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Railway Car Springs.

THE importance of a good car spring is becoming daily more and more agitated, in proportion to the vast development and extension of our railroad system and its rapidly increasing traffic. The Roman conqueror made his triumphal entrance to the capital mounted on a chariot as devoid of springs as that of a Pharaoh. It was only, we believe, under the reign of Louis XIV., when the science of road making began to be generally introduced into Europe, that springs were first applied to the carriages of the rich.

Our general remarks, however, on the nature of springs must necessarily be very limited. Volumes have been written on the subject. Centuries have failed to produce a spring suitable to every case; and the theoretical knowledge and great practical experience of our master mechanics, has proven to their minds that there is no spring which, under every condition and circumstance, always successfully meets the emergency.

To those who are unaware of the numerous efforts in our country to produce a novel and useful spring, we would suggest a visit to the Patent Office, at Washington. The custodian there conducts you to a compartment devoted to models of springs, unlocks it, and, with a smile, leaves you to its perusal. Springs are there of every variety of form, construction and principle. EUCLID would have failed to define their form, and to have explained their mechanical construction would have driven LA PLACE mad. Most of these springs are, indeed, like man, "fearfully and wonderfully made." The best known of all steel springs is the elliptic, or semi-elliptic. This was doubtless suggested by a narrow spring-board, strengthened and stiffened in the middle by a succession of smaller ones. With the introduction of steel, these springs gradually came to be made of that material. Still, the wooden spring is used to this day, even on railroads, as on the Baltimore and Ohio road; not as a bearing, it is true, but as a buffer spring. The efficiency of the elliptic consists in its range of motion, which is, when properly proportioned, but very rarely exhausted; and in its re-action, which, being successive on each leaf, is slow, and therefore easy. We may mention here that the important feature of *re*-action in a spring is often lost sight of. A spring fitly adapted to its work should be subjected to the strain of but one-half its capacity, when in its normal bearing condition. It is true there are sometimes used certain short, stubbed elliptics, which, having little range of motion, may or may not produce the effect desired. The elliptic spring, though indispensable on our rough highways, labors under several disadvantages on the railroad. Its cost is great; it requires frequent repairs, and occasions great loss of the use of the car.

To remedy this important disadvantage of cost, rubber was, a few years ago, extensively introduced for car springs. Its range of action was considered sufficient; and, during the existence of its protection under the GOODYEAR patent, a good spring was insured by responsible manufacturers. But more recently, the high price of the raw material and a tremendous competition, has induced many to put in the market an adulterated and worthless article. These springs are liable to injury by the over-heating of the journal-boxes; and when not of the most superior manufacture, are badly affected by changes of temperature, stand at different heights under pressure, and crack. Once broken, they are almost worthless, as vulcanized rubber cannot again be manufactured into a good spring. The combination of small rubber slices, used alternately with iron plates, the fist-like rubber balls, or the rubber cylinder, bandaged with iron, are devices which deserve more attention as curious exhibitions of ingenuity than as springs calculated to preserve rolling stock and rails, under the requirements of actual practice.

A word here concerning the "Volute" spring, so largely used as a buffer. This spring has not been found to fulfil all the requirements of a good bearing spring, as it gives way under the repeated blows it has to receive. The volute manufactured in this country generally breaks at or near the same point on one of the large coils or folds. The smaller folds appear to contract very considerably before the larger outside ones are perceptibly affected; and this unequal strain, no doubt, causes the fracture. The imported volute (see FIG. 4 of the accompanying illustrations,) has more coils, is rolled thinner at the ends, weighs thirty-three per cent. more than the corresponding American, and works with greater uniformity throughout the whole spring. Like rubber, however, once broken, it becomes almost valueless.

In the form of wire spirals, the true principle appears to be developed in the production of an economical and highly effective spring. In fact, steel cannot be used in any other form with equal capacity to the weight of metal. But to make this assertion good, the diameter of the wire and of the coil must be brought within the limits ascertained by experience to be that of its maximum bearing capacity, and its quality, temper, and manufacture, must also be subjected to the severest test.

