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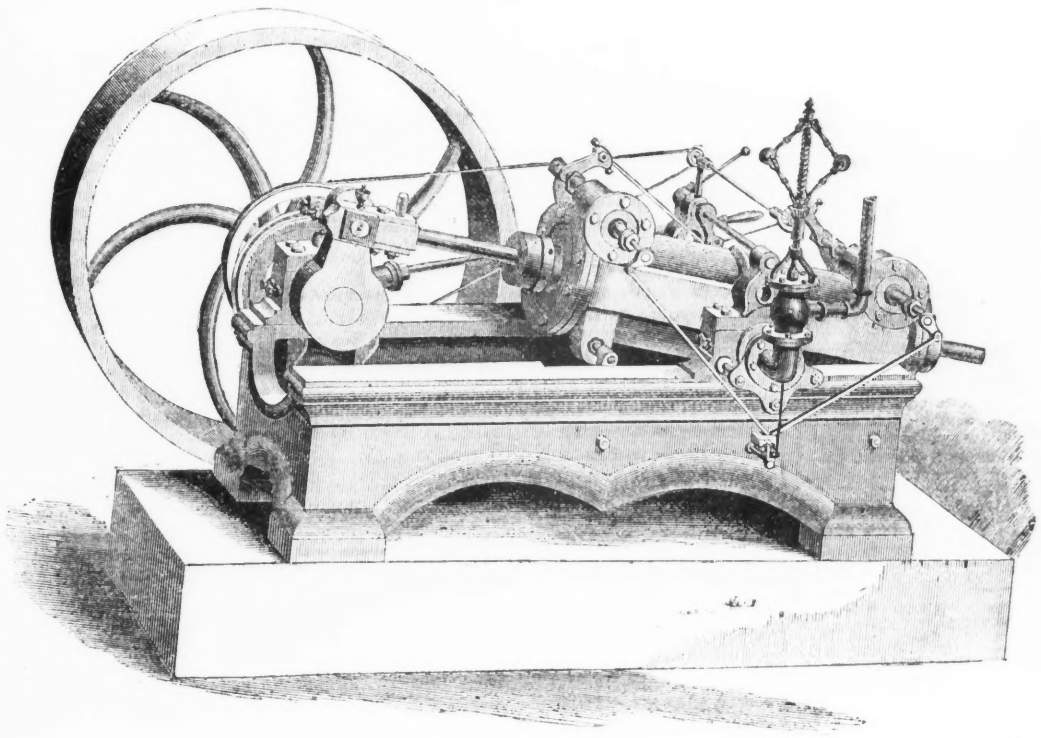
OSCILLATING ENGINES.

It must be acknowledged by all practical mechanics, that the simplest and most rational transmission of power by a steam engine, is by the oscillating motion, whereby the piston-rod is turning the crank directly, without the intervention of a cross-head, slides, and connecting-rod, which have to be moved with considerable friction and consequent loss of power. That the Oscillating Engine has not come into more general use in this country, the same as in Europe, has been on account of its imperfect construction, and consequent liability of getting out of order, or being too expensive in the use of fuel and steam. It is claimed for the Engine which is illustrated this week, that all of these objectionable features have been entirely avoided and that we have now an Oscillating Engine which will defy competition with the most elaborate and costly ponderous engines having stationary cylinders. The engraving represents a four valve Engine, which has two steam and two exhaust ports, by which means it can exhaust at any point, and cut off at any length of the stroke, either fixedly, by the setting of the eccentric, or variably, by attaching the cut-off valve to the governor by positive and fixed motions of the cylinder and eccentric, features that no other engine, working on the principle of expansion, can claim up to this date. Another improvement claimed is in the construction of the valves, which are so nearly counter-balanced that under the highest pressure they can be moved by a ten to twelve-inch lever, so that their friction is merely nominal. Besides, these valves are put into seats, so that they can be taken out and kept in order by any ordinary mechanic, thereby avoiding the necessity of sending the cylinder to the makers at extra cost and loss of time. The manufacturers of this Engine also make a single valve Engine, which is very simple in the construction of all its parts, and is intended for those who do not care so much about the cut-off or expansion principle, but look more to having a plain and substantial engine at less cost. It is stated in regard to their engines that they are not alone economical, in first cost, as well as in the use of fuel and steam, but that they occupy little space, and are comparatively light in weight, which makes them particularly advantageous for transportation. Messrs. A. & F. Brown & Co., are the manufacturers, who moreover warrant all their Engines to be made of the very best material, with steel piston-rods, best steam metal for the journals, and the parts moving the valves, all case-hardened, so that there is no danger of wearing out or giving away; in fact, they warrant them to be first class in every respect.



BROWN'S OSCILLATING ENGINE.

Messrs. Brown & Co.'s Works occupy Nos. 57, 59 and 61 Lewis street, in this city, and are well worth visiting.

A Short Route from Boston to the Coal Regions.

It has been long understood by railroad men that the shortest connecting route between the Erie Railroad and the coal regions, and the city of Boston, is through New Haven. We are informed the surveys show that following the Air Line from where it diverges from the Boston and Erie at Williamantic, the line through New Haven is twenty-one miles shorter than the line through Hartford. Influential parties are now in the field to take advantage of this fact, and are organizing to secure the extension of the New Haven and Derby Railroad to the Hudson River, and there form a connection with the Erie road. A company has been organized, under the general railroad law of the State of New York, to build that part of the route, and an application will be made to the next Legislature for authority to construct the Connecticut part.

That such a road must ultimately be built, does not admit of doubt.—*New Haven Journal.*

Intensity of Heat Generated by Peat.

It is an acknowledged fact, that peat produces an *intense* heat—a feature of so much importance as to entitle it to prominent mention and careful consideration. Its virtue in this respect is much increased when properly prepared, solidified and dried, and it reaches its maximum of heating power when solidified and *charred* or coked. Mention has often been made of its peculiar qualities in this respect, but their importance will be more clearly comprehended when taken in connection with the facts in an interesting article on the "Calorific Value of Fuel," which we find in the *American Railway Times*, and which contains remarks so pertinent on this point, that we quote as follows: "There are, in all, five important kinds of fuel only: these are wood, peat, coal, charcoal and coke; the first three being natural, and the last two artificial fuels. The elements of which each of these is composed are practically identical—the differences of character being due to the proportion of those elements entering into the composition of each kind of fuel; and, according to those proportions, each fuel takes its relative position in the scale of value. Taking the comparative chemical composition of the various kinds of fuel, according to Dr. Machaltie, their percentage stands thus:

	Carbon	Hydrogen	Oxygen	Nitrogen	Sulphur	Ash
Wood (dried at 250 deg. F.)	50.0	6.0	42.0	1.0		1.0
Peat (dried at 220 deg. F.)	57.0	5.5	31.0	1.5		5.0
Coal	85.0	5.0	4.0		1.0	4.0
Charcoal	87.0	3.0	7.0			3.0
Coke	92.0				1.5	6.5

The *amount* of heat produced by fuels in their combustion does not always constitute their relative value. For some purposes, it is apparent that this would be the best criterion: but, as a rule, in metallurgic processes, the *quantity* of heat is of far less importance than the *intensity*, or power to raise substances to the highest temperature—and the fuel which affords the greatest quantity of heat is sometimes incapable of producing the greatest intensity. In determining the intensity of heat produced, it is necessary to know the available quantity of heat produced in the combustion of a pound of fuel, the weight of the products of combustion, and the quantity or number of units of heat required to raise the products of the combustion of a pound of fuel one degree of Fahrenheit. Where very high temperatures are required, the fuel which should be selected ought to approach as near as possible to pure carbon in its composition, and for the reason that carbon is the best substance for the purpose. We now see the reason for making coal into coke, and wood into charcoal. Coal cannot produce a temperature equal to that obtained from coke, neither can the temperature of wood be compared with that of charcoal. And this results from the relative accession of carbon, and reduction of oxygen and hydrogen in them. This must be referred to the great difference between *quantity* and *intensity* of heat. If we cannot raise sufficient steam from a boiler by the use of one ton of coal, we can easily meet the point by burning two tons; but, if the fusing point of metal cannot be attained by one ton of coal, it by no means follows that any additional amount of fuel will insure the required result. The great distinction to be observed is between *quantity* and *intensity* of heat. The first of these two conditions depends upon the quantity of fuel, but the last is referred entirely to the quality of fuel. Twenty tons of coal will not give a temperature so great as that afforded by one ton of coke." It should be observed, that in the above statement of comparative composition of fuels no mention is made of *peat charcoal*. Now it is an established fact, that peat charcoal is of much greater density and caloritic power than the best wood charcoal, and, calculating the amount of carbon in peat charcoal at no more than the relative amount as between wood and charcoal in the above table, peat charcoal will be represented by 98, which exceeds any of the fuel mentioned in Dr. Machaltie's table. The *intense* heat generated by *peat fuel* is a subject of frequent remark, and will eventually be dwelt upon, we think, as a very important consideration in estimating its value.—*Peat Journal.*

The Mineral Resources of China.

A Correspondent of the *London Times*, writing from Shanghai on the 5th of October, says: "A new ambition has arisen among the foreign residents in China. Hitherto trade, in the sense of tea, silk, opium and gray shirtings, has been the main object of existence, and 'opening up the country' meant the possibility of tendering the two last named articles to the inhabitants on more favorable terms. But now we want to 'develop the resources' of China. A great deal has lately been said and written here about the mineral wealth contained in its hills, and every one is intent on mining. There are two difficulties in the way, but neither is insurmountable. In the first place, mining requires capital, and there is none in China just at present; none, at least, in foreign hands. But that might be obtained in England, where, judging from the rate of discount, there seems to be a plethora. In the second, the Chinese government will not give its consent to any measure which involves the establishment of foreigners in the interior, as this would do. But it may be found possible to avoid this difficulty by refraining from asking permission. To go directly to Pekin with a request for permission

to mine for iron in the Shantung hills would be to invite refusal; but it may not be impossible to come to a verbal understanding with the local officials that any proceedings with that object shall be winked at, and a royalty on the proceeds accepted as though forthcoming from a legitimate undertaking. The northeast part of Shantung first claims attention, both on account of its wealth and accessibility. The Rev. Mr. Williamson has lately published an account of some researches made by him in this neighborhood which disclosed the existence of coal, iron, gold, lead and sulphur—in districts, too, from which water communication exists with the treaty port of Chefoo. In reference to the first of these products Mr. Williamson says: 'There are great coal-producing districts in this province in active operation, several minor ones, and other places where coal is known to exist, but where mining is interdicted.' The first is the valley of the Lan-fei-ho, situate in longitude 56 east, and stretching from latitude 36.30 to 36.50 north. Here several varieties are produced, 'some fine bituminous coal, some partly bituminous and partly anthracite, and other kinds difficult to class. This district is famous all over the country." In the neighborhood is a large manufactory of coke, where it is stored in yards, and largely exported. It is used for smelting silver and other purposes where great heat is required. Next in importance to this valley ranks a plane situate near Yi-chow, in longitude 118.24 east, and latitude 25.15 north; but though coal is found here in great abundance, it is inferior in quality to that found at Lan-fei-ho. The third district is situate in longitude 119.12 east, and 36.40 north latitude, and here excellent coal is exhumed, which might be brought to Cheefoo in junks. With reference to the fact that I speak of these fields as already being worked, it may be asked what particular advantage we anticipate from the interference of foreigners in the process, and why we do not supply ourselves thence now, instead of paying ruinous prices for English and Australian coal. The application of foreign skill is necessary to exhume the lower and better strata. The Chinese merely work at the surface. A pit is dug down, and they work on until the water rises. They then leave that to go to another pit—missing, of course, in nine cases out of ten, the finest quality, and leaving vast quantities untouched. The inferior quality of the coal they obtained, combined with the difficulty attending its transport, renders it hardly worth the attention of foreigners. Thus it is that the question of mining is intimately connected with that of railways. In some cases good water carriage exists from the neighborhood of the mineral districts to the seacoast; but they can never be properly worked until the advantages of steam carriage are actively recognised by the Chinese government. It has been aptly remarked that the difficulty of getting at coal in China consists less in digging it from the earth than in sinking a mine in the Chinese intellect. Turning to iron, Mr. Williamson says that 'very fine iron ore has been procured at a hill called Pan-shan, about fifteen miles south of Tungchow,' a large city on the southern shore of the Gulf of Pecheli, which is mentioned in the treaty as an open port, but for which Chefoo was afterwards substituted, on account of its more convenient harbor. This ore lies near the surface, and there is plenty of it; it is magnetic, drawing a needle after it like the strongest load-stone. Gold is collected by washing the sands of mountain streams. Marvellous stories are told by the natives concerning the richness of the quartz, which of course must be accepted with caution; but of the existence of the precious metals in these hills there is not the slightest question. Little is done toward extracting it from them, because the government 'squeeze' the projectors so outrageously that the profits hardly repay the risk and expense attendant on regular mining operations. Less interference is exercised with the 'washers,' so many natives earn a livelihood by this employment. It would be a wonderfully efficacious mode of opening up the country if a few hundred adventurers were to determine on testing the value of these districts with or without permission."

Original Papers.

GAS FLAME REACTIONS VIII.

By R. BUNSEN, Professor of Chemistry at the University of Heidelberg. Translated for the AMERICAN JOURNAL OF MINING, by H. ENDEMANN, Ph. D.

Continued from Page 370

12. REDUCTION OF THE IRON COMPOUNDS.

a. Reduction on the charcoal-rod gives no metallic button or only malleable flakes, with metallic lustre. The finely pulverized metal clings in black, non-lustrous bristles to the magnetic knife, and, when rubbed off upon paper, moistened with nitric and a little muriatic acid, and warmed over the flame, gives a yellow spot, which presents, when a drop of ferrocyanide of potassium is added, a deep Prussian blue color. The original yellow spot, moistened with a solution of caustic soda, and suspended for a few moments in the vapors of bromine, gives, when moistened with soda again, no spot of oxide.

b. Borax-pearl.—In the oxidation yellow zone, to brown-red white hot, yellow to brown-yellow when cold; in the reduction zone, bottle-green.

13. REACTIONS OF THE NICKEL COMPOUND.

a. Reduction on the charcoal-rod gives white, shining, malleable metallic scales, after the coal is pulverized. They adhere in bristles to the magnetic blade. On paper, with nitric acid, they give a green solution, which, after the addition of a drop of soda solution, suspension in bromine vapors, and a second drop of soda, changes to a brown-black spot of the super-oxide of nickel. The ashes of the paper, freed by washing from the soda, may be used for the following reaction.

b. Borax-pearl.—In the oxidation-flame, dirty violet-grayish brown; in the upper reduction-zone, gray, from metallic nickel, which often unites to a silver-white nickel sponge, while the pearl becomes colorless.

14. REACTIONS OF THE COBALT COMPOUNDS.

a. Reduction on the charcoal-rod.—When the coal is pulverized, malleable, white lustrous metallic flakes, like those of nickel, appear. They likewise adhere in bristles to the magnetic blade. Rubbed off upon paper, and moistened with a drop of nitric acid, the metal gives a red solution, which, muriatic acid being added, gives, when dry, a red spot, vanishing when again wet. The paper, moistened with soda-solution, suspended in bromine-vapors, and again moistened with soda, shows a brown-black spot of super-oxide of cobalt. This reaction is distinct with only a few tenths of a milligramme of the metal. The paper can be washed free of soda and burned, and the ashes used for coloring the borax-pearl.

b. Borax-pearl.—In the oxidation-zone, deep blue, not changing in the lower reduction-zone. When the pearl is held by itself, or, still better, with double chloride of platinum and ammonium, for a considerable time, in the hottest upper reduction-flame, it finally becomes colorless, precipitating cobalt, or, in the latter case, a compound of cobalt and platinum.

15. REACTION OF THE PALLADIUM COMPOUNDS.

a. With soda, on the fine platinum wire, in the upper oxidation flame, the compounds of palladium are reduced to a gray mass, like platinum sponge, which gives, when rubbed in the agate mortar, silver-white, lustrous, malleable metallic scales. These, washed on a piece of glass and dried, dissolve with reddish-brown color in nitric acid. A drop of the solution of cyanide of mercury being added, and the current of ammoniacal air being directed upon it, a white flaky precipitate appears, which is redissolved when ammonia is added in drops. After evaporating and boiling with aqua regia, the liquid, concentrated to a single drop, gives a dirty orange crystalline precipitate of double chloride of palladium and ammonium

b. With Protochloride of Tin, solutions of palladium are colored, according to the quantity of protochloride added, blue, green or brown.

16. REACTION OF THE PLATINUM COMPOUNDS.

a. With Soda in the upper oxidation flame, a gray sponge is produced, giving in the mortar lustrous, silver-white, malleable metallic particles. These are insoluble in nitric or muriatic acid alone, but are dissolved in aqua regia with bright yellow color, if the platinum is pure, and with brownish yellow color if rhodium, iridium or palladium are present. Treated with cyanide of mercury, and blown upon with ammonia, this solution gives no flaky precipitate, but an immediate bright egg-yellow, crystalline precipitate of the double chloride of platinum and ammonium.

b. Protochloride of Tin colors platinum solution yellowish brown.

17. REACTIONS OF THE IRIDIUM COMPOUNDS.

With Soda in the upper oxidation flame these compounds, like the foregoing, are reduced to metal, giving, however, in the mortar, a gray, non-lustrous and entirely non-malleable powder. This is not only in nitric or muriatic acid, but also in aqua rigia, completely insoluble.

18. REACTIONS OF THE RHODIUM COMPOUNDS.

These are distinguished from the preceding only by the fact that the powder insoluble in aqua regia, being melted with bisulphurate of potassa, is partially oxidized, and will then give a rose-red solution.

19. REACTIONS OF THE OSMIUM COMPOUNDS.

These give in the oxidation-flame volatile osmic acid, with a piercing odor like chlorine, and irritating to the eyes.

20. REACTIONS OF THE GOLD COMPOUNDS.

When gold is present in mere traces, mixed with considerable gangue, it must be concentrated and detected by the old method of assaying. In other cases, a few tenths of a milligramme may be discovered by reduction with soda on the charcoal-rod. The lustrous metallic button thus obtained may be rubbed in the agate mortar to shining gold particles, insoluble in nitric or muriatic acid, but soluble with tolerable ease in aqua regia, to a bright yellow liquid. This reaction is performed on a piece of glass, and the solution, being sucked up with a piece of filter-paper, and a drop of protochloride of tin added, gives the characteristic gold-purple, known as the precipitate of Cassius. The remainder of the solution, adhering to the glass, may be tested with drops of green vitriol, when it turns brown with a suspended precipitate of gold, the liquid appearing, at the same time, blue by transmitted light.

21. REACTIONS OF THE SILVER COMPOUNDS.

Traces of silver in slags or complex ores must be detected by the old methods of cupellation, &c. When not mixed with too many foreign substances, however, almost infinitesimal quantities of silver may be easily recognized by treating with soda on the charcoal-rod—even less than one-tenth of a milligramme showing this reaction with certainty. The reduced white, malleable button dissolves when gently warmed in nitric acid, and precipitates with muriatic acid the chloride of silver, the characteristic behavior of which with nitric acid and ammonia is well known,

22. REACTIONS OF THE COPPER COMPOUNDS.

a. With Soda on the charcoal-rod.—A lustrous metallic button of characteristic copper-red color. Pulverized and washed clean of the coal, the metallic particles may easily be brought upon a piece of glass and dissolved with nitric acid. The blue solution, on a strip of paper, with ferrocyanide of potassium, gives a brown precipitate. The solution of the metal, with the subsequent reaction, may both be performed without the use of the glass, on a strip of filter-paper, with drops of nitric acid.

b. Borax-pearl.—Blue, not changing when held alone in the lower reduction flame, but easily transformed in that zone, after the addition of a very little oxide of tin, into a reddish-brown pearl, containing the suboxide of copper. By repeating alternately the oxidation and reduction in the lower oxidation and reduction-flames, it is easy, especially when the reduced pearl is allowed to oxidize very slowly, to produce a transparent glass, colored ruby-red by the suboxide of copper.

TO BE CONTINUED.

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING]

METALLURGY OF TIN.

BY PROFESSOR DUSSAUCE.

Concluded from Page 355.

III.—SMELTING OF THE ORES.

Smelting in the Ordinary Furnace.—This method is the oldest: it produces very pure tin, but cannot be applied without much loss; it is used yet in Germany, but has been abandoned in England.

The apparatus is composed of a furnace of half height—twelve to fifteen feet in height—constructed of granite or coarse grained porphyry. The inside is of fire-bricks in the upper part, and of stone in the lower part. Two openings are disposed near the inclined bottom of the furnace. One is used to introduce a tuyere, bringing blast from a blower; the other is a tap-hole in the front, establishing communication between the furnace and the crucible of reception. The latter communicates, by means of a ditch stopped with clay, with a second pit, the surface of which is level with the floor.

When this furnace is fully heated, alternate layers of ore and charcoal are charged from the top, and the blast is applied. Under the influence of the high temperature thus produced, and in presence of carburetted gases, the oxide of tin is not long in being reduced. The metal runs out and collects in the crucible, in which it is soon thickly covered with scoriæ, which are skimmed off as fast as produced, put aside, and melted anew in a smaller furnace. When the crucible is full, the ditch is opened, and the tin flows into the second pit, either to be collected with iron spoons and run into ingots, or to be submitted directly to the refining process, as we shall show in the sequel.

Smelting in the Reverberatory Furnace.—In England tin ores are exclusively treated in the reverberatory furnaces, the latest form of which is as follows: There is a concave floor of fire-bricks, under which are flues to let the cold air circulate, and prevent superheating. There is a hearth, a charging-door, a working-door (placed near the flues leading to the chimney), and lastly, a hole closed by a movable plate. The dressed ore, which generally contains sixty to seventy per cent. of its weight of metal, is mixed with twelve or fifteen per cent. of powdered coal, then charged by the door into the furnace, which is previously heated red. The doors are then closed, and it is gradually heated for six or eight hours. After that period the material is stirred to renew the surfaces, and put the coal in contact with the parts not yet reduced; then the doors are closed again, to let the furnace regain the elevated temperature it has lost during the stirring. The reduction is then completed, and the metal is covered with a layer of scoriæ, which are removed. For this purpose the hole with the movable plate is opened, and by the other hole the scoriæ are taken off. The first do not contain tin; the others contain some, and are divided into two classes: the first and poorest are washed, and furnish small metallic grains; the second, richer, are directly melted with other residues. After the separation of the scoriæ, the metallic bath is seen, clear and bright. The separation of clay, which interrupted the communication between the furnace and the reception-basins, is now demolished, and the metal is run off. While new materials are being charged into the reverberatory, the tin is allowed to stand, to permit the scoriæ to come to the surface. It is then finally skimmed, and run into ingots.

IV.—REFINING OF TIN.

Tin obtained by the preceding operations contains always a certain quantity of impurities, which can be separated either by eliquation, or by a mechanical agitation, or by both processes together.

Eliquation.—This mode of purification is based upon the great fusibility of tin, and the smaller fusibility of the substances with which it is mixed. It is effected by placing on the hearth of a reverberatory furnace ingots of tin heaped on each other, and submitting them to the action of a moderate heat, in such a manner that the tin, which enters first into fusion, runs out into the receiving basin, and leaves on the hearth an alloy very rich in impurities, and consequently less fusible. As fast as the product of the fusion runs out, the ingots are substituted by others; and the separation is continued until the basin is full.

Perching.—This method, as well as the following, (tossing,) is applied to the melted metal, either coming from the reducing furnace (when it is not too pure) or coming from the furnace of eliquation. Into the metallic bath, while yet very hot, pieces of green wood are introduced, which, by decomposing under the action of heat, produce a disengagement of gas and vapor of water, which causes an ebullition of the mass, and bring to the surface scoriæ, which are carefully removed.

Tossing.—The principle of this operation is the same as the above; namely, the stirring of the mass to bring the impurities to the surface. For this purpose a man, taking a portion of the melted metal in an iron spoon, lets it fall a short distance back into the kettle containing it. By this agitation of the mass the scoriæ are separated, and by repeating this treat-

ment for about two hours, then leaving the metal to settle two hours, and then finally skimming, all the impurities can be carried off.

