

ENGINEERING and MINING JOURNAL.

VOL. XXX., No. 15.

RICHARD P. ROTHWELL, C.E., M.E., } Editors.
 ROSSITER W. RAYMOND, Ph.D., }
 WILLIAM H. WAHL, Ph.D., Department of Progress in Science and the Arts.

NOTE.—Communications relative to the editorial management should be addressed to RICHARD P. ROTHWELL, P.O. Box 4404, New York.

Communications for Mr. RAYMOND should be addressed to ROSSITER W. RAYMOND, P.O. Box 1465, New York. Articles written by Mr. RAYMOND will be signed thus *; and only for articles so signed is he responsible.

SUBSCRIPTION PRICE, including postage, for the United States and Canada, \$4 per annum; \$2.25 for six months; all other countries, including postage, \$5.00 = 20s. = 25 francs = 20 marks. All payments must be made in advance.

REMITTANCES should always be made by Post-Office Orders or Bank Drafts on New York, made payable to THE SCIENTIFIC PUBLISHING COMPANY.

THE SCIENTIFIC PUBLISHING CO., PUBLISHERS,
 27 Park Place, New York.

CONTENTS.

EDITORIALS :	PAGE.	PAGE.	
Chrysolite Affairs.....	233	Classifying Minerals.....	238
New Publications.....	233	GENERAL MINING NEWS :	
The American Tin Market.....	234	Arizona.....	238
The Stetefeldt vs. the Howell Furnace.....	234	California.....	238
Wood River and Salmon River, Idaho		Colorado.....	238
—Ringham, Parley's Park, Cotton-		Idaho.....	239
wood, Silver Reef, and Frisco, Utah.....	235	Montana.....	240
Maine Mining News.....	235	Nevada.....	240
The Employers' Liability Act.....	235	Utah.....	240
Recent Improvements in the Desilver-		PROPOSALS AND SALES.....	240
ization of Lead at Lautenthal, Ger-		FINANCIAL :	
many.....	236	Gold and Silver Stocks.....	241
Treatment of Gold Ores—New Process.....	237	Copper Stocks.....	244
Amber Mining in Seland.....	237	Coal Stocks.....	244
PROGRESS IN SCIENCE AND THE ARTS :		Miscellaneous Stocks and Quotations.....	245
Steel for Boilers.....	237	BULLION MARKET.....	245
Technical Brevities.....	237	METALS.....	246
NOTES :		IRON MARKET REVIEW.....	246
Newfoundland.....	238	COAL TRADE REVIEW.....	247
The Gold and Diamond Fields of		STATISTICS OF COAL PRODUCTION.....	248
Brazil.....	238	FREIGHTS.....	248

THE sudden death on the 1st inst., at Mornax, France, of Mr. WILLIAM H. MEEKER, is announced by telegraph. Mr. MEEKER was one of the best known and most successful of our coal merchants, and though a young man, had already become one of our largest coal operators and a very important power in the trade. He was an extremely pleasant and popular gentleman, and the announcement of his sudden death will be received with sincere regret by all those who had social or business relations with him.

ONE of the most profitable mines that has yet come to the New York market is the Homestake of the Black Hills, Dakota, although the ore yields, gross, only between six and seven dollars per ton, though worked up to 85 per cent of its assay value, and the lowest wages paid are \$3.50 per day, while wood costs \$3 to \$4 per cord, and water, which is very scarce, costs \$500 a month. Yet with these and other equally large items entering into the cost of production in proportion, the cost of mining and milling is but little over \$2 per ton. The secret of the success of the Homestake is in the enormous amount of ore treated daily—at the present time nearly 900 tons—and the immense thickness of the ore-body. These are advantages which are too often overlooked or ignored by investors who, blinded by the glitter of "big assays," forget that "high-grade" ore is always scarce and extremely variable in both quantity and quality; that it is expensive to mine, since it occurs only in small veins or streaks in the veins, and expensive to mill, since only a small quantity is treated daily.

Low-grade ores are far more uniform in quality, and occur in infinitely larger quantities than rich ores, while the large amount which can be mined and milled daily reduces the cost per ton, and leaves if not always a larger, yet usually a far more certain profit.

As a general proposition, it will be found that a mine yielding five dollars a ton net profit from a ten-dollar ore is a safer and better investment than one yielding \$15 profit on a \$50-ore, or than one yielding \$50 profit on a \$150-ore.

THE present condition of the mining market is decidedly "dull and depressed," owing chiefly to the temporary collapse of some of the Leadville mines, brought about for the most part by the tricks of a stock-manipulating management, which, in order to run the stock up, forced the output beyond the limit which the development of the mines justified, and then used this temporary exhaustion, coupled with debts of a doubtfully legal origin, to depress the stocks for the benefit of the manipulators. Investors have suffered so severely in several prominent

mines that the public is apt to overlook the magnificent returns made by many which have been managed in a more business-like manner. Ontario, which was put on this market nearly three years ago at \$20, has since declared about \$30 a share in dividends, and is now selling at \$30. The Homestake, which was called less than two years ago at about \$21 per share, has since paid \$6.30 per share, and is now worth from \$33 to \$34 per share. The Standard, which has declared nearly \$21 a share in dividends, \$12 of which has been paid within a year and a half, sold here less than two years ago at \$20, and now sells at about \$29 per share.

These and some other less important mines show what may be realized in prudent investments, and must inspire confidence in fissure-vein mines which are worked in a legitimate manner, and are not "gouged" to make a "boom" and let the manipulators out, and thus give them an opportunity to make again by frightening the stockholders into slaughtering their stock. Carefully-selected and prudently-managed mining property is the safest and most profitable investment capital can find, and the heavy losses which from time to time frighten capital from this industry are almost invariably due to such recklessness in making investments as would bring ruin in any other industry, or to dishonesty in management, which is also an avoidable cause of disaster.

CHRYSLITE AFFAIRS.

Attempts are made to alarm the stockholders of the Chrysolite Mining Company, as if the present condition of its affairs were specially discouraging. We have seen a totally unfounded and erroneous dispatch from a malicious and unscrupulous source, declaring that the mine was to be gutted and "caved." The object of these stories is to frighten the holders of stock, break the market, and buy the control of the company.

These attempts ought to fail. The new management of the company has paid off, from the earnings of the mine since August 1st, the immense debt of nearly four hundred thousand dollars; has redeemed the property for the stockholders; has put in charge an honest and skillful superintendent; and has demonstrated that the mine is not exhausted of ore. The latest news previous to the fire was encouraging in every respect. That event will apparently cause only a few days' delay; and the management can then resume the policy of prospecting in advance of extraction (adopted as soon as the debt was paid), which will enable it to report before long something more definite as to the ore-reserves.

What stockholders should do is not to sacrifice their stock, but to stand by the management, and prevent speculators from getting control of the company. The following card will explain what we mean:

Stockholders of the Chrysolite Silver Mining Company are invited to send their proxies to ABRAM S. HEWITT, 17 Burling Slip; WALTER S. GURNEE, 35 Nassau street; DANIEL S. APPLETON, 1 Bond street; THOMAS C. PLATT, 84 Broadway; H. A. V. POST, 34½ Pine street; JAMES H. BANKER, Drexel Building; or R. W. RAYMOND, 17 Burling Slip. The stockholders' meeting for the election of Trustees will be held on Wednesday, November 3d, and the books of the company will be closed for five days preceding the election.

We call attention to this matter early, that the stockholders of the Chrysolite Company may be fully warned, and see to it in time that their stock is properly recorded, and that the authority to represent it is in proper hands. The gentlemen named above mean business. They already represent a very large proportion—how large we do not know, but not far, we judge, from a majority—of the stock. Certainly they represent a majority of the investment stock, as distinguished from the portion which is kicked about on the street, changing possessors daily. They ought to be retained in control by a vote so overwhelming that speculators, "shorts," secret-intelligence men, and confidence operators generally shall find it wise to let Chrysolite alone hereafter.

NEW PUBLICATIONS.

AMERICAN HEALTH PRIMERS. SCHOOL AND INDUSTRIAL HYGIENE. By D. F. LINCOLN, M.D., Chairman Department of Health, Social Science Association, Philadelphia; Presley Blakiston. 1880. Square 12mo, 152 pages. (Index.) Price, 50 cents.

The First Part of Dr. LINCOLN'S wise little book is given to School Hygiene, and occupies about one hundred pages, divided into fourteen chapters, short but closely thought out. Culture or development is assumed to be the proper aim of life, and culture is to come from power and self-control. "It is preposterous," the author says, "to educate all children in all branches of knowledge. We are already trying to do too much in that direction; but it is equally preposterous to omit from culture the development of physical endurance, moral soundness, and a good practical judgment. In the case of myriads of poor children, who leave school at the ages of ten or twelve, the opportunities for doing this are indeed limited; but the state should never lose from mind the object of training these children up to men and women." Those whose education is superior and protracted have full opportunity for developing power and self-control. "How do we give a young man power to fight his way in the world? We put him into a school which teaches only the brain, and only a corner of that. When he is thirty years old, he will assuredly not

be groaning that his tutors gave him but too imperfect an acquaintance with the Greek lyrics; he will probably be wondering (if an American) whether it pays to know all that; and at forty, he will have discovered that the one thing which *does* pay in this life is life itself; that vital force and endurance and a good digestion are what are needed, as much as any thing from books, to insure success in life." Self-control is quite as much a moral as an intellectual element. While taught to control his hand in writing, his voice in speaking, his organ of language in literary composition, the boy is not so taught in regard to his affections, emotions, and passions; "nor is he shown how a want of self-control, whether in the form of caprice, indolence, good-nature, affection, or ambition, or even when veiled under the aspect of duty, may take away half of the value of his talents and knowledge." These statements are expanded and illustrated in the following chapters, the titles of which are, Emotional and Mental Strain, Food and Sleep, Bodily Growth, Amount of Study, Exercise, Care of the Eyes, School-Desks and Seats, A Model School-Room, Ventilation and Heating, Site, Drainage, etc., Private Schools, Colleges, Contagious Disease. In his closing paragraph under Colleges, Dr. LINCOLN says: "The public have been recently excited at the fatal epidemic at Princeton College. There is nothing at all new in such an event; and if instructive, it is so only in one point, namely, that filth generates disease in seminaries of learning as readily as in New York tenement-houses."

The second part of this sermon of one hundred and fifty pages on Juvenal's text, "A sound mind in a healthy body," is devoted to Industrial Hygiene. The chapters treat of Injurious Effects of Inhaling Dusty and Poisonous Substances, Injuries from Atmospheric Changes, Injuries from Over-Use of Certain Organs, Injuries from Accidents, Regulation of Hours of Labor, Duration of Life in Various Occupations. Under these respective heads, the author has grouped a great number of important facts; and in this Part, as in the First, has given, wherever it was possible, a safeguard against every danger, and a remedy for every evil. We quote the following paragraphs, pertinent to the specialties of the ENGINEERING AND MINING JOURNAL, from the chapter on Injuries from Atmospheric Changes:

"MINERS.—The health of a miner is exposed to special causes of injury. In addition to the danger of being blown up, or knocked down by falling stones, he is constantly at work in the presence of great masses of minerals which generate noxious gases—not to mention the effluvia which arise from his own person, the flame of his candle, and the burning of powder. To this is added, in many cases, an excessive heat, often a steaming, sultry heat, or else a continual cloud of dust proceeding from the coal or rock under the blows of his pick. And if we further consider the confined position in which he often works, the excessive exertion, the exposure to draught, and the total deprivation of sunlight, we shall be ready to admit that his life is an unnatural one, and full of singular risk.

"But man can adapt himself to almost any thing. With proper precautions, it is said that the life of a miner is almost as safe, and his health quite as good, as those of other classes in general; better, in fact, than those of his own family. If this be so, it is certainly a great triumph of the hygienic art.

"The precautions to be taken relate first and foremost to ventilation. "Fire-damp" is a name given to light carbureted hydrogen, which is given off abundantly in the carboniferous strata, and in enormous quantities from the Pennsylvania gas-wells. In the English coal mines, it is much more abundant than it is at present with us. When mixed with seven or eight times its own volume of common air, it is highly explosive. After an explosion, the passages are filled with the irrespirable mixture of nitrogen, carbonic acid, and the vapor of water, resulting from its combustion.

"Choke-damp," or "black-damp," is a name for carbonic acid, a common product of most combustions, and of respiration. It abounds in badly-ventilated mines. Nitrogen is not a poison by itself. Carbonic oxide, however, is one of the most dangerous of poisons, and so is sulphureted hydrogen, when present in any considerable quantity. Both the latter are called "white-damp."

"The heated flue, as a means of exhausting air from mines, has obvious dangers in coal mines; and its special disadvantage lies in the variations which different atmospheric conditions produce in its working.

"The steam-fan, driven by a small engine, may be used either for drawing air from the mouth of a mine or for forcing it through tubes to the places where it is most needed. It is altogether the best means of ventilating mines.

"Another reason for supplying abundance of fresh air to mines is furnished by the great heat which is found underground. In the Cornish mines, the temperature is said to increase regularly about one degree Fahrenheit in every fifty feet in the upper parts, and one in every eighty-five feet in the lower parts; and this is, with local exceptions, nearly the rate at which the temperature rises in other mines. Some of the exceptions, however, are very remarkable. The deep levels of the mines on the Comstock lode in Nevada have temperatures varying from 105° to 130° Fahr.; and this excessive heat is mitigated by blowing upon the men fresh air at 90° or 95°, which seems to be most conducive to comfort. The men, under these circumstances, work with great vigor, but have to be frequently relieved.

"This great heat is said to be very productive of heart-disease. There is no doubt that this effect is intensified by excessive barometric pressure and by dampness of the air, preventing evaporation from the body. It is affirmed that the system in use at the Comstock is so thorough as to do away with most of the danger from all of these sources.

"To spare the men a needless and wasteful expenditure of bodily force, it has been found best to use cages worked by engines, to raise and lower those who are going to and from work.

"The excessive quantity of coal-dust which chokes the air of badly-ventilated mines has been previously alluded to as affecting the lungs. But there are other causes of pulmonary trouble, quite obvious in their nature, such as sudden changes from heat to cold, and deliberately sitting down in draughts to cool off after working in the high temperatures mentioned. On the whole, the principal diseases are miners' asthma, consumption, and rheumatism, and, among those who have worked long in badly-ventilated places, dyspepsia, tremors, vertigo, and other troubles arising from blood-poisoning.

"As regards accidents, they are due to a great many various causes; but more than one half of them, in the Pennsylvania coal mines, are caused by falls of rock, coal, or slate. It is the opinion of good judges that a very large number of these casualties could be avoided by sufficient timbering of the roofs and sides. One and a quarter in every hundred, or 12½ men in every 1000, employed in these mines, are killed or wounded every year by accidents, and it seems that

here is a distinct and obvious field for a humane reform, either by legislation or private effort."

Apart from the self-restraint which the author has imposed on himself in the treatment of a theme of which he is full, there is throughout the work a remarkably moderate, conservative tone, combined with a disposition to accept what is good from any source, that impels us again to characterize this as a wise little book. The typographical appearance is remarkably neat, the paper excellent, and the Index is preceded by a short bibliography.

THE AMERICAN TIN MARKET.

Mr. EDWARD P. WHITE furnished last week an advance copy of his circular on the position of tin in this country. At that time, we published in our regular review of the trade the statistics. The following, bearing date Oct. 1st, are his comments on the situation:

"Since the publication of my last circular (July 1st), our deliveries of tin, for consumption and export, say 3200 tons, have been replaced by new arrivals of all kinds to the extent of only 1835 tons, about one half; consequently our available stocks on the spot, in all hands, are at present reduced to somewhat over one month's consumption, with about an equal quantity afloat by steamers due October and November, and the balance by sailing vessels, due between the end of November and the beginning of January, 1881.

"High prices in the Eastern producing countries and the increasing demand for export to China from Penang, have prevented our importers, during the last three months, from adequately providing for our wants. Under these circumstances, our market has, of late, maintained itself with but slight fluctuations in spite of the heavy drop and constant variations in London quotations."

"During July, the price of Straits tin gradually advanced from 18½¢. in the early part of the month to 21½¢. at the close, falling during August to 20c., recovering slightly during the early part of September, when, owing to the heavy break in London, prices receded to 19½¢. Since then, a further improvement has to be reported, and we close to-day very strong, spot Straits being firmly held at 19¾ to 20c.

"The question now arises, Have our importers and dealers acted wisely, may they not have been over-cautious in not supplying this market in accordance with its necessities? We find that during the last three months hardly any Australian tin has been secured for this side; of Billiton, since February sale, only 30 tons have been shipped to this port; and our arrivals of Cornish tin, since July 1st, have been only about 50 tons.

"The only explanation we can offer is, that many of our operators hoped, during the depression in London, to secure there a large line of tin at such low prices that they could better afford to pay the differential duty of 10 per cent than to go on competing with the Chinese buyers in the Eastern markets. Unfortunately for this market, the depression in Great Britain was but of very short duration; besides, at the lowest point very little was actually obtainable, and prices have since then recovered 46 per ton, thus preventing importation, except at a considerable loss on our present quotations.

"Thus valuable time was lost; for, while our dealers were watching the London market, for the purpose of securing a considerable quantity, they naturally abstained from sending their orders to the East Indies; hence the small shipments advised during the month just passed—only 450 tons, against 800 tons in July, and 875 tons in August.

