50 4 13 8,124
C eur d'Aiene, Id Con. Cai. & Va., Nev								
Dankin, Colo E ireka, Nev Frankiin, Mich Houorine, Utah	12.00	12.50 12 00 2	2 63 12 38 12.00	898	Geyser, Colo Hanover, Mich	dex.		
Keyrongo Wich	0 25 0 50 0 50	0 50 0 35 0	0.00 0.00	0 25 0 00 1 510	Humboldt, Mich	ch		
Latte Superior, Iron Little Pittsburg, Colo Minnesota Iron, Minn					Mesnard, Mich. National, Mich.			.00 200
Ma Jan Calinana					Oriental & M	NAV		
Osceola, Mich	30.25 30.00 31.00	30.00 31.00 30 50 31 1251/2 125 12	75 31.50 32.60 31.2 25 6 125 125	31.25 30.25 1,478 125 116 98	Pontiac, Mich. Rappahannock	, Va		
S erra Nevada, Nev S lver King, Ariz					Shoshone, Idah South Side, Mic	ioch		
Quincy, Mich. Ridge, Mich. Serra Nevada, Nev. Siver King, Ariz. Sormont, Utah. Tamarack, Mich. Tecumseh, Mich.	148 147 150	158 150 16	158 163 163	165 162 558	Tamarack, Jr., Washington, M	5, Va	0 21 .00 20 .00 20.	50 19,50 20 50 19,50 1,490
		lend shares sold,		, , ,	ares sold, 20,820.	Total shares se		3.00 2.68 2,925
	DIVII	DEND-PAYIN	G MINES.				PAYING MINES	
Name and Location	of Capital	Par	Assessments.		ends.	Name and Location of Company.	Capital Shares.	Assessments.
Company.	1	No.	levied. amounte	f last paid.	of last		8100,000 No. Par 100,000 81	Total levied. Date and am't of last.
2 Alaska-Treadwell, g. A 3 Alice, s	l'ska 5.000.00	0 200,000 25 0	*	1,825,000 June	1893 .37½ 2 A 1891 .06¾ 3 A	llouez, c Mich. lphs Con., c. s Nev.	\$100,000 100,000 \$1 2,000,000 80,000 25 3,000,000 80,000 100	\$120,000 Feb., 1891 .20 1,424,937 Oct., 1891 .50 209,000 Sept. 1892 .10 8,869,880 Jan. 1892 .10
5 amador, 6	al 1,250,00	0 250,000 5 0 300,000 10		225,000 Mar	1889 .50 4 A 1890 .1214 5 A 1892 .05 6 A	Hiance, S. G. Utah. House, C. Mich. House, C. Mich. Hiphs Con., G. S. Nev. Lita, S. Nev. Merican. C. Idaho merican. C. Idaho merican Flag, S. Colo. mity, S. Colo. Lohof, S. L. G. Utah. Mont. Mont. Mont. Mont. Mont.	5.000.0001 500.0001 1001	3,369,880 Jan. 1892 .10 300,000 June 1887
American Belle,s.g.c C 8 American Relie,s.g.c C 9 Atlantic, c	2,000,00 colo lich. 1,000,00		280,000 April 1873		11 1891 .1216 7 A 1892 .05 8 A 189100 9 A	mity, s Colo Utah	1,250,000 125,000 1 250,000 250,000 20 8,000,000 150,000 5 600,000 120,000 125	560,000 July. 1893 .20
101 A wannen a	O 10.000.00	0 100,000 100	335,000 July. 1889	.10 40,000 Feb.		ppalachian, g N. C. rizona, c Ariz storia, G Cai	1,750,000 1,400,000 20 8,575,000 160,000 2	
11 Argyle, 6	2,000,00 11ch 2,500,00 2,500,00	0 100,006 25		650,000 Feb.	. 1893 2.00 13 A . 1890 .25 14 B 1893 .02 15 B	arcelone o	3,250,000 650,000 25 5,000,000 200,000 5	*
15 Bald Butte M 16 Bates Hunter, s. g C	lont. 250,00 colo. 1,000,00 ev. 10,000,00	$0 \begin{vmatrix} 250,000 \\ 1,000,000 \end{vmatrix} \frac{1}{1}$.	240,000 Mar 189	115,000 Nov 67,500 Dec. 300,000 Dec.	1893 .02 15 B 1891 .0034 16 B 1879 .25 17 B	ear Creek Idaho elmont, G. Cai. elmont, S. Nev est & Belcher, S. Nev lack Oak, G. Cal.	500,000 500,000 100	*
18 Beicher, S. G N 19 Believue, Idaho, S. L. 10	ev. 10,400,00 daho 1,250,00	104,000 100 125,000 10	120,000 Dec. 1889	3 .25 15,397,000 Apr 25 200,000 Jan	11 1876 1.00 18 B 1. 1890 .10 19 B 1. 1892 .01 20 B	est & Belcher, s. g. Nev.	5,000,000 50,000 100 10,080,000 100,800 10 3,000,000 300,000 100 10,000,000 100,000 1	2,405,275 Aug., 1892 .25
21 Bi-Metallic, s. G M	olo. 1,000,00 lont. 5,000,00 al. 10,000,00	0 200,000 25 . 0 100,000 100	640,000 July 1893	90,000 Feb. 1,630,000 June 3 .15 1,602,572 Apr 520,000 June	9 1893 .10 21 B 11 1885 .50 22 B	rownlow, g Cal	250,000 250,000 5	170,000 Nov. 1883 .25
23 Boston & Mont. G M	lont. 2,500,00	0 250,000 10 0 125,000 25	*	2,075,000 Nov	e 1886 .15 23 B 1891 1.00 24 B 1887 05 25 B	nckeye, s. L Mont. ullion, s. g Nev.	1,000,000 500,000 100 10,000,000 100,000 100	2,890,000 Aug. 1892 .25
24 Boston & Mont., C. S. M 25 Brooklyn Lead, L. S. D 26 Brotherton, I	tah. 500.00 11ch. 2,000,00 al 10,000,00	0 80,000 25 100,000 10	155,000 July 189	15 190,000 000	1893 50 26 B 1894 05 á 27 B 1888 06 28 C	lack Cak, G	10,000,000 100,000 10 5,000,000 200,000 10 1,000,000 100,000 1	6,000 Jan 1892 .04
26 Brotherton, I	daho 3,000,00 0ak),000,00 1,000,00	0 100,000 100		150,000 Oct. 192,000 Oct.	. 1890 .0616 29 Co	alayeras Con g Cal	* 800,000 500,000 5 .	9,000 Mar., 1892 .08
31 Calumet & Hecla C . M 32 Centen'l-Eureka, s.r. U	lich 2,500,00 tah. 1,500,00	0 100,000 25 50 50	1.200,000	675,000 June	9 1898 50 31 C	alifornia, e Cal alifornia Con. I. Q Cal amille, g Ga	2,250,000 450,000 10 1,500,000 150,000 5	9,000 mar. 1892 -08
	lich 500,00 ali 340,00 olo ,,000,00	0 34,000 10 . 200,000 50	****	139,700 July	1891 1.00 33 C 7 1893 10 34 C 1884 .25 35 C 1891 .02 36 C 1891 .10 37 C	anticrnia Con. I. Q. Calamille, g	500,000 100,000 2 200,000 100,000 2 500,000 250,000 100	*
57 Clinton Con. g C	olo 200,00	0 200,000 1 1 1 5 .	*	56,000 Nov 90,000 Nov	1891 .02 36 Cl	hallenge Con., g. s. Nev herokee, g	5,000,000 50,000 10 1,500,000 150,000 100	
40 Commonwealth a		100,0007 100	200,000 Nov. 189	502,66! Apr	9 1893 .03 38 C 11 1893 .05 39 C 1890 .20 40 C 11 1889 1.00 41 C	herokee, GCal hollar, s. GNev leveland, TDak olchis, s. GN. M.	1.000.0001 500.0001 101	1,820,080 May 1892 .50
Confidence, S. L. N	ev 2,496,00	24,960° 100 216,000 100	1,589,550 Aug. 189; 216,000 Dec. 189;	.50 199.680 Apr .50 3,682,800 Aug	. 1891 .50 41 C . 1892 .20 42 C	ieveland, T. Dak. oloha, s. G. N. M. olorado, s. Colo. omstock, s. Utah. omstock, s. Utah. omstock, s. Nev. omstock, s. Nev. omstock, s. O. O. Nev. omstock, s. O. O. Pacific, s. G. Cal. om Silver, s. Mo. ordova Union, g. Cal. ordova Union, g. Cal. oresuent, s. L. Colo.	1,625,000 825,000 1	
45 Cop. Queen Conc. A	2,000,00 2,000,00	200,000 10 .	***************************************	114,532 Nov. 1,560,000 Nov	. 1891 .50 42 C . 1892 .20 43 C . 1892 .05 44 G . 1893 .35 45 C . 1892 .12 46 C . 1892 .59 47 C . 1893 .50 48 C	on. Imperial, g. s . Nev on. New York, s. g. Nev	5,000,000 50,000 50 5,000,000 100,000 100	35,000 Mar . 1887
45 Coptis	lev. 10,000,00 1,500,00 15,000,00	00 100,000 100 00 300,000 05 00 600,000 25	60,000 Oct. 189	eon oou Mar	1892 .59 47 C	on. Silver. s Mo ordova Union. g Cal	#10001000 BOOLOGO U	
45 Coptis. N 47 Cortez. s	Tev 10,000.0 Tont. 5,000,0 Stah. 8,000,0		2,750,900 June 1890	3 .25 11,898.000 Jan 15,000 Nov	. 1889 .08 50 C	rocker, s Ariz	3,000,000 300,000 100 10,000,000 100,000 1	165,000 Aug. 1892 .05
52 Deer Creek, s. a	1,000,0	101 200.00n1 51	*	1,150,000 Oct.	e 1889 .05 52 D 1892 .05 53 D	andy, s	250,000 250,000 10 5.000,000 300,000	P
54 DeLamar, G. S I	uano 2,000,0	10: 600,000] 25		1,050,000 Oct.	. 1898 .25 54 D	ecatur, s	1,500,000 800,000	