Preparation of Grain Tin.—Tin is found in Cornwall in ingots of different weights, according to the countries from which they come. These ingots are obtained by a simple casting. To produce grain tin, the ingots are heated to the point where they take their malleability, and thrown from a certain height to the ground. There they break, according to their inside structure, and divide into half regular fragments, to which a great purity is attributed, and which are principally used in preparing the salts of tin employed in dyeing.

TO BE CONTINUED.

Mining Summary.

GOLD AND SILVER.

Colorado.

From our Special Correspondent.

CENTRAL CITY, Col., Dec. 4, 1867.

There is considerable excitement prevailing in Boulder county about some new silver lodes called Hoosier or Rob Roy, and Towner, Mastadon, Copper and Keystone. I investigated the latter four personally, and found all of them to be one and the same ledge. It is traceable for more that eight thousand feet by the croppings, which average in width from twenty to sixty feet, and form ridges up to twelve feet in height at different places. The lode was discovered some years ago by Mr. Towner, but being unacquainted with the nature of silver ores, he thought it valueless, and sold his claim to T. J. Graham for the sum of $500. The sinking of a ten-foot shaft developed a crevice of ten feet in width, entirely filled with a grayish white quarz of great hardness, containing much green and blue carbonate of copper, and different combinations of oxide of lead. Several pieces, assayed by me, yielded from $50 to $60 per ton. North of this shaft, located on top of the hill between North and Middle Boulder creeks, the croppings are distinctly visible for a length of about two thousand feet down to the North Boulder, where a tunnel has been started, which shows the same ore as the discovery shaft. South from the said shaft the ledge can be followed for nearly five thousand feet down to the Middle Boulder, and up the hill again to within about two hundred feet of the Boulder road. On both sides of the Middle Boulder tunnels have been commenced—south by Graham, north by Hough, Towner & Coffee. A shaft sunk by Graham, five hundred feet north from the creek, shows a crevice of nearly six feet, with the above-described quartz, whilst Hough & Co.'s tunnel furnishes a different ore, carrying galena and some copper pyrites, besides the carbonate of copper and the different combinations of oxide of lead. On all the places where the lode has been developed the ore shows, however, a true silver-bearing character. It is splendid in its general appearance, considering the depth from which it has been taken. From all the indications, as well as from similar occurrences, I deem it almost certain that the lode will turn into galena at a greater depth, and, in general, I feel justified in assuming that it will satisfy reasonable expectations. The location of the lode is an exceedingly favorable one. Owing to its crossing both creeks, there is a chance to start four tunnels. The creek, even now, contains water sufficient for driving the largest mining machinery; timber is abundant: the valleys afford every facility for good mill sites; and a road to Boulder, or connecting with the road to that place, already existing, may be accomplished without any serious trouble. Owing to the large crevice and the abundance of water-power, mining can be performed at a very low rate; and the lode will be very valuable if the ore will average from $35 to $40. The Hoosier lode was discovered in 1859, but no work was done on it, though it was even then known to contain a good deal of silver. A couple of months ago a party from Black creek jumped the claim, and since that time there has been continuous fighting about the possession, resulting in the death of one man, and the holding of the claim by the jumpers. The lode is said to be traceable for several miles, and to contain very rich ore, as silver has been attained by merely exposing the crude ore to a red heat. Mining operations around Central and Georgetown are going on as usual, the continuous fine weather being extremely favorable to them.

A. WOLTERS Mining Engineer.

P. S.—Some weeks ago, in Roger's claim, on the Bobtail, the extraordinary phenomenon was observed of a "slickensides," or polished surface of a slide, *in the middle of the vein*. I have never heard of such a case before. A fine specimen from the vein, illustrating the occurrence, is now in my possession.

By the *Register* of the 10th inst. we learn that the excitement in Boulder county about the pumping of the Hoosier lode still continues, and has already resulted in the killing of one man and the arrest of several others. In order to settle the difficulty, it appears that the jumpers offered to compromise with the original pre-emptors by dividing the property, which is now said to be very valuable. This offer was refused, upon which the *Register* remarks: We think it would have been wiser for the original pre-emptors to have accepted the compromise offered. Discovered in 1859, and left unimproved till late in 1867, there could be little claim left to it under the spirit and intent of the old law, and those who had abandoned it so long might well have been content to share it with those whose enterprise had proved its great value. A correspondent, however, writes: The whole proceeding was decidedly cool. The claim was jumped (or stolen, if it suits the case better,) by some parties, knowing that it was legally claimed before. When remonstrated with, they (the jumpers) proposed to divide! That of course was rejected, and the legal owners were told to go to h—l, for they had one hundred thousand dollars to back against. This is on a par with the man who would steal my steam, and when I caught him, coolly propose to give me one horse and say no more about it. .....Some good will come to the country by the contest if it does not shake the confidence of capitalists on the question of title. This same thing has been a great detriment to James creek, as some of its best lodes are held by jumpers, who have not confidence in their titles sufficient to warrant their development. The celebrated Buck Horn lode is in this fix, and others I could name. It is to be hoped that law and justice will prevail, and wholesale robbery rendered odious, either by legal enactments or that more powerful weapon—public opinion..... The same paper has the following relative to some recent improvements in the Herkimer lode, on Leavenworth mountain: Discovery shaft is now sixty-five feet deep, and shows two veins of rich pay ore, one three and the other seven inches thick. Ten or twelve rods east the vein has been stripped for some distance, showing from eight to thirteen inches of the rich argentiferous galena and silver sulphuret. An average of ten inches, assayed by Prof. Martine, went $700 per ton. Six or eight rods east of this open cut again an adit has been forced down. At this point the walls of the lode are seven feet apart; there are three and a half feet of quartz, carrying five narrow but rich seams of mineral. We are glad to hear that this lode, in common with many others, looks better the more there is done on it.....Prof. Hill's matting furnace began work Monday week, smelted about fifty tons of ore, and stopped on account of the failure of the fire-brick or tile in the terrace furnace, used for calcining tailings. Some qualities of the ore have to be smelted with a certain proportion of tailings. New brick were expected yesterday for the furnace. Contracts have been let for the construction of a reverberatory furnace, with enclosing house, to be finished in three or four weeks. Prof. Hill has left for the East.....The Georgetown *Miner*, Dec. 5th, says, in regard to the Malabar lode in Peru district, Summit county, and the progress of work thereon: The development put upon the lode this summer shows a crevice fully twelve feet between walls, the ore vein of solid argentiferous galena or first-class ore, averaging from four to five feet in width, while the balance of the crevice is composed of gangue, carrying considerable galena and silver sulphurets. Two tunnels have been driven the past season, for the purpose of striking the vein at as low a point as possible, in order to secure perfect drainage, and work the vein at a great advantage over hoisting. The tunnels are in about twenty feet each, and have crossed already a fine lode of argentiferous galena, lying between the Malabar and the foot of the hill. A small lot of first-class ore, galena, was recently run at the Georgetown Smelting company's works, which yielded $85 in silver, coin value, to the ton of ore. The ore carried 78 per cent. of metallic lead to the ton. Another lot of second-class ore, composed principally of gangue and quartz, run by Garratt, Martine & Co., gave $68 in silver, coin value, to the ton. We look upon this lode as among the very best properties in the Territory. Although not as rich in silver per ton as the generality of silver-bearing veins, yet the immense ore vein and ease of access place it second to none. The Pacific Gold and Silver company, J. W. Tiffany agent, owns this fine lode, as well as other equally valuable property in the district. A short distance below Peru the company have secured an ample water-power, in the midst of as fine a body of timber as stands in the mountains. From the mouth of the tunnel to the site of the works a wagon road of easy grade is now partially built, and with slight expense can be continued to the mouth of the tunnel.....The same paper has these items: We learn that Mr. Kinney has started up his stamps and furnace on Young America ore. Mr. Kinney's works are located about one-half mile this side of Downieville, in close proximity to the lode. He made a test a few days since of twenty-five pounds of ore, from which he obtained seven ounces of hard amalgam.....The Bacchus lode, situated on Douglas mountain, is one of the largest and most massive veins here. The crevice is full ten feet wide, carrying ore of the same character and quality, in appearance, as the Equator lode. The fortunate owners of this fine property are Messrs. Powers & Son.....The Magnet lode is still being actively developed by its energetic owners, Whitford Bro. & Charles Bro., and shows as fine a seam of rich sulphuret ore as any other property in the district.....The following are the rates of coach fare on the routes of travel from Central City:

Central to Omaha, via Denver	$83 50
" " " Church's	80 50
" " Cheyenne, via Church's	29 00
" " " Denver	32 00
" " Denver	8 00
" " Golden City	5 00
" " Georgetown	4 00
" " Mill City	2 50
" " Fall River	2 00
" " Idaho	4 50

Twenty-five pounds of baggage allowed to each passenger.

Nevada.

Trinity District.—A recent Annual Report of the County Surveyor and County Assessor of Humboldt County contains the following relative to the method of smelting ore in the Montezuma mine:—The Montezuma is the leading mine. Extent, two thousand feet; strike, north-east and south-west; dips north-west at an angle of 45 degrees; lies in porphyry, with well-marked casings; width twelve feet. The most remarkable feature of the mine is, that the whole of the vein, from wall to wall, is pure ore, without a trace of gangue. The ore consists of an oxide of lead and an oxide of antimony as the leading minerals. These carry the silver, and yield an average of $100 per ton by actual workings. Much of the ore goes $300 per ton. Carbonate of lead is found in small quantities. The mine has been fully developed by shafts and tunnels, and at least ten thousand tons of ore are now exposed in the galleries of the mine, from which it is taken just as fast as the company is able to reduce it. The ore is reduced by smelting, and yields fifty per cent. of its weight in metal, in the form of an alloy of lead, silver, and antimony; i. e., a ton of ore gives a thousand pounds of metal. The ore is reduced at the smelting works of the Trinity and Sacramento Co., at Oreana, three and a half miles south of the mine. These works have been erected during the past year, and are of a character and capacity as yet unmatched in this State. There are eight furnaces: two for smelting, four for calcining, and two for cupelling. The present run is fifteen tons per day, from one smelting furnace. The first process is smelting. The ore is broken to the size of hens' eggs, then placed on large floors or pavement near the feeding doors of the smelting furnace, in beds of about ten tons each; on the ore so laid in the fluxes are then spread, which are changed from time to time to correspond with the character of the ore and condition of the furnace. This furnace is a cupola, twelve feet high between the base and the feeding door, and twenty-eight inches in diameter, with a high chimney for draft. Charcoal is the fuel used, and the fluxes are few and simple. Six men, divided into two shifts of twelve hours each, feed fifteen tons of ore through one of these furnaces in twenty-four hours, exclusive of the fluxes and fuel which they also handle. From the smelting furnaces the metal—consisting now of lead, silver, and antimony—is passed into the calcining department, where the antimony is separated from the lead and silver in large reverberatory furnaces, of which there are four, each of a capacity to receive thirteen tons of metal at a charge, and to work off from twenty-five to thirty tons at a heat; but, after the first batch of metal begins to lose its antimony, the charging is kept up until the calcining pan is found to be filled with only pure lead and silver. When this stage is reached, the metal is run off and sent to the refinery department. Here the lead is separated from the silver by cupellation in furnaces built after the ordinary English plan, with movable tests. There are two cupelling furnaces, each of a capacity to reduce from one and a half to two tons per day of the metal received from the calcining furnace. Two shifts per twenty-four hours, of two men each, operate one of these furnaces. The charcoal is brought from the first east range of Humboldt Mountains, a distance of twenty-five miles, and is an important feature in the works. One hundred thousand bushels will have been delivered at the works during the present year. The quantity required per ton of ore is fifteen bushels, and costs fifty cents per bushel. Sagebrush is used for the reverberatory furnaces. The bone ash used for cupelling is obtained from bones of cattle, gathered on the desert along the emigrant road, by Indians, and pulverized in an ordinary stamp battery. The litharge resulting from cupellation is all economized, being the very thing needed for flux, and is thus returned and run through the furnace over and over again, serving all the purpose of a flux, and also affording an opportunity, without extra cost, of extracting every particle of silver the rock contains. The excellent skill in management and rare energy and patience of the Superintendent of this company, Mr. A. W. Nason, combined with his unalterable faith in the success of this enterprise, have been of incalculable benefit to Humboldt County, in presenting to the world so indisputable a proof of the great mineral wealth of this region. There is one company just starting operations, smelting forty-five thousand dollars per month, with sufficient ore exposed by present workings to continue at the same rate for two years to come.

Pahranagat District.—The *Reveille* of the 30th ult., has the following account of the principal ledges and of the manner and extent of their development, from Mr. J. E. Sprenger, one of the first settlers in this district. He is the agent and superintendent of the Pro Rata company, which was organized in Hamilton, Ohio, on the 26th of last June, for the purpose of actual mining. The principal locations of the company are upon Springer Hill, about twelve miles above Hiko, the most noted of which are the Little Giant, McLean, Springer and Denver. On the Springer there is an incline of 40 feet deep, at which point the ledge is 8 feet wide. The veinstone is broken up near the head wall, and is of a low grade, but there is a thin stratum of very rich ore on the foot wall. A tunnel has been projected to cut the four ledges at the depth of 300 feet below the surface, in the extent of 600 feet, and it is now 60 feet in the hill. Companies are working on Peter's hill and Silver hill, on both of which there are many claims. On the former they are sinking a shaft for the Arab and Indiana ledges: it is now fifty feet deep, and the work is prosecuted night and day. The Indiana is producing chloride ore of a superior quality. On the northwestern slope of Silver hill is a ledge called the Webster, which is owned by Barber & Co.—an association of industrious and enterprising miners. It is opened by a vertical shaft 115 feet deep. The dip of the ledge is nearly perpendicular, and at the bottom of the shaft it is thirteen feet thick, exhibiting an abundance of ore of a low grade. The Crescent company is working a claim on the List ledge, which is situated on the western slope of Mount Irish, and its vertical shaft is 100 feet deep. There is another claim on the same ledge owned by the Almeda company, which has sunk a shaft 70 feet deep, and has a vein six feet thick of fine ore. On Low mountain a party is running a tunnel to cut the Diana ledge, and when Mr. Springer left it was 170 feet long. There is a singular ridge of quartzite running north and south, and from 200 to 300 feet east of the mineral locations. This ledge varies in width from 90 to 100 feet, and outcrops boldly over hills and through canons. It has been observed for nearly seven miles. Mr. Springer represents the mill at Hiko, which was built by Benjamin Evans, to be a substantial and handsome structure. Its completion is delayed for the arrival of the machinery. It will be understood that the building of a mill at Pahranagat is surrounded by difficulty when it is stated that all the lumber required for the concern at Hiko was "whipped" out of the logs.

Palmyra District.—We condense as follows from the Gold Hill *News* of the 16th ult.:—The mines in Palmyra District are decidedly looking up, and the prospect of their being developed in a healthy manner is especially good at the present writing. Some of the principal ledges are from twenty to sixty feet in width at the surface. Ore has been milled from the most of them, yielding, even under adverse circumstances, over $8 per ton; if properly assorted by competent judges, it would have been made to yield at least $20. Within the past few weeks parties have started work once more upon some of the principal claims, with a view of practically determining their true merits by actual milling returns, and some encouraging results have already been produced.

Palmetto District.—From Colonel Catherwood, says the Esmeralda *Union* of the 23d instant, we learned the following facts in regard to that locality:—He informs us that he has thirty-three men employed working the Silver Circle ledge, and that he has sunk three shafts, one 125 feet, one 90, and one about 60, from all of which he has taken good ore. Using his own language, he thinks he has "one of the best ledges on this coast." We are acquainted with quite a number of miners who have prospected in Palmetto District, and they all agree in stating that there are good mines there. The Colonel says he is not going to move the machinery for the mill until he has thoroughly prospected his mine. In this we commend his judgment. Most companies build mills before they have mines, and this is one cause of so many failures. As high as $600 per ton has been taken from the ore of this mine by mill process.

Silver Peak District.—The Salt Basin and Silver Peak Company, at Silver Peak, are driving ahead as though they meant business. We have been informed that they are employing about eighty men, preparing the foundation for the mill, making roads, taking out ore, &c. The greater portion of the machinery for the mill passed through Aurora some time since. If one could judge from the size of the boilers, they would naturally suppose the mill would be a large one. The company are going to build a railroad, a distance of seven miles, from one of their mines to their mill. A portion of the material is now on the ground for its construction. Business is brisk at the Peak.

Humboldt.—We take the following items from the Unionville *Register* of the 23d ult.:—Christ Lark, the Superintendent of the Rochester G. & S. M. Company, is making preparations to resume work at an early day. The work will be delayed only until he can secure a pump. After this is done he will have all the machinery and money necessary to thoroughly develop this mine. Mark it—it will be but a short time until we are able to class the Montana mine with the several grand successful mining operations in Humboldt County..... Mr. Nagle passed through town, a few days ago, with several hundred pounds of silver bullion from the Golconda mine, the result of his first run. This mine has proved to be better in every respect than the most sanguine expected. This is one of the great mines of Nevada. The supply of ore is apparently inexhaustible, yielding upon an average $60 to the ton. The entire cost of mining and milling does not exceed $10 per ton, leaving an extraordinary wide margin for profit..... Several cords of silver bricks are actually corded up at the Oreana Furnaces, and still Mr. Nason, the Superintendent, is not satisfied with the capacity of his works, and is now making extensive additions thereto, among which are four new calcining furnaces .... The Monroe mine never looked better than it does to-day. Immense quantities of exceedingly rich gold ore are now on the dump, and still it comes from the lower level by the tons. We learn that arrangements have been made to supply Holt's mill with ore. Mr. Holt has a happy faculty of turning out from $300 to $500 per ton from this ore..... The *Register* thus records a visit to their mine:—We wended our way slowly up the mountain south-west from town until we reached the mine, which we found to be near the crest of a ridge or spur that puts down in an easterly direction from the main Humboldt mountain range. The outcrop of the ledges are on the northern slope of the ridge, and probably a thousand feet above the stream that flows at the bottom of the canon. At the mine we found some twelve or fifteen men, under the direction of Wm. Woolcock, busily at work breaking down, wheeling out and sacking the splendid ore that is now being found in large quantity in this mine. The tunnel running in with the course of the ledge and gaining depth rapidly as it is pushed into the mountain, is now about seventy feet below the surface at its extreme south end. The ledge at this point stands at an angle of about forty degrees, and in thickness is the full size of the tunnel, or between four and one-half and five feet in thickness. The ledge is considerably decomposed, and is well

charged from wall to wall with ore that will pay from one hundred to one thousand dollars per ton, mill process. These figures are not conjectural and founded on faith, but are the results of actual workings in the mill, which is kept constantly running day and night on this ore. We understand it is the intention of the company to erect a twenty-stamp mill at an early day, as the present mill makes but a small impression on the amount of ore that the company can bring to the surface.

Aurora.—Correspondence from Aurora, under date of November 17th, gives the following intelligence:—J. D. Winters has his building works now complete and in successful operation. He now keeps the mine free from water, hoists the rock to keep his mill steadily running, and a gang of men to work the shaft 100 feet deeper, so as to work the shaft at that level. He is well satisfied that he has a rich mine. Colonel Catherwood came here from Palmetto District yesterday. He has thirty men at work in his mines, and taking out rich rock. He has three shafts down, respectively 60, 90, and 126 feet deep. He also speaks very favorably of the district, and is much pleased with his mines. He intends to keep the men steadily at work in them this winter, and put up a large mill and works for the reduction of the ore next Spring. Very good reports are brought from Washington and Pine Grove Districts. Captains Pray and Cheaver's mill and the arastras are steadily running in the latter district. Wilson has the boiler set for his new ten stamp mill, and expects to have it running in about one month. Very rich rock is being taken out of the Midas and Wheeler ledges. The latter is over one hundred feet wide. All the rock is black sulphurets, and rich—said to pay fifty dollars to the ton. The reported purchase of the controlling interest in this mine by Captains Pray and Cheaver proves incorrect. I am now informed that it is a San Francisco company who have bought it.