"The question now arises, How, under these circumstances, shall we be able to provide for our consumption from now until the end of the year? during which period we shall require at least 3000 tons. To our knowledge, about one half of our stock on the spot is in strong hands, and not available except at prices far above present quotations, and of the floating quantities fully two-thirds are in a similar position.

"By preparing our friends on all sides for what may happen, they may avoid repeating the mistake made about October, 1879, namely, to enter the European markets with a rush, and by that means injure their own interests by forcing prices over the legitimate value of the article."

THE STETEFELDT VS. THE HOWELL FURNACE.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: The pamphlet of Mr. Stetefeldt on the subject of "the Stetefeldt Furnace and the Howell Furnace Compared," and also the review of the same by Dr. Raymond in your issue of August 21st, and Mr. Stetefeldt's reply to Mr. Riette in your issue of October 2d, I have read with much interest. I fully indorse the concluding remarks of Dr. Raymond, "that Mr. Stetefeldt seems to us to have made out a strong case;" and also I fully indorse Mr. Riette in your issue of September 4th, when he says, "The author, Mr. C. A. Stetefeldt," is "a gentleman of most profound attainments, and one who has done more for the advancement of silver metallurgy than any other;" also, "that the Stetefeldt can be built good and strong for less than the Howell equally good and strong;" and also when he says "that the Stetefeldt will do more work, better and cheaper, and with less loss of silver, than the Howell." To those who know Mr. Stetefeldt, and who understand the principle on which the Stetefeldt furnace is constructed and its mode of operation, the above quotations from Mr. Riette are simply self-evident conclusions; but in the criticism of Mr. Riette I can see no force or justice. I can not see any indelicacy in any one giving information on any subject of which he has made a study, simply because "his make" happens to be involved in the discussion. All business is based on letting people know you have something to sell, and if, fortunately, your goods are superior, you confer a favor by stating the fact. Intelligent persons prefer to receive information from those who know the most on the subject they wish to learn about. Neither can I see in what respect "Mr. Stetefeldt has lost a splendid opportunity."

So far as the tests of the two furnaces go, the Stetefeldt is shown to have saved the most silver; and if it is admitted, as it must be, that the Stetefeldt chloridizes the ore as perfectly as it can be, and is shown also to save the most silver (or an equal amount), every thing else must be simply granted as being in favor of the Stetefeldt furnace. The Stetefeldt is the most simple in construction, and also the most durable. It can be operated at the least expense, and the manner in which the ore is submitted to the oxidizing flame is perfect. Perhaps the difficulty in the way of the general adoption of the Stetefeldt furnace is in the fact that it is one of those inventions which is so simple and so perfect that many people have not yet learned to appreciate its merits.

S. R. KROM.

WOOD RIVER AND SALMON RIVER, IDAHO—BINGHAM, PARLEY'S PARK, COTTONWOOD, SILVER REEF, AND FRISCO, UTAH.

Special Correspondence of the Engineering and Mining Journal.

It has been the general experience of miners in Idaho, that the veins pinch out within fifty feet of the surface, and hence when mineral was discovered on Wood River, a year ago, it was regarded with misgivings. The Wood River Company, however, has driven down on its Bullion mine to a depth of over 100 feet in a three-foot seam of ore. The first car-load of this ore sent here carried 200 ounces of silver and 65 per cent lead. It is galena and black sulphurets, picked specimens of the latter assaying as high as 11,000 ounces. Another car-load of 500-ounce ore will reach this market next week; and during the present fall, six more car-loads will be shipped. The Idahoan and the Mayflower, both of which are nearly as far developed as the Bullion, have each shipped a car-load (ten tons) of ore. On the whole, I think another winter's work will demonstrate the permanency of the Wood River mines, and place that camp among the live mining districts of the West.

SALMON RIVER.

Last week, Colvin & Viar, owners of the Summit mine, at Bonanza, shipped to New York three bars of bullion—gold and silver—valued at \$3800. This was the result of a two weeks' run in an arrastra at the mine.

BINGHAM.

In the west drift of the Queen mine, yesterday, a bunch of about three tons of very rich ore was struck, carrying ruby silver. As work progresses, the mine improves, and the manager here expresses himself confident of having one of the biggest mines in the country. Work on the Lucky Boy continues. The Florence & Prince of Wales, one of the best-looking mines in Bingham, is driving forward the tunnel on the ore-seam, which increases in strength and richness as depth is attained. The Live Pine will make its first shipment this week, and the property is in shape to continue a regular output of ore. The Tiewaukee this week has thrown upon the market over 300 tons of \$100-ore. Developments show constant improvement. The Jobb Lawrence Company yesterday bought in a small outstanding interest in its Lead mine, so that it now owns the entire property. The shaft, now down 180 feet, has penetrated an ore-body 140 feet thick. Steam hoisting-works have been ordered, and the shaft is to be sunk to a depth of 400 feet. This is the largest lead ore deposit now known to exist in Bingham. Ore-shipments from the camp hold up well.

PARLEY'S PARK.

It is now certain that the trouble between the Ontario Company and Marshal Shaughnessy is settled. The mine is keeping up its large ore-reserves, and putting out its regular amount. Of the several hundred men at the mine, only twenty-three are at work taking out ore. Work on all the other properties of the camp goes forward vigorously. At the Lowell, every thing is nearly ready to receive the new machinery.

COTTONWOOD.

The new shaft in the Emma is driving down rapidly, and Dame Rumor reports a strike in the bottom, but the superintendent is non-committal. In the Virginia consolidated, organized on the Flagstaff and other properties adjoining it, there is some "hitch;" but it is believed the consolidation will be completed. Ore-shipments from this district are increasing slowly.

SILVER REEF.

The mines of this district during the month of September produced \$97,712.60, which is just about its regular run. Developments are driven forward in all of the principal mines, and the ore-reserves in the Christy's properties are increasing. The Kinner, the sale of which to the Stormont finally fell through, has been started up anew by Col. E. A. Wall, its owner.

FRISCO.

The Horn-Silver, realizing the importance of increasing the brilliant output, is shortly to begin shipping ore to this market for reduction. There is considerable activity in other mining properties of this district. SALT LAKE CITY, UTAH, Oct. 1.

YOSEMITE.

MAINE MINING NEWS.

Special Correspondence of the Engineering and Mining Journal.

The Granger cross-cut is making a good start for the locality of the vein. The hoisting-engine works well. The buildings will soon be completed.

The Blue Hill incline has been timbered up in fine shape the past week. It is in two compartments—a ladder-way, 4½ by 6 feet, and a hoist-way, 6 feet square. The timbering is thoroughly packed with clay on the outside. After some important changes in shaft-houses, etc., work underground will be resumed, and pushed with Captain Moyle's usual energy. A Bryer drill has been added to the equipment of the mine, so that, in case of accident to one of the Burleighs, there may be no delay in the work.

The Excelsior has a shaft-house up and nearly covered, and whim in operation.

The Douglass is working its usual force night and day, and taking out a large quantity of ore. The mill is not running at present. A lever of the crusher was broken over a week ago, which made a stop of a few days necessary; and it is now understood that the company declines to accept the machinery, as it does not come up to the capacity specified in the contract (100 tons per day). It is to be hoped that some settlement may be made, so that any long delay may be avoided.

BLUE HILL, ME., Oct. 5.

DIRIGO.

There is a steady increase in the number of mines regularly worked. The Hercules, formerly known as the Dunbar property, is on the western side of the Bagaduce River, in the southern part of the town of Penobscot, near the line between that town and Castine. The portion of the vein owned by the Hercules Company lies under tide-water, and the com-

pany is building a coffer-dam to keep out the water, and will begin to sink a shaft as soon as the dam is completed. The ore shown while building the dam has caused surprise that such rich ore should be found on the very surface. It is principally a mixture of the sulphides of lead, zinc, iron, copper, and silver.

The Custer, with a shaft down about 15 feet, and the Custer Extension, with a shaft down 30 feet, show very fine copper ore, containing sulphide, oxide, and carbonate of copper.

The Milton is still drifting in shaft No. 2 and sinking in No. 1. The saw-mill is in good running order, and is quite an addition to the place; the dryness of the past season has made sawed lumber quite scarce.

At the Waukeag, every thing is progressing favorably. Fine ore comes from the level; a winze is sinking on the vein.

At the Salem-Sullivan, the shaft-house is completed and sinking resumed.

The Golden Circle work on the drift in the old shaft continues to show good ore, and a new shaft is starting. At the Blue Hill, fine ore continues to pour out of shaft No. 1. The Twin Lead continues to take out fine ore.

At the Egypt, the shaft-house is completed, and the timbering of the shaft is well under way. They have also put in a new pump.

At the Gouldsboro', the pay-streak in the vein is widening and the quality is slowly improving. The building for the mill is completed and the machinery is on the ground, and setting up as fast as possible.

ELLSWORTH, ME., Oct. 5.

DOUGLASS.

THE EMPLOYERS' LIABILITY ACT.

By the provisions of this act, the workman, or, in case the injury results in death, the legal personal representatives of the workman, and any person entitled in case of death, shall have the same right of compensation and remedies against the employer as if the workman had not been a workman of the employer, nor in his service, nor engaged in his work. The right of compensation and remedies against the employer may be exercised where personal injury is caused to a workman—(1) by reason of any defect in the condition of the ways, works, machinery, or plant connected with or used in the business of the employer; or (2) by reason of the negligence of any person in the service of the employer, who has superintendence intrusted to him while in the exercise of such superintendence; or (3) by reason of the negligence of any person in the service of the employer, to whose orders or directions the workman at the time of the injury was bound to conform, and did conform, where such injury resulted from his having so conformed; or (4) by reason of the act or omission of any person in the service of the employer, done or made in obedience to the rules or by-laws of the employer, or in obedience to particular instructions given by any person delegated with the authority of the employer in that behalf; or (5) by reason of the negligence of any person in the service of the employer, who has the charge or control of any signal, points, locomotive, engine, or train upon a railway.

A workman shall not be entitled to any right of compensation or remedy against the employer unless the defect mentioned in (1) arose from or had not been discovered or remedied owing to the negligence of the employer, or of some person in the service of the employer, intrusted by him with the duty of seeing that the ways, works, etc., were in proper condition; or unless the injury resulted from some impropriety or defect in the rules, etc., mentioned in (4), provided that where a rule or by-law has been approved or has been accepted as a proper rule or by-law by one of her majesty's principal secretaries of state or by the Board of Trade, or any other department of the government, under any act of Parliament, it shall not be deemed to be an improper or defective rule or by-law; or unless, in case the workman knew of the defect or negligence which caused his injury, he should within a reasonable time give, or cause to be given, information to the employer or some person superior to himself in the service of the employer, unless the workman was aware that the employer or superior already knew of the defect or negligence.

The amount recoverable shall not exceed a sum equivalent to the estimated earnings, during the three years preceding the injury, of a person in the same grade employed during those years in the like employment in the district in which the workman is employed at the time of the injury.

Action for compensation shall not be maintainable unless notice of injury is given within six weeks, and action commenced within six months from the occurrence of the accident, or, in case of death, within twelve months from the time of death; but the want of notice shall be no bar to the maintenance of action, if the judge be of opinion that there was reasonable excuse.

From any compensation awarded under this act, there shall be deducted any penalty which may have been paid in pursuance of any other act of Parliament to such workman; and where an action has been brought under this act by any workman for compensation, and payment has not been previously made of any penalty under any other act of Parliament, in respect of the same cause of action, such workman shall not be entitled to receive any penalty under any other act of Parliament.

Action for recovery of compensation is to be brought in a county court; and upon trial in a county court before the judge without a jury, one or more assessors may be appointed to ascertain the amount of compensation.

Notice of injury shall give the name and address of the person injured, and shall state in ordinary language the cause of the injury, and the date at which it was sustained, and shall be served on the employer at his residence or his place of business, or by post by a registered letter; where the employer is a body of persons corporate or unincorporate, the notice may be served by delivery or by post in a registered letter addressed to the office or offices of such body. A notice shall not be deemed invalid by reason of any defect or inaccuracy, unless the judge is of the opinion that the defendant is prejudiced in his defense thereby, and that the defect was for the purpose of misleading.

"Person who has superintendence intrusted to him" means a person whose sole or principal duty is that of superintendence, or who is not ordinarily engaged in manual labor. "Employer" includes a body of per-

sons corporate or incorporate. "Workman" means a railway servant, and any person to whom the Employers and Workmen Act, 1875, applies. The act is not to come into operation until January 1st, 1881. The act may be cited as the Employers' Liability Act, 1880, and shall continue in force until December 31st, 1887.

RECENT IMPROVEMENTS "IN THE DESILVERIZATION OF LEAD AT LAUTENTHAL, GERMANY.

Written for the Engineering and Mining Journal by C. Kirchhoff, Jr., M.E.

The argentiferous lead smelted in the various smelting-works of the Hartz, from ores mined in that region and imported from abroad, is desilverized at the Lautenthal establishment. Under the close surveillance of trained and able officers, the Lautenthal works have, in a measure, become a model. Although circumstances have led to the development of processes differing considerably from those which have gained almost general acceptance in this country, a brief account of the latest improvements adopted at the works mentioned is worthy of some attention from American metallurgists. The direction which progress has taken there may be cited as an instance of the growing appreciation among metallurgists of methods based upon what might be termed laboratory reactions, in contrast with the older "dry" methods. Chemical reagents are narrowing down the sphere formerly occupied almost exclusively by smelting processes.

Base bullion is desilverized at Lautenthal by the Parkes process. Zinc is stirred into the molten metal in a number of portions, and the rich silver-lead-zinc alloy is skimmed off. The poor lead remaining behind is deprived of the zinc it contains by passing steam through it according to the Cordurié process, instead of refining in a reverberatory as is generally done in this country. In American works, with only one or two exceptions, the rich zinc-silver-lead alloy is distilled in plumbago retorts, metallic zinc and a rich lead being the products. The latter is cupelled, and the silver is thus obtained. At Lautenthal, the process adopted for the treatment of the rich zinc-silver-lead alloy has been a different one. It was melted in a cast-iron pot and steam was passed through it. Two products were obtained—lead comparatively free from zinc and holding much silver, and a mixture of oxides of lead and zinc and metallic lead holding silver. The latter product, the oxides, proved a very disagreeable one to handle, the best that could be done with it being to add it in the cupelling furnace in small portions at a time. The zinc was an entire loss, and moreover, was a very objectionable element in the cupelling process. There were, besides, other features connected with this steaming process which prevented its introduction elsewhere. The temperature required to melt the zinc-silver-lead alloy is an elevated one, and the process of passing steam through it is very severe on the pots in which the operation is performed. As accidents in treating a rich material should be particularly avoided, the process did not meet with much favor. While accidents have been numerous in other works where the process was tried, they do not seem to have been a serious drawback at Lautenthal, possibly because the alloy was not liquated as closely as it might have been.

Such was the status of this part of the desilverizing process at Lautenthal until, in 1878, a series of experiments was commenced with a view to improve upon it by effecting changes in its weakest part, the treatment of the oxides obtained by the steaming process. These experiments were conducted by Herr Dr. C. Schnabel, manager of the works, who has published an elaborate account in the *Zeitschrift für das Berg-, Hütten- und Salinenwesen*. According to analyses made at Clausthal by Herr Roesing, the zinc-silver-lead alloy obtained from working lead from Altenau and from Lautenthal was composed as follows:

ANALYSES OF LEAD-ZINC-SILVER ALLOY.			
Altenau.		Lautenthal.	
Pb.....	75.075	80.085 per cent Pb.	77.82
PbO.....	4.75		4.00
Zn.....	11.78	12.30 per cent Zn.	12.11
ZnO.....	0.60		0.44
Cu.....	1.12		0.82
Ag.....	1.855 (541 ounces).		2.42 (1225 ounces).
Bi ₂ O ₃	1.72		0.37
Sb ₂ O ₃	0.63		0.98
As ₂ O ₃	trace.	
Fe ₂ O ₃	1.87		1.04
Cd.....	trace.		trace.
Ni.....	trace.		trace.

It will be noticed that the percentage of silver is not very high; but as the original bullion does not average more than 40 ounces per ton (less than half of the bulk of American base bullion), this will appear less surprising. By steaming, this alloy is converted into a metallic portion and into oxides, the composition of which was found to be:

ANALYSES OF METALLIC PORTION.			
Altenau.		Lautenthal.	
Pb.....	96.3448	95.1404	
Zn.....	0.0027	0.0023	
Cu.....	0.8279	0.4645	
Ag.....	2.4100 (703 ounces).	3.6500 (1065 ounces).	
Bi.....	0.0142	0.0169	
Sb.....	0.3914	0.7201	
As.....	
Fe.....	0.0054	0.0044	
Cd.....	trace.	trace.	
Ni.....	0.0036	0.0014	

Oxides.			
Pb.....	37.845	30.065	64.205 per cent Pb.
PbO.....	32.14	36.87	
Zn.....	1.35	1.90	20.57 per cent Zn.
ZnO.....	23.37	23.24	
Cu.....	1.12	1.24	
Ag.....	1.245 (363 ounces).	1.855 (541 ounces).	
Bi ₂ O ₃	0.43	0.44	
Sb ₂ O ₃	1.06	0.57	
As ₂ O ₃	trace.	
Fe ₂ O ₃	1.44	3.82	
Cd.....	trace.	trace.	
Ni.....	trace.	trace.	