	DIVIDEND-PAYING MINES.										NON-DIVIDEND-PAYING MINES,									
Name and Location of Company.	Capital Stock.	Shares.	Par		essments.	-1		ends.		1	Name and Location	n of	Capital Stock.	Shares		Ası	sessme	nts.		
55 Derbee B. Grav., G., Cal.,	10,000,00	No.		Levled	Sept. 1892	ast.	60,000 A DA	of las	mount st.	55	Company.	Col	5,000,000	No.	Par	Total ievled.		last	am't	
56 Dexter, g. s Nev 57 Dunkin, s. L Colo	1,000,000 5,000,000 1,000,000	100,000 200 000 200,000	10 25				105,000 Jul 890,000 Oct 1,225,000 Sep	y 1893 1889	.25 05 1.00	56 57	Denver City 8 Denver Goid, 6 Dickens-Custer, 8	Colo	300,000 2,100,000	60,000 420,000	5				• • • • • •	
60 Eureka Con., s. L., G. Nev	2,500,000 1,000,000 500,000	500,000 50,000 50,000	5		June 1885	.50	5,112,500 Jun 1,437,500 Dec	1893	.25 .25 .25	59 60 61	Durango, G	Colo N. S Cal	500,000 1,500,000 1,000,000	500,000 150,000 250,000	10	990,000		1886	1.00	
61 Evening Star, S. L Colo 62 Father de Smet, G Dak 63 Franklin, C Mich	10,000,000 1,000,000 5,000,000	100,000	100	200,000 220,000	Nov 1578 June 1871		1,125,000 Dec 1,100,000 Jul 190,000 Jul	v 1885	.20	63	Emmons, s. t	Colo.	1,000,000 625,000 2,000,000	500,000 500,000 2,000,000	125					
64 Freeland, s. G Colo 65 Garfield Lt., G. S Nev 66 Glengarry Mont.	590,000 1,000,000 500,000	100,000	5 10			::::	90,000 Apr 10,000 Jun 28,751 Dec	ril 1888 1e 1891	.1216	65 66	Eureka Tunnel, s. L Excheouer, s. g.	Nev	10,000,000 10,000,000 10,000,000	100,000 100,000 100,000	100 100 100	******	Jan	1892	.25	
66 Glengarry Mont. 67 Gold Rock Colo. 68 Golden Reward S,Dak 69 Gould & Curry, s. 6 Nev 70 Grand Prize, s. Nev 71 Granite, s. L. Idaho	1,250,000 10,800,000 10,000,000	250,000 108,000	100	4,591,200	June 1892	.25	85,000 A pr 3,826,800 Oct	rl1 1893	.01 .02 10.00	68 69	Gogebic I. Syn., I	Wis.	10,000,000 5,600,000 250,000	100,000 200,000 250,000	25	180,500	Jan	1892	.50	
71 Granite, S. L Idaho 72 Granite Mountain, S. Mont.	500,000 10,000,000 5,000,000	500,000 400,000	25				495,000 M a: 83,400 Nov 12,120,000 July	v. 1892	.25 .02 .20 .25	71 72	Gold Flat 6	Mont.	500,000 ,000,000 ,000,000	500,000 200,000 100,000	10	* * 5,000				
Great Western. L. Q Cal Green Mountain, G Cal Hale & Norcross, G.S. Nev	1,250,000 11,200,000 1,500,000	125,000	100	5,556,800	June 1893	.50	375,317 Oct. 212,000 Nov 1,822,000 Aug	1881	.50	74	Gold King, g	010	1,650,000 ,000,000 900,000	350,000 500,000 180,000	5					
Hecla Con., s. G. L. C. Mont. Hel'a Mg.& Red.s.L.G. Mont. Helena & Frisco, s.L. Idaho	3,315,000 2,500,000 1,000,000	663,000 500,000	5 5				2,055,000 Sep 197,970 July 170,000 July	y. 1886 y. 1891	.50 .06 .02	77	Goodshaw, G	Mont	10,000,000 1,000,000 12,000,000	100,000 200,000 120,000	5		Feb.	1892	01	
79 Helena & Victor Mont. 80 ***Holmes, s Nev 81 Homestake, G Dak.	10,000,000 12,500,000 500,000	100,000	100	400,000	Mar 1890	.25 1.00 .05	80,000 May 75,000 Apr 5,069,750 Nov	1892	.05 .25 .10	80 81	Grand Duke, s	Colo.	975,000 900,000 3,000,000	75,000 90,000 900,000	10					
82 Monorine, s. L Utah. 83 Hope, s Mont. 84 Horn-Silver, s. L Utah.	1,000,000	100,000	10				508,252 Oct 4,930,000 Sept	1893 t. 1893	.05 .25 .1234	83	Hartery Con. G	Cal Cal S.Dak	1,000,000 1,000,000 1,250,000	200,000 100,000 250,000	5	22,000	Oct Sept.	1890	.05	
86 Idaho. G	1,000,000 310,000 100,000	3,100	100				247,000 Dec 5,439,000 Sept 45,000 Apr 156,250 Nov	t., 1893	2.50	00	Head Cent. & Tr., s. G	Ariz Cal Mich	10,000,000 1,500,000 500,000	100,000 300,000 25,000	5	16,981	Mar Jan	1892	.08	
Section Hill, s	2,500,000 5,000,000 10,000,000	500,000	10			.08	245,000 July	y. 1893	.071/6 .03 .20	88 89 90	Holywood	Utah.	1,800,000 200,000 2,000,000	200,000 200,000	10	12,800	Oct			
93 Kearsarge, c Mich	10,000,000 5,000,000 1,000,000	50,000 40,000	100	190,000	Sept. 1892 Mar., 1893 Oct., 1887	.10 .20 1.00	260,000 Aug 60,000 Jan 80,000 Jan	1. 1891 1. 1890	.10 .10 2.00	91 92 93	fdaho, g. s	Mich Idaho	1,250,000 1,000,000	40,000 250,000 1,000,000	20	*******	May.			
94 Kennedy Cai 95 Kentuck, s. c Nev 96 La Plata, s. L Colo	10,000,000 3,000,000 2,000,000	200,000	100	454,180	Oct. 1891	.15	387,000 May 1,350,000 Dec 610,000 Sep	y., 1892 3. 1886 3. 1889	.15 .10 .30	94 95 96	Inez. S. L	Idaho Colo Wis	1,000,000 1,000,000	20,000 40,000	5 25					
99 Little Chief. s. L Colo	4,000,000 4,000,000 10,000,000	400,000 40,000 200,000	0 100 0 100 0 50	:			316,500 Fe 1 652,200 Jul 820,000 Dec	y. 1898 3. 1898	.30 .03 .93	97 98 99	Kentnek Con	Nev	1,250,000 0,500,000 16,000,000 1,000,000	50,000 105,000 100,000	25 00 100 100		July.			
100 Little Rule, s Colo 101 Maid of Erin Colo 102 Mammoth, s. L. c Utah 103 Wartin White, s Nev.	500,000 3,000,000 10,000,000	600,000	50	110,000		.25 .25	220,000 Dec 708,900 Apr 1,040,000 Dec	1891	.02 .25 .10	100 101 102	Juiia Con., c. s	Colo.	500,000 1,000,000 150,000	110,000 500,000 100,000	1	1,403,(A)U				