Montana

Mr. Wm. J. Lovell thus writes in the *Post*, of Nov. 30th, of mining matters in Hot Springs District and surroundings: The mill of the New York and Montana mining company was one of the first built and located in the district. The company's affairs were then, as we learned, under the supervision of Prof. A. K. Eaton, and the mill was designed to be operated by water power; the machinery to be driven by a wheel of novel structure, and thought to be of capacity sufficient for the object sought, that was driving 20 stamps. From a lack of water or want of adaptiveness of the main wheel, the power was proved insufficient; to remedy this, a ditch of three miles or more, was constructed to increase the volume of water that could be used, for the desired increase of power. This too, from breaks, leakages, and other causes, proved to be unsuccessful. So that after the expenditure of large sums of money in the hope to be able at some day to obtain the cheapest motive power, the cherished plan had of necessity to be abandoned, as it fully attested by ditch and flume, and instead of the musical splash of water we now have the screech of the steam whistle. On the 31st of October, 1867, Mr. Pratt fixed up and started his 20 stamps with a 60 horse engine. The engine is of sufficient power to run these stamps at a cost of about $25, for every twenty-four hours; and each battery of stamps will crush 8 tons per day, giving an average for the mill of 32 tons, or a cost of 75 cents per ton, for wood and fireman. The experiment of power by water, as we have stated, was tried and the cost as near as ascertained, when in the spring a sufficiency could be obtained, was estimated for the 20 stamps at $5 per day a cost of 15⅝ cents for crushing alone. We give these results to inform our readers of the relative cost of steam and water as a motive power in Montana. That a large per cent should be added to the cost of water as a motive power, all will concede, from delays, stoppages, breaks, and uncertainties that are unnecessary and seldom occurring in steam power. We were so well satisfied with our investigation in this case, that had not the company seen fit to apply the latter power, we should have pronounced the mill a failure. The mill is situated a short distance below the Midas, on the same stream, and more in the open or bottom ground. The building is 42x75 feet, of wood, and substantially built, with an engine house 24x30 feet, also frame. The stamps, as stated, are twenty in number, and seem in perfect order, running smoothly. The appliances for saving the gold are the common tables—sluice and settlers, which it is claimed, are in good working order, and that the gold is well taken up by the process used, little, if any, being left in the tailings. The ores to be stamped by this mill are taken from several lodes near by, and owned by the company. We did not learn the lodes most relied on, but predict that the mill the coming winter, will be well supplied, if not by company ores, from custom work. The superintendent is a man of energy and perseverance, having the confidence of the miners of the district, both as to capacity and integrity. The mill had but started at the time of our visit, and results were unknown.. .. The Clark & Upson mining company's mill is situated immediately below the N. Y. & M. M. & D. Co's mill, and presents a fine appearance. The mill and engine houses are of stone—mill house 80x30; engine, 30x25, enclosing engine—12 stamps—one arastra and one settler. The mill is now closed, and will not be likely to start before spring. The company started more than a year ago with patent machinery, which proved a failure. It is to be hoped that after the large expenditures in the trial of patent machinery, that the second effort will be a success that will at least reimburse them for previous outlays and demonstrate that with suitable appliances and tried machinery, the ores of Old Mortality and others of the company must pay, and in time prove that the investment will and can be made profitable. Leaving the mill we sped our way over a large plateau north, some four miles to the Alpha mines in Norwegian district, and on what might be called a tributary of Norwegian creek. Our visit was most unfortunately timed, as Messrs. Conner and Cope were each absent, from this fact we are unable to give many circumstances and figures that would interest the reader. The buildings and mill seem of late to have been thoroughly repaired, and though not at work, could have been started as soon as steam could be raised. The old man in charge, kindly opened the mill for our inspection, and discoursed learnedly on the advantages of this or that improvement that seemed to have been made. The Alpha is a 15 stamp mill, with ample steam power. The saving apparatus consists of sufficient length sluices, blankets, and two excellent arastras. The tests that have been made at this mill in the last eighteen months, warrants the conclusion that the mill if not of "imposing grandeur," is, at least, successful in the treatment of ores. The large number of leads near the mill owned by the company, and the known value by mill process of many of them induces this belief, that the Alpha will prove both a beneficial and paying investment, equal to any that has ever been made in the district for the amount of capital expended. We hope to hear that the energetic superintendent again started a mill that has been operating from Nov. 1866, until a few days before our visit, and has never made a run that did not pay. The company have now a good shaft and house on the Æsop with a full shift of active miners. This, with the Boonville and Pony ores will not only give a good supply, but must prove, if actively worked during the winter, a source of profit to all interested.....S. F. D., a correspondent of the same paper writes from Bannack, under date Nov. 19: Mining with sluices at Horse Prairie, Red Mountain and Bannack, is about closed for the season. A new ditch is about completed on the north side of Grasshopper intended for surface mining on the foot hills immediately back of town, along Hangman's gulch. Down the canon there are two new ditches and flumes about completed, intended to take in a great scope of good mining ground. Indeed good diggings are already opened four miles down Grasshopper. Parties have succeeded well this fall in sinking shafts in the bed of the stream between Bannack and Marysville. Jagger's company has been the most successful and has cleared up several times with very satisfactory and flattering results. Parties are drifting in the Marysville banks with good results, and will continue to take out pay dirt all winter. The mills are all closed and lead mining pretty much suspended. (?) Messrs. Clark and Kirby are pushing ahead the tunnel intended to strike the Madamoiselle. Here and there a few private individuals are sinking on their leads. Mr. Ester, assisted by the citizens of Argenta, has a new furnace about completed, to which all turn their ores with hope. We wish Mr. Ester success, and believe he will accomplish good for our people. Dr. Weston is just finishing an arastra on Black Tail Deer creek, in the Eureka district, which promises good results. We believe that some of the finest gold and silver bearing veins in this county lie in this new district. Messrs. Sayers and Smith have located a number of good lodes that assay very high. Mr. Sullivan has located a silver vein, six feet wide, that assays $84 to the ton. It is the Walrussia. There are numerous veins in this district, but prospectors have staked none but what crop out as well defined veins upon the surface, and assay well. The veins in this district are all wide, and although many are unstaked because they do not assay well, yet the day is coming when ores can be as easily and cheaply reduced in this country, as in any other, when leads that are passed by now will be taken up.....The local of the *Post* says: The work of digging the celebrated Eldorado ditch is at length completed or nearly so, and a great portion of the flaming is also done. About two week's work in the spring will be all that will be necessary to complete it, and make it ready to receive the water.....The Deer Lodge City *Independent* has the following from its regular correspondent at Phillipsburg, Flint creek district, bearing date Nov. 16: The Stuart mill keeps up its steady stroke, reducing the Hope ore, and, it is pre-mised, realizing the most sanguine hopes cherished by owners and stockholders. The conviction is general of its entire success, but to what extent the writer frankly admits he has no certain means of knowing. Scarcely a man about town with whom you converse, however, but has a confidential friend on the inside who knows all about it. But I have yet to hear two of these strictly confidential communications that correspond. The aforesaid favorable impression with regard to the success of the mill has somewhat enhanced the price of town property, mill sites, etc. The new company, recently arranged under the able management of Mr. Jas. Stuart, have commenced vigorous operations on the large ditch to be constructed from near the intersection of Fred Burr and main Flint creek. The waters of Flint at this point, three miles distant, can easily be brought through the ditch upon the town site of Phillipsburg. The ditch is to be constructed to carry fifteen thousand inches, a portion of which will be required by the new company's 30 stamp mill, spoken of in a former communication. The exact locality or mill site has not, as yet, been designated, but near the lower end of town will probably be the point. Payne & Co. have four arastras in course of construction in the same vicinity, that will be driven by a twenty foot overshot wheel, already in position. They intend to start the first one on Monday next, on rock from a newly discovered ledge, owned by Taylor, Madison and Brother. An engine, boiler, and other machinery attached, is daily expected from Helena, designed for the Rumley lode. New discoveries of both gold and silver are announced almost daily. Among those recently discovered may be mentioned the Alexandria lode, located about two miles east of the Atlantic Cable, which is thought to be equally as rich in gold as the Cable itself, and attracts much attention. The weather in the valley continues warm and delightful. We have no snow and as yet but little frost to interfere with the prospector and miner, many of whom are now absent securing their winter's provision and making preparations to sink upon their lodes during the winter. Notwithstanding this, our population is steadily and surely increasing by additions from this Territory and Idaho..... We find the following items in the same paper of date Nov. 23: Pinney & Co. are now buying gold dust to run a $50,000 "brick," to place on exhibition at the gold rooms in New York city..... 900 pounds of silver bullion from the Jas. Stuart mill, at Phillipsburg, passed through this city yesterday on its way to be made into silver dollars for the States..... The owners of Rock creek ditch advertise for fifty men to work during the winter, thus showing that, "through wind and storm," they are determined to push along. The capacity of the ditch is for three thousand inches of water, and will, when completed, be between twelve and thirteen miles in length. It takes water out of Rock creek and conveys it to Pike's Peak and Pioneer gulches. It is now completed to Pike's gulch, a distance of about seven miles; and it is the intention of the proprietors to have it into Pioneer gulch in time for the spring mining operations, about the first of May.

Arkansas.

It has long been suspected that the precious metals lay beneath the rocks of Polk county, Ark., ready, some day, to crown the enterprise with wealth. Of late unusual attention has been attracted in that direction, and men whose experience qualified them to judge set out a few weeks ago on a prospecting tour. They have made discoveries that may resound as far as that of the celebrated Sutter, in California. We give the result—or as much of it as the discoverers have seen fit to reveal—from the Fort Smith papers. The Fort Smith *Herald* of Tuesday, Nov. 26th, states as follows: Several of the gold hunters who left here about two weeks ago for Polk county, to prospect for gold, returned on Sunday night last. From those with whom we have conversed we learn that they found gold around the quartz, but owing to a want of the right kind of tools to work the quartz rock, they were unable to ascertain how rich the vein is. We are indebted to Mr. Dow Smith for two pieces of quartz—one piece is being tested by a chemist of this place. Mr. Smith was in California several years, and he is of the opinion that there is plenty of gold there, and he says the country in Polk county looks very much like the gold region of California. Mr. Mozingo is an old miner, and he believes there is plenty of gold. The quartz is impregnated with another kind of metal, which is thought to be silver, and which, if it proves to be, will be more valuable. Those persons who have returned are getting tools made, and intend returning to the mines in a few days. Several who went out are still at work there..... The Fort Smith *New Era* gives the following account: Among those who went are several experienced California and Montana miners, who will soon be able to tell whether there is gold in paying quantities at the locality or not. The specimens of quartz rock we have seen are rich in gold, and will yield four to five hundred dollars per ton. Mr. Mozingo, the well-known livery-stable man, who spent several years in the gold regions of Pike's Peak, tested seven ounces of the rock, and got with his crude process a little over one grain of pure gold. This was from one of which Mr. Hook, photographer, had previously picked with his knife a much larger quantity of gold. Take it all in all, the chances for finding gold in well-paying quantities at the place the specimen ore has been found are very flattering.....The *Standard* of the 26th ultimo speaks as follows: There is gold in Polk county, and no mistake. Mr. Q. D. Smith, of Ozark, arrived in our city Sabbath evening, direct from the gold fields. He brought with him several specimens of the quartz rock, substantiating the first report to be true, but whether the quantity is sufficient to warrant extensive operations has not been decided by those acquainted with the mining business. The country in this portion of the State is rich in metals, and there is no reason to doubt that gold in abundance lies loeried in the earth and rocks in Polk and adjoining counties. We do not make this statement for the purpose of inducing immigration, but as a fact. We advise all to wait until it is positively known that the quantity of gold will pay for the labor and expenses of securing it. If the mineral is plenty it will be known fast enough.

Idaho.

We are informed, says the *Avalanche*, Nov. 23, that the Iowa mill has worked several tons of ore from the Rising Sun mine, which paid from eighty to one hundred dollars per ton. Allowing considerable discount on this yield, the Iowa and Idaho Mining Company have now a sufficient quantity of ore on the dump of the Rising Star to turn out a hundred thousand dollars. The people of Flint District are looking cheerful, confident in the success of the mines.....The *World* of the 16th says that Classen's twenty-five-stamp mill at Placerville cleaned up last Saturday 2,300 ounces of amalgam. The mill is now at work day and night, and the ore grows richer as the ledge is penetrated.....Mr. Whitman, just down from Kootenai, reports business as lively; miners doing well, and prospects generally favorable.....A correspondent of the *Avalanche* writes from Gold Run District: This district is situated in the foothills bordering on the Humboldt river, in the north-eastern portion of Humboldt county, Nevada; is about thirty miles from the junction of Humboldt and Reese rivers, and about five miles from the line of the Central Pacific Railroad. It was organized in the month of October, 1865, on the discovery of the now justly celebrated Golconda mine. It presents many extraordinary inducements to miners, and the finest opening for capital on the Pacific Slope. Its location is peculiarly advantageous, being in low, rolling hills, in a clay, slate range of country, in which the bed-rock is rarely visible, and having a natural McAdamized road of easy grade and descent all the way from the mines to the railroad. Its climate is uncommonly equable and healthy. It is not severely cold in winter, nor uncomfortably warm in summer, but the nights are cool all the year round. Snow seldom falls to a greater depth than ten inches, and usually immediately disappears. Numerous mountain streams furnish a plentiful supply of pure cold water, while annoying insects, as gnats, musquitoes, flies, &c., are almost unknown. The hills and mountains in this district furnish an inexhaustible supply of the finest bunch grass. Its mines are among the richest and most extensive in the world. The Golconda ledge, so far as has yet been developed, is the first mine of the district.

A correspondent of the Montana *Post* sends the following from the Lehmi mines, bearing date Leesburg, Nov. 17: Our population has been greatly reduced in the past month by the constant going out of a portion of that class, that form the grand floating population of the Territories, who rush to a new excitement to get ready for the next one. But the few who are left with us are determined to give the country a fair test. Though the basin was greatly overated at first, it is still thought by many that there are rich deposits in many of the gulches as yet undiscovered. While considerable prospecting is being done down on the tributaries of Nappia's creek with but little success, all have been looking forward with great interest and anxiety to the completion of Beers & Co., mammoth bedrock flume, which is situated near Campell & Co.'s sawmill, on Nappin creek. This promising enterprise was commenced in the month of May last, and since that time it has been pushed forward as fast as money and labor could drive it. Mr. L. D. Pettitt, who has the contract, informs me that he has six hundred feet of the tunnel completed, leaving two hundred feet unfinished; however, the work is going rapidly on, and by the first of January, he expects to raise the shaft to the surface. The tunnel is six feet high, and seven feet wide, giving ample room for a double flume sufficient to carry all the water the creek affords the year round. B. F. Heath & Co., are also putting in a bedrock flume at the falls in Napa's creek, near Leesburg. As the work is but partially commenced I shall give notice of its progress in the future. Our China population, though small, has been increased during the past two weeks, by arrivals from Boise City, of about thirty in number. They have bought a number of claims in the main gulch, and notwithstanding the cold weather, are making a few hours run each day with good success. Douglass & Co. who have probably been the most successful miners in the basin, are now drifting in their claims No. 10 & 11. Their dirt prospects equally as rich now as it has heretofore and they anticipate a better yield next summer from their claims than they had have this season. I am informed that the California bar has not paid over wages during the summer. Last spring, this bar, with its ditch, was thought to be one of the best mining interests in the country, but it is, in a manner, played out. Hard times is the leading topic of conversation among the merchants. Old settlers say that money has never been so scarce there since the discovery of the gulch, as it is at present. Leesburg, once containing a population of thousands and filled with business houses of every description, now presents the deserted appearance of many mining towns that I have before noticed in the mountains. Unoccupied buildings are torn down for firewood for the inmates of those that are yet occupied. Our market is supplied with everything that we shall need for a year hence, and luckily for the miners, staple articles are selling at very low figures.... The Silver City *Avalanche*, Nov. 30, has the following items: J. M. Wilson, Esq., started the Lincoln mill on Tuesday. It is now crushing ore from the Ida Elmore, and will continue to do so all winter. Mr. Wilson has made numerous repairs on the mill, and everything works to a charm. About 20 tons per day are being crushed. Ten of the twenty stamps only are at work at present, there not being pan capacity enough for all of them. The works are driven by a splendid engine, and the furnace is the best we have seen in the Territory, only requiring about four cords of wood per day.

Arizona.

The *Miner*, Nov. 9th, says: Mr. Cook's furnace, built of lava rock, for the purpose of testing ores, has not been a complete success. The rock, it seems, will not resist very great heat. Mr. Cook, however, informs us that he has received a specimen of rock, said to have come from an extensive deposit in the vicinity of Walnut Grove, which stood a severe test, and as soon as he is satisfied that enough of the material can be obtained for his purpose, he will dispatch a team for a load of it. We hope the deposit may be found as represented, as it would be of incalculable benefit to the mining interests of this country.

Canada.

We are indebted to Messrs. Adilburg & Raymond, of this city, for the following extracts from their Canada correspondence: I have packed a small box of the ordinary working ore from the new silver mine at Thunder Bay, Lake Superior, to give you an idea of its quality. Enclosed is one small piece of rock containing metallic silver, in very large quantities, which I think you will pronounce the richest you ever saw." It is a fair specimen of 100 pounds of the same quality, taken out by one man in two hours' work. Also two specimens of the black sulphuret, one separated and the other sticking in the rock. Many of the specimens contain native silver. I have on hand two or three barrels of the same kind, one sample weighing 400 pounds, and another of 40 pounds, all showing native silver. The mines are being worked this winter, and the erection of stamps and furnaces is intended in the spring. Neither the "Thunder Bay" company—the shares of which are held in Montreal—nor the "Shuniiah" company, on the adjoining property, offer stock or lands for sale. "Shuniiah" is the Indian name for river.

COPPER.

Michigan.

Subjoined is the monthly report of the products of the Ontonagon district mines for the month of October:

Name.	Barrel work.	Stamp	Mass.	Total—tons.
Minnesota	6,398	24,680	115,528	22,1426=2000
Caledonia	Not stoping—opening up property.			
Evergreen Bluff	30,107	20,950	29,470	40,527=2000
Knowlton	13,424	23,973	24,949	30,3355=2000
Rockland	9,355	15,000	1,250	12,295=2000
Superior	3,380		1,045	2,125=2000
Ogima	9,373		12,896	11,269=2000
National		24,903	29,881	27,784=2000
Range	27,571	18,156	12,779	29,063=2000
Total				175,1647=2000

The Lake Superior *Miner*, of the 7th inst., says that many of the mines are reducing their forces. There are now only about 750 miners employed on the range. The price of copper, the inactivity of stocks and the general depression of the markets, united with the fact that enough copper is now on hand to supply the demand for six months, is cited as the cause of this ..... From the same paper of the 30th ult., we learn that at the Nonesuch mine the vein has been discovered in the new shaft, 2,000 feet east of the shaft sunk last year. The specimens shown are much richer and heavier than those from the old shaft, or those taken from the bed of the creek ..... At the Superior mine a mass of two tons has just been taken out, besides several smaller of two and three hundred pounds each. Besides this, a large amount of stamp work has been produced ..... At the Rockland mine the indications are good in stamp and barrel work. The Ogima shows as well now as previous to the stoping of last month. With 12 miners in the month of October, nearly 12 tons of mineral was produced, yielding to the company over and above all expenses, $2,500, a most commendable result considering that the copper markets are so inactive, with copper ranging at 23@22½, and wages running from $35@40 per month, our mines do well if the current expenses of the mine is made. And this can be done at every working mine in Ontonagon county. We do not claim that we are doing it, because a number of our mines do not pretend to do anything but to open up ground, while others are but partially removing the stoping ground, not with any idea of making money, but merely to get the room in which to operate ..... The Portage Lake *Gazette* of the 5th inst., has the following November returns of three of the mines in its district:

ISLE ROYALE MINE.

Stamp	50,541 pounds
Barrel and mass	30,711 "
Total	81,258 "

Or 40 tons 1,258 pounds.

HEWARD MINE.

Mass, barrel and stamp ..... 100 tons 319 lbs.

FRANKLIN MINE.

Stamp, barrel and mass ..... 95 tons 000 lbs.

Also the following items: "At the Isle Royale mine a new system of labor has been introduced in regard to the employment of surface men, which, while it gives work to more men, decreases the wages of all. The men work on three-quarters time, and receive pay accordingly. It is a hard matter to reduce wages at present, but still it is better than to throw the men entirely out of work. The system has been, and is now in operation in the eastern manufacturing towns, and has proved more satisfactory, as a general thing, than any other ever adopted ..... The South Pewabic stamp mill has not, as was expected, run up to full capacity yet. Three heads have been run part of the time. In two or three days the capacity of the four heads will be tested ..... It is doubtful as to whether the Huron stamp and finishing mill will be started again until the price of copper advances ..... The stamps of the Calumet mine have been doing quite well, the product averaging four tons of mineral per day. Another boiler is now being put in, and sanguine hopes are entertained of a large production hereafter.

IRON.

Michigan.

The Marquette *Mining Journal* has the following encouraging article on the future supply of iron ore: The season now closing has been marked by the greater development of the leading interest of this region—the production of iron ore—than in any other year since the mines were opened. Until this year it has been doubtful whether the supply of sixty-seven per cent. ores would keep pace with the annually increasing demand, but it may now be considered certain that no limitation of the business will ever take place by reason of the inadequacy of the supply. The highest yearly production of any single mine, previous to 1867, was about 90,000 tons; this year the Lake Superior company and the Jackson company will each produce about 125,000. The Cleveland company, the Pittsburgh and Lake Angeline company, and the New York mine, have also this year all increased their production about fifty per cent. over that of 1866. The introduction of machinery and the system of deep mining in the older mines, will enable them to maintain without exhaustion a large production from year to year, although its cost will be somewhat increased compared to that of the merely surface operations of their earlier history. Generally speaking, the deposits of ore in these mines enlarge as they are worked downwards, giving promise of an unfailing supply for the future. On the New, or Magnetic range, there is the same gratifying assurance of a future increased production. The discovery made last fall at the Washington mine of the continuance of the deposit eastwardly, proves to have been of great importance. A heavy belt of perfectly pure ore has been traced for nearly half a mile on this location, to which the entire operations of the company have been transferred. The product of this range has hardly been felt as yet, but it will hereafter figure largely in the sum total. The mine recently discovered near the Champion furnace, about four miles west of the Washington mine, is probably upon the same range. The deposit here is of large extent and great purity, and the New mine, just opened upon it, will be able to make a good product against next season. The system of underground mining has been adopted already at the Edwards mine, on the new range. The greater regularity of the occurrence of the deposit on this range, and their near correspondence to regular veins, are calculated to facilitate this mode of mining, and to ensure a large and uniform product. A large deposit of soft hematite of good shipping quality, has also been discovered during the past year on the land of the New England company, and that of the Lake Superior company adjoining, from which a considerable supply of this kind of ore can hereafter be derived. The aggregate production of ore during this year from all the iron mines in this county is about 450,000 tons. The demand has held good up to the last day of navigation, and but little, we understand, remains undisposed of at Cleveland and Erie. It is a matter of encouragement to our local interests that in a year characterized by so much general depression of business the demand for our products has actually increased fifty per cent. over any former year. One or two years of general commercial and manufacturing prosperity following each other which it would not be unreasonable to expect, unless our national energy is to be crippled by political blunderers and plunderers,) and we shall produce and export a million of tons of ore a year.

MISCELLANEOUS.

Montana.

HELENA, M. T., Nov. 16, 1867.

EDITOR AMERICAN JOURNAL OF MINING: I have just returned after making the rounds of the Territory, and will give you a brief sketch of what I saw. After a very pleasant ride of ten hours from Helena, on the Muscleshell river, I brought up at Copperopolis. After a brief sojourn in the city and among the copper, sulphur, hot and cold springs, we rode into the grand net work of copper-bearing ledges, a mile or so to the northwest of the town, and visited in order each lode that had been sufficiently opened, developed, or defined, to be considered worthy of attention. In two square miles there are twenty-six rich copper ledges, two coal beds, and one fire-clay bed. The copper ore is pronounced by experienced assayers to be equal, if not superior, to the California and Superior mines; it produced from forty to eighty per cent. pure metal, and proves more valuable than the most sanguine had imagined. The facilities for working it are excellent; wood, water, and all materials required for constructing furnaces being found in great abundance. The ore contains sufficient gold and silver to pay for working it. By no means the least advantage possessed by this district is the facility with which ore can be shipped. The cost of shipment from the mines to St. Louis is less than $23 per ton. The following is a list of the lodes visited personally by me, with such abridged statements as my limited time will permit me at present to make: "Copperopolis," owned by Vivian, Thomas & Co., crevice six and a feet; two shafts, forty and sixty feet; average yield fifty per cent. copper; about one hundred tons of ore out. "Newland," owned by the St. Louis Gold, Silver and Copper Mining company; shaft 26 feet, with 5 feet crevice; yields from 50 to 80 per cent. copper. "Tuscarawas," shaft 65 feet; crevice 6 feet; first-class ledge and prospects well. "Morning Star," 5 foot crevice; average yield from 50 to 60 in copper; $26 in gold and $35 in silver. "St. John's," "Berry," "Sheba," "Whack," "Capt. Ryan," "Metropolis," "Young America," "Humboldt," "Superior," "Overland Risk," and "Granite State," are considered good ledges and prospect well; in fact there seems to be but little choice in the ledges. The ores are composed of oxide and carbonate of copper, with several quantities of oxides of iron and quartz. If the richness of these ledges does not decrease, the rapidly increasing facilities for transportation will soon render this region a formidable rival to the far-famed Lake Superior country. Major Ryan has several men at work getting out ore, of which he intends shipping a large quantity next spring. After spending a few days among those interesting developments in the mineral field of the Muscleshell, I set off for Diamond City, Confederate Gulch. This once flourishing place, where $600,000 was taken out in six weeks, is now about "played out." Finding nothing of note in Diamond, I made my way to New York. I doubt if there can be found in any country a more romantic or picturesque roadway than the route leading up the canon from the Missouri to the beautiful little place which bears the title of our national empire city. This district contains about 1,500 inhabitants, which includes New York and the several small mining camps immediately connected or adjacent. In this new district the principal mines worked are: "Chief of Montana," tunnelled 100 feet, 4½ foot crevice; mill test shows from $50 to $150 to the ton. "Excelsior," the first quartz lode discovered in New York district, has a five foot crevice, and pays well. "Gov. Smith," "Colver," "Pig's Tail," "All Oak," "Something New," are all good ledges and pay well. I next visited Flint creek, which has been shown beyond a doubt to be the richest camp in Montana. Rumley & Bagnet lode has a crevice of from 28 to 35 feet, and is considered the best silver lode in the district. The "Poor Man's Joy," "Chief of Montana," "Seventy-six," "Silver Crown," "Speckled Trout," "Great Republic," "Plymouth," "Comanche," "Ho Boys' Revenge," and "Old Ireland," are all considered good silver ledges. The district contains now about 2,000 inhabitants. Dead Wood district is now the centre of attraction since the recent discovery of the famous "Esmeralda" lode, which is by far the richest gold ledge as yet struck in Montana, judging from present indications. It was discovered by the world-renowned quartz prospector, Jack Thompson. Jack is a Mexican, was born and raised in the mines, and has followed prospecting for thirty-five years. He is considered by far the most perfect prospector in the mountains. Very little has been done of late in developing the mines at Augusta and Bannock. In my estimation the Salmon river mining district is a humbug. A few of the mines are paying, but a vast majority are unproductive. After visiting Virginia City, Summit, Silver Bow, Deer Lodge, and Black Foot, I returned to this city. By invitation of the successful quartz miner, Judge Turnley, I accompanied him to his mill. After inspecting the mill we were conducted to the "Park" mine on the mountain side. Here we found a score of workmen engaged in tunneling into and developing the lode. The cost of taking the ore out is less than $3 50 per ton, and the mill test shows a yield of from $92 to $65 to the ton—the Judge has a good thing. Helena City is flourishing. An attempt was made last night to burn the city. The Vigilants are at work again, and hung a cattle thief named Douglas, at Highland, on the 13th inst. Gen. Neil Howie is in Virginia City on important official business. The Indians are troublesome between Benton and Fort Union. Ryan & Scribner have opened a Quartz Mining Bureau and Real Estate Agency—an institution of this kind will surely do well if properly managed, as it is the only one this side of New York. They are also preparing a city and territorial directory, which promises to be of great service to everybody, as it affords a means of obtaining information that is very desirable, particularly to strangers. More anon. SPECTATOR.