The metallic portion is cupelled, and, as has been noted above, the oxides were formerly added in small parcels during the course of the process. It will be seen that the amount of zinc in the metallic portion is small, and that the bulk of the zinc is present in the oxides as oxide of zinc accompanied with a considerable quantity of metallic lead and of

oxide of lead, both of which contain silver. Two thirds of the latter metal are in the metallic portion, and are thus directly obtainable by cupellation.

The analyses given fairly indicate the nature and fully account for the difficulty in treating the oxides. It is to a preparation of the latter that Herr Schnabel has turned his attention. In the course of a series of experiments, he found that carbonate of ammonia is a good solvent of oxide of zinc, while it does not attack any of the other constituents of the oxides with the exception of the copper. It was ascertained first that the facility with which ammonia dissolves oxide of zinc is increased by passing carbonic acid through it, and that within certain specified limits of the ratio between ammonia and carbonic acid the maximum is reached. These limits were found to lie between the proportions of 6 parts of ammonia to 6 parts of carbonic acid, and 6 parts of ammonia to 10 parts of carbonic acid, the most effective solution being that containing 7 per cent of ammonia at a temperature of 30 degrees Celsius. The solution of the double salt, carbonate of oxide of zinc and ammonia, thus obtained, was then examined in regard to its behavior when subjected to a distilling process. The results of a series of experiments were, that decomposition begins at a temperature of from 50 to 60 degrees Celsius, a sublimate of carbonate of ammonia being deposited in the neck of the retort, and finally being dissolved in the water condensed. At a boiling temperature, the solution subjected to distillation becomes turbid, and, after prolonged boiling, a white powder is deposited, the quantity of which increases as the amount of ammonia volatilized becomes greater. This powder is carbonate of zinc, the composition of which varies according to the amounts of ammonia and carbonic acid in the solution. It is converted into oxide of zinc, a pigment, by simply exposing to a moderate red heat.

These reactions afforded the means not only of extracting the oxide of zinc from the rich oxides, thus rendering them very suitable for subsequent treatment, but they made it possible to recover the bulk of the solvent and also the zinc in a marketable shape. The carbonate of zinc, of course, retains a portion of the carbonic acid of the solution, and this must be replaced by passing a fresh supply into it. The solvent also acts upon the copper contained in the rich oxides, and, unless removed before the distilling process, would discolor the oxide of zinc and render it unfit for use. It is therefore necessary to precipitate it by adding metallic zinc; and as the latter would be uselessly dissolved unless the solution is saturated with zinc, the requisite amount of carbonate of zinc is added to the solution before precipitation.

The process is carried out at Lautenthal in the following manner: The dissolving apparatus is a horizontal wrought-iron boiler provided with the necessary appliances for charging and discharging the oxides, for the addition of ammonia, air, water, and carbonic acid, and for sampling. As a continual agitation of the oxides during the dissolving process is of prime importance, a stirring apparatus driven by power is provided. Great care is taken to prevent losses of ammonia by a suitable construction of the accessories of the dissolving-cylinder, the size of which is such that from 20 to 25 cwts. of oxides may be treated in it. This is accomplished in twelve hours, and the end is indicated by the ease with which the residue melts. The solution is separated from the residual oxides of lead by filtration and subsequent washing with steam pressure, a process lasting five or six hours, and completed without loss of ammonia and undue dilution of the liquors by means of peculiarly constructed apparatus. The next step is the precipitation of the copper which is confined to the first portion of the liquor extracted, the subsequent washings being returned to the dissolving-tank, because they are too dilute to render precipitation sufficiently rapid. The precipitation is aided by agitation, and the copper settles firmly upon the slabs of zinc used for the purpose. The process requires six hours, its end being indicated by the fact that the precipitate obtained in a sample by sulphide of ammonium is a pure white. The purified solution flows to the distilling apparatus, which is heated by steam of five atmospheres, conducted to the bottom of the vertical sheet-iron vessel. The distilled gases first pass through a vessel in which a temperature of from 55 to 70 degrees Celsius is maintained by water surrounding it. In it the bulk of the steam passing over with the ammonia and carbonic acid is condensed, while the latter pass to two condensers in succession, and then through three Wouff bottles filled with sulphuric acid. Condensation is effected by passing cold water through coils in the condensers. After twenty hours, the distillation is complete. While the ammonia and carbonic acid are being expelled, carbonate of zinc is precipitated in the shape of a fine-grained powder, held in suspension by the steam passing through the solution. It is forced into a filtering apparatus, and the hot solution, which contains from .003 to .005 of ammonia, is used to feed the boilers from which it returns to the process. As the precipitation of the zinc in the form of carbonate of zinc takes a specified amount of carbonic acid from the process, it must be replaced. This is done by forcing into the condenser, during the entire process of distillation, carbonic acid generated by burning lime in a small kiln. The regenerated carbonate of ammonia solution thus obtained is used for the dissolution of fresh quantities of oxides. The losses of ammonia during the process are reported to be so small that it was possible to use the same quantity over again for half a year. Two sets of apparatus are at work at Lautenthal, requiring for each shift the labor of one foreman, one helper, and a fireman for the boiler, who at the same time attends to the kiln and to the pumps. The basic carbonate of zinc obtained is subjected to a light red heat in a reverberatory furnace fired with coke or gas from suitable gas producers. The entire production of zinc-white at Lautenthal, seven cwts. per day, requires the labor of one man for each shift.

The oxides from which the zinc has been extracted are added during the cupellation of the rich lead.

It has been noticed at Lautenthal that the loss of silver in the new process is a little less than formerly, and a further slight improvement is confidently looked for. From experiments conducted at Altenau with the Balbach distilling process, generally employed in this country, Herr Schnabel computes its cost at 2.84 marks per cwt. of alloy treated; while that of the new process, including an allowance for wear and tear of apparatus of 10 per cent, is only 2.49 marks. While the American process does not permit of recovering more than 43.8 per cent of the zinc, 98 to 99 per cent of the zinc is obtained in the new process (including yellow

color obtained in refining the poor lead by the Cordurié process). As the value of the zinc-white is equivalent to that of the metallic zinc, at least in Germany, there is, it will be seen, a considerable balance in favor of the Schnabel process.

TREATMENT OF GOLD ORES—NEW PROCESS.

A process is at present attracting some attention on the continent which may prove of importance to those interested in Indian gold mines. It is described as being based upon the employment of bichlorate of mercury in solution, to replace the metallic mercury employed formerly. The chemical reaction and the principle has, of course, been long known; but its application and the special apparatus employed form the patentable features of the invention. The bichloride of mercury alone will not touch gold, but, immediately you bring iron in contact with it, the reaction is instantaneous, with formation of chloride of iron, metallic mercury, and gold amalgam. This, it is said, is so certain and so searching in its action in a big barrel of gold ore revolving with iron balls inside, that the amalgamation of every particle of gold is complete in about twenty minutes. Then the contents of the barrel, or vat, or other vessel used as agitator, are flowed into another apparatus of an ingenious construction, with amalgamated copper plates which retain the finest grain of gold amalgam contained in the mass of ore treated. This is collected ingeniously also, and treated as all amalgams usually are. There is no loss of mercury worth mentioning, and Mr. Designolle, the patentee, engages to extract gold from any ores, even tellurium gold—which is almost unattackable by any known process—and to extract 25 per cent more gold from any of the ores now being worked by any known process. As each machine only works 10 tons of quartz in 12 hours, ores containing less than one half-ounce to the ton would hardly pay; but where the process will, it is considered, be of great advantage is in India, Australia, Brazil, or Canada, where ores hold sulphur, arsenic, etc., rendering extraction by ordinary methods difficult if not impossible.

As to the practicability of the process, Messrs. Lewis & Co., of London, who have undertaken the introduction of the invention in the countries mentioned, state that the patent right has been purchased by a firm of Paris bankers, and Prof. Fuchs, of the Paris School of Mines, reports it is the most perfect method that has yet been invented for the treatment of gold quartz. Arrangements are pending by which it is hoped that Mr. Brough Smyth, who is on the point of starting for Madras, will be able to inspect the machines and see Wynaad quartz treated shortly after his arrival in Europe. The trial of the invention on a practical scale and its further development will be duly recorded from time to time.—*London Mining Journal*.

AMBER MINING IN SAMLAND.*

By Hr. Menzel.

The only locality where amber is produced from underground works is at Palmnicken, on the Baltic coast. The stratum producing it, the so-called "blue earth," a loose sandstone of a bluish color, from included glauconite grains, when fresh, but weathering to a grayish green, is the lower member of the marine Tertiary formation of the district. The thickness varies from 8 to 28 feet, the lower part of 7 to 11½ feet alone being worked. An area of about 160 acres has been proved by shafts and levels, the depth below the surface being about 108 feet, or 46 feet below the level of the sea. The ground being easily excavated by pick and shovel, the advance of the levels is at the rate of 3½ to 7 feet in the shift of twelve hours; but for the same reason, considerable expenditure of timber is necessary to secure the sides of the workings. The levels are timbered with complete door-frame sets, at intervals of 3½ feet from center to center, the roof and sides being lined with inch planks. Great care must be exercised in securing the working faces, which, when left to themselves, even for a short time, readily give way. It is even found necessary to board up the ends of the levels on leaving them at the change of shift. The section of the levels varies with the workable thickness of the bed from 5 to 12 feet in height; the breadth is generally 4¼ feet.

The removal of the bed is effected by a kind of pillar work, the ground being divided by levels, at right angles to each other, into blocks or pillars of 5¼ feet in the side, which are then cut away either from all four sides at once, or more usually in parallel strips. As a measure of precaution, before the removal of the pillars, provision is made for closing the level, if necessary, by protecting dams formed of parallel wooden frames packed tight with straw, which are set up and strutted against the timbering in the levels, two or three pillars back from that actually in work. When the upper part of the bed falls, an overlying wet sand runs in, and would fill up the workings unless they were specially protected. Even the dams in use are often insufficient to resist the pressure, and large areas of the workings have been filled up by irruptions of sand at different times. In March, 1877, about 11 acres of ground were thrown out of work in this way; but after a time, the pressure diminishes, as the sand dries up, and the old levels may then be reopened, or new ones driven. Up to the present time, no lives have been lost, although men have at times been imprisoned in the levels by sudden runs of sand.

The ground, as broken, is loaded into tram-wagons of about 10 cwt. capacity, which are drawn up the shafts in cages by steam power, the arrangements being similar to those in an ordinary well-appointed colliery. Several small pumping engines, both above and below ground, of an aggregate of about 90 HP., are required for draining the workings. The ventilation is effected by tubes of eight inches diameter, carried from the surface into the workings through small shafts or bore-holes. These are capped by pyramidal cowls, exposed to the wind, and act as down-casts, the exhaust current escaping by the working shafts. This arrangement is rendered possible by the exposed position of the locality on the seashore, where the wind is almost constantly blowing.

The earth, as brought to the surface, is washed in a stream of water flowing through an inclined trough, after passing through a grating of bars 2¼ to 3 inches apart, the lumps being broken by hand with great

care, in order to prevent the crushing of large masses of amber if present. These are fished out of the stream by men with nets, stationed about 6 feet apart, the contents of the net, when filled, being picked over by hand, and the waste lumps of earth, after breaking up, being thrown in again. At the tail of the washer is a sieve, of 315 inch aperture; all the stuff passing goes into the sea, as, even if it contained amber, the fragments would be too small to be of any value.

Recently, new dressing arrangements, consisting essentially of twenty self-acting jiggging machines, have been erected and tried experimentally. They are so arranged that the amber is retained on the sieves, which are 118 inch aperture, the earth being washed through. They are intended to work 350 cwt. of stuff per hour. The average amount of earth raised per month is from 15,000 to 25,000 tubs (about half as many tons), yielding from 60 to 120 cwt. of large and 22 to 36 cwt. of small pieces of amber, the former including pieces ranging from 100 grains to 2½ lbs. in weight. The average value is put at 1s. 3d. per lb. for small, and 7s. 6d. per lb. for large pieces. The cost of production varies from 4s. to 6s. 6d. per lb. In the three years 1876-78, the total production from about 13 acres was 208¼ tons of large and 60½ tons of small amber, of an estimated total value of £174,350. The royalties paid to the Prussian government, amber being a crown monopoly, amounted to £44,664. The mines are worked by the firm of Stantien & Becker, who in addition produce much larger quantities of amber by dredging at Schwartzort, as well as by divers at Palmnicken and shore diggings along a great extent of the coast, the total annual royalties paid being about £30,000.

PROGRESS IN SCIENCE AND THE ARTS.

Steel for Boilers.—The failure of the steel boilers of the Russian steam yacht *Livadia* has furnished the English technical journals the text for an extended discussion of the merits and demerits of this material for the purpose named. One of the foremost of these, the *London Engineer*, has arrived at the conclusion that English experience has shown that, with the exception of the plate manufactured by two firms, which it names, steel is unfit for the purpose; and it condemns Bessemer steel *in toto* for boiler-plate, giving its preference to that made by the open-hearth process. The *American Manufacturer*, in a criticism of these conclusions, makes some interesting comparisons between English and American experience in the use of steel for boilers. Our Pittsburg contemporary expresses surprise at the condemnation of boiler-plate steel, affirming that no such condemnation could be pronounced on the same product made in this country. There are, it alleges, four firms in Pittsburg alone, making steel boiler-plate, all of whose products give "uniformly excellent" results. The same journal asserts that the steel boiler-plate trade in this country is steadily growing, to the great detriment of the makers of iron boiler-plate; and that three fourths of the marine boilers and of the locomotive fire-boxes made in and around Pittsburg are made of steel.

Technical Brevities.—A correspondent of the *Journal of Microscopy* reports that he has had excellent success in mounting organic preparations in a *preservative liquid* composed of two parts salicylic acid and one part borax, dissolved in half an ounce of glycerine, and then diluted with three parts of water. For very delicate preparations, the liquid should be diluted with more water.—*Horse leather*, it is reported, has been officially adopted as the material of which the boots issued to sailors of the German navy are in future to be made, experiments in the use of this material for the past eighteen months having been so satisfactory that calf-skin is to be abandoned.—A company has been organized for the construction of an *underground railroad* through the main artery of travel in New York City. The route contemplated by the projectors will extend from South Ferry along the eastern side of the Battery to Broadway and Bowling Green; thence up Broadway, under Union Square, to Madison Square, and through Madison avenue to the Park.—Another project of interest is the reported intention of a company of capitalists to systematize the *great excursion traffic* of New York under a responsible management, and to introduce a new and superior class of steamboats, built especially for the purpose of rendering them safe against the dangers of collision and fire, so frequent the past season.—The first annual meeting of the *American Society of Mechanical Engineers* will be held on November 4th, 1880, at the rooms of the American Society of Civil Engineers, 104 East Twentieth street, New York. This society was organized in April last "to promote the arts and sciences connected with engineering and mechanical construction." Professor Thurston, the Secretary, has issued a circular to the members, urging their full participation.—Mr. Edison has again become the subject of newspaper paragraphs in consequence of a late assertion, through the very respectable *North American Review*, that he has overcome the difficulties of detail that forced the withdrawal of his *electric lighting system* from public notice last spring.—An explosion, resulting from the *spontaneous combustion* of coal in one of the bunkers of the Anchor Line steamship *Alsatia*, lately compelled that vessel to return to port (New York).—Pasteur's theory that the *formation of vinegar* is a physiological phenomenon caused by the vegetation of a particular bacterium, *Mycoderma aceti*, has been apparently demonstrated to be correct by Herr Wurm, in experiments at the Breslau Institute of Plant Physiology. He has succeeded, according to report, in effecting the economical production of vinegar on the commercial scale, in accordance with Pasteur's views.—Perhaps no more significant illustration could be found, of the interest that is felt in scientific research, and of the activity with which scientific investigation is pushed, than in the single fact that at the late Boston meeting of the *American Association for the Advancement of Science* nearly six hundred new members were admitted.—The eccentricity which guides *savants* now and then in the selection of their work is well known. An instance in point has just been brought to our notice. Dr. George Thin is reported to have solved the moist and most unpleasant mystery of the cause of the peculiarly offensive fetid odor by which the secretion from the skin of certain people's feet is characterized. He finds it due to the development in the liquid, after secretion, of a micrococcus, which he names *Bacterium fetidum*. It is gratifying to know that the author has convinced himself that this organism and the unpleasant effects which it produces can be destroyed by the proper use of antiseptics.—The doc-

*Abstract of a paper in *Mittheilungen des Sächsischen Ingenieur- und Architekten-Vereins*, 1879, part ii., p. 137. From the minutes of the Proceedings of the Institution of Civil Engineers of London, edited by James Forrest, Secretary.

trine, first admirably elaborated by Lyell, of *Uniformity of Action* through geological epochs, was ably championed in the address of the President of the British Association for the Advancement of Science, at the recent meeting of that body.—The latest theory of our contemporary, the *Scientific American*, to account for the mysterious causes of oil tank fires by lightning, is that they may originate from electrified rain-drops. There appears to be some evidence to support the view that strong electrical effects are sometimes observed during the fall of sleet, hail, and rain, without the accompaniment of thunder or lightning; and our neighbor is of opinion that, as the development of the slightest spark in the presence of an explosive mixture of air and oil-vapor may produce the most disastrous effects, it is not impossible that some of the great oil fires may have been produced by rain.