105 Matchless s T Colo.	10,000,000 350,000 500,000	3,500	0 101	:			140,000 Dec	V 1886	.25	104 105	Little Josephine, s	Colo	5,000,000 250,000	3,000 500,000 50,000	10	10,000				
107 Mayflower, D. gravel Cal 108 May Mazeppa, S. L Colo	3,000,000 1,200,000 1,000,000	100,000	20				15,000 Feb 117,000 Apr 100,779 Aug 205,000 Oct	3. 1898	.03 .10 .034	106 107 108	Lone Star Cons., G. C Lynx Creek, g Madelelne, G. S. L	Cal Arlz Colo	500,000 287,500 750,000	500,000 147,500 50,000	5			1892	.004	
110 Minas Prietas, G. S Mex 110 Minnesota, C Mich 111 Mollie Gibson. S Colo	1,000,000 1,000,000 5,000,000	1,000,000	25		Aprii 1886	1.00	350,000 Dec 1,820,000 Mag 3,820,000 Nov	1890	.50	110	Medora, G.	Dak	2,500,000 1,000,000 250,000	#06,000 100,000 250,000	1	\$85,000	Mar.	1890	.56	
113 Mono, G	2,500,000 5,000,000 3,300,000	250,000 50,000 660,000	100		Feb. 1898	.25	45,000 Oct 12,500 Mai 2,619,075 Jun	1890	.03 .25 1234		Merrimac Con., c. s. (Mexican, c. s	Mich	* 000,000 19,000,000 2,500,000	100,000 100,000 100,000	100 25	2,917,560 40,000	ct Mar	1892 1892	.50	
116 Morning Star Drift, G Cal	1,000,000 240,000 2,000,000	100,000 2,400 400,000	100	*****			1,025,000 Dec 140,600 Apr	rll 1893	3.00 0744		Milwaukon a	Cal Colo Mont.	400,000 1,000,000 500,000	200,000 200,000 500,000	5 1					
118 Mt. Dlahio, s Nev 119 Napa. q Cal 120 Navajo. g. s Nev	5,000,000 700,000 10,000,000	100,000	0 100			.10	725,000 Nov	1893	.30	118 119 120	Modoc Chief, l. s. g. l.		1,250,000 1,000,000 100,000	250,000 200,000 100,000	5 5 1	12,500	Jan May.	1891	.01	
121 Newton	10,000,000 800,000 550,000	160,000	0 5				229,950 Apr 10,000 May 48,800 May 1,877,500 Apr	7 1890	.1256	121 122 123	Mountain Ledge, g	Colo.,	750,000 500,000 1,500,000	150,000 100,000 300,000	5 5	4,500	Feh		.003	
125 North Commonwith Nev.	10,000,000 10,000,000 300,000	100,000	0 10	90,100	Jan. 1833	.10	20,000 July 25,000 Jun 30,000 Dec	y 1891	.05 .25 .0616	124 125 126	Mutual Mg. & Sm Native, c Neath. G	Mich	190,000 1,000,000 1,000,000	100,000 40,000 100,000	25 10	*				
126 N. Hoover Hill, G. s. N. C. 127 North Belle Isle, s. Nev. 128 North Star, e. Cal. 129 Omaha Cons., G. Cal. 130 Ontario. s. L. Utah	10,000,000 1,000,000 2,400,000	100,000	0 10	20,000	April 1893 1885	.02	230,000 Ma; 450,000 Jun 30,000 Ma;	V - 1888	.50	127 128 129	Nevada Queen, s New Germany, g New Gold Hill.	Cal Nev N. S	50,000 10,000,000 100,000	10,000 100,000 100,000	1	200,000	Oct		.25	
131 Ophir, G. S Nev 132 Original, S. C Mont.	15,000,000 10,000,000 1,500,000	150,000 100,000 60,000	0 100 0 100 0 25	4,891,040	July. 1893	.25	13,175,000 Oct 1,595,800 Jan 138,000 Jan	1892	.50	130 131 132	New Queen Gold, s	Colo	1,750,000 2,000,000 900,000	350,000 200,000 160,000	10 5	*				
133 Oro, s. L. G	500,000 1,250,000 1,500,000	100,00	0 25		Apri 1876	1,60	95,000 July 1,747,500 May 360,000 Dec	y 1890 y 1893	.20	133 134 135	North Standard, G	Cal	10,000,000 10,000,000 500,000	100,000 100,000 125,000	100	20,000 245,000	Nov. April	1892	.25	
-36 Pan American, G. S. Utah. 137 Parrot. C. Mont. 138 Petro Utah.	500,000 1,800,000 10,000,000	10,00	0 100				3,000 Sep 1,748,000 Apr 17,500 Jul	t. 1990	.0036	136 137 138	Oreida Chlef, a	Nev Nev	10,000,000 10,000,000 5,000,000	400,000 100,000 500,000	100	250,000 4,001,946	Mar	1892	.10	
187 Parrot. C	1,406,250 5,000,000 375,000	140,62 100,00 300,00	0 50 0 125	******			2,696,295 Oct	1893		139 140 141	Overman, G. s	Utah. N.C.	750,000	115,200 200,000 180,000	10					
140 Plymouth Con., 6	4,300,000 5,700,000 1,250,000	1 43,00	0 100 0 100		Dec. 1862		68,260 Set 1,823,911 Jun 643,867 Jul	ne 1891 y. 1882	1.25 .40 3.00	142 148 144	Pay Rock, s	Coio Ariz Ariz	1,000,000 19,000,000 10,000,000	200,000 100,000 100,000	100	190,000 405,000	Feh Oct	1892 1890	.10	
145 Red Cloud	1,000,000 500,000 1,250,000 300,000	500.00	0 5	*****			6,620,000 Au 158,000 Dec 50,000 Dec	C. 1892 C. 1890	.10 .01 .03	1146	FIREBIX. M	ALIS.	5,150,000 500,000 100,000	515,000 500,000 100,000	1	\$6,050	Feb	1094	.10	
148 Righto, G	300,000 1,850,000 5,1 00,000	1,000.00	0 1				50,250 Ap 4,359,887 Oct	rii 1892	.0114 .25 .021 ₉	148 149 150	*Ploche M.&R.,s.G.L. Poorman, Ltd., S. L.	Utah. Idaho	600,000 20,000,000 250,000	900,000 000,000 50,000	10	1,573,000				
153 Running Lode, a. Colo.	1 ,250,000 10,000,000 1,000,000	200,000	0 25	219,939	Mar . 1886	50	20,000 Au 50,250 Ap 4,359,887 Oct 25,000 Ma 99,785 Fei 585,000 Ma 36,000 Ma	b 1880 r. 1886	50	151 152 153	Proustite, s	Nev Idaho Colo	11,200,000 250,000 1,500,000	112,000 250,000 150,000	10					
155 Shoridan a d Colo	11,200,000	112,000 8,000 150,000	0 100			.25	300,000 Oct	1891	3.00 2.50 .01	154 155 156	Phoenix Lead. s. L. Plierim, e "Ploche M.&R., s.e.L. Poorman, Ltd., s. L. Potosi, s. L. Potosi, s. C. Puritan, s. e. Quiney. C. Rainbow, g. Ranbannock, e. s. Red Elephant, s. Red Mountain, s. Red Mountain, s. Ropes, e. s.	S.Dak	3,000,000 1,250,000 250,000	250,000 250,000	5	4.250	July.	1892	.003	