OIL.

Pennsylvania.

From the Titusville *Herald's* review of the oil business for the month ending Dec. 7, we take the following:—At present the oil business is undergoing a depression, consequent upon the large speculative transactions of last summer and fall. As yet the depression has had but little effect on the business of the oil region. During the past month there has been a large increase in the production in several districts, but in others there has been considerable falling off so that the actual increase has been light when the amount of development has been taken into consideration. The increase is five hundred barrels, and the average daily production in the entire region is now fully ten thousand four hundred barrels per day. The largest producing well in the region is that on the Shaffer Run near Reno. There are nearly fifteen wells producing daily from one hundred to two hundred barrels, and the majority of the wells now operated produce less than fifty barrels per day. There is but little prospect for any large increase in the production during the next three months. The development is falling off, and the cold weather will materially retard operations on wells which are about completed. There has been a decrease in the number of wells being drilled in the oil region within the past month. The number of wells on which operations will be commenced during the next two months will not exceed thirty. There are now two hundred and thirty wells being drilled in the entire region, in all stages of progression. About one fourth of these wells are located on territory which thus far has proved unproductive, but which is now being subjected to a farther test before being abandoned. At present there is little demand for oil except for storage purposes, and the price is steady at $1.70 at points on the Oil Creek Railroad and at $2.25 at Oil City. The demand to fill the large amount of tankage now empty in the oil region, and at Cleveland, Corry, and at other places, will in all probability prevent an immediate decline. During the past month the amount of empty tankage has been decreased by about thirty thousand barrels. The total amount of oil held in the oil region, 604,900 barrels; average daily production, 10,462 barrels. Number of new wells being drilled, 232. Total capacity of iron tankage, 720,598 barrels. Capacity of iron tankage empty, 245,698 barrels. The shipments from Tidioute by the Empire Line from January 1st to date reach 291,687 barrels. The shipments from Oil City by the Empire Line from January 1st to November 1st reach 143,172 barrels. The shipments over the Oil Creek Railroad from January 1st to date were: To New York, 629,957 barrels; to Cleveland, 163,120; to other points, 208,889. Total, 1,001,957 barrels ..... The first through train on the Alleghany Valley Railroad from Pittsburgh to Oil City arrived at the latter place last week. The opening of this railroad will exert a beneficial influence on the oil trade at Oil City and at points on the river below, and there is but little doubt but that this influence will be felt throughout the entire region. The road has been equipped with one hundred iron tank cars, carrying eighty barrels each. This number of cars will transport from Oil City to Pittsburgh, at the outside, but sixteen thousand barrels of oil per week. It is said that the number of tank cars will be increased to two hundred within a month. The cars are owned by the Company, and they will be run on substantially the same principle with regard to shippers as that on which the Empire Line cars are operated. What the freight charges on oil will be is not yet known, but it is generally supposed that they will not be over fifty or sixty cents per barrel from Oil City to Pittsburgh. If the charges are fixed at over sixty cents per barrel, but little oil will be moved while the present freight tariff on the Pennsylvania Railroad lasts ..... A recent fire at Diespolis destroyed three wooden tanks of the Solar Oil Refinery, involving a loss of about $5,000, including 1,500 barrels of oil. Insured.

French Expedition to the North Pole.

In the French Bulletin of the Geographical Society for August we find some particulars of the plan of an expedition to the North Pole, under M. Gustave Lambert, a former pupil of the Polytechnic School, and navigator and hydrographer. He proposes to attain his object by entering the Arctic Sea, through the Straits of Behring, in order to reach Polynia, an acknowledged open sea, and thence to the North Pole itself. His project is based on practical observations made by himself at sea, and on certain matters assumed as granted; and has been presented by him in such a shape as to enlist in its favor many influential supporters, among whom are the Archbishop of Paris, the Ex minister Drouyn de Lhuys, and the French Emperor, who gives his cordial approval, and a contribution of ten thousand dollars. After many perilous attempts and much suffering and loss, the problem of a northwest passage by sea was solved by Captain McClure, in 1853, so far as to show a continuous water communication between the Atlantic and Pacific oceans. A geographical problem was solved, but with it the dream of a channel being found open for commercial intercourse between Europe and Asia in that direction was disputed. Captain McClure, who entered the Arctic Sea by way the Straits of Behring, could not carry his vessel through; but was obliged to travel over the tightly-frozen passage until he met his countrymen in their explorations from the east by Baffin's Bay. The failure to find a northwest passage from ocean to ocean for any useful or practical purpose, has however, only served to give another direction to the lovers of Arctic adventure, which would seem to be attractive in proportion to its danger, and, one might be tempted to add, in proportion to the barrenness of its results. It remains to be shown how far science, in its departments of climatology, natural history and magnetism, has gained in the different Arctic explorations. To reach the North Pole is now a favorite geographical problem, the solution of which is deemed the more easy since the belief in an open Polar Sea has gained so many advocates. Opinions are divided as to the best direction to be taken for reaching the Pole. M. Lambert, the French navigator proposes, as we have seen, to go by the Straits of Behring on the northwest. On the other side, or from the east, we find Captain Sherrard Osborn, of the British navy, Dr. Hayes and others, recommend the route by way of Smith's Sound through Baffin's Bay in vessels, and from the Pole by means of sledges and boats. This was the plan previously projected and virtually carried out by Dr. Kane, one of whose companions, William Morton, heading a sledge party, obtained, at an elevation of 500 feet, a view of what he believed to to be an open sea, "with an iceless horizon and a heavy swell rolling in with white caps." From Cape Parry, the northern point of Smith's Sound, to the Pole, the distance is but 181 geographical miles, and a journey back would make 968 miles, a distance which has been repeatedly exceeded by Arctic sledge and boat parties. "Lieutenant Hamilton did 1,150 miles with a dog sledge and one man," and Dr. Hayes travelled 1,390 miles from the time he left his vessel in Smith's Sound until his return. But a majority of Arctic officers are in favor of making the attempt by way of the Spitzentergen Seas between the island of this name and that of Nova Zembla, on the faith in the theory of Dr. Petermann, the eminent German geographer, that a warm current flows from the coast of Norway in that direction into the Polar Sea, and extending itself to the vicinity of the Pole. The chief obstacle to surmount in this route is thought to lie in the outer barrier of floes and packed ice, forming a movable band of about five degrees of latitude (300 geographical miles) in extent. This one passed, Dr. Petermann believes the ships would enter a sea easy of navigation, extending to the highest latitude, and even to the Pole itself. A Prussian expedition in this direction has been talked of for the last two years.

New Foreign Coins.

The following are noted in the annual report of the Director of the Mint: "The silver *sol* of Peru, which is the successor of the peso or dollar, is found to be of standard fineness, and the average weight 0.802 ounce troy. The dates observed are 1861 to 1866. The Mexican silver peso, or dollar of Maximilian, of the date 1866, averages 902½ thousandths fine and 0.861 oz. or 413¼ grains in weight, upon trial of a considerable quantity. These two reports are furnished by the assay office at New York. We have seen but one gold piece of Maximilian, called "20 pesos," of the date 1866, and weighing 1,086 oz. or 521¼ grains. We had not the opportunity of assaying it, being held as a curiosity, but the eight indicated that the double on fineness of 875 has been retained. On this assumption we placed it in the table. I will here add the result of a recent assay of single gold piece of France, of the dates 1863 to 1867, and mint-marks of Paris and Strasbourg. This is important in its bearing upon the question of international comage, for if such an interchange is to take place, the respective counties must keep good faith in regard to the fineness of their coins, otherwise the matter will soon come

to an end. We find the fineness varying from 898.5 to 899.8, and averaging 899.2. This has generally been the result of many years, and is not what should be expected. The average ought to be 900, and required by law. The British coins are kept up to the mark.

MARKET REVIEW.

Gold and Silver Stocks are more active at lower rates. Edgehill sells at $3 40; Harman G. & S., $10 50; Quartz Hill, $1 15; Consolidated Gregory, $5; Rocky Mountain, 22½; Smith & Parmelee, $2 90; Black Hawk, s.3, $6 75; Corydon, 30c.; N. Y. & Eldorado, s.3, $1 50. The quotations at the board are as follows:

	Bid.	Asked.		Bid.	Asked
Alameda Silver	— 35	75	La Crosse Gold	— 32	35
American Flag	— 55	60	Liberty Gold	— —	3
Atlantic and Pacific	— —	1 00	Manhattan	— —	150 00
Bates & Baxter Gold	— —	60	Midas Silver	— 50	— —
Benton Gold	— 35	45	Montana Gold	— 14	18
Bobtail Gold	— —	2 00	New York	— 72	80
Black Hawk G	6 00	7 50	New York & Eld'o	1 40	1 55
Bullion Consolidated	— 40	1 00	Nye Gold	— —	3
Columbian G. & S.	— —	12	Owyhee Mining	3 00	15 00
Combination Silver	50 00	70 00	People's G. & S. of Col	— —	40
Consolidated Gregory	5 00	5 05	Quartz Hill	1 15	1 20
Corydon Gold	30	35	Reynolds Gold	— —	4
Edgehill Mining	3 35	3 45	Rocky Mountain Gold	— 21	22
Gold Hill	— —	4 00	Scarer Gold	— —	— —
Gunnell Gold	1 05	1 20	Smith& Parmelee Gold	2 85	2 90
Gunnell Union	— —	45	sensenderfer	— —	8 00
Harman G. & S.	— —	91	Symonds Fork Gold	— —	1 00
Harmon G. & S.	— —	11 00	Texas Gold	— —	12
Holman	— —	12	Twin Riv. Sil.	50 00	— —
Hope Gold	— —	30	Vanderburg G.	— —	75
Kipp & Buell Gold	— 10	40	Yellow Jacket	— —	5

Copper Stocks are dull. Copper Falls has declined $5 during the week, and Rockland 50 cents. Quotations are:

	Bid.	Asked.		Bid.	Asked.
Caledonia	....	10 00	Hilton	....	1 00
Canada	....	50	Indiana	50	90
Copper Falls	20 00	— —	Isle Royale	....	6 00
Charter Oak	....	3 00	Knowlton	....	1 75
Evergreen Bluff	....	3 00	Ogima	—	3 00
Gardiner Hill	....	2 00	Rockland	— —	6 50

Petrolenm Stocks.—Buchanan Farm sells at 40c., s.3, a slight advance from last week. The market generally is weak, many stocks showing a decline. At the board quotations range as follows:

	Bid.	Ask'd.		Bid.	Ask'd
Beanchoff Run	2 00	2 25	N. Y. and Alleghany	....	3 00
Brevoort	....	75	Pit Hole Creek	88	95
Buchanan Farm	39	40	Rynd Farm	12	14
Buven	....	25	Second National	....	....
Central	51	75	United Pet. Farms	....	12
Clinton Oil	1 25	1 50	United States	1 75	2 00
Manhattan	....	10	Union	1 75	....
National	....	3 00	Webster	....	....

Miscellaneous Stocks.—Quicksilver Mining, 20c.; Mariposa Pref., 14½; Pacific Mail, 119@120; Western Union Telegraph, 34½; Wells & Fargo Express, 50½; Adams' Express, 70½; U. S. Express, 79½; Merchants' Union Express, 38½@38¾; Erie Railroad, 74@74¼; same pref., 74; Hudson River, 132½@132¾; Harlem, 118; Reading, 96¾@96½.

Government Stocks.—Governments are, upon the whole, firm, in sympathy with the rise in Five-twenties at London to 72½, and the continued high price of Sixty-twos. In anticipation of the arrival of bonds from Europe, Sixty-twos are sold, for delivery within ten days, at 1 per cent from "regular" quotations. Sixty-twos, Sixty-Fives, new and old, and Sixty-sevens were each ⅛ per cent better at the noon call. Ten-forties are 100¾@101. Seven-thirtyes are dull and stationary.

U. S. 6s, 1881, regular ..... 107½@107⅝
U. S. 6s, 1881, coupon ..... 112 @112⅛
U. S. 6s, 5-20s, 1862, regular ..... 104¼@104⅜
U. S. 6s, 5-20s, 1862, coupon ..... 108¼@108⅜
U. S. 6s, 5-20s, 1864, coupon ..... 105¼@105¾
U. S. 6s, 5-20s, 1865, coupon ..... 105½@105⅝
U. S. 6s, 5-20s, c. July, 1865 ..... 108 @108⅛
U. S. 6s, 5-20s, July, 1867, coupon ..... 108⅛@108¼
U. S. 10-40s, regular ..... 100½@ —
U. S. 10-40s, coupon ..... 100¾@101
U. S. 7-30s, June, large ..... 104¼@104⅜
U. S. 7-30s, July, large ..... 104¼@104⅜

Foreign Exchange is less firm. Remitters are deferring purchases, in hope of lower quotations for gold within a few days. The supply of bullion exported by the Aspinwall steamer has a tendency to keep down rates. Leading drawers, in one or two cases, quote 110¼ for 60 days' sterling; this figure, however, is merely nominal, the rate on actual transactions being 110@110⅛ for long sight, and 110⅜@110½ for short. We quote:

London, (prime bankers') 60 days' ..... 110 @110¼
London, (prime bankers') sight ..... 110 25/32@110⅜
London, prime commercial ..... — @ —
Paris, (bankers') long ..... 5.15 @ 5.14⅞
Paris, (bankers') short ..... 5.12½@ 5.11⅞
Antwerp ..... — @ —
Swiss ..... — @ —
Hamburg (bankers') ..... 36 @36⅛
Amsterdam (bankers') ..... 41⅜@41¾
Frankfort (bankers') ..... 41 @41⅜
Bremen (bankers') ..... 79 @79¼
Berlin (bankers') ..... 71⅜@72

Gold, Etc.—The gold market is excited, with a downward tendency in price, which ranges from 135⅞@134⅛. The exports of gold and silver from New York have been as follows since Jan. 1:

January	$2,725,762	August	$1,714,598
February	2,121,161	Sept	2,201,959
March	1,891,141	October	1,182,031
April	2,261,283	November	1,733,261
May	9,043,154	Dec. 7	327,575
June	6,724,272	Dec. 14	1,705,420
July	13,519,894		
Total since Jan. 1			$46,980,395
Against same date 1866			61,175,866
Decrease since Jan. 1			$14,195,494

The deliveries of gold and silver at New York since Jan. 1 are as follows:

January	$2,482,700	August	$3,983,070
February	1,739,808	September	2,815,950
March	1,913,973	October	1,847,106
April	3,162,783	November	1,038,058
May	1,194,879	Dec. 2	323,619
June	2,782,316	Dec. 9	671,447
July	2,679,712		
Total since Jan. 1			$26,485,700
Against same date 1866			40,694,505
Decrease since Jan. 1			$14,208,805

The steamship Constitution, which sailed from San Francisco for Panama Dec. 19, carried $1,038,000 in treasure, of which $980,000 were for New York.

Money is in good supply at 6@7 per cent. on call, the lower being the most general rate.

Discounts are moderately active. The accumulation of second-class paper made during the late stringency, is now being worked off, but at irregular rates. Prime paper is scarce and sells mostly at 7@7½ per cent.

Copper has declined again to 21¾c. for Detroit, 21¼c. for Portage Lake, and 21c. for Baltimore. The sales for the last week amount to one million pounds.

Tin is not offered from first hands and the dealers ask 24½c. for straits. Panca nominal at 26 and English 23¼d.

Spelter.—6½c. gold for Silesian with a jobbing business.

Lead.—6½c. gold for ordinary foreign, without wholesale business.

Scotch Pig Iron has been sold as low as $35 50 for Glengarnock from what, but it is now held higher.

American Pig Iron is entirely nominal at $39 for No. 1, and $37 for No. 1.

Petroleum.—The market for crude remains unchanged. Refined, on spot, is held at 25c., with buyers at 24½c. In Philadelphia there is little doing, except in settlement of contracts for Dec. at 23c. and Jan. at 23½c. Naptha 20½c. We quote: Crude (40@47 gravity) in bulk, per gall. 10½@11c.; crude do. in bbls, (40@47 gravity), 16@16½c.; refined, in bond, (110 test), prime light straw to white, 24½c.; do. do. standard white, 24½@25c.; do. do. prime white, 26c.; residuum, per bbl, $3@3 25.

Receipts for the week ending Dec. 17		pkgs	5,557
Exports	" " "	galls	1,167,633
Do	from January	do	32,355,192
Do	same time last year	do	32,316,737

THE IRON TRADE.

NEW YORK, Dec. 20, 1867.

Domestic.—The Iron market this week is very dull. The supply of Pig is fair, but the demand is provokingly small. Not even the gradual decrease in prices of the last few weeks has been successful in securing buyers who are quite shy, and show no disposition to relieve the dealers of their present stock. The sales have been very trifling, in small lots—not exceeding in all 400 tons, and in private terms. Of old rails about 350 tons were sold, also on private terms. We quote best Anthracite No. 1, at $39@$40. Scrap is scarce and nominal. In Manufactured the market is weak, and the demand inactive. Prices are more or less nominal and remain the same. The week's shipments of Iron are very light, and ended for the season over most of the roads with our last statement.

Foreign.—Our advices from England are to the 20th ult. The trade manifested more vitality. Scotch Pig has declined. The fall in prices is small, but marks a downward tendency. We observe in the Board of Trade Returns an increase in Iron Manufactures exported to the extent of 13 per cent. Machinery increases £516,763; other sorts £26,826; Pig and Puddled £162 827; Bar £55,713; Railway Iron £717,281; Castings have decreased in exports by £51 000; Hoops and Sheets by £15,000; Wrought Iron by £432,724; due to Australian and the United States, to which latter country the exports of Steel fall from £63,000 to £57,000.

WEEKLY STATEMENT OF NEW YORK IRON IMPORTS.

The following table shows the quantity and value of iron imports at the New York Custom House, for the week ending and including Dec. 18, 1867:

	QUANTITY.	VALUE.
Chains and anchors	348	19,101
Iron, bp., tons	62	3,064
Iron, Pig, tons	1,686	41,062
Iron, R. R. bars	16,951	92,596
Iron, Sheet, tons	26	2,258
Iron, tubes	25	629
Iron, other, tons	2,758	114,479
Nails	3	916
Old metal	..	4,132
		$269,005

POSTON IMPORTS OF PIG IRON FROM JAN. 1st TO DEC. 7, 1867.

	1867.	1866.
From Great Britain, tons	29,695	20,624
Coastwise ports	8,632	13,776

Lehigh Valley Iron Trade.

The following table shows the amount of Pig Iron transported over the Lehigh Valley Railroad for the week ending Dec. 14:

From	Tons.	Total from Oct 5, 1867.
Carbon Iron Co	130	2,505
Lehigh Valley Iron Co	130	1,558
Thomas Iron Co	655	8,450
Lehigh Crane Iron Co	83	3,628
Allentown Iron Co	205	5,465
Robert Iron Co	101	1,745
Glendon Iron Co	191	4,075
Other shippers	130	917
Total	1,623	29,703

Marquette, Michigan, Iron Trade.

The following are the receipts of ore and pig iron at Marquette up to, and including Saturday, December 7, 1867, by the Marquette & Ontonagon Railroad:

IRON ORE.	Week	Total.	PIG IRON	Week.	Total.
Pitts. & L. Aug. Fu Co.	....	54,967	Morgan Fu Co.	34	5,883
Edwards' Mine	58	5,577	Greenwood Iron Co.	64	5,561
Cleveland Iron Co	....	36,917	Bancroft Iron Co.	....	3,053
Marquette Iron Co	....	5,894	Collins Iron Co.	....	4,651
Lake Sup. Iron Co	....	108,560	Michigan Iron Co.	....	4,128
New England Iron Co.	....	9,943	Iron Cliffs Co	....	57
Washington Iron Co	....	24,726			
Jackson Iron Co	....	139	Total, pig iron	98	23,313
Ore to local furnaces	1,473	53,693	Total Ore and Pig	1,629	306,729
Total iron ore	1,531	283,416			

Iron Shipments from Liverpool to the United States

The following are the shipments of iron from the port of Liverpool for the week ending Nov. 30, 1867.

CHAINS AND ANCHORS.—Boston, 2 tons chains; Mobile, 5 tons chains; New York, 5 tons chains; New Orleans, 11 tons chains; Philadelphia, 0 tons chains.

IRON, BAR AND BOLT, TONS.—Boston, 380; Mobile, 41; New York, 121; New Orleans, 94; San Francisco, 52.

IRON CASTINGS, TONS.—Charleston, 18.

IRON, HOOP, TONS.—Boston, 2; Mobile, 4; New Orleans, 12; New York, 19; San Francisco, 6.

IRON NAILS.—New Orleans, 3 kegs.

IRON, PIG, TONS.—New York, 275; Philadelphia, 55; Boston, 300; San Francisco, 13.

IRON, PLATE, TONS.—Boston, 3; New York, 8.

IRON, RAILWAY, TONS.—Boston, 215; New York, 660.

IRON, ROD, TONS.—New York, 75.

IRON, SHEET, TONS.—Boston, 65; New Orleans, 26; New York, 28; San Francisco, 29.

IRON, WIRE, TONS.—Boston, 10.

English Exports of Iron for October, 1867.

The following are given as the exports of Iron from England for the month of October, 1867:

	1865.	1866	1867.
Iron, pig and puddled	£142,989	£145,370	£129,245
Bar, angle, bolt and rod iron	199,001	204,106	228,982
Railroad iron of all sorts	426,759	369,472	479,401
Iron wire (not telegraphic)	34,529	39,844	41,085
Iron castings	48,997	55,180	62,242
Iron hoops, sheets and boiler plates	119,337	153,624	154,691
Wrought iron of all sorts	236,210	201,289	218,805
Old iron for re-manufacture	1,765	9,356	15,288
Steel, unwrought	74,377	90,008	113,081
Total iron and unwrought steel	£1,314,314	£1,277,549	£1,442,955

Market Prices.

NEW YORK, Dec. 20, 1867.

DUTY.—Bars, 1 to 1½c. per lb.; railroad, 60c. per 100 lbs.; boiler and plate, 1½c. per lb.; sheet, hand, hoop and scroll, 1¼ to 1¾c. per lb.; pig, $9 per ton; polished sheet, 3c. per lb. Payable in gold.

Anthracite, No. 1, best	$39 00@40 00	6 to 12x¾ to 5-8	105 00
" " 2x, fifty	36 00 38 00	Common Iron	
" Grey Forge	35 00 — —	¾ to 2 in. round and sq	95 00
Scotch Pig, from vessel	36 00 39 00	1 to 6 in. wide by ¾ to 1 in.	95 00
Charcoal, coal blast	50 00 67 00	1 to 6 in. wide x ¾ to 5-16 th	105 00
Old Wrought scrap, in yd	45 00 47 00	½, 9-16, 5-8, 11-16, r'd & sq	105 00
" " fm. vsl	40 00 — —	2½ to 3 inches	105 00
English rails, gold	52 50 53 00	Refined Iron.	
American " at works	78 00 80 00	¾ to 2 in. r'd and sq	105 00
Nails and spikes	5 75	1 to 6 in. wide x ⅜ to 1 th	100 00
Old Railroad Iron	48 00@....	3½ and 3½, round and sq	115 00
Hoops, ⅜ per ton	$100 00	Rods—5-8 and 11-16, round & sq., per ton	105 00
" ⅝ "	100 00	½ and 9-16 round & square	110 00
" ¾ "	153 00	7-16, round and square	120 00
" 1 "	140 00	⅜ " "	125 00
" 1¼ "	137 50	5-16, " "	130 00
" 1¼ to 2 per ton	137 50	¼ " "	135 00
Scroll Iron—⅝x14...per ton	180 00	3-16, " "	165 00
" 12..... "	170 00	Horse Shoe Iron	127 50
" 10..... "	160 00	Band—1 to 6 in. x 3 16 to No. 10	132 50
" 3-16.... "	150 00	1 to 6 in. x No. 11 and 12	132 50
" ¼..... "	140 00	Ovals and half Rounds.	
" ⅝x14.... "	160 00	¾ to 1½	127 50
" 12..... "	160 00	⅝ & 11-16	132 50
" 10..... "	150 00	½ & 9-16	137 50
" 3-16.... "	140 00	Nail Rods, per lb	
" ¼..... "	135 00	"	9@10½
" ⅝x14.... "	150 00	Norway Shapes	8¾
" 12..... "	150 00	Spring Steel	10¾
" 10..... "	140 00	Tire " ⅞ to ¼x¾ & 5-16	10¼
" 3-16.... "	135 00	Cast Cork Steel	10¾
" ¼..... "	132 50	Sleigh Shoe Steel	10¾
Swed'h Iron, ord'y sizes, ⅞ to 2 in. sq., per ton	155 00	Plow Steel—8 to 14x⅛ to ⅜	11
Swedish—common ass'd	$150@155	Scotch Pig, No. 1	
English—com	90 95	Gartsherrie	$42@43
do refined	100 105	No. 1, other brands	40 42
do sheet, per lb	6½@10c	American, No. 1	40 45
Russia, sheet	15@17c		

{From Boston Shipping List.}

BOSTON, Dec. 18, 1867.