NEWFOUNDLAND.—A correspondent of the *London Times*, writing from Halifax, says: One matter of imperial interest is apparently about to be settled in a way by which the enterprising citizens of the United States will profit. Though the resident merchants care little for mines, the mines of Newfoundland are becoming very valuable. Mr. Ellershausen, from Nova Scotia, has recently developed some copper mines, and he has, in the brief space of five years, raised Newfoundland to the rank of the sixth copper-producing country in the world. I was informed that he had disposed of his properties for a very large sum to capitalists from the United States. Lead mines have also been discovered and worked; it has been proved that there is a mine of nickel in the island. There is good reason for believing that gold and coal will yet be found here in abundance. A moderate amount of capital judiciously invested in developing the resources of the island could hardly be better employed. The exports at present are chiefly confined to fish and minerals.

THE GOLD AND DIAMOND FIELDS OF BRAZIL.—Those wonders of the gold and diamond fields of Minas Geraes, which yielded so many millions during the last century and part of the present, which "enabled an extravagant governor at Ouro Preto to shoe his horses with gold in solemn religious processions," which "enriched the reigning dynasty with £3,000,000 worth of diamonds, and set on the Portuguese and Brazilian diadems those two famous jewels, the Southern Star and the Abacete, rivaling the glories of the Koh-i-noor," are in a great measure things of the past. Hardly 1000 men are now at work in those diggings which formerly employed 80,000, and the outcome of their labor does not go for much among the items of the budget. A correspondent of the *London Times*, writing from Rio Janeiro, and our authority for the foregoing statements, says that a few foreign companies, chiefly English, have, however, taken up the abandoned shafts, and are now working the mines of Morro Velho, Pary, and other localities, from which they extract gold to the yearly amount of from £280,000 to \$300,000.

CLASSIFYING MINERALS.—The apparatus invented by Mr. W. Nance, of North Shields, consists of a series of pans of different diameters, and of any shape or size or kind of material, placed in a vertical or diagonal position, and is especially intended to separate minerals and metals from their gangue, and at the same time in the same operation to classify any number of metals or minerals of different specific gravity, which may be associated therewith. For instance, if two or more metals or minerals of different specific gravity be operated on in this apparatus, they will be separated from their gangue, and deposited in receptacles especially provided for the reception of each kind. The operation consists of a series of hydraulic currents in the said pans, to which the ores are submitted, and the said currents therein can be regulated to suit every difference of specific gravity, whereby an indefinite number of different specific gravities is obtained in one operation without manual labor, mechanical motions, or power other than a slight fall of water to produce the currents. By the use of this apparatus and method of treating ores, considerably less space is required for the mechanism and modes of operation, and a greater quantity of ore is treated in a given time than by the mechanism at present in use.—*London Mining Journal*.

GENERAL MINING NEWS.

ARIZONA.

ALTA.—The *Arizona Bulletin* says of this Harshaw mine: Three shifts are employed in sinking the main or prospecting-shaft, which is now down 140 feet, 30 feet of which is in high-grade ore. For the depth of 100 feet down, the shaft is well and substantially timbered. Southeast, 100 feet from the main shaft, a second prospecting-shaft is down 30 feet on croppings from which assays as high as \$1100 per ton have been obtained. Sixteen men, all told, are at work on the mine.

CONSOLIDATED ARIZONA.—The *Citizen* learns that the experimental run of the new Consolidated Arizona mill was eminently satisfactory, the machinery running as smoothly as though it had been in operation a year. The company recently decided to change its crushing machinery, and a 10-stamp battery will arrive in a few days. Meanwhile all preparations have been completed for their reception, so that in a few days after the reception of the stamps the mill will be started. The mine itself continues to look better as the work goes on.

MACK MORRIS.—The Mack Morris is an incorporated company, stock not listed. The main working-shaft is down 200 feet, and cross-cuts at the 100 and 200-foot levels are now running. The winze is down on the vein, east of the working-shaft, 175 feet, showing five feet of ore, which will pulp from 250 to 400 ounces; character of ore, sulphurets and bromides. There are steam hoisting-works on the mine.

SAN XAVIER.—The *Tucson Citizen* says: It is with pleasure we record a new strike in the western extension of the San Xavier mine. The locality of the rich find is in chamber No. 1 on the south cross-cut on the 100-foot level, the whole face of the chamber being in a very large body of galena ore, assaying 75 per cent lead and 70 ounces of silver to the ton. The extent of the body is not yet known, but the indications are that it is very large. The new smelter is at work, though it will be some time before the production of bullion will be as steady as when experience has taught all the particulars for working the ore to the best advantage. We may soon, however, expect to see a steady stream of rich bullion coming from the San Xavier.

SILVER NUGGET.—The *Globe-Chronicle* says: The accidental breakage of a force-pump for the boiler has caused a temporary suspension in work on the Silver Nugget and a consequent slight delay in the shipment of bullion. A pump has been ordered by telegraph and is now in transit. In the mean time, one has been borrowed which will be working by next week. The working-shaft on this property is down 145 feet in good ore, with stopes, cross-cuts, and levels. At a depth of 130 feet, a well-defined vertical ledge is found, two feet in width, of very rich ore.

CALIFORNIA.

THE BODIE DISTRICT.

Our latest Bodie exchanges bring news from the mines as follows:

BOSTON CONSOLIDATED.—The north drift, 300 level, is in 151 feet; progress for the week, 8 feet. The face of the drift is in very hard rock and the most difficult to mine of any yet encountered in the mine. The character of the vein-matter is the same as at the last report. The vein is bearing more to the east, and will lead us to the main lode much earlier than was anticipated, if this continues.

BULWER CONSOLIDATED.—During the week ending September 27th, nine miners, one carman, one blacksmith, and one shift-boss were employed. The Ralston south drift, 300 level, has been run 12 feet since last report; total length, 489 feet; showing the ledge to be 3 feet wide. The Ralston north drift, 400 level, is in 311 feet; progress during the week, 13 feet. The ledge in this drift is 3 feet wide. The Stonewall south drift has been advanced 14 feet during the week; total length, 516 feet. The ledge is 2½ feet wide.

DUDLEY.—The main west cross-cut, 500-foot level, of the Dudley mine, had on Saturday reached a length of 800 feet; progress for the week, 17 feet. The north drift in the Dudley ledge was in 236 feet; progress for the week, 24 feet. During the week, the main west cross-cut passed into an entire change of ground. So far, one promising-looking ledge has been cut in this cross-cut, the ledge being about three feet wide, from which an average assay showed \$7.53 in gold, and \$3.14 in silver; total, \$10.67. The cross-cut continues in favorable ground, and further developments are expected as progress is made. The north drift in the Dudley ledge continues without especial change to note. The ground is working well, and rapid progress is making.

JUPITER.—The incline winze from the 500-foot level of the Jupiter mine is down 125 feet; progress for the week ending the 27th ult., 12 feet. The main south drift, 600-foot level, is in 339 feet; progress for the week, 7 feet. On the 500-foot level, the incline winze continues in two feet or more of fair milling ore. The ground is working much better, and better progress is expected during the current week. On the 600-foot level, the south drift continues in the ledge as at date of last report. In order to hurry up the winze connection with the 500 level, the south drift was stopped yesterday temporarily, and an upraise in the ledge commenced, to meet the incline winze. On Saturday, the bottom of the winze was within 40 feet of the 600 level, and with favorable working ground the connection will probably be made this week.

NOONDAY.—The following is the superintendent's report, dated September 25th: The south stopes, 212 and 312-foot levels, are looking well; no apparent change since my last letter. The north stopes, 312-foot level, are as last reported, the ore-body being large and of good quality. The south drift, 412-foot level, has been advanced 16 feet during the week; total length of drift, 502 feet. The vein is from 8 to 70 feet in width; the quality is improving as we go south. The No. 2 north vein, 412-foot level, has widened in the stopes during the week, and is yielding good milling ore. The west cross-cut, 512-foot level, is 54 feet west of shaft; progress during the week, 36 feet; the ground is of good working character.

GREENVILLE DISTRICT.

The first number of the *Greenville Bulletin* has the following news of the mines of their district: The new Green Mountain mill will be ready to run in two weeks. The company has purchased the Cariboo water-pipe, which it will lay across the slide on the Round Valley and Green Mountain ditch. The company has expended a large amount of money every winter repairing the ditch across its slide. The pipe will stop all further expense.

The Cherokee mine, adjoining the Green Mountain on the west, presents a very busy camp. The company has been pushing the reopening of this mine with vigor. A large amount of work has been done the past summer, and before winter the work will have so far progressed as to be unimpeded by storms.

At the Gold Stripe mine, a fine body of ore is opened in the Goodwin part of the mine. The pay-chute is over 140 feet in length, and a shaft sunk on it 60 feet. There are 200 feet of backs to this chute. The Lawrence ledge of same mine is opening out good ore. No. 3, Gold Stripe tunnel, is some 1600 feet in length, developing the whole mine. Two fine pay-chutes of ore have been cut through. A new ledge has lately been opened, showing a fine body of quartz about 13 feet wide, with perfect walls. On September 1st, the company completed 15 stamps addition to its crushing capacity, making a total of 39 stamps on this mine. The plant is a fine one in all its appointments, and the management shows system and economy.

The Indian Valley mine, adjoining Greenville, gives promise of soon again being added to the list of producing mines of this district. This mine has always had the reputation of being one of the best in the county, but circumstances have prevented its being worked as its merits deserve. It has lately passed into the hands of some San Francisco gentlemen, who have been prosecuting developments that have opened out a new body of very fine grade ore, and the probabilities are, the mine will be put in shape to be worked at an early date. The two mills will give a capacity of 56 stamps on this and the Union mine adjoining, part of the same property.

The Savercool mine, near Prattville, has been sold to a syndicate, representing Sacramento and New York capital, for \$35,000. The company has contracted for a 40-stamp mill to be in running order in December. The mine gives promise of opening out big. It is rumored the Dutch Hill gravel mines are negotiating for by some San Francisco mining men. A number of experts have been examining the property, and report well of it.

COLORADO.

CLEAR CREEK COUNTY.

The *Georgetown Courier* says: The ore produce in Clear Creek County this year will contain gold, silver, copper, and lead approximating in value \$3,000,000. It is safe to set us down for that amount, and possibly we may exceed it by a quarter of a million.

COLORADO CENTRAL.—The *Courier* says that the Consolidated Colorado Central Company is shipping concentrating ore to Stevon's mill, at Lawson, for treatment. This mill has been doing excellent work on Red Elephant ores, which, in many respects, resemble those of the Colorado Central, and there is hardly a question that the large bodies of low-grade ore at the dumps of the last mentioned can be made available in this manner.

MANSELD.—The stamp-mill of the Mansfeld Mining and Milling Company, at Dumont, has started under favorable auspices.

SNOWDRIFT.—The *Courier* states that this company's property continues to improve with development. The ore-vein recently encountered on the 70-foot level west from the Goodhope tunnel increases in size as the level is driven west, the ore being what is generally known as black sulphurets, and assays in the neighborhood of 3000 ounces. A rich ore-vein of good size has also been encountered near the breast of the 4th level of the Peters lode, which extends upward in the raise that is now making. The shaft on the Snowdrift has reached a depth of 64 feet below the 440-foot tunnel, and a chamber for a plat is excavating, after which sinking will be resumed.

CUSTER COUNTY.

A Silver Cliff correspondent of the *Denver Tribune*, writing under date of September 26th, says: The Racine Boy mill is pounding away night and day, as the shipment of silver bricks testify to. The grading is pushed as fast as possible for the new mill, and in five months one more will be added to add to our production. The new Plata Verde mill was started up last week, and made a splendid run on its own ore. This mill will prove itself second to none as soon as a full supply of water is obtained. This is now the only drawback, and when an ade-

quate supply of water can be had, you may look for silver bricks almost daily. The Adelia mill, on Grape Creek, is now running on the Hecla ore. Dr. Rollins's new pulverizing mill is expected to start up to-morrow. Our sampling-works are running also to their full capacity, and the Dora smelter has all the ore it can handle. The Bull-Domingo concentrating works are also in full blast, and all of our mines that are worked are yielding handsomely for their owners.

LAKE COUNTY.

LOW-GRADE IRON ORE.—The *Democrat* says: Since the Amie mine began shipping low-grade iron ore, quite a number of stockholders and officers have written to inquire why their mines do not ship the low-grade mineral which is so abundant in every mine in the camp. When the *Democrat* noted the shipments of iron from the Amie mine, it was particular to state that they were made from an old dump that had accumulated in the working of the mine many months ago, and that it had not been mined with a view of selling, but had been encountered in driving prospects and exploration drifts. None of the Fryer Hill mines can afford to break and hoist iron ore at two dollars net per ton. Another reason why other mines do not sell their iron is, that the smelters would not use it if they received two dollars bonus per ton and had it delivered free of cost at their works. The Amie iron contains from 40 to 50 per cent of metallic iron and very little silica, while the iron of most of the mines contains very little iron and a great deal of silica.

CHRYSOOLITE.—The *Democrat* says that mining reporters are no longer permitted access to the Chrysolite, and any employé of the company who may be spotted giving newspaper men any information about the mine will be immediately dismissed from the service of the Chrysolite.

CLIMAX.—The *Leadville Herald* of the 29th ult. says: The main level from the No. 5 shaft, passing the workings of the No. 3 shaft, and to the Amie line, had just been completed when the restraining order of the court was issued. This new shaft and level are among the best works ever put in a mine in Leadville. When the court ordered that work should cease on the rich ore-body on the west side of the Climax and along the line of the Amie, the greater part of the production of ore ceased, and although Mr. Breck still kept up prospecting in other parts of the mine, the actual output of ore was cut down to a merely nominal figure. To test other portions of the mine, however, a new shaft was started known as the No. 6, which is 200 feet south from the No. 5 shaft, and but 50 feet from the south boundary of the mine. This has reached a depth of 175 feet. It has entered a fine body of iron, and already cut it to a depth of over six feet. The iron is of fine grade, and contains some silver. It is pitching in a northeasterly direction, the same as do the strata of rock and ore on Fryer Hill, and there seems more than a probability that an ore-body is soon to be found beneath. Should this be the case, an extent of ground will be developed that will place the Climax among the foremost of Fryer Hill mines. Northwest from the No. 3 shaft, and extending to the Amie line, was found the rich ore-body that has in the past four months brought the Climax mine into such prominence. From this was extracted \$200,000 in a few weeks' time. There is a face of ore on the south side of these workings, and on the Amie line the ore-body extended a considerable distance south. Running southwest from the No. 3 shaft is also a drift that extends to the Amie line. This was run by George Gibson some months ago, and developed a pocket of ore from which \$35,000 were taken in a short time. Between the two levels, there is an average distance of 60 feet, and should this block of ore prove as valuable as its sides indicate, a large production may here be looked for. It must be remembered that all these workings just described are more than 200 feet north from the new No. 6 shaft, where the indications are at present so favorable.

DENVER CITY.—The *Leadville Herald* of the 30th ult. says: Where over 100 feet of water was in the Denver City shaft a short time ago, but 30 feet now remain. All is ready for putting in the pump, and in a short time work will be resumed in sinking the shaft.

DUNKIN.—The *Democrat* says that the product of this mine during the past month has averaged ten tons per day. At present, stoping is carried on in seven different places, all showing well and giving promise of a large and steady output for an indefinite time. As fine an ore-face as there is to be witnessed in any mine is now exposed in a stoping which has produced about twenty thousand dollars' worth of ore already. The progress of this drift which has been following an 18 to 30 inch vein of galena, has been watched with some interest, until now it shows mineral for the height of two sets of timbers and across the entire face of the drift. A fine quantity of mineral is stoped from a drift near the line of the Climax mine. Several fine faces of carbonates of lead are also exposed near the east side of the claim. The amount of ore shipped during the month of September will amount to 300 tons. Of this amount, 119 tons have been settled for to date, netting \$8104, or an average of \$66 to the ton. The highest lot averaged 233 ounces in silver and 60½ per cent in lead, and the lowest 55 ounces of silver to the ton and 8 per cent in lead. At this rate, the product for the month will net \$20,000. The expenses, including prospect work, will not exceed \$5000, leaving the company a profit of \$15,000. The Dunkin employs 40 men, all told.

GLASS-PENDERY.—The *Leadville Herald* of the 30th ult. says: Every day for the past week, or since the new strike was made in the upper workings, the Glass-Pendery mine has constantly improved. An immense showing of rich chloride ore is now made in the mine, and for several days but little has been done but to timber up the drift. The ore-house is full of ore, and a large amount can be produced in a very short time.

EVENING STAR.—The *Leadville Democrat*, Oct. 1st, says that body of gray sand carbonates found in this mine, and explored during the past few months, has proved extraordinarily large and quite rich. In places, the mineral has been opened for a height of five sets of timbers, and shows in the face and breasts of the drift everywhere.