135 Shoshone, G	2,225,000 10,000,000 1,000,000	122,500 100,000 1,000,000	100	6,521,910	Aug. 1893	.20	1,559,933 Oct	1893	1.00 1.00 .02	157 158 159	Red Mountain, s	Colo Mich	500,000 300,000 2,000,000	500,000 [60,000 80,000	5 25	167,200	Feb.	1891	.54	
169 Silent Friend Colo. 161 Silver Cord, s. L. s. Colo. 162 Silver King, s. Arlz. 163 Silver Mg. of L.V.s.L. 164 Silde Colo. 165 Colo. 166 Colo. 167 Colo. 168 Colo. 169 Colo. 160 Colo. 160 Colo. 161 Colo. 162 Colo. 163 Colo. 164 Colo. 165 Colo. 1	500,000 4,500,000 10,000;000	500,000 450,000	0 10		Aug. 1892	.25	102,000 Jar 40,000 Ma 60,000 Au 265,000 Ap 1,950,000 Jul 300,000 Dec	g 1891 rll 1889	.0216 .10	160 161 162	Robes, G. S. Ruby & Dun., S. L. G. Russell, G. Sampson. G. S. L. Seai of Nevada, g. S. Silver Age. s. 1, g.	N. C Utab.	25,300 1,500,000 .0,000,000	300,000 100,000	5 100	288,15	July.	1888	1.08	
	500,009	500,000	100				90 to 000 No	1000	4.05	163 164 165	Silver Age, s. l. g Silver Bell, s	Colo	5,000,000 2,000,000 850,000	100,000 200,000 170,000	10	********				
167 Standard, g. s Cal	200,000 10,000,000 500,000	200,000 100,000 500,000	0 100	100,000	Oct. 1883 June 1890	.25	3,661,160 Jul	y. 1893	.15 .25 .10	166 167 168	Sliver King, s	Cal Aris Coio	\$2,060.000 5,000.000 300.000	400,000 200,000 60,000	25 5					
169 St. Joseph, L Mo 170 Swansea, g.s Coio 171 Tamarack, c Mich	1,500,000 600,000 1,250,000	150,000	0 10			3.00	1,974,000 Dec 27,000 Mai 3,560,000 Dec	1890 1893	.05	169 170 171	South Bulwer, a South Hite. g	Cal Cal	2,000,000 10,000,000 10,000,000	200,000 100,000 100,000	100	100,000 195,000	May May. Jan	1892 1881 1883	.01) .25	
172 Teal & Poe	1,250,000 150,000 12,500,000 500,000	500,000	0 25						4.00 .0116 .10	172 173 174	South Pacific, g C Stanislaus, G C St. Kevin, s. G C	Cal Cal	500,000 2,000,000 100,000	100,000 200,000 100,000	10	**********				
175 United Verde, c Aris 176 Victor, G Colo 177 Viola Lt. s. t Idebo	3,000,000 1,000,000 750,000	300,000	10	*			1,250,000 A pr 15,000 Jul 207,500 Jan 90,000 Oct	1893	.001/2 .10 07/2	175 176 177	Seal of Newada, g. s. Silver Age, s. l. s. Silver Bell, s. Silver Bell, s. Silver Bell, s. Silver King, s. Silver Oueen, c. Silverton, s. Silverton, s. Silverton, s. Silverton, s. Silverton, s. Silverton, s. South Buller, s. South Pacific, s. South Pacific, s. St. Kevin, s. St. Kevin, s. St. Louis & Mex. s. St. Louis & St. Elmo, Cst. Louis & St. Elmo, Cst. L. & St. Felipe, g. s. St. L. & St. Felipe, g. s. St. L. & St. Felipe, g. s. St. L. & St. St. Silver, g. s. St. L. & St. Felipe, g. s.	Mex Colc Mex	,900,000 000.000 *CU,000	500,000 200,000 150,000	10	*				
178 Ward Con., s Colo. 179 Woodside, s. L Utah 180 W. Y. O. D. Cal	2,000,000 100,000 30,0,00 1,300,000	7 300,000	10			.10	837,500 Nov 20,000 Dec 25,000 Oct	1,000		178 179 180	St. L. & Sonora, G. s A Stemwinder, i. s	daho dich	500,000 250,000	\$00,000 500,000 50,000	1 25	*				
189 St. Joseph J. Mo. 170 Swansea, g. s. Colo. 171 Tamarack, c. Mileb. 172 Teal & Poe. N. M. 173 Tombstone, e. s. L. Ariz. 174 Trinity Riv'r Hydr., G. Colo. 175 United Verde, c. Ariz. 176 Victor, e Colo. 177 Vola Li., s. L. Idaho 178 Ward Con., s Colo. 179 Woodsde, s. L. Utah 180 W. Y. O. D. Cal. 181 Yankee Girl, s. Colo. 182 Yellow Jacket, g. s. Nev. 183 Yosemite No. 2. Utah 184 Young America, e. Cal.	1,900,000 12,000,000 1,000,600	120,00	100	5.556,000	Inle iggo	.25	25,000 Oct 64 500 Sep 1,405,000 Sep 2,184,000 Aug	t. 1893 g. 1871	1.50	100	Farior Plumes a	010.	5.000,000 5.000,000 825,000	200,000 500,000 65,000	10	9 505	Mar	1892	011	
184 Young America, e Cal	1,000,000				a ury . 1056		25,000 000	1091	.00	184 185 186	relegraph, g. s C relegraph, G. s C reresa, g. s C rloga Con., g. s N	ley	325,000 100,000 1,000,000	65,000 100,000 200,000	5	3,575 70,000 10,000	Mar. Feb Feb	1892 1892 1888	.10	
ios Ioung America, 6 Cai									******	187 188 189	rioga Con., g	ev	100,000 100,000	100,000 100,000 500,000	10 1 20	385,000	lan	1892	.25	
										190 191 192	Union Con., c. s N Utah, s N Ute & Ulay, s. L C Valley, g C Wall Street, c. s. L C	ev	10,000,000 10,000,000 1,000,000	100,000 100,000 500,000	100 100 2	245,000	Aug.	1890 1892	95	
										193 194 195	Walley, g C. Wall Street, G. s. L C. Washington, C M	olo	575,000 500,000 1,000,000	460,000 500,000 40,000	5					
										196 V 197 V 198 V	Washington, c M West Argentine, s C West Granite Mt., s M Whale, s M Wood River, g Id	font.	750,000 500,000 5,000,000	150,000 100,000 500,000	5					
										200 1 200 1 201 2	Vood River, g Id l'uma, c. s. e A delaya, g. s C.	ris	2,000,000 10,000,000 600,000	200,000 400,000	19	3,000	Aug. 1	1891	.00%	