Bars, Welsh in Lond.	£6 10 0@..	To arrive	10 5 0 10 10 0
Ditto to arrive	6 10 0	Do. railway, Wales	£5 0 0@£5 10 0
Nail rods	7 0 0 7 10 0	Do, merch. Tyne or Tees	6 10 0 .. ....
" Stafford in Lond.	7 10 0 8 10 0	Pig, No. 1, in Clyde	2 14 6 3 1 0
Bars	7 10 0 9 10 0	Do, f.o.b. Tyne, Tees	2 9 6 .. ....
Hoop	8 10 0 9 12 6	Do, Nos 3, 4, f.o.b. do	2 6 6 2 7 0
Sheets, single	9 5 0 10 0 0	Railway chairs	5 10 0 5 15 0
Pig, No. 1, in Wales	3 15 0 4 5 0	" spikes	11 0 0 12 0 0
Refined metal, ditto	4 0 0 5 0 0	Indian Charcoal Pigs in London	7 0 0 7 10 0
Bars, common, ditto	5 15 0 6 0 0		
Do, Swd. in London	10 5 0 10 10 0		
STEEL.			
Swed., kegs (rolled)	14 5 0	Swed., in faggots	16 .. .. ..
" (hammered)	15 10 0 15 15 0	English, spring	17 0 0 23 .. 0

Iron Items.

The Western Iron Company furnace, near Brazil, Ind., is yielding daily twenty-six tons of the purest pig iron. One ton of Brazil block coal will smelt one ton of iron ore.

The amount of black band iron ore shipped over the Mill Creek Railroad for the week ending Dec. 7, 1867, was 151 14 tons; previous, 4,618 12 tons; total, 4,770 06 tons.

THE COAL TRADE.

NEW YORK, Dec. 20, 1867.

Owing to the sudden and effectual close of navigation last week the wholesale market is rather depressed. Very little business had been accomplished. All the canals are closed and the shipments over them ended for the year. The general business depression has greatly affected the coal trade, though probably not more than some other branches. We believe that wherever it may have failed to reach the expectations of those interested it must be attributed as well to other causes, which proper management in the coming year may obviate. The whole supply of anthracite coal from all the regions this year is not behind that of last year, but will exceed it about 350,000 tons. In the retail trade there is more inquiry, which would be productive of encouraging results were it not for the difficulty of shipping. Freights are merely nominal, and can hardly be quoted. Prices remain about the same. At the last return of the Lehigh Canal the figures stood as follows:

1867	1,096,605
1866	1,066,302
Decrease of 1867	59,690

At the last return of the Delaware and Hudson Canal, the figures were as follows:

1867	1,401,120
1866	1,302,894
Increase of 1867	98,299

The Schuylkill Canal closed with the following figures:

1867	1,032,925
1866	1,292,674
Decrease of 1867	259,749

The official year of the Williamstown closed on the 30th of November, with the following results:

1867	123,109
1866	67,643
Increase of 1867	55,466

The following is the statement of the Coal mined and forwarded by the Delaware & Hudson Canal Co. for the year ending December 9, 1867, with sources whence received:

Carbondale—Coal Brook		80,394 08
" Slope		36,311 14
" No. 1 Shaft		66,866 03
" No. 3 shaft		43,139 02
" Racket Brook		144 357 17
		370,960 03
Rushdale—J. Jermyn		120,029 02
Archbald—Eaton & Co.		144,034 11
" Boston & Lackawanna		90,180 18
		234,215 09
Olyphant—Grassy Island		97,280 09
" "Oly" No. 1		98,640 09
" " No. 2		103,056 15
" " No. 3		122,578 00
		421,555 13
Dickson—Elk Hill Coal Co.		60,937 07
Providence—Legitt's Creek		76,050 07
" Vossterch		161,669 19
		237,720 06
Mill Creek—Union Coal Co.		44,608 17
Total for 1867		1,507,486 17
" " 1866		1,391,674 07
Increase		115,812 10

The Wyoming Valley Canal, south, closed on the 7th inst. with the following figures:

1866	461,664
1867	369,099
Decrease of 1866	92,565

The following table shows the quantity of coal shipped over the principal roads for the week ending December 14, 1867, compared with that shipped the same time last year:

	1866.		1867.		
	WEEK.	TOTAL.	WEEK.	TOTAL.	DECREASE.
Phil. & Reading R.R.	.....	3,425,418	.....	3,101,049	324,369
Schuylkill Canal	.....	1,292,674	.....	1,032,925	259,749
Lehigh Val. R. R	.....	1,730,474	...	1,948,285	217,911
Lehigh Canal	.....	1,066,702	.....	1,006,603	59,631
Del & Hudson	.....	1,302 894	.....	1 401,120	98,299
Scranton North	6,523	414 664	7,044	484,259	69,595
Scranton South	21,327	1,045 279	14 828	1,180,159	134,890
Penn'a Coal Co. Rail	13,405	484,612	10,270	810,590	325,978
" " Canal	....	24,909	.....	21,169	3,740
Wyoming North	.....	106,370	.....	82,376	23,940
Wyoming South	.....	461,664	.....	369,099	92,565
Shamokin	8,719	546,803	7,308	469,410	77,393
Trevorton	92	49,828	591	53,160	3,332
Short Mountain	693	110,708	945	84,716	25,992
L. V. Co	....	37,235	1,145	73,477	36,242
Broad Top	.....	259,309	.....	228,652	30,657
Williamson'n	.....	67,613	.....	123,109	55,465
Total	50,669	12,426,786	42,132	12,470,230	.....
1866	.....	.....	.....	12,426,786	.....
Decrease	.....	.....	.....	43,444	.....

The subjoined table exhibits the amount of Coal shipped over the stated roads since the closing of their fiscal year:

	WEEK.	TOTAL.	WEEK.	TOTAL.	INCREASE
Phil. & Reading R.R.	25,352	62,196	35,023	140,373	78,207
Lehigh Valley R.R.	9,892	22,090	25,450	67 479	45,389
Williamstou	.....	1,746	1,268	4,021	3,175
Grand Total	35,244	86,002	61,741	212,773	.....
1866	.....	.....	35,244	86,002	.....
Increase	.....	.....	26,497	126,771	.....

Schuylkill Coal Trade.

BY RAILROAD & CANAL, FOR WEEK ENDING DEC. 10, 1867.

	Railroad.	Canal.
St. Clair	19,396	.....
Port Carbon	3,594	.....
Pottsville	397	.....
Schuylkill Haven	7,856	.....
Auburn	1,650	.....
Port Clinton	2,100	.....
Total for week	35,023	.....
Previously this year	105,450	.....
Total	140,373	.....

Lehigh Coal Trade.

SHIPPED FOR THE WEEK ENDING DECEMBER 14, 1867.

SHIPPERS.	CANAL. Week. Tons.	CANAL. Total. Tons.	RAILROAD. Week Tons.	RAILROAD. Total Tons.
FROM MAUCH CHUNK.				
Lehigh Coal & Navigation Co.	....	....	....	....
Summit Mines	....	....	....	....
Room Run Mines	....	....	....	....
John Laubach & Co.	....	....	....	....
Other Shippers	....	....	....	....
Total	....	....	....	....
FROM B. M. REGION.				
ohn Connery	....	....	363	1,393
W. T. Carter & Co. (Coleraine)	....	....	1,427	1,258
Spring Mountain Coal Co.	....	....	775	2,415
Thomas Hull & Co. (N. Y. & Lehigh Co)	....	....	1,577	2,036
Honey Brook Coal Co.	....	....	303	4,036
German Pennsylvania Coal Co.	....	....	....	1,....
Beaver Meadow (D. W.)	....	....	....	1971
Other Shippers	....	....	....	....
Total	....	....	7,595	10,199

FROM MAHANOY REGION.				
McNeal Coal and Iron Co	....	....	5	1,528
Knickerbocker Anthr. Coal Co.	....	....	492	2,008
North Mahany Mines (Mahanoy Col. now P. & C.)	....	....	331	9
Delano do	....	....	....	....
Primrose Mines (Rathbun, Stearns & Co.)	....	....	....	350
Walter, Brothers & Co. (now Bedford & Cox)	....	....	....	....
Mount Etna Coal Co.	....	....	....	23
Trenton Coal Co.	....	....	....	....
Glendon Coal Co. (Glendon Colliery)	....	....	233	705
Thomas Coal Co.	....	....	534	1,475
Williams & Herring	....	....	109	364
E. S. Silliman	....	....	1,190	3,104
East Boston	....	....	....	....
New Boston Coal Co.	....	....	518	1,704
Shamokin Coal Co.	....	....	....	....
Caledonia M. & M.	....	....	192	593
Other Shippers	....	....	....	81
Total	....	....	3,508	12,455
FROM HAZLETON REGION.				
A. Pardee & Co. (Hazleton)	....	....	3,689	7,491
G. B. Markle & Co. (Jeddo)	....	....	2,384	4,456
Wm. S. Haisey & Co. (Mt. Pleasant)	....	....	219	671
Buck Mountain Coal Co.	....	....	1,974	3,355
Sharpe, Weiss & Co. (Council Ridge)	....	....	1,193	3,089
Coxe, Brothers & Co. (Cross Creek)	....	....	403	1,202
Fiveyale Coal Co	....	....	1,342	3,181
Stout Coal Co.	....	....	458	1,312
Harleigh Coal Co.	....	....	855	1,957
Ashburton Coal Co.	....	....	....	....
East Sugar Loaf	....	....	1,630	3,543
Upper Lehigh C. Co.	....	....	478	2,170
Highland	....	....	1,199	2,174
Mount Hall	....	....	78	219
Woodside	....	....	86	325
Latimer	....	....	319	566
Other Shippers	....	....	....	....
Total	....	....	15,505	36902
FROM WYOMING REGION.				
Newport Coal Co.	....	....	....	....
Warrior Run Mining Co.	....	....	....	....
Parish & Thomas	....	....	....	407
New Jersey Coal Co.	....	....	183	604
Lehigh & Susquehanna Coal Co.	....	....	....	....
Germania Coal Co.	....	....	131	176
Franklin Coal Co	....	....	....	....
Auburnried Impr'v't & Coal Co.	....	....	....	....
Valley Coal Co.	....	....	....	....
Wilkes Barre Coal and Iron Co.	....	....	434	1,247
Baltimore Coal Co.	....	....	....	....
Union Coal Co.	....	....	30	216
Wyoming Coal & Transp'n Co.	....	....	81	197
Eberhart Coal Co	....	....	....	....
Morris & Essex Mutual	....	....	100	360
H. B. Hillman & Co	....	....	177	418
Bowkley, Price & Co.	....	....	....	....
T. F. Hunt & Co	....	....	....	....
G. B. Linderman	....	....	....	....
Harvey & Bro.	....	....	44	88
John Horton	....	....	....	....
Mineral Springs	....	....	159	564
Consumers	....	....	....	....
Plymouth Coal Co.	....	....	....	152
Enterprise Colliery, J. H. Sweyer	....	....	350	758
Washington Coal Co	....	....	....	....
West Pittston	....	....	....	....
Shawnee	....	....	....	113
Other Shippers	....	....	....	....
Total	....	....	1,782	5,596
Grand Total	....	....	25,450	67,479
Total 1866	....	....	9,802	22,990
Decrease	....	....	....	....
Increase	....	....	15,557	45,389

Cumberland Coal Trade.

For the week ending Dec. 14, 1867.

From the Alleganian.

COAL TRADE BY RAILROAD.—Statement of Coal shipments over the Baltimore and Ohio Railroad for the week ending Dec. 14, 1867:

From C. and P. R. R.	Tons.
Consolidation	1,068 04
American Company	2,079 00
Borden	1,918 17
New Hope	41 14
Midland	67 01
Hampshire	....
From George's Creek via Piedmont.	Tons.
George's C. & I. Company	933 12
Central do	1,376 13
Atlantic do	347 12
Piedmont do	478 03
Swanton do	98 03
Barton do	264 11
Potomac do	1,306 19
George's C. M. do	923 12
Franklin do	848 08
Hampshire do	1,408 15
American do	1,837 11
From Eckart R. R.	Tons.
C. C. and I. C.	632 01
Spruce Hill	....
Black Avon	....
Total	15,428 16

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

At New York, December 20, 1867.

Schuylkill E. A., choice	$5 75@$6 00	Lehigh Broken	5 25 ....
" Ordinary	5 25 5 50	" Egg	5 25 ....
" W. A. Lump	5 25 5 50	" Stove	5 50 ....
" Steamboat	.... 5 25	" Chestnut	4 20 ....
" Broken	....	Wilkesbarre Lump	5 25 ....
" Egg	....	" B'k'n & Egg	5 25 ....
" Stove	5 50 5 75	" Stove	5 50 ....
" Chestnut	4 00 4 25	" Chestnut	4 75 ....
Lehigh White Ash Lump	5 37 ...		

SPECIAL COALS.—DEALERS' QUOTATIONS.

Diam'd Vein R. A., Sch'kill	....	H. Heils, E. S'kiln, Lorb.	5 50 ....
Locust Dale W. A., "	....	New England Red Ash	$5 25 ....
Honey Brook " Lehigh	5 50	Broad Mountain	5 25 ....
Harleigh " "	5 50	Wyoming	5 00 ....
Spring Mt'n " "	5 50	McNeal Co.	5 50 ....
Sugar Creek " "	5 50	Locust Mount'n (Keppler)	5 50 ....
Ashburton " "	5 50	Duncan Red Ash "	6 00 ....
Fulton White Ash	5 50	Wharrie Coal & Iron Co.	5 25 ....
Stout	5 50	New Burgh Orrell Gas Coal	9 00 ....
Old Co.'s " "	5 50	Despard Gas Coal	9 00 ....
Buck Ridge W. A., Sh'kin	5 00		

Dealers in these Coals may be found in our advertising columns.

At Philadelphia, December 20, 1867.

Lehigh Lump and St'mb't	$5 00@....	Schuylkill Chestnut	2 75 ....
" Broken and Egg	5 00	Locust Mount Lump and Steamboat	4 25 ....
" Stove	5 00	" Broken	4 25 ....
" Chestnut	3 75	" Prepared	4 25 ....
Schuylkill R. A. Prepared	4 25 4 50	" Chestnut	2 87 ....
" Chestnut	2 75	Lorberry Coal	4 25 ....
" W. A. Lump and Steamboat	4 25	Shamokin	4 75 ....
" Broken	4 25	Franklin, (Lykens Valley)	4 75 ....
" Egg and Stove	4 25	Broad Top	4 75 ....

Scranton Coal at Elizabethport, December 20, 1867.

(Corrected weekly by D. L. & W. R. R. Co.)

Lump	$4 25@....	Egg	5 00 ....
Steamer	4 50	Stove	5 50 ....
Grate	4 75	Chestnut	4 40 ....

Prices for Pittston Coal at New York, December 20, 1867.

(Corrected weekly by Penna. Coal Co.)

Lump, per ton of 2240 lbs.	$5 40@....	Egg " " "	5 40 ....
Steamer, " " "	5 40	Stove " " "	5 60 ....
Grate " " "	5 40	Chestnut " " "	4 90 ....

Lackawanna at Rondout, December 20, 1867.

(Average contract prices for year.)

Lump	$4 90@....	Stove	5 45@....
Steamer	5 00@....	Chestnut	4 50@....
Grate	5 20@....	Pea	4 20@....
Egg	5 30@....		

Lehigh Coal at Elizabethport, December 20, 1867.

Lump	5 50@....	Chestnut	4 50 ....
Steamboat and Broken	5 25	Stove	5 50 ....
Egg	5 25		

At Baltimore, December 20, 1867.

Wilkesbarre & Pittston W. A. by cargo or car	$4 50@5 75	From wharf or yard, 75c. to $1 per ton additional.	
Lykens Valley R. A. by cargo or car	5 75@ 6 25	Retail, del'd, per 2,240 lbs	7 00@7 75
Sunbury & Shamokin R. or W. A. by cargo	5 50 5 75	George's C'k and Cumber land f. o. b. at Locust P't for shipping	4 50@5 00

At Havre de Grace, Md.

Wilkesbarre or Pittston, W. A., on board	$4 85@5 10	Sunbury or Shamokin, R. or W. A., on board	@5 25
		Lykens V'y, R. A. on b'd	5 60@5 85

The above rates are only nominal. Shipping at this port is suspended for the season.

At Georgetown, D. C.

George's Creek and Cumberland on board ..... $4 25@4 50

Wilkesbarre Coal at Elizabethport, December 20, 1867.

(Corrected by Wilkesbarre Coal & Iron Co.)

Lump	$4 50	Egg	5 00 ....
Steamer	4 50	Stove	5 25 ....
Broken	4 75	Chestnut	4 50 ....

Ten cents additional on shipments from Jersey City.

Prices of Provincial Coals.

[CORRECTED WEEKLY BY LOUIS J. BELLONI, JR., 45 PINE STREET.]

Duty $1.25 per ton.

Block House (on board)	$2 00 gold	Little Bliss Bay	1 87½ "
Gowrie "	1 75 "	International Co.'s	1 75 "
Logan "	1 75 "	Shack Coal, R. H.	75 "
Sydney "	2 25 "	" L. G. B.	1 00 "
Picton "	2 25 "		

Prices of Foreign Coals.

Duty $1.25 per ton.

Corrected weekly by FARMELEE Bros., 32 Pine Street, N. Y.

Liverpool Gas Caking	$11 00	Liverpool House Cannel	20 00
" " Cannel	14 00	" " Orrel	16 00@18 00

Per ton 2240 lbs., Ex. ship.

PRICES FROM YARD.

Liverpool Orrel, screened	$18@20	Liverpool Cannel, scr'd	22 00@ —

per ton 2000 lbs. delivered.

Coal Freights.

(Corrected Weekly.)

From Elizabethport.

Albany	$ 90@ —	New London	1 25@—
Boston	1 90 2 00	Newport	1 40 —
Bridgeport	1 00 —	New York	55 60
Fall River	1 40 —	Norwalk	1 00 —
Hartford	1 50 —	Norwich	1 30 —
Hudson	1 00 —	Pawtucket and towing	1 50 —
Lynn	— —	Portland	1 60 —
Middletown	1 25 —	Portsmouth	2 15 —
New Bedford	1 45 —	Providence	1 50 —
Newburyport	2 00 —	Salem	1 80 —
New Haven	1 00 —	Taunton	1 40 —

From Newburgh.

River. Co's Boats.		Eastern.	
Albany	50@....	Boston	1 75@....
Barrytown	55	Bridgeport	1 12½....
Catskill	55	Bristol	1 50 ....
Cold Spring	50	Dighton	1 50 ....
Coeymans	45	Fall River	1 45 ....
Coxsackie	40	Mystic	1 30 ....
Fishkill Landing	20	New Haven	1 12½....
Greenbush	50	New London	1 25 ....
Haverstraw	45	Newport	1 45 ....
Hudson	35	Norwalk	1 12½....
New York	50	Norwich	1 40 ....
Nyack	50	Pawtucket	1 65 ....
Peekskill	40	Providence	1 50 ....
Poughkeepsie	25	Stamford	1 12½....
Rhinebeck	30	Stonington	1 25 ....
Saugerties	35	Warren	1 45 ....
Sing Sing	50		
Stuyvesant	40		
Tarrytown	50		
Troy	55		
West Point	30		
West Troy	55		
Yonkers	55		

From Port Richmond, Philadelphia.

Boston	2 90 — —	New York	1 30 1 40
Charlestown	3 00 — —	Portland	2 80 — —
Fall River	2 90 — —	Providence	2 90 — —

From Rondout.

Boston	$2 00	New London	1 40
Bridgeport	1 25	Newport	1 60
Bristol	1 60	Norwalk	1 25
Dighton	1 55	Pawtucket	1 75
Fall River	1 60	Providence	1 60
Mystic	1 40	Salem	2 00
New Haven	1 25	Stamford	1 25
Norwich	1 50	Stonington	1 40

From Baltimore.

To Philadelphia	$1 40@— —	Boston	2 25@ 2 40
New York	2 10 — —	Sound Ports	2 25@ 2 50
Washington	1 00 — —	Norfolk	1 00@— —
Annapolis	75 — —	Richmond	1 30@— —

From Washington, N. J.

Hackettstown	$ 58	Iron Dale	$ 1 10
Waterloo	81	Dover	1 24
Stanhope	90	Paterson	1 80
Port Morris	99	Pompton	80
Rockaway	1 32	Bloomfield	1 80
Denville	1 35	Newark	2 00
Boonton	1 44	Belleville	2 10
Little Falls	1 70	Communipaw	2 10
Drakesville	1 68	Jersey City	2 20
Dickerson's Basin	1 11	New York	2 20

From Georgetown or Alexandria.

To Philadelphia	$1 50 — —	Boston	2 75 2 50
New York	2 15 — —	Sound Ports	2 25 2 50

Provincial Freights.

	Currency.
Sydney to N. Y.	$2 75
Sydney to Boston	2 75
Lingan	3 50
Lingan to Boston	3 00
Cow Bay	2 75
Cow Bay to Boston	2 75
Cow Bay to Portland	2 50
Big White Bay	3 87
Little "	2 50

Foreign Freights.

New Castle and Perth on Tyne ..... £17 keel.

Liverpool ..... 15@17s. ton.

Rates of Transportation to Tide Water, June 1, 1867.

PHILADELPHIA & READING RAILROAD.

From Pottsville to Philadelphia	$2 17
" " Port Richmond	2 07
" " New York, drawback off	2 80

SCHUYLKILL NAVIGATION.

From Pottsville to Philadelphia	2 08
" " New York, drawback off	2 88

Wyoming Valley Canal.

	Tolls.	Freights.
From Wilkesbarre to Havre de Grace	97c.	$1 55
" " Coumbin	69	1 20
" " Middletown	87	1 10
" " Harrisburg	65½	1 05

OTHER AVENUES.

From Mauch Chunk to Philadelphia, Canal, including unloading		1 88
" " Philadelphia, via North Penna Railroad		2 00
" " Elizabethport, via N. J. Central Railroad		2 03
" " Port Johnson		2 10
" " New York		2 47
" " New York via Del. Div. and Raritan Canal, including unloading		2 67
" " New York via Morris Canal		2 39
" " Hoboken via Morris & Essex Railroad		2 10
" " New York		2 29
From Elizabethport to Buffalo, via New York Canal, a distance of about 450 miles—freight, $2 62, toll 78 cents		3 40

The shipping expenses at Elizabethport and Port Johnson vary from 25 to 50 cents.

SAN FRANCISCO STOCK MARKET.

A Telegram from San Francisco, dated the 18th inst., to Messrs. LEES & WALLER, Bankers, 33 Pine street, this city, quotes Nevada silver and other stocks as follows:

Stocks.	Bid per ft.	Stocks.	Bid per ft.
Gould & Curry	350	Belcher	120
Savage	2,320	Imperial (per share)	175
Cholla, Potosi	130	Alpha	450
Ophir	65	Kentuck	185
Hale & Norcross	1,150	Cal. Steam Navigation Co.	1815
Crown Point	700	Cal. State Telegraph Co.	31
Yellow Jacket	750		

BOSTON STOCK MARKET.

BOSTON, December 20, 1867.