MORNING STAR.—The mine, during the past month, has kept its shipments to a very good standard. The settlement for the month of September will show that the mine has produced about 1600 tons of ore, which netted the company on an average about \$48 to the ton. The *Democrat* says that it is safe to estimate that the receipts of the Morning Star for the ore shipped during the past thirty days will aggregate \$75,000. During the fore part of the past month, the company declared and paid a dividend amounting to \$60,000. Quite a number of improvements are being made on the property of this company. The new cage-shaft, which will be one of the finest in the camp when completed, has now attained a depth of over 200 feet, and it is expected that by the 1st of December it will be finished. A large new shaft-house has also been erected, 30 x 60 feet, and a few months more will see the mine thoroughly equipped, and capable of producing an immense amount of ore. Among the recent additions is also a new platform scale.

The *Herald* says: Lately, some prospecting has been prosecuted to the southwest from the present main shaft, and a very extensive ore-body has been found. At the foot of the shaft, which is 220 feet deep, the main incline runs east, from which extend five different levels, and in this part of the mine has been the principal working. At the foot of the shaft, a drift also runs south, with cross-cuts to the west and southwest. This latter is where the recent important developments have been made. One hundred and twenty-five feet from the shaft, and near the line of the Evening Star mine, the entire face of the drift is in a body of sand carbonates. This adds largely to the known resources of the mine. The entire mine has never looked better than at the present time. Through the east and northeast workings, only development work is prosecuted.

LITTLE CHIEF.—The *Leadville Herald's* mining reporter visited the underground workings of this mine on the 25th ult. and says that the only work prosecuted is in following the small streaks of ore still existing. This cannot be called prospecting, but still may lead to large ore-bodies. The north end and the

east side of the mine is attracting no attention. The main amount of ore is now coming from a point a little east from north from the No. 3 shaft and up over the old workings. There is a block of ground standing that is 37 x 75 feet in size. On the southwest side, is a good body of ore, from 18 to 30 inches in thickness, and of good quality. From present indications, there seems a strong probability of a reasonable vein of ore extending through the entire block of ground, and if so, it will yield a reasonable amount of ore for some time to come. In other parts, a few small patches of ore are also producing a little amount. West from the No. 1 shaft, and under the sills of the old timbering put in by the first company, there are from 2 to 5 feet of ore that looks well, and is mined and hoisted by the No. 1 shaft. The drift extending from the north level to the Dives line could only be entered to a few feet from the line. The end of the drift has caved in badly in the past few days, and it was impossible to reach the end. The best apparent show for the Little Chief is to sink a deep shaft, and prospect the ground beneath where the ore has already been extracted.

LITTLE PITTSBURG.—The No. 6 shaft on the Little Pittsburg, which is now down 225 feet, and was stopped while yet in iron, will be continued down at an early day. It is the intention of the manager to sink this shaft through the iron body before commencing any other drifts at lower levels.

ROBERT E. LEE.—The *Democrat* says: An interesting operation was witnessed at the Robert E. Lee sampling-works. It is the custom of the Lee mine to sort its ores, and all the ore supposed to carry over one thousand ounces to the ton is thrown aside, and once a week or ten days this lot of mineral, which is composed principally of chlorides, is sacked and shipped. Friday, the accumulation of the past ten days was taken from the bin and spread on the driers, and rendered perfectly dry and crisp, after which it was taken to the crusher and rolls. The bulk amounted to over ten and a half tons. In drying the ore, about 700 pounds were picked out that was almost clear chloride of silver. Considerable difficulty was experienced in crushing the ten-ton lot, on account of the chlorides in the ore, which, instead of pulverizing, flattened out and caked up the rolls. The 700-pound lot was even more difficult, and had to be run through several times before it was reduced sufficiently to allow making a fair sample. The first time it was passed through the rolls, the amount of chloride and horn-silver predominated to such an extent as to render the mineral malleable, and it came out in sheets and flakes. The 10-ton lot, after having been carefully sampled, was assayed, and found to average 1240 ounces to the ton. The lot of 710 pounds of selected ore contained 8352 ounces of silver. At \$1.13½ per ounce for silver, the ore was worth \$13.35 per pound, or a total of \$9479.52. The entire lot of ore was purchased by August R. Meyer & Co., samplers and ore buyers. During the past week, the Lee has also shipped 18 tons of ore to the La Plata and Meyer's sampling-works that averages 400 ounces to the ton. About three weeks ago, the Lee shipped to the La Plata smelter 3 tons of ore that averaged 2500 ounces in silver to the ton.

PARK COUNTY.

The *Leadville Democrat* of the 28th ult. has a description of Alma, from which we extract the following:

BIG CHIEF.—The Big Chief Consolidated Mining Company is composed of New York parties. This property is in the Buckskin and Montgomery districts which center in Alma. The Big Chief is in the Buckskin, and the company is now making a tunnel to cut what is known as the old Phillips mine. The Louisville, another of its claims, is situated below the Dolly Varden on Mount Bross and on the same vein with the Security, which has paid its owners an immense sum of money. The Fielding Steel will be worked this winter and shows a four-foot vein of iron, galena, and copper, with twenty ounces of silver and one and a half of gold.

DOLLY VARDEN.—This property includes eighteen mines on the southeast slope of Mount Bross, their names being the Dolly Varden, Dump Lode, Juniata, Joe Thatcher, Iron Dike, Polaris, Undercliff, Friday, German, Tunnel No. 2, Hiawatha, Broadway, Big Silver, Milwaukee, October, Triangle, Compromise, and Tunnel No. 1. The property is situated on the southeast slope of Mount Bross, above timber-line, four miles from Alma. The company has a patent for all of the eighteen claims but three, and has diligently prosecuted the work of development for eight years, while all the claims have been developed to a certain extent and have all paid for doing so. The Dolly Varden lode has been more fully developed and has yielded more mineral than any of the others. The ore is from one to twenty feet in thickness, and is sold to the Boston & Colorado Smelting-Works in Alma. The modes of working are by tunnels, shafts, and inclines, the deepest shaft being 200 feet and the longest tunnel having reached a length of 350 feet. The total length of the workings exceeds 2000 feet, over 400 feet of dead-work having been done during the present year. The entire cost of mining the ore is about \$45 per ton—the ore averaging, for the last year, 137 ounces per ton, which is not, by any means, its highest average, as it has been known to run as high as 300 ounces per ton for six months. The product of the mine, since its discovery, has been over \$600,000, while the expense of working it has not been much more than one fourth that amount.

FANNY BARRETT.—This well-known mine was sold last week to the North American Mining and Developing Company. This mine is known to all mining men to be a lode of great richness. It is situated on Loveland Hill, a half-mile above timber-line, and was discovered in April, 1879. The late sale included the entire Fanny Barrett property, which includes nineteen lodes and twenty acres of placer ground on each side of the mountain, making in all forty acres. The new owners intend erecting a smelter and making the most extensive improvements. The runs vary from 20 to 235 ounces. The future management of the property and its development has been intrusted to Prof. J. Alden Smith, the State Geologist. The plan of development contemplates a tunnel starting in on the Buckskin slope of the mountain and penetrating through to the Mosquito slope, cutting shafts that will be sunk from the top of the property. The foreman of the Dolly Varden mine, on Mount Bross, has been given the superintendency of the Fanny Barrett property, and is now in charge of its force of men. The question of erecting a smelter to treat the ore taken from the mine has been indefinitely postponed.

RUSSIA.—This mine is six miles from Alma, and is among the leading mines on Mount Lincoln. It was located in 1873, not a mile distant from the Moose. The yield of the mine since 1875 has been over \$200,000. Ore is shipped constantly from the mine and sold in Alma. From 15 to 20 men are employed in the mine, which is situated some distance above timber-line. The mine will be worked all winter, but not quite so extensively as during the summer. The average value of the ore is about \$125 per ton. Air-shafts have been sunk during the summer, and other improvements made.

IDAHO.

The *Avalanche* says: The Oneida Mining District was recently organized in Southern Idaho. Its boundaries are described as follows: Commencing at Sand Creek, where the road from Sam. F. Taylor's ranch to Eagle Rock crosses said creek to Willow Creek, thence up Sand Creek to Willow, thence up Willow Creek to the forks, thence up the west branch of said creek to the head, thence across in a southwesterly direction to Blackfoot River, thence down said river to Shoemaker's Ranch, thence in a northwesterly direction to Sand Creek, thence up Sand Creek to the beginning. J. D. Bayliss was elected recorder for the ensuing year.

The mines on War Eagle Mountain and vicinity have not looked so promising for some time. At the Owyhee, a splendid vein has been encountered in the fifth level south of the shaft, which is quite equal in richness to any thing yet discovered in that mine.

Work is prosecuted in the War Eagle below the sixth level. Some good rock is taken out. The machinery is in fine working condition. The Empire mine is reported to be yielding finely. A rich ore-body was tr

a few days ago, and the gentlemen now working the mine are sanguine of the most favorable results.

The Yankee Fork Herald says: At Bay Horse, ten miles from Challis, we found the smelter all set for running and waiting only for a supply of charcoal. In the bins were 700 tons of ore to start with, and more coming down from the mines. There are fifteen or more mines sending ore to the reduction-works—the Ramshorn, Hood, Beardsley, Faithful Boy, O. K., Excelsior, Utah Boy, Bull of the Woods, Silver Wing, Skylark, Keystone, Little Fellow, Cabin, and I believe some others. The Rob Roy and Centennial are also getting out ore. The Ramshorn Company has contracted to deliver 300 tons of first-class ore as fast as it can be got out; the Faithful Boy, 100 tons; and the Beardsley is furnishing 20 tons per day of ore that runs high in lead and low in silver, and furnishes the base for the reduction of the high-grade ores. A number of the mines mentioned are on what is known as the Ramshorn vein—the longest continuous quartz lode known to the mining world. There are 29 fifteen hundred feet locations on it, and ore found on every one of them, making in all eight miles in length.

MONTANA.

The Butte Miner of the 25th ult. notes the following:

ALICE.—Although all the five levels of this property continue to be worked to some extent, operations are principally confined to the fourth and fifth levels, which are steadily driven ahead with excellent results. The stopes, though wide, are all in ore, no attempt being made to extract the full width of the vein. Cross-cutting from the 700-foot station has not yet been resumed, as the discharge-pipe has not yet arrived. The two new pumps, however, have been placed in position, and on the arrival of the pipe, which is coming by fast freight, the vein will be tapped at the earliest practicable moment.

ANSELMO.—Since last report, a level has been started from the bottom of the west shaft which will open up the new vein lately discovered, and which for a time was erroneously supposed to be a continuation of the main ledge. The east drift is in 12 feet and the west 6 feet. In the latter, the ore-body is two feet wide and of apparent richness, though the value can not be accurately stated, as no assays of it have yet been made. In the west drift, the vein is not so wide, nor does the ore look so well. In the main shaft, there are no important changes to note. The stopes in the 70-foot level are in excellent shape and are yielding several tons per diem. In the lower level, 100 feet from the surface, some exceedingly high-grade rock has been extracted during the past week. The drifts are in 40 feet each way, and are vigorously extended. The ore-body varies from three to four feet in width, and is well defined, compact, and clean. Shipments to the smelter are made almost daily, though 150 tons of second-class ore, assaying \$80, remain on the dump.

COLUSA.—The new shaft is making excellent progress and is down 110 feet. It will probably pass through the vein within the next fifty feet, after which a rather heavy volume of water may be expected. The hoisting-gear for this shaft will be the largest in the territory. In the drift east from the bottom of the working-shaft, work has been stopped for the present in the face, and the reserve of ore on the foot-wall side of the ledge in the drift is extracting. This reserve averages from six to ten feet in thickness, and is over 300 feet long, and is taken out to facilitate stoping when the smelter shall have fired up. The rich strata and pockets are sacked for shipment, and the lower-grade ore is accumulating on the dump.

GAGNON.—The lower level running east from the bottom of the main shaft at a depth of 225 feet has been extended to a length of 185 feet, following a well-defined vein of base ore, of which about 25 tons are extracted daily. The first-class ore is shipped East for reduction, and the second-class is treated at the Colorado works. The superintendent informed our reporter that sinking of the main shaft would be resumed in about two weeks. The present machinery is thought to have power sufficient to sink to a depth of between 400 and 500 feet.

GRAY ROCK.—Operations in the new shaft, which got to be too deep for the successful working of the whim, are still suspended, awaiting the arrival of the necessary steam hoisting-machinery, which is expected in a few days. In the west shaft on the lower level, energetic work continues and an average daily product of 30 tons of free ore is extracted and shipped to the Silver Bow mill. Although not exceptionally rich, the Gray Rock ore, from the ease with which it can be milled and mined, is far more profitable than refractory ore of a much higher grade. The thousands of tons which have already been extracted, and the vast amount still untouched in the mine, will perhaps mill not to exceed \$30 per ton; but this, after the deduction of working expenses, leaves a very satisfactory margin for the owners of the property.

STAR WEST.—The two shafts, at a depth of 100 feet, have been connected by a drift, which shows a continuous vein of high-grade ore from one to the other. It varies from two to three feet in thickness and possesses an average assay value of \$200. In view of the large amount of ore opened up between this drift and the surface, it is not deemed necessary to resume sinking at once, though the necessary machinery will be ordered in proper season. Instead, therefore, of exploring any farther below water-level, the owners have determined to stop.

NEVADA.

HILLSIDE.—The Pioche Record of the 25th says: We understand that arrangements have been made by John B. McGee with the New York stockholders of the Hillside Mining and Milling Company whereby the indebtedness of that company will be liquidated and the corporation placed upon a sound financial footing. This will be glad news to us all. The Hillside is now looking well and Manager Howell is pushing developments ahead with vigor. On the 5th level east, nearly 500 feet from the incline, they are drifting through a large ledge of spar and iron, carrying from two to three feet of good ore on the foot-wall. Still stoping on the 3d and 4th levels west, and taking out some fine-looking ore. The furnace, upon the arrival of the new front, started up last Wednesday, with an abundance of coal and ore. Every thing is running smoothly, and from appearances the output for the next few months will be large.

MARTIN WHITE.—The Ward Reflector of the 25th says: The Martin White Tunnel was 2525 feet in length at the time it was measured a week ago. It is by this time fully 2590 feet in length. At the time of our visit Sunday last, the face of the tunnel was in quartz.

COLUMBUS DISTRICT.

The following notes are taken from the True Fissure of the 25th ult.:

NORTHERN BELLE.—During the week, 20 feet have been made in running the drift on the fourth level. The ground is softer and the formation more promising. A few streaks of ore, giving as high assays as \$80, have been passed through. There is no change of importance on the third level. The body of ore in the intermediate, between the first and second levels, is looking well and shows fairly for continuance. The cross-cut on the first level presents a fine showing for opening into a body of ore. The levels above the adit look fully as well as at any time last week and are yielding as usual. Mill No. 1 commenced crushing Mount Diablo ore on the 17th instant. Two of the teams which have been hauling Northern Belle ore are hauling for the Mount Diablo, leaving the former three teams which deliver at Mill No. 2 about 65 tons of ore per day. This amount, however, will keep that mill running steadily and accumulate a small surplus. The shipment for the week ending last Wednesday was \$25,685.70, and for the September account to that date \$92,516.67.

MOUNT DIABLO.—Following is the report of Superintendent Henderson for the week ending this date: During the past week, the mine has produced the usual amount of good ore. The mill has been running on our ore since last Friday. About thirty-six hours were lost by accidents at the mill; every thing now running smoothly. Thursday night, shipped eight bars bullion, valued at \$11,077.90; shipped again on Friday night.

MOUNT POTOSI.—The cross-cut in No. 1 tunnel has been advanced 17 feet

during the week; total, 67 feet. The lateral drift has progressed 21 feet; total, 119 feet. The winze has attained a depth of 81 feet. On the first level, the north drift has been advanced 13 feet; total, 79 feet. The air has been bad in the incline, but a partition has been put in which created a sufficient draught to clear the incline of all foul air. This will enable the work to progress more rapidly.

UTAH.

SILVER REEF.—The Miner of the 22d has the following notes:

The contractors sinking the new air-shaft on the Barbee & Walker mine are down over 100 feet, and expect to make connection with the first level, about 20 feet deeper, about the end of the month.

The new incline shaft sinking on the Leeds mine, near the apex on the east side of the Reef, is in very fair grade ore, and further development will probably turn out something of interest to the stockholders.

The chloriders on the Thompson & McNally mine are fairly elated over their prospects, and are firm in the belief that they will strike a little bonanza before their lease runs out.

Contractors again commenced sinking on the new Savage shaft of the Buckeye mine last Saturday; but owing to a flow of water, operations will be somewhat impeded until a pump can be put in. The new hoisting-works on this shaft do their work admirably.

PROPOSALS AND SALES.