G., Gold. S., Silver. L., Lead. C. Copper. B., Borax. *Non-assessable. † This company, as the Western, up to Deember 10th, 1881, paid \$1,400,000. ‡ Non-assessable for three years. ‡ The Deadwood proviously paid \$275,000 in eleven dividends and the Terra \$75,000. Previous to the consolidation in August, 1884, the California has paid \$1,320,000 in dividends, and the Cons. Virginia \$42,300,000. ** Previous to the consolidation of the Cepper Queen with the Atlanta, August, 1885, the Copper Queen had paid \$1,350,000 in dividends. This company paid \$1,300,000 before the corganization in 1880. ** This company acquired the property of the Raymond & Rly Company which had paid \$3,075,000 in dividends. *** Previous to this company's acquiring Northern Belle, that mine paid \$2,400,000 in dividends against \$425,007 in assessments.

									-	_				DEC. 9, 1893.
	1	D CC	1									High. Low. Sales MISSOURI.		
NAMES OF STOCKS.	Dec	2.	Dec	e. 4.	De	2. 5.	Dec	. 6.	Dec	. 7.	Dec	1.8.	Sales.	Puzzler
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.		Summit
Am. Coal Balt. & Ohlo do pref Buff., R. & P	49	72%			7314								861	Total sales
do. pref											•••••			MARYLAND. Leo
do. 1st pref	2016		201/8				191/6	19	191/4		193%		9,908	Baltimore. Dec 7. London Quotations Nov. 28, 1893. Nov. 28, 1893. Buyer. Seller.
Col. C. & 1 Col. Coal Colorado Fuel									23				10	Conrad Hill £ s. d. £ s. d.
do. pref Col., H V.& Tol. do. pfd	22		221/4	1				211/6	211/4				1,500	George's Creek Coal. 1.03@1.10 Almada & Tirito, Mex. 3 9
Col. & H. Coal do. pfd Cons. Coal Del. & Hud. C						• • • • • •								Howard C. & C
Del., L. & West. Hunt, & B.Top.			185% 168%	135½ 168	168	134 157	1341/6		16614	134	168		2,869 1, 81	Howard C. & C
do pref Lake Erle&Wes			5034	50					501/4				32 260 510	College Features, Cal
do. pref Lehigh C. & N Lehigh Valley	4056	401/4	52 3956	3756	3836	35			53 3934	5238 3938			551 4,243	LISTED STOCKS. Golden Leaf, Mont. & N. M 1 0 1 6
Maryland Coal. do. pref Morris & Essex.														Par. Bid. Asked. Harquahala, Ariz
New Cent. Coal.					118				11134				235	Clark Iron Co 100 60 Pine Mont 8 9 9 3 Cosmopolitan Iron Co Mesquital del Oro.
N. Y., L. & W N. Y., L. E.& W do. pref N.Y., Susq.& W	16 35% 1 %	15%4	15%	15	1474	1656	15 32 17	14% 16%	14%				4,300 455 2,050	Kanawha Iron Co100 .10 .30 Mesquital del Oro.
do pref. do. pref., new V. & West	4894		49	4356		48	48	413%	307%				1,910	Lake Superior Iron Co 25 2.50 New Guston, Colo 7 0 8 0
do. pref Penn. Coal				1					211/6				1,650 2,489	Little Mesaba Iron Co100 Palmarejo, Mex 4½ 7 Mesaba Moun. Iron Co100 15.00 18.00 Pinos Altos. Mex 1 0 1 6
Penn. R. R Phil. & Reading lenn. C. & I	5014 2134 1756	2136	50 2156 1756		2156	497/a 213/2 163/4	2116 17%	2076 16%	50 21% 17%	4974 2014 1634	2114 1734		2,489 16,378 6,999	Mineapolis Iron Co
do. pref Wheel. & L. E	15%		1576	1596	15%	15%	1556	15	1534	1538	1516		2,710 2,480	Shaw Iron Co
do. pref	32%		543%		t		l		32%		3294		2,480	UNLISTED STOCKS. Adams Iron Co
				Total	si shai	es sol	ld, 66,3							Agate Copper Mining Co. 10 Belmez, Spain
	11	NDU	STR	IAL	AND	TF	RUST	ST	rock	s.				Ashland Iron Co
	Dec	c. 2.	Dec	. 4.	Dec	. 5.	Dec	. 6.	Dec.	7.	Dec	e. 8.	-	Buffalo Land & Exp. Co. 150 Lexington, Mont
NAME OF STOCKS.	н.	L.	н.	L.	н.	L.	н.	L.	н.	L.	H.	L.	SALES.	Chandler Iron Co 25 20.00 23.00 Nickel, New Caledonia 644. Chaileston Iron Co 100 15 30 Rio Tinto, Spain 338 Champton Iron Co 100 " "oblig 567.
							1 1	- 1	1					Champton Iron Co
dams Express Am. Cotton Oll.			301/6 6934	30½8 69	3014 6816	2316	151 29 67	2816		2936	30	293/8	28,785 1.414	Columbia Iron Co100 New York Mining Stocks.
do. pref m. Dist. Tel m. Express		8134	40	8214	1153/6	8214			8436	831/4	84	833/6	100 15 179,070	Commodore Mining Co100 (Latest quotations.) Dec. 8. Comstock Iron Co
do. pref. Edison E. Ill. Co.	85	84	851/4	8494	85	84%	847.8	821/6	8418	84	8116	8398	2,616 100	Detroit Iron Co
Edison Gen. El Nat. Cord. Co do. pref	20	1994	2016	20	2038 45	33 1976 41	44			23¼ 19¼	35% 2 14 44	20	61,573 2,330 505	GreatWestern Minlog Co.100 2.00 2.25 Bodie 0.25 Hall Iron Co 100 Breece. 0.15 0.15 Hornestead Iron Co 2.5 0.01/4 0.2 Brunswick 0.04 0.0 Horton Mining Co 10 Bulwer 0.10
Nat.Lead Co do. pref Nat.Linseed Oll.	2216		23 65 24%	21½ 63 23	2134 64 257/8	63 24	2136 6334 2634	213-8	2216 6514 2676	2134 6334 26	221/4	22 2614	6,866 3,926 17,702	Homestead Iron Co