Copper Falls	18	Huron	—
Allouez	—	Boston Water Power	13⅛
Calumet	—	Isle Royal	—
Hecla	—	Minnesota	—
Canada	—	Quincy	1*
Franklin	8	Farv Improvement	7
Hancock	4	Rockland	—

Weekly Coal Trade Circular.

NEW YORK, Dec. 20, 1867.

The coal trade for 1867 will long be remembered as a blue year, owing to the peculiar condition of affairs existing throughout the country. Unusual depression has existed in all business circles, and the leading manufacturing interests have been especially depressed, which has lessened the consumption of coal materially. As the supply has been in excess of the demand—or at least it ought to be—prices have been declining throughout the season. Transportation and labor has ruled high, which has caused the entire loss to fall upon the mining interests, the result being that many have become bankrupt, most of them have lost money and but few have paid expenses. So that the trade at present may be considered in a very depressed condition. It is expected by those who give the subject due consideration, that the mining interest has seen its darkest day, and that the transporting interests in 1861 must shoulder the burthen. There are encouraging indications as to the future of the coal trade. The winter has set in unusually early, and it is generally conceded there is a light stock on hand. Should the winter prove unusually severe, by spring the market will be entirely bare of coal. It will also be remembered that in 1866 there were 3,000,000 tons more coal sent forward than in 1865. Many dealers supposed in 1867 the market would not require as much coal as in 1866; but the facts are that about 350,000 tons more anthracite coal have been sent forward this year in excess of the large tonnage of 1866, and that the present season closes with light stocks of coal on hand. The low prices have largely increased consumption, and if business revives in 1868 the market will be able to take a very large increase of tonnage in excess of this year's production. Can it be supplied?

P.

London Weekly Metal Report.

LONDON, November 29, 1867.

The general market remains very dull and the transactions reported few, prices unchanged without any material change.

IRON.—Welsh bars are rather lower, £5 12s. 6d. to £6. Rails are also lower in price, from £5 to £5 10s. Staffordshire iron is flat. Scotch pigs are rather lower, 53s. 3d. cash.

COPPER.—The market for English is dull at late rates. Australian quite nominal. In Chili business has been done to some extent at £69.

TIN.—The market is very firm and a good business doing at £90 cash for Straits; buyers at £91, three months prompt. Banca—no business reported since; nominally £94. In Holland, transactions to some extent are reported at higher prices, closing at £64 50, and 2,000 slabs ex next sale at £65. English tin is again firmer.

TIN PLATES continue very dull.

LEAD is very inactive, and prices show no improvement. Good English pig is offering at £19 5s.

SPELTER is dull and lower. Sales reported on the spot at £21 5s., and still sellers. In outports, special brands have been offered at £21 7s. 6d.; V. and S is nominally £21 2s. 6d. Belgian—sellers at £21, but no business reported.

VON DAPENIZEN & NORTH.

London Copper Trade Circular.

Messrs. Vivian, Younger & Bond (Nov. 29) write: There has been more doing in Liverpool in West Coast produce, about 600 tons of Chili bars having been taken off at £60, and 112 tons at £59 5s. The only transaction in regulus or ores has been a sale of a cargo of the former at 14s. 2d. per unit. Buyers of bars are not now so numerous, but as sellers are also few in number the market remains steady. There is, in fact, no pressure either to buy or sell. The position of English copper remains as last week, sales being very difficult to effect, unless at tempting prices. There is no business of consequence to report in fine foreign copper.

All Sorts.

☞ The Davenport (Iowa) *Gazette* publishes the following statement, showing the number of steamboats, barges and rafts that have passed over the rapids during the past seven years, will be read with interest, and is of itself a strong argument that these rapids should be so improved as to render the navigation of them safe, at all seasons when navigation is open.

BOATS, BARGES AND RAFTS.

Years.	Up.	Down.	Up.	Down.	Lumber.	Logs.
1860	262	260	554	205	314	68
1861	308	295	99	111	184	47
1862	331	337	165	119	210	77
1863	202	214	151	117	216	60
1864	155	150	121	120	205	94
1865	437	53	178	302	411	168
1866	677	674	389	364	258	112
1867	430	435	204	205	494	175
Total	2,845	2,852	1,618	1,552	2,390	794

Boats passing the bridge numbered in 1860, 501; 1861, 598; 1862, 668; 1863, 414; 1864, 305; 1865; 891; 1866, 1,348; 1867, 874. It will be seen that the smallest number, or the least amount of river business, was in 1864, the greatest in 1866.

☞ The death of Eulaquio Barron, the celebrated English banker of the City of Mexico, has already been announced. His history was a remarkable one. The vast haciendas of the Escalers and the Cristo, in the Valley of Mexico, belonged to his firm; the famous quicksilver mine of the New Almaden, in California, has been his property; he was a shareholder in the silver mines of Real del Monte; he had large estates and cotton factories at Tepic and San Blas. Of San Blas he was once British consul, and he used to spend about twenty times his salary in hospitality to the Englishmen that came that way. He was twice a millionnaire, and was one of the foremost bankers in Mexico; "and yet," Mr. Barron was accustomed to observe, "when I come to England not half a dozen people know who I am." In the United States, however, he was celebrated as the plaintiff in a famous lawsuit against the United States Government, which had seized upon the *negocio* of the New Almaden, and, although victorious in the Supreme Court, at Washington, was fain at last to compound the Barron claim for a million and three-quarters of dollars. The Barrons were an ancient Roman Catholic family from Ireland, and settled in Spain during the last century. Mr. Barron's father emigrated to Mexico about forty years since, founded the great house which bears his name, and gained a colossal fortune. The New Almaden was literally a "mine of wealth" to him.

☞ Much importance is given in some quarters to the national convention of manufacturers to take place in Cleveland, December 18th. The Cleveland *Herald* says: "New England will be largely and powerfully represented, and every important manufacturing interest will have a seat and voice in the gathering. The object of the convention is to reach Congress, and to bring an influence to bear to remove all taxation upon domestic manufactures, except on luxuries. As the matter now stands, the benefit accruing to manufactures by the tariff is neutralized by the internal tax; what is given to the manufacturers indirectly, is taken away directly.

☞ Eugene Hatin, author of a work on the periodical press, states in *La Liberte* that, according to a careful estimate, there are 12,000 newspapers now published in the world. In Europe, 7,000; America, 5,600; Asia, Africa, &c., 500. Their total daily circulation is estimated at 12,060,000 sheets.

☞ The application of slate for house fronts, is recommended on economical grounds. An ordinary front of brown free stone, costs about $1,800; a beautiful slate front can be furnished for less than $1,000; a saving is also obtained in the necessary thickness of the supporting wall by its use.

☞ During the past ten months the dividends declared on mines of the Comstock lode, have reached the handsome amount of $3,595,706. The chances are that the coming ten months will not compare favorably.

☞ The Nevada *Territorial Enterprise* is informed that the Central Pacific Railroad, above the Sink of the Humboldt, will run for fifteen miles through a peat bed, with several miles of peat on either side.

☞ Prof. Zantedeschi, of Padua, proposes to fight cholera with artillery, disinfecting the atmosphere by discharges of powder mixed with chlorides of sodium, lime and sulphur.

AMERICAN

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WESTERN & COMPANY, PROPRIETORS.

R. W. RAYMOND, EDITOR.

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☞ Correspondents, exchanges and others addressing us should be *extremely careful* to write "JOURNAL OF MINING," instead of "MINING JOURNAL," to ensure safe carriage. Communications intended for publication should be plainly written, and on one side of the paper only.

NEW YORK, SATURDAY, DECEMBER 21.

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ALL SORTS.

NEW BUSINESS OFFICES.

For the convenience of patrons and the accommodation of a flattering and steadily increasing business, the proprietors of the JOURNAL OF MINING have opened commodious offices on the ground floor of No. 41 Pine street, between Nassau and William, the locality being central, and appropriate to the interests which the JOURNAL represents. All business relating to Advertisements, Subscriptions, Job Printing, Assaying, Wood Engraving, etc., will be transacted, and should be addressed there. The Editorial Rooms will be continued at 37 Park Row.

☞ Mining Companies should publish their annual statements, required by law, in the AMERICAN JOURNAL OF MINING. For terms, apply at the office, No. 41 Pine street.

☞ The AMERICAN JOURNAL OF MINING has a larger circulation than any other paper of the kind in the United States.

THE PROPOSED NATIONAL SCHOOL OF MINES

The democratic doctrine is, that the country which is governed least, is governed best; and ultra democrats, like GERRIT SMITH, have followed this theory so far as to proclaim that the only function of government is the police function, and, from that standpoint, to include in one common condemnation free schools, the postal system, river, harbor and canal improvements, coast surveys, agricultural, patent, and scientific bureau and, in short, everything not directly necessary for the maintenance of peace, and the prevention or punishment of crime. Statesmen, however, do not attempt to apply the theories of philosophers with such relentless consistency. They recognize the fact that many things must be done by government, which would otherwise not be done at all; that the interests of education, industry, and commerce, in every part of a nation, are of vital importance to the whole people; and that a wise discretion in such matters, is better than blind adherence to any political rule. Of course, it is difficult to draw the line between judicious and injudicious legislation in these directions. It is always easier to be consistent than to be wise. There is no general standard which can be applied: every case must be judged upon its own merits; and full and thorough discussion must give the answer to two all important questions: first, is the proposed end one which concerns the whole nation, or only a part of it? and second, can the benefit desired be obtained as well, or at all, by local legislation or individual enterprise? We propose to discuss, with reference to these two points, the recent proposition for the establishment of a National School of Mines, embodied in the bill of Senator STEWART.

Mining and agriculture are the two productive industries upon which the wealth of the world is based. Strictly speaking, agriculture is the most important, since without it men could not exist; yet mining is almost as essential, since without it there could be no civilization, and men would only exist as savages. There is this difference between the two, that the products of mining are, in general, far more imperishable, and, in proportion to their first cost, of greater, because more prolonged use to mankind. After centuries of tilling the soil, men have no more to eat than at first; and a bad crop brings famine and distress. The benefits of mining, on the other hand, are cumulative and perpetual. Who can estimate the blessings diffused by a ton of iron, mined, smelted, cast or wrought into forms of beauty and usefulness, serving for generations the needs of men, and repeatedly reforged, and reappearing, as by a material metempsychosis, to enter upon new periods of beneficence? More difficult still is it to measure the importance of gold and silver, the production of which, aside from their intrinsic value and their application in the arts, is so subtly connected with the profoundest problems of commerce and political economy. Philosophers tell us that if we produce and manufacture largely, it is no matter whether we have plenty of money or not: money is nothing but a medium of exchange, and, when it is scarce, prices will be nominally low, while an increase of money nominally raises them, without altering the real relations of labor and wealth. But history and daily experience tell a different story. They show us that the world's accepted medium of exchange must bear a certain relation to the world's amount of business; and that, in spite of all contrivances of credit, barter, and paper money, the supply of the precious metals is of vital importance to all commercial nations. This conviction is the source of the universal principle of law that the mineral resources of a country, especially its mines of gold and silver, are the property of the whole country—represented in some States by the crown, and in others by the general government. We have no fault to find with the American doctrine on that subject, which throws open to individual enterprise these sources of national wealth, but it is a question whether individuals should be allowed to ruin, by ignorant and wasteful management, the endowment which Nature has established for succeeding ages as well as the present, and of which, in a certain sense, we are the trustees for posterity. It is by no means indifferent to us all, whether the mines of the West are skillfully and economically worked or not, whether nine millions of silver a year are lost, never to be recovered, by the methods of treating the ores of the Comstock Lode, whether five dollars are wasted for every dollar extracted from the sulphurets of Colorado. These losses are so much robbery of our children; and it is eminently within the province of government to preserve the mineral resources of the country, just as it will be imperatively called upon, before many years have passed, to prevent the destruction of its timber. Statistics show that, for several years, our production of gold and silver has been declining. There is no great cause for alarm in this fact alone. The years of greatest production were those, in which superficial deposits were worked by rude methods; and since that time the business of mining has grown more difficult and expensive, while the number of miners has grown smaller. It is not the diminished production, but the increased waste, which is alarming. All the indications are, that individual mine-owners will not, or cannot, reform this evil. They lack the necessary knowledge, and the means of obtaining it. In vain our young men crowd the excellent schools of Paris, Freiberg, and Berlin. They need years of instruction here to make their European education available; for those branches of metallurgy which are most widely practiced in this country, are the ones most scantily known and taught in Europe.

Information is the least debt which the government owes to its citizens engaged in this work. And there is a special reason why this information should be nationally given. The difficulties and interests of mines are universal. The man who is crushing quartz in Vermont and the man who is crushing quartz in California would gladly have a common center for the exchange of their experiences and the instruction of their ignorance. The farmers of the land need such an institution much less, yet they have it, in the Agricultural Bureau. To a Bureau of Mining, under competent direction, there is no reasonable objection, except one. An efficient Bureau of Mining is an impossibility. In the first place, its location at Washington would defeat its object; and its location away from Washington would deprive it of the distinctive character and dependence of a bureau, and leave it without any individuality or vigor at all. In the second place, a bureau is not a wide-awake, progressive institution. The best *servant* in the world, put into a bureau, is liable to crystallize just where he is, and never grow any more. The only way to secure vitality and progress in such an establishment is to make it a school. Only a school can be in constant communication with practical men. People will not spontaneously write to a mere bureau, but the graduates of a school keep up relations with their former comrades and teachers as long as they live.

If, then, the government is to spread among the people that necessary information on the subject of mining and metallurgy, the slow acquisition of which is costing us so many millions every year, and wasting our resources for the years to come, there is no better way than to establish such a school as Senator STEWART proposes, support it by the extra tax on bullion, paid by the mining classes, and make it, as it ought to be, the foremost in the world.

COLORADO ORES—THE SMELTING PROCESS.

A typographical error in our last week's article made us speak of the loss of silver by a certain process "in good ores" instead of *gold* ores. We make the correction here, in order that it may not fail to catch the eye of any who may attach value to our discussion of so important a subject.

It is evident, that for ores containing gold, silver and copper (to say nothing of lead) the only rational treatment is that which allows the simultaneous utilization of all these valuable metals. For this purpose the simplest and most certain method is smelting. The objection urged against smelting the copper pyrites of Colorado, on the ground of high price, at the present rates of labor and material, is even now, in many cases, unsound; and loses force with every successive month. When the inevitable railroad from Central City to the coal mines of Boulder shall have been completed, and the development of these deposits shall have furnished an excellent and cheap fuel to the mining districts, this objection will be heard no more. But even at present prices, the cost of treatment by smelting will certainly not exceed $40 per ton, in large and well-managed works. To cover this cost, ten per cent. of copper in the ore would be sufficient; and this is below the average of the better class of cupriferous ores in Colorado. The smelting process is therefore already, for such ores, relatively cheaper than any other.

The first smelting-works were erected in Black Hawk, by Mr. JAS. E. LYON; and his example would certainly have been followed by many others, had not the irrational and defective arrangement of his establishment, with some other circumstances, rendered profitable operations almost absolutely impossible. The works were completely without plan or convenient connection of the different parts. The dressing-works occupied the lowest level of all, and were faulty in construction, requiring a disproportionately large number of workmen, besides involving much loss of valuable material. One or two continuous jiggers, with a single attendant, would accomplish, with less waste, nearly twice the work. After concentration, the ore was conveyed to four different reverberatories, situated as far apart as possible, and from these four points, after roasting, to the building containing the smelting furnaces. Of course this continual passing back and forward of the material could not fail to involve loss of time, mechanical power and money. As if not satisfied with this evil, however, the proprietors chose the process of smelting with lead, and subsequent cupellation, which has been for years almost everywhere abandoned, for such ores. In the present case, the process required the purchase of galena ore at high prices, and was attended with serious loss of precious metal in the slag. A piece of lead, smelted from a small quantity of LYON's slag, contained nearly $100 in gold and silver. This defective process was given up in the summer of 1866, and the method of matt-smelting—under the circumstances, the best—was adopted in its place. Still the results were unfavorable. In eight months, only about 80 to 100 tons of matt were produced; and the works were closed, with a considerable deficit. At present the whole establishment is being rebuilt on rational principles; and in tearing down the smelting furnaces, the reason has been discovered, why the business was not, and could not be, remunerative. Under the supporting masonry of the furnaces have been found more than 100 tons of very rich matt, which had leaked through the badly-constructed quartz hearth. Nobody noticed this slight loss of cent. per cent. on the production,—a circumstance which sufficiently characterizes the degree of skill and care with which the furnaces were attended. We need not say that, in any respectably managed metallurgical establishment, such an occurrence would be impossible. If the value of this unconscious production of matt be added to that of the official production, the works alluded to will be seen to have earned a profit, in spite of all the disadvantages we have enumerated.

During the past summer, new smelting works, unfortunately of small dimensions, have been erected under the direction of Prof. HILL and Mr. BERGER, according to the dictates of science and experience. They are just beginning operations; and we do not doubt that they will avoid the errors of their predecessors, and achieve a success which will render the adoption of smelting for the auriferous copper pyrites, as well as the argentiferous galena, of Colorado, merely a question of time. At the same time, we do not believe that amalgamation will be entirely superseded. Smelting can only be profitably carried on in large establishments, and, as the instance we have discussed sufficiently shows, under skillful supervision. The different mining companies, as a general rule, should not attempt to own and operate, under one administration, both mines and furnaces, but sell their ores to the metallurgical companies. There must then be large quantities of ore which the owners of furnaces will not care to buy, because it contains no copper, or which is too poor in gold, or too remote from the furnaces, to pay for costly transportation and smelting. In such cases, desulphurization and amalgamation is a very good process. Indeed, as we have said in speaking of Messrs. REESE & BRUCKNER's California method, if it were not for the loss of silver and copper, this process would be better than any other. Consequently, when the extra yield from smelting will not pay the extra cost, amalgamation, properly conducted, is the treatment to be preferred. We are aware that most experiments in this direction have been disastrous failures; but the causes of failure have been defects in

the apparatus, or else lack of skill in the workmen. All the talk about chemical mysteries and difficulties is practically nonsense; that is, it does not account for the enormous losses which it is intended to explain. A thorough desulphurization, and a thorough amalgamation, will take at least seventy-five per cent. of the gold out of any pyrites, in spite of vapors and coatings and electrical conditions and molecular repulsions and all the etcetera with which the ores of Colorado are supposed to bristle, for defence against the avarice of man. But desulphurizers have failed, because they did not desulphurize; and amalgamators, because they did not amalgamate. In the choice of apparatus for these purposes, men may be assisted by the experience, on the one hand, of Europe, where desulphurization is an old story; and on the other hand, of California, where amalgamation has reached a satisfactory degree of perfection.

A well-conducted, uniform and cheap desulphurization is as great a desideratum for the smelter as for the amalgamator; since upon the perfection of this part of the work depend, in both cases, the regularity, productiveness and metallurgical economy of the subsequent operations. Until within a few years, reverberatories of different forms were exclusively used for exact and delicate roasting; and there is no doubt that, in the hands of skillful workmen, they may still be used to advantage. The new furnaces which have taken their place in Germany and England, known as the Terrace Roasting Furnaces, have certain points of superiority, especially in economy, to which we shall allude next week.

THE HEATING OF IRON BLAST FURNACES.

It is superfluous to say, that, before an iron blast furnace can be brought into regular operation, a tedious and careful process of preparatory heating is required. The usual, but very primitive way of conducting this operation, in furnaces of ordinary construction, with fire-hearths, is as follows:

After the furnace is finished, a reverberatory is built in front of the fire-hearth, in which an intense fire is kept up for two or three weeks, the flame passing into the furnace to warm the hearth. At the end of this time wood and coke are thrown into the furnace; and when they are well on fire, the reverberatory is torn down, the fore-hearth stopped with clay, and the furnace gradually filled with successive charges of coke, up to within ten feet of the top, and then with ore and lime. The damstone is not placed until the blast commences. During this process, the first and most difficult object is to heat the hearth, in which the slag and melted metal are afterwards to accumulate. The burning of the coke by itself will not do this; for the lowest layers of glowing coke, transmitting their heat to the stone with which they are in contact, become cooler, and do not regain the temperature they have lost; and the accumulation of ashes would soon extinguish them. To meet this difficulty, from six to ten strong iron bars are driven into the furnace through the fore-hearth, so as to form a kind of grating, by means of which the weight of the coke above is supported, while the coke below the bars is raked out. The fresh draught thus admitted soon brings the coke resting on the bars to a white heat; the bars are drawn out, and the white-hot coke falls into the bottom of the hearth, the whole charge in the furnace settling in proportion. After the lowest layer of coke begins to cool, the bars are again driven, and the hearth raked out. This operation needs to be repeated once or twice every day, and the whole process continues from one to four weeks, at the discretion of the metallurgical engineer, until the first charge of ore having arrived at the bottom, the blast is put into activity. The rest of this preparation, in wood, coke, tools, and wages, is enormous; and its difficulty, in large furnaces, where the first bar is already white hot before the last is driven, almost insuperable. For this reason, among others, the diameter of blast-furnace hearths is usually less than it might with advantage be made. Every iron-master knows that an old furnace, the interior diameter of which has grown larger by wear, works better than a new one; and perhaps it is the difficulty of the first heating of large hearths which prevents their original construction in the dimensions found by experience to be the best.

There is a certain amount of superstition about this cumbrous preparatory work; and in some American establishments the matter is much simplified. For instance, at the Lehigh Crane Iron Works, at Catasaqua, Penn., the blast furnaces are heated by simply filling with wood, and when that is burning, adding anthracite, and beginning the blast immediately, with low, but gradually increasing pressure. The audacity of this practice is calculated to astonish the careful smelters of the old school, but the saving it involves would astonish them still more.

In blast furnaces with closed front, and no fire-hearth, such as we described a few weeks ago (LURMANN'S patent) it is not possible to heat on the old bar-driving plan; and, as this may seem to some a serious objection against that style of construction, we translate from a private letter, written by a German iron-master, the following detailed account of the manner in which a LURMANN furnace, with four tuyeres, was set in operation. The narrative will be found interesting to all iron-smelters, as the principle is applicable to the present blast-furnace:

"Sept. 17.—Furnace finished. Three small reverberatories, two at two tuyere openings, one at the tap hole, were fired day and night till the 24th, when the outside of the hearth felt warm. One of the other tuyere openings was then unclosed, and the hearth —seven feet in diameter—filled with coke already glowing. The reverberatories were then removed, and all openings closed, to prevent unnecessary combustion. Coke was added in charges from the top, and with it the necessary quantity (15 to 20 per cent.) of carbonate of lime, to slag the ashes. In this way about 40,000 lbs. of coke were charged, and then ore and lime, in the proportion of 100 lbs. to 100 lbs. of coke. The weight of the charges was increased after every fifth charge, so that with the fortieth, of 3,300 lbs. of coke, the furnace was full, and the proportion of 100 coke to 175 ore and lime, was attained. This part of the work might have been more rapidly done, with advantage. Next time, I shall keep it up, day and night. However, in six days, on the evening of Oct. 1st., the furnace was full; and we began the blast with four 1¾ inch tuyeres, with 600°—700° Fahrenheit, and 2 lbs. pressure, which was increased a ½ lb. every half hour, until we reached the desired amount of 4½—5 lbs. The iron-discharge-hole remained six hours open, with a strong flame shooting through it, in order to direct the heat towards the bottom. Until the coke was consumed up to the boshes, there could be little or no slag formed; the heat of this combustion warmed the furnace better than the old method, and the gases prepared the superincumbent ore thoroughly. Here let me say, that our normal charge is 220—225 lbs. to 100 lbs. of coke. Beginning the blast, therefore, at 175 lbs. was rather bold. At noon of the 2d, the first slag flowed of itself through the patent discharge, and at 1½ P. M., we tapped 3000 lbs. of *perfect, marketable iron*. (The first iron is usually like the first milk of a cow, entirely worthless.) On the 2d, we produced 12,200 lbs.; on the 3d, 20,200; on the 4th, 26,600; on the 5th, 29,400; on the 6th, 42,000; and so on, until we reached a production, on the 16th, of 84,870 lbs. The maximum of charge was attained on the 4th."

We call the attention of American iron-masters to the above account; and should be glad to know if it can be equalled or excelled by the initial operations of any of our furnaces.