For the benefit of many of our readers, we compile weekly such proposals and solicitations for contracts, etc., as may be of interest. The table indicates the character of proposals wanted, the full name and address of parties soliciting, and the latest date at which they will be received:

Supplying Ice to the City Buildings, etc., until June 7th, 1881; office of City Clerk, Cincinnati, O.	Oct. 9, 1880.
Grading and Masonry, etc.; C. G. Patterson, Office of the Connotton Valley Railroad, Ohio.	" 9, "
Dredging at the Mouth of the Pascagoula River, Miss.; A. N. Damrell, U. S. Engineer's Office, Mobile, Ala.	" 9, "
Improvement of Delaware River at Millin Bar; J. N. Macomb, U. S. Engineer's Office, 1619 Chestnut st., Philadelphia, Pa.	" 11, "
Improvement of Schuylkill River, Pa.; J. N. Macomb, U. S. Engineer's Office, 1619 Chestnut st., Philadelphia, Pa.	" 11, "
Cleaning, Grubbing, Earthwork, etc., on the Extension of the Quincy, Missouri & Pacific Railroad; Amos Green, Vice-President, Quincy, Ill.	" 11, "
Removing Part of Pier at Foot of Leroy Street, N. R., and Building Pier New 41 N. R.; Department of Docks, 117 and 119 Duane street, New York City.	" 13, "
Fuel, Forage, etc.; J. G. Chamaler, Head-Quarters Newport Barracks, Ky.	" 13, "
Improving Pass Cavallo, Texas; S. M. Mansfield, U. S. Engineer's Office, Hendley Building, Galveston, Texas.	" 14, "
Lumber, Lime, Cement, Hardware, etc.; Department of Public Charities and Correction, No. 66 Third avenue, New York City.	" 15, "
Gas-pipe Fittings, etc.; Department of Charities and Correction, No. 66 Third avenue, New York City.	" 15, "
Three-story Hotel Buildings; Crawford Neilson, Architect, 49 St. Paul street, Baltimore, Md.	" 15, "
Pumping Machinery; Charles S. Waller, Office of the Department of Public Works, Chicago, Ill.	" 18, "
Building a Bridge; T. A. Huguenin, Office of County Commissioners, Fireproof Building, Charleston, S. C.	" 19, "
Sale of Valuable Mining Property, in the Mining Region of Lake Superior. For further particulars apply to Messrs. Morris & Harris, Vendor's Solicitors, Toronto, Canada.	" 20, "
Materials (except Filling) for Constructing a Wharf; James C. Post, U. S. Engineer's Office, Charleston, S. C.	" 21, "
Eighteen Hundred Tons of 36-inch and 24-inch Main Water-pipe; also about fifty-six Tons Special Castings, and the necessary Water-gates; also the Excavation and Refilling of the Trench for the same; B. J. McCarthy, Chairman of Water Works Committee, Nashville, Tenn.	" 21, "
Master's Sale of Property owned by the Burlington & Southwestern Railroad. (See below)	" 23, "
For the Supply of Five Thousand Steel Rails, 324 Tons Fittings; Mr. Thulstrup, Danish State Railroads, Aarhus, Denmark.	" 24, "
Cavalry Horses; M. L. Ludington, Head-Quarters Department of the Platte, Fort Omaha, Neb.	" 25, "
For Furnishing the City of Council Bluffs, Ia., with Water for Fire Protection and Public Use; Jacob Williams, Chairman Water-Works Committee, Council Bluffs, Ia.	" 26, "
Plans, Elevations, Sections, etc., with Estimates for a New Town Hall; E. Wiltshier, Town Clerk, Town Office, Pietermaritzburg, Natal.	Nov. 1, "
Barracks—Lamps, Oil and Wicks; D. H. Rucker, Assistant Quartermaster-General U. S. A., Depot Quartermaster's Office, Philadelphia, Pa.	" 4, "
Iron Works at Moundsville for Sale; Daniel Lamb, Clerk's Office, Court of Marshall County, West Va.	" 10, "
Mail Contract; Gilbert Griffin, Post-Office Inspector's Office, Kingston, Ontario, Canada.	" 12, "
Excavating Ten Thousand Cubic Yards; Anderson & Hobby, Civil Engineers and Surveyors, 68 and 69 Johnston Building, Cincinnati, O.	
Artesian Well Four Inches in diameter and from Fifteen Hundred to Twenty-five Hundred Feet deep; E. L. Donaghio, Streator, Ill.	
Designs for the Manufacture and Erection of the Bridge over Franklin Square; W. A. Roebling, Chief-Engineer, 21 Water street, Brooklyn, N. Y.	
Fifty Thousand Ties, eight feet long, six inches thick, flattened on two opposite sides with parallel faces of at least eight inches in width; E. A. Doane, Chief-Engineer, Meadville Railroad Company of Pennsylvania.	

The property owned by the Burlington & Southwestern Railroad Company, and now constructed in the State of Iowa from Burlington, in the county of Des Moines, through the counties of Lee, Davis, Van Buren, and Appanoose, in the State of Iowa, to the point in the southern boundary of the State of Iowa where said railroad intersects and crosses said State line and the right of way therefor, road-bed, superstructure, iron, ties, chairs, splices, bolts, nuts, spikes, and all the lands and depot grounds, station-houses, depots, viaducts, bridges, materials, and property heretofore purchased or otherwise acquired for the construction and maintenance of said railway, and all the engines, tenders, cars, and machinery, and all kinds of rolling stock, and all the revenues and income of said road, and all the rights, privileges, and franchises of said Burlington & Southwestern Railway Company, and property and contracts acquired by virtue thereof, including machineries, tools, implements, and personal property used therein or along the line of said railway, excepting therefrom the building, machinery, and engine situated at the said railway company's water-tank at the Chariton River, on the said company's right of way in the southeast quarter (34) of the southeast quarter (34) of section twenty-six (26), township sixty-eight (68), range seventeen (17), Appanoose County, Iowa. The railroad improvement from Vicle to the Iowa State line and the land belonging to the said railroad company, and the materials, machinery and fixtures. William T. Love, Special Master in Chancery, U. S. C. District of Iowa.

Brooklyn Water-Works: Bids for Furnishing Additional Water.—At noon on Thursday, October 7th, bids were opened at the Mayor's office. The following is a summary of the bids as prepared by the engineer:

Edward Freel, temporary pumping only	\$5,000
D. H. Valentine, all work and material	55,000
S. L. Keeney, all work and material	53,900
John H. O'Rourke, all work and material	78,000
Joseph B. Edwards	68,000
William H. Beard	78,300
Swift & Van Aken	63,500
Michael J. Dady	59,000

An examination of the bids shows that Seth L. Keeney is the lowest bidder. Commissioner French awarded him the contract immediately. Mr. Keeney's bid was \$53,900. In addition to this, the land required will cost \$11,000 or thereabouts, and \$500 will be allowed for contingencies, making the total cost of the work \$65,500.

FINANCIAL.

Gold and Silver Stocks.

NEW YORK, Friday Evening, Oct. 8.

The sales of mining shares for the week make the large aggregate of 813,140 shares, a great improvement on the business of last week. Although the market has been weak most of the time, an improvement has been noticeable to-day. The public feeling toward mining stocks is by no means favorable yet, but there is quite an improvement on the feeling which existed only a few weeks ago. The indications favor an improvement in most instances where a change is likely to take place.

The Comstock shares have been quiet, and without exception very weak. California records sales of 6040 shares at \$2.20@\$.22. Con. Virginia has had a fair business at weak prices. The sales amount to 8570 shares at \$3.15@\$.275. Ophir, with a moderate business, has been very weak, the sales amounting to 915 shares at \$9 1/2@\$.8@\$.8 1/2. Sierra Nevada has been active but very weak, the sales aggregating 1740 shares at \$11 1/2@\$.9@\$.10 1/2. Best & Belcher has been quiet and weak, the sales amounting to 1290 shares at \$10 1/2@\$.8 1/2@\$.9. Consolidated Imperial has been very quiet and steady, the sales aggregating 225 shares at 25c. Mexican, with a fair business, has been very weak; the sales aggregate 1210 shares at \$10 1/2@\$.8 1/2@\$.9. Union Consolidated has had a moderate business at very weak prices. The sales amount to 975 shares at \$20 1/2@\$.15 1/2@\$.15 1/4.

The Bodie stocks have been quiet and without particular feature. There have been no transactions in Bodie. Standard has been moderately active but weak, the sales aggregating 4135 shares at \$29 1/2@\$.27. Bechtel has had a fair business at stronger prices. The sales amount to 2300 shares at \$1@\$.1.75@\$.1.50. Bulwer has been moderately dealt in at strengthening prices, the sales amounting to 1905 shares at \$1.50@\$.1.70. South Bulwer has been quiet and steady, the sales aggregating 300 shares at 50@.48c. Goodshaw has been active and has improved in price. The sales amount to 6900 shares at 35@.46c@.40c. May Belle has been fairly dealt in at steady prices, the sales amounting to 1600 shares at 16@.15c.

The Tuscarora stocks have been quiet and steady. Belle Isle records sales of 400 shares at 55@.53c. Grand Prize has been quiet and steady, with sales of 120 shares at \$1.90@\$.2. North Belle Isle has had a business of 200 shares at 35c. Independence has been quite active, and at one time was very strong, but lost it at the close. The sales amount to 4500 shares at 35@.60@.47c. Navajo has been quiet and a shade weak, with sales of 1100 shares at 60@.55c. Tuscarora has been active but weak, the sales aggregating 6400 shares at 28@.19c.

The miscellaneous San Francisco stocks have been very quiet, Eureka showing sales of 120 shares at \$17. and Caledonia (B. H.) 900 shares at \$1.35@\$.1.10@\$.1.20.

The dealings in the stocks on our regular lists have been as follows: Amie has been very active, and at one time was quite weak, but regained some what at the close. The sales amount to 124,256 shares at 58@.47@.56c. Chrysolite has been active and strong, the sales amounting to 100,680 shares at \$3.75@\$.4.45@\$.5.25. Climax has had an active business at weak prices, the sales aggregating 140,725 shares at \$1.05@.63@.80c. Copper Knob has been liberally dealt in at irregular prices. The sales amount to 10,700 shares at 55@.51c. Excelsior has been quiet and weak, with sales of 375 shares at \$8 1/4@\$.8. Findley has been quite active at irregular prices. The sales amount to 15,900 shares at 28@.37@.35c. Great Eastern has had a liberal business at stronger prices, the sales aggregating 18,800 shares at 51@.57@.60c. Green Mountain has been active, the sales aggregating 1300 shares at \$3.70@\$.3.50. Homestake has been dealt in to the extent of 85 shares at \$33 1/4@\$.32. Horn-Silver has been quiet and a little weak, the sales amounting to 300 shares at \$14 1/2@\$.14. Hukill has been quite active at irregular though stronger prices. The sales amount to 29,250 shares at \$1.80@\$.2. Leadville records sales of 1875 shares at 40@.39c. Little Chief has had a moderate business at irregular prices, the sales aggregating 2150 shares at 85@.65@.75c. Little Pitts-

burg has been quiet and weak, but gained at the close, the sales amount to 1160 shares at \$2.63@\$.2@\$.2.50. Moose has been active at irregular but better prices. The sales aggregate 19,500 shares at 32@.43c. New York & Colorado has been moderately dealt in at weak prices, the sales amounting to 920 shares at \$1.75@\$.1.45. Plumas has been dealt in to the extent of 1200 shares at \$1@\$.1.10. Rising Sun records sales of 1300 shares at \$1.70@\$.1.75. Robinson Consolidated has been quiet and irregular, the sales amounting to 400 shares at \$8.75@\$.9.25@\$.8.63. Alice has been quiet and steady, the sales aggregating 700 shares at \$6@\$.6.25. Battle Creek has been active and strong, with sales of 10,400 shares at \$2.80@\$.3.10. Bald Mountain records sales of 500 shares at 21c. and Bonanza Chief 40 shares at 30c. Boston Consolidated has been liberally dealt in at stronger prices, the sales amounting to 2850 shares at 75c.@\$.1.10@\$.1. Calaveras has been moderately dealt in at steady prices. The sales aggregate 46,100 shares at 33@.40@.38c. Central Arizona has been moderately active at stronger prices. The sales amount to 1900 shares at \$7@\$.8@\$.7.50. Columbia Consolidated, with a moderate business, has been weak, the sales aggregating 1620 shares at \$1.35@\$.1. Crowell has been active but weak, the sales aggregating 21,200 shares at 16@.11c. Dunderberg records sales of 400 shares at 90c. Durango has been quiet and a shade weak, the sales amounting to 1300 shares at 24@.22c. Girard records sales of 1800 shares at \$2. Glynn Dale has been quiet and weak, with sales of 300 shares at 50@.45c. Iron Silver records sales of only 200 shares at \$2.95. Mariposa Preferred, with a business of 132 shares, ranged between \$1.25@\$.1. Quicksilver Preferred records sales of 200 shares at \$50 1/4@\$.53. Rappahannock has been moderately active at steady prices, the sales aggregating 3700 shares at 27@.25c. Red Elephant has been quiet at irregular prices. The sales amount to 4300 shares at 44@.50@.45c. Silver Cliff has been quiet and steady, with sales of 750 shares at \$2.75@\$.3. Silver Nugget has been very active at irregular prices. The sales aggregate 44,800 shares at 49@.45@.39c. South Hite has been stronger with sales of 6500 shares at 93c.@\$.1.20@\$.1.10. Sutro Tunnel has been very active and weak, the sales amounting to 59,755 shares at \$1.55@\$.1. Unadilla has been active and strong, the sales aggregating 34,200 shares at 13@.17c. Vandewater has been quiet and a shade weak, the sales amounting to 4100 shares at 84@.81c.

The dealings in the fancies have been as follows: American Flag, 3500 shares at 35@.33c.; Buckeye, 34,900 shares at 17@.21c.; Dahlonga, 6000 shares at 8@.10c.; Gold Placer, 6200 shares at 74@.71c.; Granville, 1500 shares at 9@.10c.; Lacrosse, 3600 shares at 30@.27c.; Lucerne, 5000 shares at 18@.15c.

UNLISTED QUOTATIONS.

Messrs. Trask & Francis, under date of October 8th, 3 P.M., reported the current quotations of unlisted stocks as follows:

	Bid.	Off'd.		Bid.	Off'd.
Breece.....	\$0.70	\$0.75	Telegraph Con.	\$6 1/2	\$6.50
Bald Mountain..	.19	.20	Hortense.....	.40	.45
Cherokee.....	1.00	1.10	May Flower.....	.40	.45
Carbonate Hill..	.25	.30	New Phil.....	—	.50
Empire, Utah..	4.00	—	O. K. & Winn....	—	.85
Father de Smet.	6.00	7.00	Penobscot.....	.50	.80
Freeland.....	1.80	1.90	Sir Rod'k Dhu..	—	.40
Highland Chief.	9.00	11.00	Standby.....	—	2.75
Sacramento.....	—	3.00	Storment.....	3.60	3.70
Lowland Chief.	.25	.50	Spring Valley..	4.20	4.40
Patagonia.....	—	2.20	Silver Nugget..	.37	.39
Santa Cruz.....	—	2.25	Trinity.....	—	2.25
Belmont.....	—	2.25	Van deWater G.	.75	.82

Although the official reports show that the "pulp" assays ran low at times during the past month at the Standard mine, the total production for September was quite large, being officially announced at \$181,500.

The fire at the Vulture mine of the Chrysolite group is reported to have resulted in a loss of about \$20,000. It has, however, interrupted operations in a number of mines on Fryer Hill.

T. F. Van Wagenen has been appointed superintendent of the Climax and Amie mines at Leadville.

Another strike is reported to have been made in the Richmond mine of Eureka, Nev. We congratulate the English stockholders on their good luck in securing so valuable a mine. The profits which have been and will be derived from this mine will partly atone for the robbing which the English have received at the hands of the American promoters.

The Graphic says: Mr. A. H. Elliott writes from Jersey Point, Canada, and states that very rich gold leads have been struck near Gilbert River. New and

rich grounds are constantly being developed. Very rich returns have been gained from some properties along the line of the Gilbert River, County Beauce, Province of Quebec—as high as \$400,000 from three quarters of an acre in coarse gold. About a dozen companies are now at work in the region.

It is said that the dispute between Col. Shaughnessy and the Ontario Company has been compromised.

Although many of the mines at Leadville are reported as "played out," the camp as a whole is making a very good record, the production for September having amounted to \$1,502,885. The total shipments for the first nine months of this year aggregate \$11,666,742.

The stocks of the Boulder Consolidated and Tombstone Consolidated mining companies have been admitted to the list at the American Mining Stock Exchange.

OFFICIAL LETTERS.

Amie.—Our Colorado exchanges speak very flatteringly of the prospects of this mine. The company is shipping at present from 30 to 35 tons of ore per day, which is stated to be of high grade. A change of managers in this mine is talked of.

Boulder Consolidated.—The ledge on the cross-cut of the 800 level of this mine was cut 36 feet from the shaft on September 28th. The superintendent reports the ore the richest yet found in the mine, carrying a large percentage of copper, and regards it the most important development thus far made. Drifting will be started upon this vein as soon as cross-cutting shows whether there is another vein on the foot-wall. Sinking the shaft for the 900-foot level will also be resumed.

Belle Isle.—A recent letter from this mine states that the No. 2 raise on east lateral vein, 70-foot level, has been carried up 5 feet; total, 35 feet. Vein 8 inches wide and ore good. The joint Navajo east cross-cut, 150-foot level, has been extended 6 feet; the ground is very hard. The ore-vein in the south stope, 250 feet, is narrow. The ore that has been extracted in running drifts and raises with the vein is being milled. Commenced crushing yesterday morning.