U. S. Express					421/6		54 43%		4216	411/4		4074	750	Jackson Iron Co
do. pref Wells, Fargo Ex Western Union.	921/4	9136		893%	12:	887/8	125 895 ₈	8856	864 12434 8978		8954	89	255 27 64,384	Kentucky Iron Co
	1				tal sa	les, 37	0,907.					1		Lake Supr. (Marquette) 25 20.00 27.00 Crown Point 0.70 1. Macomber Mining Co
						1								McCaskill Mining Co 10 01 05 Fl Cristo
	LIF								orado			s. De	e. 2.	Mesaba Chief Iron Co100 1.75 2.25 Gould & Curry 1.10 1. Mesaba Iron Co30 20 Hale & Nor 0.75
- 1		ing Q		nons.		1			ort by		H. M	cInty		Metropolitan L. & L. Co. 25 50.00 70.00 Horn Silver 2.50
STOCKS. Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Ala	mo	a Go	id		\$.01 .30	\$.01%	Minnesota Iron Co. 100 Iron Silver. 0
lpha	.20	.15		.15	15	And	choi ia zentui	Lel'a	d niata			.32	.041/2	Northern Light Iron Co 106
elle Isle & Belch 2.10	2.35	2.70	15 2.60	2.35	2.55	Blu	te Bell	l				.023/4	.0334	Oneota Iron Co
Bodle 30 Bulwer 10 Chollar 60	.65	35 .10 .70	.35 .40 .79	.25 .10 .70	.40 10 .65	Cre Del	ede & Mant	Crip	ple Cı	eek.		005%	.01	Pioneer Iron Co
com'w'ith 3.43	3.35		3.65		3.80	Eld	orado nny R	awlin	8			141/6	.05 .17	Red Hematite Iron Co
crown Pt70 Del Monte	.75	1.25	.80	.75	.80	Gol Gol	den I den F	ale lagle.				001/2	.007/8	Republic Iron Co
C'rekaCon Fild & C'y 1 10 Hale & N 80	1.10	.80	1.25	1.20	1.20 .85	Gol	d Kir	ıg	d			09	.041/8	Syndicate Gold 10 .20 Savage 0.70 Towarda Iron Co 100 1.50 2.00 Sierra Nevada 1.25 Von & May Lond Co 1.25
Mexican. 1.00	1.05	1.20	1.25	1.20	1.20	Let	k Pot					.00%	.35	Ver. & Mes. Iron Land Co. 25 .15 Sutrc Tunnel Zenith Iron Co. .50 1.25 Union Cons 1.00 Utah 0.10
it, Diablo			.10			Lot Mo	tie Gi llie G	bson.			i	017/8 .85	.021/8 1.90	MONTANA. Vellow Jacket 1.20 ASSESSMENTS.
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Ophir 1.55 Potosi 80 Savage 85	1.55 80 1.35	.85 .85 1.30	1.80 .50 .80	1.30	1.80 .75 .80	Pha	ncess	ist					.18	Specially Reported by S. K. Davis, Prices for the week ending Nov. 27. Bid Asked. Company. No. of Ind. Day of Am in office. sale. per
Slerra Nev .80	1.25	1.10	1.10	1.40	1.50	Vic	mmit	M. &	M			.151/2	.16½ 3.50 .04%	Bald Butte (Mont.)
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Prices and sales for the week ending December 4th:												Peorman (Cour d'Alene), Idaho 35 .45 Cora, Nev 5 Dec. 7 Dec. 28 .45 Whiteach Union & Mealinture 30 .45 Gray Eagle, Cal 34 Nov. 28 Dec. 19 .6		
Aspen. Nov. 25. Higb. Low. Sales Price. Alamo										.\$.01	4 8.	Sales. 45,000	PENNSYLVANIA. Julia Con., Nev Martin White,	
Aspen Contact					.50	Ba	ingko	×		03	31/6 .	22 03	29,700 15,500 200	Philadelphia. Dec. 7. New Basil Con. 29 Oct. 26 Dec. 14 .2
Aspen Deep Mining Big Six											.0114	1,000 57,500	Bloomington C. & C	
Bi Metallic						audia eede	J. & Cri	pple C	00	01/2	0034	12,000 47,000		
Gold Valley Placer Diamond B00½ 18							d B Treas	ure	0	1		18,000	Edison E. Light Co\$120.50 Union Cons.	
Montie Gradultus 17									1	7 .	38,000 100 79,500	Penn. Steel		
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TO BUILDERS OF PUMPING ENGINES.—Sealed proposals, addressed to the Boston Water Board, and indorsed "Proposal for Mystic Station Pumping Engine No. 4." will be received at the office of the Boston Water Board, City Hall, Boston, Mass, until the 23d day of December, 1893, nna at that time will be publicly opened and read. The price proposed is to cover all the expenses incidental to the completion of the work in full conformity with the plans and specifications. The price proposed must be stated both in writing and in figures, and all proposals containing bids not called for in this advertisement will not be entertained. Each bid must be signed by the bidder, and accompanied by a properly certified check for one thousand dollars (81,000), payable to the city of Boston, said check to be returned to the bidder unless forfeited noder the condition berein stipulated. The amount of the security required for the fulfillment of the contract will be the sum of two thousand dollars (82,000), with sureties to be satisfactory to the Boston Water Board, and to be residents of Massachusetts. Plans may be seen, and specifications and form of contract can be obtained, at the office of the City Engineer, City Hall, Boston. THOMAS F. DOHERTY, JOHN W. LEIGHTON, WILLIAMS, M'NARY, Boston Water Board. Office of Boston Water Board. Office of Boston Water Board. Office TO BUILDERS OF PUMPING ENGINES.