CHRISTMAS

Although, as our readers are aware, we ordinarily sit in serene scientific indifference, high above all ordinary domestic or social matters, and occupy ourselves with such elevated themes as chemical processes, animal productions, national progress, and desulphurization, still there are times when we feel ourselves to be but human, and Christmas is one of them. We forsake, for once, the sinking of shafts, and explore the depths of a well-filled stocking. We run long adits into mince-pie, and perform with zeal the exploitation and subsequent crushing and chemical treatment of the internal resources of a turkey. Certain of the sympathy of mankind in these branches of applied science, we wish our readers, one and all, a MERRY CHRISTMAS! If they would return the compliment, and help to make our Christmas a merry one, let them kindly enclose to us the amount of their subscriptions now due. A further payment in advance, for the next volume, would give us not only a Merry Christmas, but a Happy New Year!

NEW PUBLICATIONS

THE SILVER MINES OF COLORADO: *A Flying Trip*, by OVANDO J. HOLLISTER, Central City, Colorado, 1867.

The readers of Mr. Hollister's book on the mines of Colorado, will not need to be told that this pamphlet is well-written, readable, and as far as it goes, impartial and accurate. It is not the author's fault if more detailed information as to the new argentiferous districts of Colorado is not given in his pages. He gives all there is; and could not add to his description except by manufacturing facts or indulging in rhetorical flights of fancy. The object and compass of the book are clearly set forth in the brief preface, which we quote entire.

"My object in the publication of these letters is to put in convenient and imperishable shape such information as they contain of the nature of the silver mines of Colorado, and their actual condition. Very little can as yet be certainly predicated of them, from the fact that exploration has only just commenced. From two hundred to three hundred tons of ore from the backs of different lodes, have been reduced, however, and the result—something more than $100 a ton, average coin value of silver, besides a very large percentage in most cases of lead—is such as to justify great hopes. The silver district badly needs capital, for the extensive exploitation and working of its lodes, and for the building of reduction works of large capacity. A careful consideration of the facts related in these letters, will convince any candid person, I think, that a better and fresher field for the investment of capital, seldom offers. If it shall so convince any considerable number, I shall be satisfied."

As a specimen of Mr. H's powers of lively description, we give the following letter, which is full of oxygen as the air in which it was written:

LIFE IN THE MOUNTAINS.

WEST ARGENTINE, Sep. 13, 1867.

"Ye crags and peaks, I'm with you once again!
I hold my hands to you, as of I would
Embrace you!"

"So long absent from the higher haunts of the mountains, I had almost come to think the peculiar charm attributed to them by their lovers chiefly due to an exhuberant and willing fancy. But it is not so. High life is really a luxury. No wonder the heathen made the mountain tops sacrificial altars. In this they may have raged a few, but they did not imagine a vain thing. There is a sparkle and exhilaration in the air which mocks the universal mocker—wine. Had I not felt it myself all day and yesterday, I should have been made aware of it by Morse's remorseless puns, which were perpetrated without a morsel of provocation, by the vivacious freshness of Darby's Irishisms, and the dry pungency of Watson's wit. It put me in an unprincipled mood, and I reflected cynically on the base uses, not to which we must come at last, namely, to be food for worms, but to which we are reduced at present, have been, are, and shall be, so much the worse for us. Think of my delicate patent leathers, made to order in Philadelphia for the purpose of playing croquet, and possibly to gratify an eye for shape while the wearer was smoking, tearing up and down these terrific rocks to the Coin, the Baker, the Linden, the Ayres, and about to try and pick a daintier way over the bald crown of the world than other mortals are privileged to tread. What for? How do I know? How do you put on paper a shrug of the shoulders? Umph! Is that pretty near it? Well, that answers my question then. And Mr. Watson, he's nothing but a poor blind worm of the dust, too, grubbing, grubbing, for a season, perhaps, "hunting the mountains o'er in vein for ore," as Morse permitted himself to say, and then crawling away out of sight.

I am stopping at the Kelso House, where I suppose lovely woman is as rare as angels' visits since Paradise, yet where they live better than at any of your town hotels. With the taste of Todd's doughnuts lingering in my mouth, I insist that a man or woman only needs to breathe this light pure air, eat the roasts and biscuits, the pies and cakes, and drink the Java elixer of the Kelso House to become as a god, knowing no difference between good and evil. Speaking so to Mr. Stille, the urbane proprietor of the House, this morning, he said that in July last, before the road was made, he started with a company of men to come up. They were in the rain twelve days, soaked as completely as they could be, yet none of them experienced the least ill-health in consequence. Such being the case, and all of us dead broke, I doubt not it was pleasanter sitting on saw horses last evening, watching the moon rise, smoking clay pipes and talking mines, than it would have been to be sucking rum-punches or catawba cobblers through a straw at the St. Nicholas, or mingling in the jargon of the evening exchange at the Fifth Avenue, puffing genuine Havanas, and inventing schemes to separate the unwary and their cash."

In addition to its fresh information concerning the silver districts, this book contains a chapter or two on the operations of the present year in the gold mines of Gilpin county, including original statistics of value, a portion of which we shall incorporate into the annual mining review in our first January issue.

MEETINGS.

Schuylkill Navigation Co. at 417 Walnut street, Philadelphia, January 6, 1868, 11 A.M.; Hammond Oil Co. at 195 Fulton street, N. Y., January 6, 1868, 12 M.; American Coal Co. at 110 Broadway, Dec. 26, from 12 to 1 P.M.

DIVIDENDS

Butler Coal Co. at Farmers' Loan & Trust Co., 50c. per share, due Dec. 24; Susquehanna Canal Co. at 417 Walnut street, Phila., January coupons on common bonds, payable January 1, 1868.

Scientific Meetings.

POLYTECHNIC BRANCH OF THE AMERICAN INSTITUTE.

A SYSTEM OF ABBREVIATION IN WRITING.—ALCOHOL INDICATOR.—DAYS FROM PAPER.

The regular weekly meeting of the Polytechnic Branch of the American Institute was held last Thursday evening, Prof. Tillman in the chair. There was the usual attendance, which expression implies that the hall was very well filled.

A gentleman named Powell explained the method of abbreviating in writing, together with his own improvements and additions. It is not a system of phonography, but a more or less limited series of contractions. For instance, the letter "e" is made to stand for the word "the," "h" for he, have, or has; "w" for we, or with; "tt" for that; "thr" for their; "s" for is; "i" for in or it. In the contraction, however, of words of many syllables, the usual phonographic strokes are employed, but yet the method has a claim of novelty. The speaker stated that by the system of contractions he would take down on paper between 5,000 and 7,000 words an hour, which is about all that an ordinary speaker could enunciate. The contractions number about 200, and are of such a fixed character that they are always legible, a benefit which improvised abbreviations cannot possess.

Dr. Ruschhaupt explained Mr. Henry Gath's Alcohol Indicator. It is a very simple, neat apparatus, and quite efficient for the purpose of brewers, wine dealers and growers, who desire to know the exact quantity of alcohol present. In its operation it acts on the still principle, and will probably take the precedence of reagents, the use of which is usually confined to experts.

Dr. Rowell exhibited a paper hat of the same appearance as straw, but possessing several additional advantages. It is waterproof, lighter than the old material, and capable of receiving any desired color. The process of its manufacture is very simple and decidedly novel. A straw hat of the desired size and quality is covered with plumbago and electrotyped. The straw is then burnt out of the electrotype mould, when the manilla paper pulp is pressed in. It is intended to supply this style of hat for the coming summer trade. The specimen exhibited was very nicely finished, and would readily be mistaken for straw. Its examination led to a discussion of the present and possible uses of paper. The Chairman stated that the application of paper to ordinary purposes was as yet insignificant to what it would undoubtedly be. It was remarked by a gentleman that already it was successfully used for packing purposes in engines, and was superseding leather for belts.

The regular subject of the evening, Steam Pumps, was then called up, but owing to the absence of the gentlemen expected, was, after some remarks on the properties of the centrifugal species, again deferred, and the meeting adjourned.

Correspondence.

[To secure insertion of correspondence in our columns, the full name and address of the writer must be given.]

Subterranean Photography—Coal Mines Taken by the Use of Magnesium Lights.

NEW YORK, Dec. 8, 1867.

EDITOR AMERICAN JOURNAL OF MINING:

The New York Consolidated Coal and Iron Company, appreciating the difficulties of overcoming the incredulity of capitalists, who have been bitten so often by parties who have worked up into an airy existence undeveloped and worthless lands, conceived the idea of taking photographic views of their mines and estates, which are situated in Marion county, West Virginia. For this purpose, the undersigned was chosen to select a photographer. The services of Mr. E. C. Thompson, well known as the best "out door operator" in this country, were secured; and we started, fully equipped, on our mission. We bought two packages of the "Ribbon" from Lahme, in Lafayette Place, and carried with us all the necessary chemicals. It was deemed advisable to make some experiments before starting on our trip; and we made quite a number in the large saloon of Walker & Co., in the Bowery. In the large rooms we were invariably unsuccessful; but when we concentrated the light in a very small room, a very fair negative was obtained. With this certainty in our hands, and our little experience, we set out on our journey, via Philadelphia, Baltimore, and the Baltimore and Ohio Railroad.

Next day, at one P. M., we got off at the depot of the Company, Nuzums. The superintendent of the Company met us at the tramway junction; we took a passenger car over the road, drawn by a sprightly mule, and were carried to the works in a short time. We proceeded to the mines, which are splendidly opened in the side of the hill, where we found the vein seven feet in thickness, composed of two seams of totally different kinds of coal: the lower four and a half feet being Cannel, and the upper three feet fine bituminous. The veins are opened fifteen hundred feet—a gallery seven feet high, and eight broad, running that distance, with rooms on each side. Our party consisted of Mr. Thompson, the photograper, Mr. Dixon, the superintendent, Capt. James H. Hahn, Col. R. C. Shriber, mining engineer, in the employ of the Company, and the writer of this communication. With cars, miners, and our photographic apparatus, we penetrated the mine about twelve hundred feet, and tried a number of experiments with indifferent results. We then moved nearer the mouth, into the main gallery, where we burned two lights, and after a long sitting

of seven minutes, made a negative from which the enclosed photographs were printed.

The difficulty experienced was chiefly in the diffusion of light through the gallery, and its absorption by the heavy masses of jetty coal, and, secondly, the fact that it was impossible to make the miners keep perfectly still. The first difficulty we remedied by fixing the lights in one of the openings that run off the gallery at right angles; thus throwing the actinic rays directly on the object to be taken. The other trouble we cured by removing all but one miner upon whom we could depend. We had no lamps with which to burn the magnesium, so that we were compelled to feed it through a small piece of lead pipe, fashioned for the purpose, and fastened on a stand about three feet high.

We spent many hours in the dark and silent place; but were fully repaid, as you see, by the pictures we send you.

If we should go out now, with the experience we have, there is no question but that we could take most perfect photographs of the deepest and darkest mine on the continent.

We have never heard of coal mines being done before; you will please inform us if they ever have been successfully photographed. J. W. M.

Neumeyer's Inexplosive Powder.

WILKESBARRE, Pa., Dec. 10, 1867.

EDITOR AMERICAN JOURNAL OF MINING:

Having recently assisted at a series of experiments with "Neumeyer's Patent Inexplosive Powder," I will give you the conclusions arrived at with regard to its value.

The experiments consisted of a series of comparative tests, by firing a number of holes in hard sandstone, charged in pairs, the one with this new powder, the other with Smith & Rand's blasting powder, which is very generally used in the mines in this region. Experiments were also made by firing Neumeyer's powder in holes untamped, in a gun-barrel, filled to the muzzle and lighted (it required more than a minute to burn out)—and by burning in an open keg, to show that when unconfined it is inexplosive. The experiments were very successful, and fully sustained all that was claimed, viz: that, when confined, this powder is fully as strong, for the same weight and volume, as the best brands of blasting powder now in use; and when unconfined it is inexplosive, and burns comparatively slowly. It is not claimed, however, that our miners can smoke or trim their lamps immediately over an open keg of it, without occasionally experiencing some slight inconvenience from its ignition, any more than they can with the powder at present used.

It is claimed also that the inexplosive powder gives less smoke than the other. To test this, experiments should be made in the mines.

The impunity with which our miners handle the common powder shows that it is by no means so dangerous a material as is frequently asserted; and unless this new explosive can offer some advantage more prominent than its comparative inexplosiveness, it is not likely it will do more than take its place *among*, not *above* the powders now in use. Does it cost less? As the patentee desires to sell the right to manufacture it is impossible to obtain a definite answer to this question. It is asserted, however, that the cost of manufacture will be less, as the plant required is simpler and less expensive. The only approximate quotation I was able to obtain was one cent per lb. less than for other powder.

As there is no economy to be obtained in drilling the holes which constitutes the greatest item in the cost of mining in rock—and but a very slight one claimed for it in price, its additional safety is its greatest recommendation, while the very fact of its being explosive only when confined unfits it, in a great measure, for the kind of work known as "sand blasts," so generally used in heavy rock-cuttings on our railroads and canals. That it is destined to be adopted to the exclusion of the powder now in use, is, I think quite improbable; but that it will enter the field as a formidable rival for popular favor, is tolerably certain. This new explosive by no means supplies the want so generally felt for something better than the powder now and for the last few centuries in use.

Nothing has yet been proposed in practice offering any prospect of success in this direction, except nitro-glycerine and gun-cotton. The chlorate of potash powders, though some of them are very powerful, are all too dangerous. The manufacture of gun-cotton is being rapidly perfected, and it may shortly prove a valuable acquisition to our miners. Of nitro-glycerine, which, in many respects, and among others its safety, is without doubt the best explosive we have, I may speak at another time, and give the results of a large number of experiments made with it both in coal and rock.

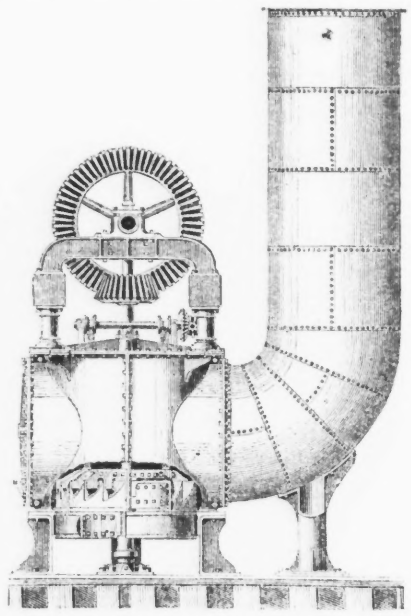
R. P. ROTHWELL.

Motive Power in Mines.

Provisional protection has been obtained for "Improvements in machinery for obtaining and giving off motive power for the purpose of working the different kinds of machines in any mines, or for hauling, driving, or drawing any kind of carriages in mines or other places," the invention of Mr. Loxley Horsfield, of Leeds:—This "invention consists of an improved arrangement for compressing air and conveying it to any part of the mine or other place necessary for giving off motive power, instead of laying down pipes to a distance from the shaft or to the entrance of the mine. "I make," says Mr. Horsfield, "strong air-tight receivers mounted on wheels placed on a carriage, and I compress the air into the same; by these means I am enabled to convey to any distance compressed air, and give off power for working an engine for a length of time, according to the size of my receiver, which may be varied in size, and the pressure of air contained therein. To charge the air vessel, and to obtain the requisite pressure of air, I employ air-pumps driven by an ordinary steam engine or other motive power, and I place the air vessels on suitable frames, and so arranged that I charge or force the air into one recipient or air vessel, and when so charged to a given pressure I draw the air from the first air vessel to charge a second recipient or air vessel, and so on to as many as may be required until I obtain the pressure of air that may be desired, giving the necessary power to the engine to work the machine it has to put in motion. By drawing the air from one vessel so charged or compressed, I gradually increase the pressure of the air from the one to the other, and from this second vessel force it to a third, and so on to as many as may be required, drawing from the one and forcing the air into another until I obtain the requisite pressure of air to drive the engine for the work it has to perform.—*London Colliery Guardian*

IMPROVED TURBINE WATER-WHEEL—THE WATSON MANUFACTURING COMPANY.

Water-power and water-wheels have received much attention from engineers and scientific men. The rules and formulæ which have been given from time to time, sometimes by theorists, and sometimes by highly practical men, who have been indefatigable in their experiments and observations, only go to prove how much scope there is for still further research and improvement in adapting machinery to water-power. There are several things to be considered, where machinery is to be connected with water as a motive-power, such as the quantity of water which is at command, the fall, the available power, the velocity of water and wheels &c. The last description of apparatus, and the devices and precautions used to secure perfect adjustment, uniform steadiness and accurate observations of revolutions, &c., is contained in the Lowell hydraulic experiments by JOHN B. FRANCIS, Esq., Engineer to the Locks and Canal Company of Lowell, Mass. The annexed engraving illustrates a turbine water-wheel, as improved and



manufactured by Messrs. W. G. & J. WATSON, of the Watson Manufacturing Company, Railroad avenue, Paterson, N. J. The wheel represented is a 60-inch Jonval, of 140 horse power, on 22 feet of fall. Turbine wheels of this class are now made with brass buckets and guides, and are gotten up in a very superior style. They are well adapted for, and have been tested in, mills of all descriptions, such as flour mills, saw mills of all kinds, rolling mills, iron mills, and especially in cotton and woollen factories, as they give a very steady and uniform speed, and are also well adapted to very high as well as very low heads and falls. One of this description is now in operation at the Essex Cotton Mills, Paterson, N. J., which is working to the satisfaction of all concerned, and is commended by critics in the engineering school. This, however, is only one of many others built by the Watson Manufacturing Company. The establishment of this Company is one which displays the results of persevering industry and energy. There may be seen in progress of manufacture, stationery and portable steam-engines, steam-boilers, water-wheels of all sizes and descriptions, heavy and light gearing and machinery for calico-print works, flax-cotton and saw-mills. The accumulation of patterns in this establishment for engine and machine work of all kinds during a period of eighteen years, in addition to a large stock formerly belonging to the firm of T. C. SIMONTON & Co., and to the Union works, gives facilities of great importance to mill-owners and manufacturers. The breaking of a spur or bevel wheel often causes an entire stoppage of the machinery and mill-work, a loss of time and money to both employers and employees, and much extra labor and inconvenience.

Improved Jonval turbine water-wheels made by this Company can be seen at the office of Mr. GEORGE TALCOTT, of 96 Liberty street, New York City.

The Pacific Railroad—The Summit Tunnel.

A writer for the San Francisco *Alta California*, who has just come over the Central Pacific Railroad from Sacramento to the summit of the Sierra Nevada, writing under date of November 7, says:—"Let us premise by saying that we start from the City of the Plains, as I believe the State Capital is poetically called, and gliding over the level plain of the Sacramento Valley, we travel about fifteen miles of uninterruptedly smooth country. Soon this is broken into more undulating and then rugged country, and by the time we have gotten well weary of our ride, we reach Cisco, having made the distance at about a rate of 20 miles an hour, including stoppages. These stops were made at 20 different stations, of which the chief ones are Auburn, Colfax, Gold Run, Dutch Flat, and Crystal Lake. Here we are at Cisco, 5,950 feet above sea level. The weather was drizzling below us, but at Crystal Lake we found we had run into the snow line, the ground being white, though sloppy, with the 'beautiful snow.' Here at Cisco we found four inches of snow, while at the summit the snow is 18 inches deep, and was still falling at last accounts. Of course, this makes travelling by wheel very difficult, and the stages have been delayed, not so much by the snow itself, as the wretched condition in which it leaves the soft and unfrozen ground. There are about fifteen tunnels, so far, constructed on the road, and they are all known to the initiated as number so-and-so, each tunnel having a number of its own, beginning with Tunnel No. 1. The king of the list, however, is No. 6, that being *the* tunnel, or the Summit Tunnel, as it is generally called. It ought to be called No. 1, for it is a wonder, surely, and we may well be proud that such a triumph of labor and skill has been executed in our own State and country. This great bore is 1,650 feet long, and was about one year in being put through. It was commenced on the western side of the ridge, September 20, 1866, and daylight was let through August 3, 1867, the job being actually finished in one-third of the time that the most experienced engineers were willing to admit that it could be done. The rapidity with which the work was finally prosecuted to a close, however, was chiefly due to the discovery and use of that terrible explosive compound, nitro-glycerine. Much of the work, it is true, had already been done before the new explosive agent was adopted, but it facilitated matters wonderfully when finally used. Experiments were commenced in February of the present year, and, after some considerable delay, the engineers became sufficiently familiar with the compound to use it constantly and safely, after which the work advanced with accelerated speed, equal to about 50 per cent. increase on all the former operations. So much for nitro-glycerine. There are in this immediate region about a dozen tunnels, that number being actually included in an area of 2 1-2 miles. All of these are of great importance to the work, as short cuts and means of circumnavigating what appeared to be impassable barriers. Most of them are cut through the solid granite formation, and will stand so long as time shall endure, without brace, timber, or other support. Of these minor affairs—minor only, comparatively speaking, but *mined* anyway—Tunnel No. 6 presents the finest front, as it has a broad front of flawless granite, over 100 feet high. The tunnel is 375 feet in length, and runs through this close-grained stone through its whole length. No. 8 is about one third of a mile beyond the Summit Tunnel, going east, and when we recollect that in this and all the other works of a similar character but few accidents have happened, though vast amounts of powder and nitro-glycerine have been used, we can appreciate somewhat the skill and caution of the chief engineer of the work. The bridges on the Central Pacific are all built, I believe, on what is known as the 'Howe Truss' model, and are now 11 in number, making an amount of bridging equal to a half mile. The obstacles to be overcome by these works were considerable, and the bridges may well be considered as noteworthy. Not the least noteworthy of the many curious things to be seen on this line of travel are the snow galleries. These are something new in the country, though I have read accounts of their being used in Europe; they were never needed in America, however, until the Pacific Railroad was commenced. They are roofed coverings thrown over the track in such places as are likely to be blocked by snows, or by the drifting of the flying snow. It is expected that about 30 miles of this protection against snows will be built, of which some six miles are now built; the longest single roofing is over half a mile in length. The track is now laid within nine miles and a half of the Summit Tunnel, and about twenty miles on the other side of it, commencing about thirteen miles and a half from the Summit, making in all about twenty-two miles and a half to connect the two points, when the Company will have a continuous stretch of 125 miles of railroad, which it is expected to have completed in about 45 days, if severe weather does not impede the work. Although there is now considerable snow on the ground, the engineers do not expect that the labor will be impeded by any fall of snow less than four feet; after that depth is reached, the labor of removing it is too great to pay. After this connection now approaching is made, the greatest obstacle between Sacramento and Salt Lake, in the way of road building, may be considered overcome. There will be left a section of 600 miles to build, of which 300 miles can be laid at the rate of one mile per day, and the rest, 300 miles, will require about one year and a half to complete, making in all three years and a half to finish the road to Salt Lake. The Central Pacific expects to be able to finish their share of the trans-continental road to Fort Bridger, 120 miles beyond Salt Lake City, and if the Union Pacific Company are fortunate enough, notwithstanding Indian fights, extensive transportation, &c., to finish their end in time to meet us at Fort Bridger, we shall be able to whirl across the continent, from Sacramento to the Missouri, in three days and a half, in two years and a half from this time.'

A New Thames Tunnel.

An important engineering project, which has excited but little public attention, and for which the necessary Parliamentary sanction has not yet been obtained, is already in process of execution—namely, the tunnel or subway intended to run under the Thames between London Bridge and the Tower. This work is the third mode of communication below London Bridge which has been brought forward by the same company. The first project, for which application was made to Parliament in 1863, was a bridge below the Tower, which was opposed by the Conservators of the Thames. The next was by a subway immediately above the Tower, which was, in its turn, opposed by the Tower authorities, on account of the position of the shaft on the north side of the river, the approach to which would have interfered with the traffic of the Tower stairs. The present project has the sanction of the Tower authorities, and arrangements for the small portion of land on the Surrey side necessary for the approach have been already made. The new tunnel project presents, in some respects, a curious contrast with Brunel's great work at Wapping, which occupied nearly twenty years in its execution. The existing tunnel, now the property of the East London Railway Company, is about 1,250 feet between the shafts; the proposed subway will be about 1,320 feet; the one cost above £450,000, the other estimated to cost the comparative trifle of £16,000. Dividend was utterly hopeless in the one case; in the other, with only the same traffic receipts as those of the old tunnel, a dividend of 20 per cent. upon the capital is calculated on. If the estimate be not exceeded, it is possible that, with moderate tolls, the traffic receipt will be much greater. Mr. Peter Barlow, F.R.S., who is the engineer of this project, proposes that the descent and ascent to the tunnel shall be by hydraulic lifts similar to those in use in the large new hotels, and that the passengers shall be conveyed from one shaft to the other in light steel omnibuses of perfect workmanship, and driven by man-power upon a system of accumulating force. The friction will, it is expected, be so much reduced by the exactitude of the fittings and the

excellence of the materials and workmanship employed as to make the power of one man amply sufficient for working an omnibus. The bottom of the shafts will be on the same level, and the subway will dip in the centre to give speed, and to accumulate force for the last half of the journey. Mr. Barlow recommends his scheme as applicable to the relief of the crowded streets.—*London, News, Nov. 29.*

Patent Claims.