Bulwer Consolidated.—The superintendent, under date of September 27th, writes:

During the week ending September 25th we employed 9 miners, 1 carman, and 1 blacksmith at \$4. and 1 shift-boss at \$5 a day; 1 clerk at \$50 per month. The Ralston south drift, 300-foot level, has been run since my last report 12 feet, total length 489 feet, showing the ledge 3 feet wide. The Ralston north drift, 400-foot level, is in 311 feet; progress during the past week, 13 feet; the ledge in this drift is 3 feet wide. The Stonewall south drift has been advanced during the week 14 feet; total length, 516 feet; the ledge is 2 1/2 feet wide.

Chrysolite.—A dispatch from this mine, dated the 3d inst., states that the production has been reduced to 40 tons per day. With reference to the fire in this mine, it is stated that no serious damage has been done, but that the superintendent will be obliged to keep the shafts closed for several days yet.

Decatur.—The superintendent's letter, dated October 3d, is as follows:

Have during the month of September sunk shaft No. 1 about 20 feet. Have had a vein of good ore all the way, ranging from 15 inches to 3 feet wide, and the vein is growing better and stronger as we attain depth. Have put up a whim at a cost of \$155; have also a shaft-house, 26 x 50 feet, nearly completed. The water continues the same in quantity. We expect to ship some ore to the smelter this month. Shaft No. 2 is down 35 feet; have struck water there. Expect to cut vein this week.

Eureka Consolidated.—The weekly letter from the superintendent of this mine, dated Sept. 25th, is as follows:

The mine is looking as well as usual, the ore supply keeping in about the same condition, and the dumps at the mine and the furnaces being full. Both furnaces are in good condition and running smoothly. The following prospect work has been done in the several drifts this week: Sixth level—Cross-cut north from northwest drift continued 28 feet, in all 68 feet; eighth level—Drift north near west line continued 20 feet, in all 203 feet; tenth level—Upraise continued 8 feet, in all 25 feet; new shaft continued 25 feet, in all 446 feet.

Green Mountain.—A recent letter from the superintendent says:

Am now working tunnel No. 5, and the ledge ranges 10 to 14 feet wide, with 400 feet of backs to No. 5 tunnel, and from No. 4 to the surface is 340 feet, making 740 feet of backs from No. 5 to the surface. They are raising an air-shaft from No. 5 to No. 4, the raise being up 200 feet now, and a shaft being sunk from No. 4 to connect with the raise.

Grand Prize.—The superintendent says:

The south cross-cut from the east drift, 400-foot level, has been run 24 feet and is without any change. The east drift front ledge, 500-foot level, has been extended 18 feet; the vein of ledge-matter shows some improvement. The ore-vein in the 500-foot level stope is still producing considerable ore. The vein is not as large, or ore as good as the stope were immediately above the 500-foot level.

Hillside.—A recent letter from this mine states that

GENERAL MINING STOCKS.

Dividend-Paying Mines.

Table listing mining stocks with columns for Name and Location of Company, Feet on Vein, Capital Stock, Shares, Assessments, Dividends, and Highest and Lowest Prices per Share at which Sales were Made. Includes entries like Amie Con. S. L., Argenta, Barbac & Walker, etc.

Non-Dividend-Paying Mines.

Table listing non-dividend-paying mining stocks with columns for Name and Location of Company, Feet on Vein, Capital Stock, Shares, Assessments, Dividends, and Highest and Lowest Prices per Share at which Sales were Made. Includes entries like Alpha, A. B., Alta Montana, Alice, etc.

g. Gold. Silver. s. Lead. C. Copper. *Non-Assessable. †Assessment paid. ‡Dividend. Total shares sold during the week, 813,140.

\$33,300; Consolidated Virginia, \$34,300, and bullion valued at \$2,117,250 [?]; California, \$43,900, and \$103,000 in bullion; Best & Belcher, \$5300; Standard, \$172,700; Bodie, \$4300; Mono, \$3400; Tozga, \$3400; Booker, \$6400; Double Standard, \$5100; Bechtel, \$12,000; Richer, \$450; De fiance, \$320; Summit, \$8900; Sierra Nevada, \$49,100; North Bonanza, \$15,250. The following companies are in debt: Alpha, \$12,175; Mexican, \$11,350; Ophir, \$8800; Metallic, \$10,500; Equator, \$10,000; Bulwer, \$23,440; Hale & Norcross, \$9000.

PHILADELPHIA MINING STOCKS.

The subjoined table shows the opening, highest, lowest, and final sales of all the mining stocks dealt in at the Philadelphia Stock Exchange, and at the Philadelphia Mining Exchange, for the five days ending Oct. 5th:

Table with columns: Stocks, Opening, Highest, Lowest, Final, Sales Shares. Lists various mining stocks like Amie, Argenta, Bodie, Buena, Bechtel, Belle Isle, Bodie Chief, Buckeye, California, Conquest, Chryslerite, Con. Pacific, Con. Imperial, Con. Virginia, Dauntless, Dahlonega, Evergreen, Fairview, Girard, Gold Placer, Great Eastern, Granville, Grand Union, Hukill, Independence, Iowa Gulch, Little Maud, Lucerne, Leadville, Mt. Lincoln Con., Moose, Martin White, Magnolia, Orion, Pizarro, Penbina, Rara Avis, So. Hite, Tombstone.

Number of sales... 272,550

Copper and Silver Stocks.

Reported by C. H. Smith, Commission Stock Broker, No. 15 Congress street, Room 3.

Boston, Oct. 7.

The market for copper stocks the past week has been dull and without any special feature; prices generally are quite firm, but there is a lack of animation, and no disposition to operate either on the bull or the bear side of the market. In silver stocks, there is more activity, confined, however, to one or two specialties—notably Silver Islet, which shows a handsome advance over prices of last week.

In coppers, Calumet & Hecla has steadily advanced from \$23 to \$23½, with sales of about 200 shares.

Copper Falls declined from \$12 to \$11, with a rally to \$11½ on small sales. There is nothing of special interest from the mine in regard to the silver find. The explorations continue with now and then a small lot of silver ore coming to the surface.

Franklin has been quite active, opening at \$13¼, which was the highest point, and declined to \$12½.

Pewabic dull at \$17½@18.

Quincy very steady at \$27@27½.

Allouez opened at \$3¼ but declined to \$3—closing at \$2¼@3.

Blue Hill steady at \$3½.

Huron declined from \$5¼ to \$5½ on small sales.

National sold at \$2.

Ridge at \$1¼@1½.

Star at \$1½.

Dougllass at \$2 1-32.

Brunswick Antimony steady at \$20¼@20¾.

In silver stocks, Catalpa steady at \$1¼@1½. Duncan Silver advanced from \$2¼ to \$3½, declining, however, to \$3, at which it is offered.

Waukeag declined from \$3 to \$2½ on sale of 1500 shares; latter, it was in demand at \$3 bid.

Sullivan advanced from \$6 to \$7 on sales of 300 shares only.

Harshaw active at \$30 to \$31, with sales of about 1000 shares, at average of \$30½, closing \$30 bid.

Empire, of Arizona, declined from 77½c. to 65c. on sales of 300 shares.

Silver Islet has steadily advanced from \$37½ to \$44; sales about 1200 shares. The reports from the mine are very satisfactory.

3 P.M. CLOSING PRICES.

Table with columns: Bid, Asked, Bid, Asked. Lists stocks like Allouez, Atlantic, Antimony, Blue Hill, Calumet, Catalpa, Copper Falls, Duncan, Empire, Franklin, Harshaw.

At the Boston Mining Stock Exchange, Boston Gold and Silver advanced from \$2.55 to \$2.70. No Carthines, from \$1.08 to \$1.26.

Coal Stocks.

NEW YORK, Friday Evening, Oct. 8.

These stocks have been but moderately active during

COAL STOCKS.

Table with columns: NAME OF COMPANY, Capital Stock, Shares, Par Val, Last Dividend, Rate per Ann., Quotations of New York stocks, SALES. Lists companies like Am. Coal Co., Buck Mt. Coal, Col. C. & I., Ches. & O. RR, Consol. Coal, Cumb. C. & I., Del. & H. C., D. L. & W. RR, Lehigh, C. & N., Lehigh, Y. R. R., Mar. & D. Coal, Me. Anth. Cl., M. R. & E. RR, N. W. Cen. C. I., N. J. C. R. R., N. Y. & S. Coal, Penn. Coal, Penn. R. R., Ph. & T. C. I., Spring Mt. C. I.

*Of the sales of this stock, 32,583 shares were sold at the Philadelphia Stock Exchange, and 54,483 at the New York Stock Exchange. Total Sales... 349,981

BOSTON MINING STOCKS.

Table with columns: NAME OF COMPANY, Shares, Par, Sept. 30, Oct. 1, Oct. 2, Oct. 4, Oct. 5, Oct. 6, SALES. Lists companies like Allouez, Atlantic, Atlas, Aztec, Blue Hill, Brunswick, Cal. & Hecla, Catalpa, Central, Chryslerite, Copper Falls, Copp'r Harbor, Cont'm't M. Co. Ariz., Con. Hamp. M. Co., Concord M. Co., Dana, Douglass, Duncan, Empire, Franklin, Gt. Basin M. Co., Great Western, Harshaw, Harshar, Humboldt, Hungarian, Huron, International, Madison, Manhattan, Mesnard, Minnesota, National, Orford, Osceola, Pewabic, Phoenix, Pontiac, Ridge, Rockland, Quincy, Silver Islet, So. Hite, Star, Sullivan, Superior, Sutro Tunnel, Silver Nugget, Union L. & C. Co., Washington, Waukeag.

c Copper. s. Silver. = 2,000,000. + 13 7-16.

the past week, with prices, as a rule, steady. The transactions aggregate 349,981 shares, as against 576,748 shares for the previous week.

The most active stocks were Delaware, Lackawanna & Western, and New Jersey Central; of the former, 107,712 shares have changed hands, the price fluctuating gently between \$89½ and \$91½.

New Jersey Central has sold to the extent of 93,517 shares at gradually weakening prices, selling Monday at \$75½ and to-day at \$72½, they being the extreme prices.

Delaware & Hudson has been quiet on sales of 5698 shares at \$96@83¾.

The dealings in the minor stocks have been as follows: 900 shares of Colorado Coal and Iron at \$19¼@21, 150 shares of Consolidated Coal at \$36½@36, and 6 shares of Pennsylvania Coal at \$210.

The Philadelphia Ledger says:

It is stated that the receivers of the Philadelphia & Reading Coal and Iron Company have made important additions to the list of coupons of the Coal and Iron Company divisional mortgages that they are willing to redeem. Interest on six different mortgages falls due next month, and the receivers announce their readiness to compromise three of them. They offer 6 per cent instead of 7 for the semi-annual interest on the mortgage upon the Swatara Company's lands, amounting to \$1,000,000; 5 per cent instead of 7 on the Houtz, Meyer & Kinnear tract, the principal of which is \$235,000; and 4 per cent instead of 6 on the Salem Coal Company's lands, on which there is a

mortgage of \$150,000. This is a scaling of \$10,000 on the Swatara Company's lands, \$4700 on the Houtz, Meyer & Kinnear tract, and \$3000 on the Salem Coal Company's lands. Total interest due, \$47,775; offered, \$39,925.

AUCTION SALES OF STOCKS AND BONDS.

\$1030 Junction Railroad Company second mortgage 6 per cent coupons April and October, free of taxes, due 1900, indorsed for principal and interest by the Pennsylvania Railroad, Philadelphia, Wilmington & Baltimore Railroad companies, 114 per cent.

23 shares Morris Canal and Banking Company preferred, par \$100, \$101.

58 shares Pennsylvania Salt Manufacturing Company, par \$50, \$83.

20 shares Northern Liberties Gas Company, par \$25, \$40.50.

15 shares Pennsylvania Salt Manufacturing Co., par \$50, \$83.

40 shares Cambria Iron Co., par \$50, \$104.75.

50 shares Pennsylvania Steel Co., par \$100, \$204.25.

\$2500 Huntingdon & Broad Top Mountain Railroad and Coal Co., first mortgage 7 per cent gold coupons, April and October, due 1890, 115½ per cent.

\$3000 Summit Branch Railroad Co., 7 per cent coupons, January and July, due 1904, 101½ per cent.

\$2000 Pennsylvania & New York Canal and Railroad Co., first mortgage, 7 per cent coupons, June and December, due 1896, indorsed for principal and interest by the Lehigh Valley Railroad Co., 120½ per cent.

Gas Stocks.

NEW YORK, Friday Evening, Oct. 8.

The market for the New York stocks is strong and active. Brooklyn stocks continue weak. The N. Y. Municipal has declared a dividend of 5 per cent, payable Sept. 27th, and the Manhattan and the N. Y.

Mutual have each declared dividends, payable in October.

The following list of companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 19 Broad street, New York. Quotations are based on the equivalent of \$100.

Table with columns: COMPANIES IN NEW YORK AND VICINITY, Capital Stock, Par, Rate per ann., Am. of last, Date of last, Bid, As'd.

* Changed from certificates to bonds, of \$1000 each; 6 per cent per annum.

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in at New York, Philadelphia, and Baltimore, for the week ending the 7th inst., are given in the following tables.

Table with columns: STOCKS, Par Value, High'st, Lowest, Closing, Sales: Shares.

Table with columns: BONDS, Price, When Due, Int. est. When Due, High'st, Lowest, Amount.

BULLION MARKET.

NEW YORK, Friday Evening, Oct. 8.

DAILY RANGE OF SILVER IN LONDON AND NEW YORK, PER OZ.

Table with columns: DATE, London, N. Y., DATE, London, N. Y.

BULLION SHIPMENTS.

We give below a statement showing the latest published bullion shipments, in addition to those announced in our issue of October 2d:

Table listing bullion shipments with columns: DATE, Location, Amount, and other details.

(a) Received in Salt Lake City. (b) Received in this city.

ARIZONA.

Copper Queen.—This mine is producing copper bullion at the rate of 700 lbs. per hour, or 17,800 lbs. per diem.

Silver Belt.—The owners of the Silver Belt had advices from Maricopa yesterday, stating that their bullion had been shipped to San Francisco.

Silver King.—The ten additional stamps of the Silver King mill were started up on the 21st inst.

CALIFORNIA.

Bodie.—The Standard mine, during the week ending October 2d, extracted 1368 tons of ore; pulp-assay, \$26.84; crude bullion received, 2765 ounces; shipped to company, \$26,634.51; shipped for September, \$181,057.31.

Nevada County.—The bullion yield of three Nevada County mines for August was as follows: Idaho (gravel), \$37,300; North Bloomfield (gravel), \$33,500; Milton (gravel), \$36,300.

The Downieville Messenger (Cal.) says: There never has been a more prosperous season for drift and hydraulic mining in Northern Sierra than that for 1880.

The Downieville Messenger (Cal.) says: There never has been a more prosperous season for drift and hydraulic mining in Northern Sierra than that for 1880.

Ontario.—The bullion product of the mill of the Ontario Silver Mining Company of Utah, for September, was

a profit of 48 cents. The gross yield of the American Hydraulic mine, of Morrystown, for the past twenty-eight years, since 1852, has been over \$7,000,000, and only 200 acres have been worked, leaving 1340 acres yet undeveloped.

COLORADO.

Leadville.—The following table gives the approximate daily output of the leading mines of the camp at the present time:

Table with columns: Mines, Tons, Mines, Tons.

—Leadville Circular, Oct. 2.

Leadville's smelters shipped \$1,502,885 worth of bullion in September, the largest monthly product in the history of the district.

Chrysolite.—The following are the shipments of ore from the Chrysolite for the past four days: Monday, 103 tons; Sunday, 64 tons; Saturday, 92 tons; and Friday, 124 tons.

Amie.—The Amie, on Fryer Hill, is said to be in full blast.

Little Pittsburg.—The Little Pittsburg is shipping about thirty tons of ore per day, which mills a hundred ounces to the ton.

Robert E. Lee.—This mine has shipped on an average thirty-five tons of ore per day, running about a hundred and sixty ounces of silver to the ton.

Black Hawk.—New sampling-works are being constructed at Black Hawk. An additional 25 stamps have been contracted for by the New York Mill Company.

Caribou.—An Eastern exchange inquired a short time since what the Caribou mine was doing. Yesterday, six silver bricks came to the express office whose average value was \$1115.81.

IDAHO.

Homestake.—The product of the Homestake Mining Company for the second half of September was 4791 ounces gold, worth about \$79,200, making a total of \$137,500 for September.

Deadwood.—The Deadwood Mining Company's product during the last half of September was 1552 ounces gold, worth about \$22,700, making about \$37,900 for the whole month.

MONTANA.

The rock-breaker of the Algonquin Mill, Phillipsburg, broke last Tuesday, since which time the mill has been closed down.

NEVADA.

Nevada Product.—For the fiscal year ending June 30th, 1879, the Director of U. S. Mints reports the production of Nevada, by counties, as follows:

Table with columns: Counties, Mills, Amount of Ore (Tons, Pounds), Gross value.

* In Lyon and Ormsby there are no producing mines. The production given is from mills employed on working-mill tailings from the Comstock.

Barcelona.—The ore brought in by Whitesides & Stewart from the Barcelona mine at Spanish Belt, Nye County, was consigned to the Eureka Consolidated instead of the Richmond, as erroneously stated.

The Bonanzas.—During the week ending Oct 2d, the California mine raised 1,071 tons of ore, assaying \$21.60 per ton.