SEALED PROPOSALS FOR LIGHTING THE SEALED PROPOSALS FOR LIGHTING THE City of Jackson, Miss. With Electricity. Mayor's office, Jackson, Miss. Notice is hereby given that sealed proposals will be received at the office of the City Clerk unit January 2d, 1891, for lighting the streets, alleys, parks and public buildings of the City of Jackson with electricity, for a term of five years from March 1st, 1894, in accordance with the pians and specifications on file in said Clerk's office. Also proposals will be received from each bidder of the cost price at which the plant put up according to said specifications may be purchased by the city. The Board reserves the right to reject any and all bids. L. F. CHILES, Mayor.

U. S. ENGINEER OFFICE, 587 CONGRESS Street, Portland, Me.—Sealed proposals for dredging in Back Cove, Portland Harbor, Maine, will be received at this office until December 29th, 1893, and then publicly opened. Specifications, blank forms and all available information will be furnished on application to this office. PETER C. HAINS, Lieut.-Colonel of Engineers.

OFFICE OF STATE WAGON ROAD COMMISsioners, State of Idabo, Boise City.—Notice is hereby given that the State Wagon Road Commission of Idabo will, on the 25th day of December, 1883, at their office in the State capitol, let to the lowest responsible bidder, contracts for the building and construction of that portion of the State wagon road and bridges which runs through the countles of Lemhi, Custer, Boise, Idabo, Shoshone, Kootenai, Latah and Nez Perce. Sealed bids will be received for the construction of the entire road in each county, or for sections thereof, as divided by the surveyors and Board of Commissioners. For particulars concerning the road to be constructed in Lemhi county apply to J. W. Birdseye, Salmon City; in Custer County, N. J. Sharp, Challis; in Boise County, J. H. Ireton, Marsh; in Idabo County, D. H. Telcher, Grangeville; in Shosnone country, G.W. Craddock, Wallace; in Kootenia County, J. R. Sanburn. Cour d'Alene City; in Latah County, B. F. Cone, Moscow. All bids must be accompanied by bonds in double the amount bid, and signed by at least two sureties to be approved by the Commission. All bias must be filed with the Secretary of the Boaid of Commissioners, at Bolse City, one day pilor to the day named for said letting. The right to reject any and all bids is hereby reserved. State Wagon Road Commission of Idabo, by N. J. SHARP, Preside nt. OFFICE OF STATE WAGON ROAD COMMIS-