Interesting to Miners, Millmen, Metallurgists, Oil-Men, and Others.

71,860.—PRODUCING CALCIUM MAGNESIUM LIGHT.—Charles A. Dresser, New York city. George A. Dresser, Trustee.

I claim the preparation of dolomite, native or artificial, substantially as and for the purpose described.

71,883.—PETROLEUM GAS BURNER.—C. A. Hyver, New Orleans, La.

I claim, 1st. The combination of the pipe, D, when filled with finely broken charcoal, with the concentric or annular chamber, F, the latter being provided with pipes, b, extending upwardly into the cup furnace or heat retort, H, as and for the purposes substantially as set forth.

2d, The combination of the pipe, D, when filled with finely broken charcoal, the concentric or annular chamber, F, pipes, b, and pipe, d, with the gas pipe, c, when the latter is provided with the valve, J, for regulating the flow of gas, as and for the purpose described.

3d, The gas pipe, c, when constructed and arranged with relation to the chamber, F, and one of the pipes, b, as described, in combination with the valve, J, for the purpose set forth.

4th, The combination of the concentric or annular chamber, F, and pipes, b, with the cup furnace or heat retort, H, when the latter is constructed as described, and shown upon the drawings, and occupies the relation to the former herein set forth, for the purpose set forth.

5th, The pipe, d, in combination with one of the pipes, b, for the purpose of affording a light for illuminating purposes, as herein described.

71,993.—STEAM GENERATOR.—Isaac R. Oakford, Philadelphia, Pa.

I claim a steam generator, composed of a series of cylindrical boilers, of round ends, provided with openings for steam and water, and arranged in a vertical and inclined position, in the manner and for the purpose above set forth and described.

71,939.—CARRIAGE FOR ROCK DRILL.—Thomas Doane, Boston, Mass.

I claim the arrangement of the round bars, E F G and H, of a rock drill carriage into a frame, for the reception of rock drilling machines which shall be able to reach therefrom any point where it is desirable to bore a hole, substantially as and for the purpose described.

2d, The position of the horizontal round bars, E and F, under an acute (more or less) angle, d, to the side frame of a rock drill carriage, or to the alignment of the tunnel, substantially as and for the purpose set forth.

3d, The construction of a rock drill carriage for driving a tunnel or mine so as to swing in a verticle direction on the forward wheels and axle, substantially as and for the purpose specified.

72,032.—COLLECTING OXIDE OF ZINC.—George C. Hall, Brooklyn, N. Y.

I claim, 1st, A building, structure, or compartment, A, provided with openings, a, covered by screens, B, substantially as and for the purpose set forth.

2d, A screen for separating the oxide of zinc from the fumes and gases of burning zinc ore, composed of ground cork, hair, wool, sponge, or other suitable or similar material, confined within a suitable chamber, substantially as set forth.

72,054.—CONDENSING ENGINE.—William A. Lighthall, New York city.

I claim the arrangement of the ordinary jet condenser, B, air pump, D, and hot well, E, with the surface condenser, F, and the valves, H K, and L, as shown and described, so that the change from the use of the jet condenser can be made at will, and vice versa.

72,056.—FURNACE FOR HOT AIR BLAST.—Richard Long, Chillicothe, Ohio.

I claim, 1st, Constructing the air pipe of a furnace-blast heater of fire clay, substantially as described.

2d, Constructing the air pipe of an oval or other equivalent form, and uniting the sections of which it is composed by socket joints, with clumps and keys, suostantially as shown and described.

3d, Forming the supporting walls, B, of fire brick, with iron plates between the courses, substantially as shown and described.

4th, Placing an open or a solid plate beneath the air pipe, substantially as and for the purposes herein described.

72,061.—REFINING CAST IRON AND CONVERTING IT INTO STEEL.—Emile Martin and Pierre E. Martin, Paris, France.

We claim the method and means for refining and converting cast iron into cast steel and other metals, substantially as herein shown and described.

72,092.—STEAM ENGINE.—George Shale, Taunton, Mass.

I claim, 1st, The steam chest, B, constructed with the chambers, g, h, and partition, p, in combination with the steam and exhaust pipes, and cylinder, a, substantially as describe l.

2d, The valve-rods, i i', provided with the recesses or chambers, k k', in combination with the partition, p, constructed as described, and operated by the lever, l, as and for the purpose set forth.

72,123.—STEAM ENGINE.—J. F. Troxel, Bloomsville, Ohio.

I claim, 1st, The construction of the oscillating valve, T, and arrangement of the openings, S P P', and S', substantially as shown and described.

2d, Also, the arrangement of the piston rods, K and L, operating in one and the same end of the cylinder, substantially as shown and described.

72,125.—APPARATUS FOR DISTILLING OILS.—Herbert W. C. Tweddle, Pittsburg, Pa.

I claim, 1st, A trough or troughs, having perforations for the passage of the oil in small quantities, and furnished with points near to such perforations, so as to cause the oil to pass therefrom in drops, or fine streams, or thin films or layers, over heated pipes or tubes placed thereunder, when used within a vacuum still, for the purposes substantially as described.

2d, In a vacuum still for distilling oil, the use of a series or coil of steam pipe, placed horizontally, one under another, as a series of evaporating surfaces, substantially as and for the purposes above set forth.

3d, In a vacuum still for distilling oil, a series or coil of steam jet pipes, e, in combination with a series or coil of evaporating pipes, a, substantially as and for the purposes above set forth.

4th, Combining together a series of apparatus, such as hereinbefore described, for the purpose of procuring a continuous distillation of petroleum, each member of a series consisting of a vacuum still containing a coil of steam pipe as evaporating surfaces, and troughs for the gradual distillation of the oil, in combination with suitable condensing apparatus, substantially as and for the purposes hereinbefore set forth.

5th, A vacuum residuum receiver, D, connected tound in combination with a vacuum still, or a battery of such stills, substantially in the manner and for the purposes above set forth.

PENDING APPLICATIONS FOR RE-ISSUES.

40,571.—ROTARY ENGINE.—Metropolitan Rotary Engine Co. (assignees by mesne assignmen s of Adolph Miliochau,) New York city. Dated Nov. 10, 1863. Application for re-issue received and filed Sept. 27, 1867.

1st, The combination with the onter stationary case, d, and its concentric inner cylinder or flanges, x, of the eccentric wheel, ring or rim, c, fast to the rotating shaft and carrying radial slides or pistons for simultaneous action and exposure to the steam or fluid in chambers, y and z, on opposite sides or peripheries of the ring, c, essentially as herein set forth.

2d, The pipes, i l n and o, and valves or cocks k k' m' and m'', in combination with the ring, c, and pistons acting in the steam spaces, y and z, substantially as specified.

65,018.—STEAM GENERATOR GAUGE LOCK.—Thomas Shaw, Philadelphia, Pa. Dated May 21, 1867. Application for re-issue received and filed Oct. 11, 1867.

The construction and arrangement of whistles, with gauge valve, whereby to indicate the sound produced by steam or steam and water commingled or water unmingled with steam, substantially as set forth.

49,847.—STEAM GENERATOR.—John R. Eckman, Green Post-office, Pa., assignee of John D. Beers, Philadelphia, Pa. Dated Sept. 12, 1865. Application for re-issue received and filed Sept. 30, 1867.

1st, Broadly the circular plate or ring, b', as shown and described.

2d, The plate, H, encircling the fire box, substantially as shown and described.

3d, Forming a water space between the inner surface of the boiler shell, A, and the plate or ring, b, as shown and described.

16,944.—GUNPOWDER KEG.—Henry E., Irenee L., and Eugene Du Pont (assignees of James Wilson and William Wilson, J. and Charles Green for themselves.) Wilmington, Del. Dated March 31, 1857. Application for re-issue received and filed Nov. 30, 1867.

1st, As a new article of manufacture, a keg or can, with a series of corrugations representing hoops which give combined strength and finish.

2d, Casting the female screw for the stopper on a tap or mandrel, as set forth.

3d, The extra ring or boss, P, and head, C, as set forth.

Special Scientific Brevities.

☞ Mr. Boger, an eminent chemist of Baton Rouge, proposes to get up a company in that city, and manufacture paper out of the common wild cane, of which there is an inexhaustible supply in the low lands of the South. The *Comet* says the process is unattended with any of the tedious chemical appliances used in the ordinary way of paper manufacturing. The cane is blown from what is called a "gun," and comes out a fibrous mass. This is taken to an ordinary rag machine and beaten into a coarse pulp and washed. It is then run off into what is called "wet board." Thus prepared, the material is convertible at once into paper of almost any description and quality.

☞ How to have glue always ready for use: Crack up the glue and put it in a bottle; add to it common whiskey; shake up; cork tight, and in three or four days it can be used. It requires no heating, will keep for at least any length of time, and is at all times ready to use, except in the coldest of weather, when it will require warming. It must be kept tight, so that the whiskey will not evaporate. The usual corks or stoppers should not be used; it will become clogged. A tin stopper, covering the bottle, but fitting as closely as possible, is better.

☞ Father Secchi has described to the French Academy of Sciences the phenomenon of light in an artificial grotto cut in a Swiss glacier. Its walls were of ice, and entirely transparent, the thickness of the ice over head being fifteen metres, or nearly fifty feet. Inside the cave the sunlight had a deep blue color, very slightly tinged with violet, while at the entrance it had a red color, an effect of contrast. Father Secchi concludes that the real color of water is that noticed inside the cave.

☞ M. Poznanski has lately investigated the effects of prussic acid administered in minute doses in cases of cholera and intermittent fever, in which alteration and carbonization of the blood occur. Experiments made on dogs and men prove that half a drop of prussic acid properly administered is a remedy for the cholera.

☞ M. Dumas of Paris affirms that M. de Luca has found in the liquid contained in the living mollusca about three per cent. of sulphuric acid, and that the same mollusca plunged into water disengages a considerable quantity of carbonic acid.

On-dit about Minerals, &c.

☞ The property of the Parker Petroleum Company, consisting of 300 acres, adjoining Titusville on the east, was sold at auction, recently. There were but two bids for the property, Mr. Jonathan Watson, starting it at $100,000, and Mr. Edward Galusha bidding $101,000, for which sum it was sold. The sale includes three excellent dwelling houses within the corporate limits, the Parker Oil Refinery, six engines and a large quantity of tubing and other oil well supplies. The farm was originally part of the Kerr tract, and was bought by James Parker for farming purposes in 1856, for less than $5,000. In 1865 it was purchased for $120,000, and has since been operated by the Parker Petroleum Company, of Philadelphia. Twenty one wells have been sunk on the territory, about two-thirds of which have produced oil. No. 1 well, on the flat, was estimated to produce 1 000 barrels per day, and it was but 156 feet deep. The ladies' well produced 300 bbls. per day; No. 2 well produced 200, and the Oceanic well produced 35 barrels per day. There are now four or five producing wells on the farm, but they are of small capacity.

☞ The Fernandina *Courier* states, in connection with the proposed ship canal across the Peninsula of Florida from the Mexican Gulf to the ocean, that operations on this enterprise will be commenced immediately by the Florida and Inland Transportation Company, the necessary funds for the prosecution and early completion of the undertaking having been raised in that city, and the work having been put under contract. A railroad through the peninsular to Cape Sable, is one other improvement which is called for by the Southern journals. From this point a ferry across to Cuba would not exceed one hundred miles, and the distances from land to land might possibly be reduced to about the distance between Dover and Boulogne.

☞ A London paper says that the Bolton Iron and Steel Company, Bolton le Moors, have patented the use of steam instead of hydraulic power to swivel the converting vessel used in the manufacture of Bessemer steel. To render unnecessary the use of a counterbalance for the ladle crane, they propose to pass the crane pillar through a beam or girder above part of the casting pit, and to raise, lower, and turn the pillar by a screw motion. They employ a locking plate, as at railway points, to prevent the converting vessel turning before the air valve is opened; and, lastly, they make the spouts of the converting vessels at angles instead of opposite each other.

☞ A project is on foot for building a railroad from Portland, Oregon, to Centreville, at the junction of the Humboldt and Little Humboldt rivers, Nevada. At this latter point the road will connect with the Central Pacific, and make it the eastern outlet for Oregon, as well as California. The advantages of such a connection with the Central and Union Pacific companies, if speedily consummated, will secure them for a long time the carrying trade of the best portions of Oregon, over about 1,700 miles of their roads, to Chicago. The distance from Centreville, Nevada, to Portland, Oregon, is 465 miles.

☞ A British engineer has invented a rail of novel description. The new rail will be of steel, and have a head and neck only, instead of being double-headed, as is the prevalent form. The rail will be supported upon rolled iron "chocks," which will form a continuous bearing, rendering the ordinary chairs unnecessary. The three pieces of which the rail consists, are bolted together by three-quarter inch steel bolts, eighteen inches apart. This new rail with steel head will not exceed in expense the ordinary double headed iron rail in common use.

☞ The Italian papers report that in the month of October, the Mont Cenis Tunnel was advanced 131.85 metres, or upwards of 140 yards, and that up to 31st of October last 7064 metres had been excavated, leaving 4554 metres to be done to complete the work. The progress during the first ten months of the present year, was 1529 metres, against 1566. If the rate attained during the last month can be kept up, the tunnel would be completed in 1870.

☞ The work of tunneling under the Isdus river, at Attock, commenced more than five years ago, and afterward abandoned, has been resumed. The entire length of the railway tunnel will be 7,215 feet. Its greatest depth below the entrance will be 182, and the distance between the bed of the river and the roof of the tunnel 20 feet.

☞ Chrome ore is found in Hanover, near Gettysburg, Pennsylvania, which yields about 50 per cent. of iron. This ore is of the same kind as is now shipped from Havre de Grace, to Sheffield, Eng., to be used in the cutlery establishment of that place.

☞ Experiments in smelting iron by the use of peat being made in the shops of the Pacific railroad at Minneapolis.

☞ What is said of the JOURNAL OF MINING by the press:

From the London Mechanic's Magazine, July 12, 1867.

* * * Our particulars are obtained from the *American Journal of Mining*, a paper which deserves to be better known than we find it to be on this side of the Atlantic. It is devoted to milling, oil-boring, geology, mineralogy, etc.; and upon one or the other of these subjects always has some very good articles, many of which are written expressly for the Journal by men eminent in various branches of science. Of course, mining intelligence is the leading characteristic of the paper, but, in other respects it embodies a vast amount of useful scientific information. The original papers, to which we have alluded, are always practical, and of very special value in the various departments of science to which they relate; whilst the commercial department is well sustained with the latest market intelligence and quotations.

From the Melbourne, (C. W.) Messenger, July 24.

THE JOURNAL OF MINING.—This valuable Journal has been considerably enlarged, and is well worthy of a large patronage.

From the Alpine Miner, (Cal.) August 6, 1867.

GOOD MINING PAPER.—The American Journal comes to us this week enlarged and much improved in every respect. It is now the largest mining paper in the United States, and should be in the hands of every miner who would profit by the use of his brain as well as muscle.

From the Newark (N. J.) Daily Journal, Sept. 23, 1867.

The American JOURNAL OF MINING, published by Western & Co., 37 Park Row, is issued every Saturday. We know of no paper devoted to mining interests in the Atlantic States, so full and complete as this. It contains able articles on mineralogy and kindred topics, has all the freshest news, not only from the Pacific coast, but in reference to mining matters in all parts of the country. Every person interested in these enterprises, even in a small way, will find this paper to contain exactly the information he requires.

From the Montana Post, Nov. 23, 1867.

* * * The JOURNAL OF MINING is an able, impartial and useful paper.

Special Notices.

Machinists and Railroad Supplies.

In our description of Sturtevant's Pressure Blowers on the first page of our last issue, we should have named as the sole agents Waltons & Leonard, 58 John street, New York City, and not Walters & Leonard. These gentlemen commenced business in their present location in the year 1866, being successors to the old firm of Walton Brothers, formerly of 67 Warren street, who succeeded the house of George H. Swords & Co. The present members are Messrs. W. M. Walton, J. J. Walton, and O. W. Leonard. A visit to the extensive store owned by them is always fraught with pleasure. The numerous mechanical devices, the various engines and tools, and the large stock of hardware, at once arrest the attention of engineers and mechanics. Manufacturers can be supplied here at once with machinery usually required in machine shops without incurring the delay occasioned by having to order the manufacture of their machinery. The good system adopted by the firm in arranging all the numerous machinist's tools, large and small, so that they can be closely examined and explained, is worthy of notice. Our space will not permit us to enumerate now the most prominent mechanical improvements which are well worthy of attention, but we doubt not the enterprise and well known integrity of the Messrs. Waltons and Leonard will meet with the success they deserve.

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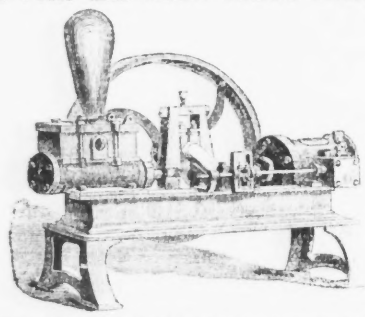

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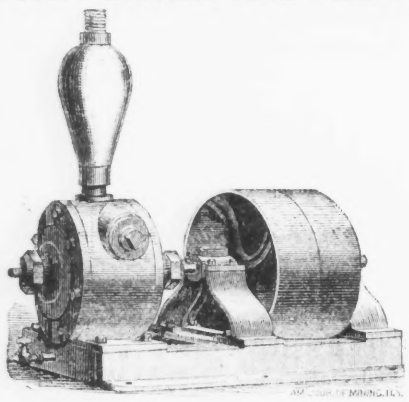

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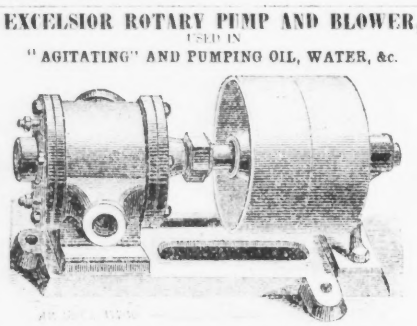

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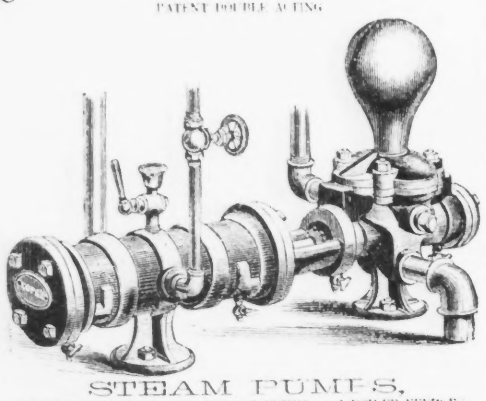

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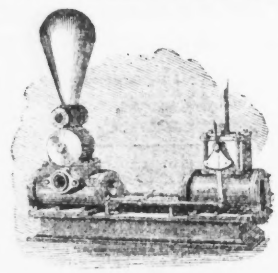

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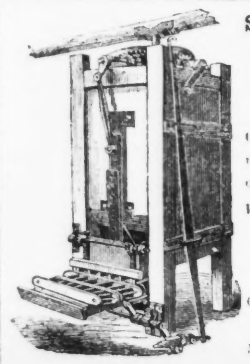

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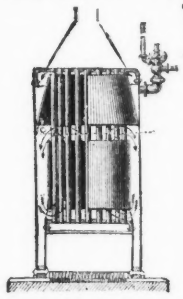

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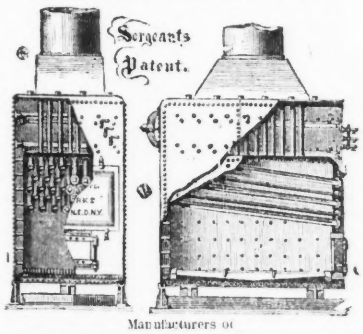

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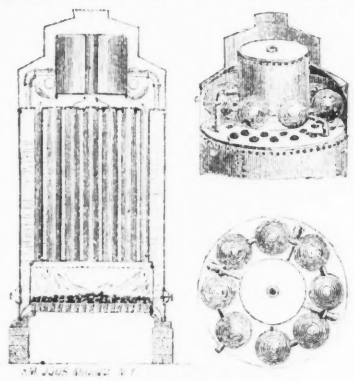

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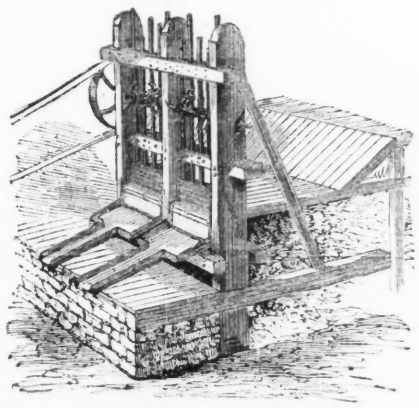

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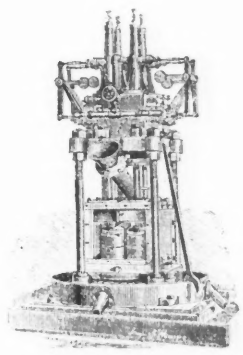

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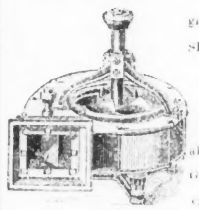

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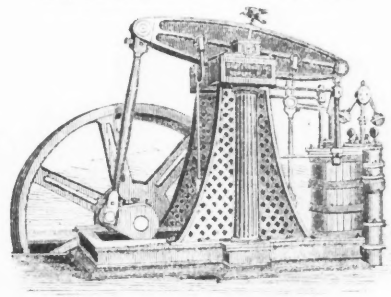

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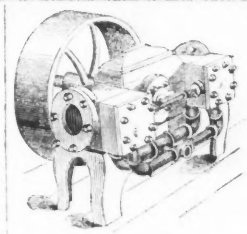

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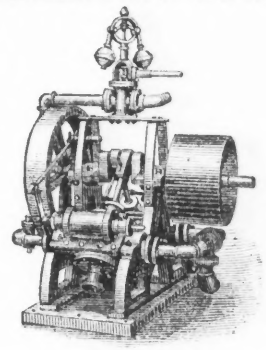

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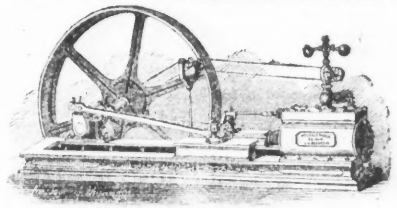

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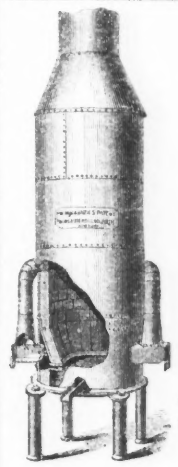

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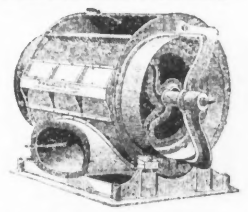

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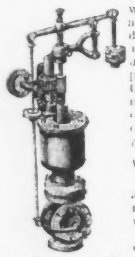

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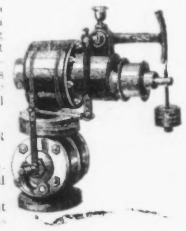

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