UTAH.

Ontario.—The bullion product of the mill of the Ontario Silver Mining Company of Utah, for September, was

with the shipments to the same date last year. The imports of Middlesbrough pig-iron for the same period show a decrease of 5112 tons. The following are the quotations of the leading brands of No. 1 pig-iron: Gartsherrie, 58s.; Coltness, 59s.; Langloan, 58s.; Summerlee, 57s.; Carnbroe, 55s.; Glengarnock, 54s.; Eglinton, 51s. Middlesbrough pig-iron was quoted as follows, f. o. b.: No. 1 Foundry, 43s. 6d.; No. 2, 41s.; No. 3, 38s. 6d.; No. 4, 38s.; No. 4 Forge, 37s. 6d.

Messrs. J. Berger Spence & Co., of Manchester, England, under date of September 25th, in writing on the condition of the iron trade, say:

Instead of a recovery during the week, the markets affected by the recent fall have again suffered. In the presence of the immense stocks, the resumption of production in one case, and the increase of it in others, and the marked decrease in the exports during the month, buyers are very chary of purchasing. These conditions have also opened a wide field for bearing operations, and not without success. Makers are little disposed to countenance the latter maneuver, but in some cases have no alternative, while second-hand parcels bought some time ago in view of a rise, are being largely sacrificed. No. 3 Middlesbrough was freshly offered under 38s. on Tuesday, and Warrants at 39s., without large sales resulting, and some little difficulty being experienced in obtaining counter-offers from buyers. Forward business was at a discount. Glasgow Warrants have steadily and persistently declined, reaching 48s. 6d. on Friday. Doubtless these low prices, which must be very near if not under the cost of production, will now tempt speculators. Bessemer are in fair request, though makers are still easily tempted to accept offers under their list rates. Derbyshire iron remains dull.

Rails.—We only learn of a sale of 3000 tons of steel, on private terms, for winter delivery. The price was probably \$58. We quote at \$60@\$65, according to time of delivery. There is a good inquiry for iron rails, but we learn of no transactions. We quote at \$45@\$50.

Old Rails.—We are reported sales of 6000 to 7000 tons of Ts. at \$25½@\$26½, and quote at \$26. D. Hs. are quoted at \$27@\$27.50.

Wrought Scrap.—We note a sale of 500 tons of No. 1 Wrought Scrap at \$28. The scrap here is so irregular in quality that a great difference in quotations exists largely on this account. We quote No. 1 from yard at \$28 and from dock, according to assortment, at \$24@\$28.

We publish the following letters from our regular correspondents:

BALTIMORE, Oct. 4. We have no material change to note in the iron market. The demand for car-wheel irons continues fair, with no stock on hand. Prices are firm at about former rates.

Table with 2 columns: Item and Price. Items include Balt. Char., Va., Anth. No. 1, 2, 3, Mot and Wh., Cl. C. B. Blo'm, Billets, and Refined Bl'm.

R. C. HOFFMAN & Co.

CINCINNATI, Oct. 5. The transactions in pig-iron during the past week have been very light, and prices not so well sustained. We quote:

Table with 2 columns: Item and Price. Items include No. 1 Hanging Rock Charcoal Smelted, No. 2, Mill, No. 1 Tennessee, Ho. 1 Hanging Rock Coke, No. 2, No. 1 Jackson Co. Stone Coal, H. R. C. B. Car-Wheels, all Nos., Southern C. B. Car-Wheels, all Nos., and Virginia.

TRABER & AUBERY.

LOUISVILLE, Oct. 1. The market continues quiet but firm. We quote for cash as follows:

FOUNDRY IRONS.

Table with 3 columns: Item, No. 1, and No. 2. Items include Hanging Rock Charcoal, Southern Charcoal, H'n g Rock, Ste'l & Coke, and Southern Stonecoal & Coke.

"Amer. Scotch" \$25.00@\$26 | Silver Gray, \$23.00@\$25.00 Scotch Iron, 39.00@ 31

MILL IRONS.

Table with 2 columns: Item and Price. Items include No. 1 Charcoal, Cold-short & Neutral, No. 1 Ste'l & Coke, Cold-short & Neutral, No. 2 Ste'l & Coke, Cold-short & Neutral, No. 1 Missouri and Indiana, Red-short, and White & Mottled, Cold-short & Neutral.

CAR-WHEEL AND MALLEABLE IRONS.

Table with 2 columns: Item and Price. Items include Hanging Rock, Cold Blast, Alabama and Georgia, Cold Blast, and Kentucky, Cold Blast.

GEORGE H. HULL & Co.

St. LOUIS, Oct. 2.

There has been but little doing during the past week. Prices are nominally the same as last quotations, and are as follows:

HOT BLAST CHARCOAL.

Table with 2 columns: Item and Price. Items include Missouri, Southern, and Hanging Rock.

COKE AND COAL.

Table with 2 columns: Item and Price. Items include Missouri, Southern, and Ohio River.

Table with 2 columns: Item and Price. Items include Cold short and Redshort under MILL IRONS.

CAR-WHEEL IRONS.

Table with 2 columns: Item and Price. Items include Missouri, Southern, and Ohio.

IRON ORE.

Table with 2 columns: Item and Price. Items include For fix, Furnace, and Brown hematite.

CARD & HOFFER.

RICHMOND, Oct. 5.

Prices have weakened slightly since last report, although consumption continues fair. I repeat last quotations, as concessions are small.

Table with 2 columns: Item and Price. Items include Scotch Pig-Iron, Amer. Scotch Pig-Iron, American, Best Charcoal Wheel Iron, Va. Cold Blast Charcoal Pig-Iron, Old Rails, Wrought Scrap, Cast Machinery Scrap, Richmond Refined Bar Iron, Horseshoes, Mule-shoes, and Old Dominion nails.

ASA SNYDER.

John H. Austin & Co.'s Special Market Report.

LONDON, E. C. Sept. 23.

STEEL RAILS.—Market unusually quiet, although inquiries from United States are constant, without resulting in much business. Quotations vary from £6 to £6 7s. 6d.; some transactions reported at lower figure.

IRON RAILS.—£5@£5 5s.; demand light. BAR IRON.—Moderate business at £5 5s. OLD RAILS.—In better inquiry; price £4 5s. c. i. f., U. S., for flange, and 5s. per ton higher for Double Heads.

HEAVY WROUGHT SCRAP-IRON.—7s., c. i. f., United States ports. BESSEMER PIG-IRON, Nos. 1, 2, and 3.—Easier; 65@70s., and only a small business in the article.

SCOTCH PIG-IRON.—48s. 8d. MIDDLESBROUGH PIG-IRON, No. 3.—38@38s. 3d.

COAL TRADE REVIEW.

Anthracite.

NEW YORK, Friday Evening, Oct. 8.

The curtailment of five days has had no perceptible benefit upon trade in this city, although the reports from Philadelphia indicate that stocks are much reduced and that there is a good demand for shipment. Prices show no improvement. Chestnut coal is being undersold in some cases as much as fifty cents per ton, while there is some underselling on all sizes. It is very evident that further curtailment will have to be made soon to meet the requirements of the trade.

The curtailment of production which has taken place this month was brought about by the demonstration that the mines, even when handicapped by a scarcity of cars and vessels and several other disadvantages, had attained a capacity for production unprecedented in the history of the anthracite coal trade. That this condition of affairs must result in time was inevitable, but that it should come so soon was not expected. All efforts at limiting production as far back as history records have resulted in increasing the capacity for producing and eventually increasing the competition. Under the present system of curtailment, each company employs more men, increases and improves its machinery, drives dead-work most energetically, and, in fact, does all possible to produce in a given time the greatest amount of coal possible. Were but one or two companies doing this, they would reap an advantage; but as all are doing it no one is benefited and all are injured. In time, the production will become so large that a greater curtailment will have to be made, and its limit will only be reached by reducing the working time of the miners to such an extent that they will be driven to other occupations to support themselves and families, or will have to receive greater remuneration for the time they do work.

It is reported that a movement will be made to take the Lehigh & Wilkes Barre Coal Company out of the hands of a receiver. Preparations were made for this previous to the failure of the Philadelphia & Reading Railroad Company, but the uncertainty of the policy of that company made advisable the continuation of the receivership of the former company, until a more settled state of affairs prevailed in the coal trade. That this condition has been approached, is by no means a certainty yet in many minds.

It is said that the Lehigh Coal and Navigation Company earned, during the first nine months of this year, \$100,000 over fixed charges, against a deficiency of \$134,000 for the same period of 1879. It is also said that a prominent banking firm has taken a large amount of the company's 7 per cent bonds, the proceeds of which will be used in reducing the floating debt.

The production of anthracite coal last week was 522,833 tons, as compared with 639,171 tons the previous week, and 517,293 tons the corresponding week of 1879. The total production from January 1st to October 2d was 16,756,073 tons, as against 19,262,150 tons for the like period last year, showing a decrease this year of 2,506,077 tons.

Our Philadelphia correspondent, under date of October 7th, says:

The mines start this morning well stocked with orders for the line, and the Richmond wharves, bare of eggs and stove sizes. Vessels, which have been plenty recently, are again scarce, but there is no change in freights. Some large vessels have been chartered as low as \$1.25@\$1.30 to Boston within the week. There is quite a number of unfilled orders at tide water. Fresh orders are not coming as lively as expected.

Bituminous.

There is no change to note in the business in the article. There is a very fair demand still, but prices do not improve. The most notable feature in the trade is the advancement that Clearfield coal has made in securing public favor. It is now a well-established fact that this coal is an even competitor with Cumberland, with a lower cost of production, owing only to the fact that the miners and other labor are paid less. It also has the advantage of being dependent on a much more liberal railroad company for transportation. The completion of the George's Creek & Cumberland Railroad, with all its connections, will undoubtedly work a great change in the Cumberland District, and upon its completion depends the future success of this important coal-field.

We publish the following letters from our regular correspondents:

MILWAUKEE, Sept. 29.

The trade in coal continues very brisk, our orders far exceeding our ability to fill.

Table with 2 columns: Item and Price. Items include Lackawanna stove size per net ton, Brier Hill, Straitsville, Ohio, Bitu., Morris Run Blossburg, Altoona, Cumberland Forge, and Lehigh Lump.

R. P. ELMORE & Co.

NEW ORLEANS, Oct. 4.

Quotations remain firm at last figures given, with the exception of an advance of 5c. per bbl. on the steamboat price of Pittsburg coal. The market has a tendency to advance on all deliveries. Stock ample for all purposes, unless fall passes by without the usual rise in the Ohio River.

Coal on hand in this city October 1st: Pittsburg coal, 97 boats. Consumption during September: Pittsburg coal, 25 boats and 2 barges. Arrivals during September: 2 boats of Pittsburg coal from Bayou Sara.

C. A. MILTENBERGER & Co.

TOLEDO, Sept. 30.

No change to report in prices of coal in this market from last quotations given you. The demand is quite active, both for hard and soft coal, and supply of cars at mines not sufficient to fill orders. It needs now only a little cold weather to make country dealers realize that they have delayed placing their orders entirely too long. Lake shipments of soft coal are delayed a good deal, owing to trouble in getting vessels; demand, however, is good.

GOSLIN & BARBOUR.

SAN FRANCISCO, Sept. 30.

COAL.—The arrivals for the week include 2500 tons Cumberland from Baltimore per Loretto Fish; the City of Glasgow from Newcastle, N. S. W., brought 1046 tons Wallsend; the Werra from Newcastle, Eng., had 640 tons; Easterhill from Sydney had 1150 tons Shale for the Gas Company; Fr. bark Carioca from Newcastle, Eng., had 1057 tons coal; and the Hereward, from Sydney had 1985 tons same. The st of market is dull and sluggish, but for cargoes near at hand tolerably firm. We quote Australian cargoes to arrive at \$6.75@\$7.50; English Steam, \$6.50; Scotch, \$6.75; West Hartley, \$7.25. We quote Mt. Diablo Screenings \$4@4.50; do. Coarse, \$5; Seattle and other Northern coals, \$6@8; Wellington screened, \$8@9, according to quantity. The Victoria from Nanaimo brought 1520 tons, and the W. H. Connor from British Columbia brought 2525 tons Wellington. The Yosemite brings 1950 tons Seattle.—Commercial Herald.

The Welsh Coal Trade.

Messrs. Tellefsen, Wills & Co., of Swansea, under date of September 15th, say:

Prices during the last ten days have been much firmer, and a positive advance of from threepence to sixpence per ton has taken place. Colliery proprietors positively refuse to make contracts at current prices, and are very confident that the "good time" so long hoped for is at last coming.

FREIGHTS.

Coastwise Freights.
Per ton of 2240 lbs.

Representing the latest actual charters to Oct. 8th, 1880.

Table with 3 columns: Ports, From Philadelphia, From Baltimore, From Elizabethport, Fort Johnson, South Amboy, Hoboken and Weehawken.

* And discharging. † And discharging and towing. ‡ 3c. per bridge extra. § Alongside. ¶ And towing up and down. ¶ And towing. ** Below bridge.

STATISTICS OF COAL PRODUCTION.

Comparative statement for the week ending Oct. 2d, and years from January 1st:

Table with 5 columns: TONS OF 2240 LBS., 1880. (Week, Year), 1879. (Week, Year).

Total same time in 1875.....13,867,686 tons.
" " " " 1876.....12,365,653 "
" " " " 1877.....14,275,663 "
" " " " 1878.....12,147,543 "
" " " " 1879.....19,262,150 "

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

New York.

Wholesale Prices of Anthracite Coal Delivery f. o. b. at Tide-Water Shipping Ports, per ton of 2240 lbs.

Table with columns: Lump, Steamer, Grate, Egg, Stove, Chestnut.

* Fifty cents per ton additional for delivery at New York.

Wholesale Prices of Bituminous Coal.

Table with columns: MANUFACTURING AND STEAM COALS, F. o. b.

DOMESTIC GAS-COALS.

Table with columns: Per ton of 2240 lbs., At the Shipping Ports, Alongside at New York.

FOREIGN GAS COALS.

Table with columns: Newcastle at Newcastle-on-Tyne, Liv. House Orrel, Ince Hall Cannel, Gas Cannel, Scotch Gas Cannel, Bl'k House, Caledonia, Glace Bay, Langan, Intern'l Mines, Pictou, Vale Mines.

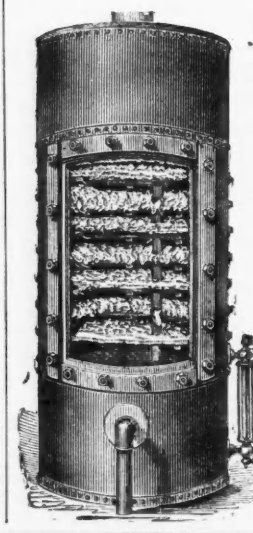
Retail Prices.

Table with columns: Per ton of 2000 lbs., Anthracite, Pittston coal delivered, Lack. Coal delivered below 59th St.

OFFICE OF THE ONTARIO SILVER MINING CO., 18 Wall street, New York, October 5, 1880.

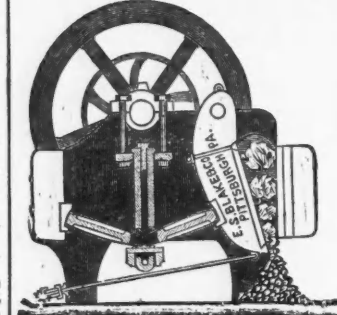
DIVIDEND NO. 60.
The regular monthly dividend of FIFTY CENTS per share has been declared for September, payable at the office of the Transfer-Agents, Wells, Fargo & Co., 65 Broadway, on the 15th inst. Transfer-books close on the 9th inst. H. B. PARSONS, Assistant Secretary.

STILWELL'S PATENT LIME-EXTRACTING HEATER AND FILTER



COMBINED IS THE ONLY LIME-EXTRACTING HEATER THAT WILL PREVENT SCALE IN STEAM BOILERS, REMOVING ALL IMPURITIES FROM THE WATER. Before it enters the boiler. Thoroughly tested; over 3000 of them in daily use.

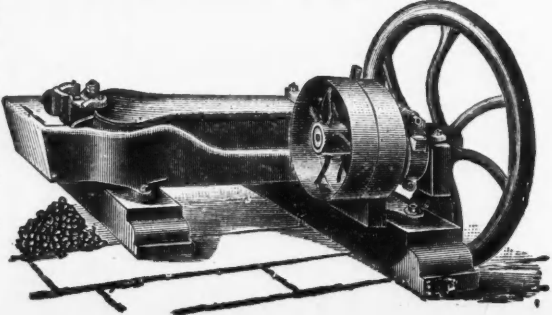
THE LION & EAGLE CRUSHER;



"New Pattern" Blake Crusher Improved. Capacity in every respect equal to that of the old styles; less weight and cost of transportation; less power required to drive; less friction, wear, oiling, manipulation, expense for repairs, and no danger of expensive breaks.

Foster's Combined Crusher and Pulverizer.

Simplest and Most Economical Machine. Will crush to any required ring-gauge for Macadamizing. Will pulverize as fine as STAMPS at FIFTY PER CENT less cost. The Best Dry Pulverizer yet invented.



TOTTEN & CO., Pittsburg, Pa.

E. S. BLAKE & CO., Pittsburg, Pa.