BRIDGE. — BUDAPESI, AUSTRO-HUNgary — A bridge of a total length of 312 meters and another of 332 meters will be executed on the Danube at
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The Hungaran minister of commerce reserves the
right of buying any of the not rewarded projects for
\$1,013 If one of the winners should be commissioned
to execute the work upon the basis of his tender the
prize allotted will not be paid. The projects provided
with device and sealed letter containing the device are
to be presented to the manager of the bureaux of the
flungarian royal ministry of commerce (Eduapest,
Lanczhid, ulcza) latest the 31 January, 1894, toward receipt. The terms to which the surroundings of the
bridges and the plans and longitudinal section of every
bridge are subjoined can be obtained at every consulate general of Austria-Hungary. BRIDGE. -- BUDAPEST, AUSTRO-HUN

WATER WORKS—Proposals will be received at the Mayor's office in Cadiz. Harrison county, O., unti January 2d, A. D. 1894, for plans and specifications, complete, of the best and most modern system of waterworks, with estimated cost of complete construction, to be constructed and erected in said village (population, 1716), if approved and accepted by Council of said village, at a cost not exceeding \$35,000.

The Council of said village hereby reserve the right to reject any and all proposals of plans and specifications, or any paris or parts of any plan and specification presented or proposed as aforesaid.

JAMES MOORE, Mayor.

GRADUATION.-Sonora & Sinaloa Irrigation GKADUATION,—Sonora & Shaloa Irrigation Company, 58 William street, New York.—Proposals will be received at this office until December 20th, 1893, for the graduation of 20 miles, moreor less, of the Yaqui Canni, on the south side of the Yaqui River, in Sonora, Mexico. Form of contract and specifications and tull information concerning the nature of the work can be obtained at this office. Due notice will be given to bidders of time and place of opening proposals and awarding contract. E. S. NETTLETON, Chief Engineer.

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HORN SILVER MINING COMPANY OF

ORN SILVER MINING COMPANY OF UTAH.

56 BROADWAY, New York, December 11th, 1893.

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Tho transfer books will close at three o'clock P. M. December 15th and reopen at ten o'clock December 26th, 1893.

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