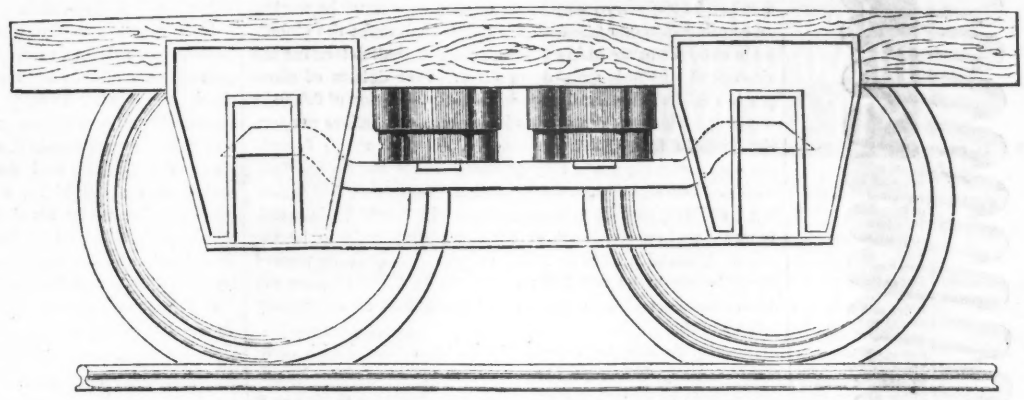

Fig. 1.—UNION CAR SPRING APPLIED WITH EQUALIZING BAR.

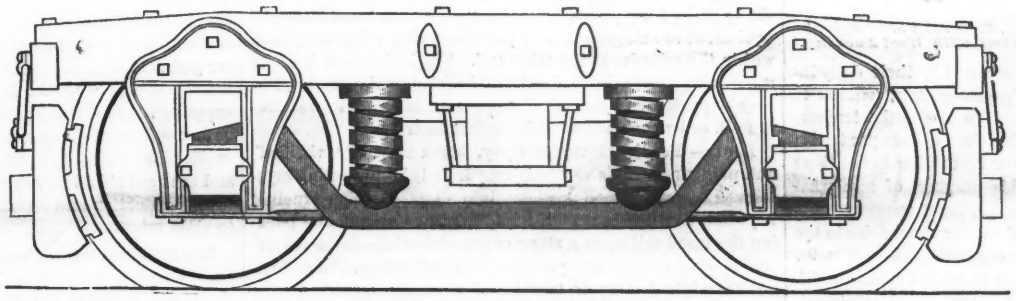

Fig. 2.—THE HEBBARD SPRING APPLIED.

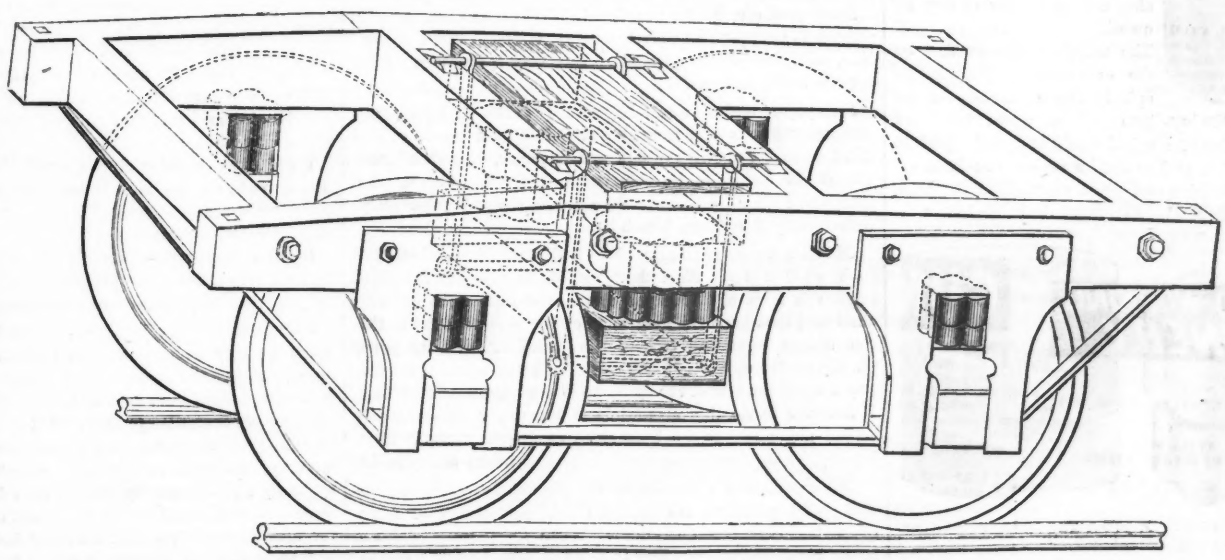

Fig. 3.—THE UNION WOOL-PACKED STEEL SPIRAL SPRING AS APPLIED.

In the steel spiral, known as the "Union Car Spring," (see FIG. 5), we have a three-eighths inch steel wire coiled on a one and a quarter inch mandrel, and forming a two-inch spiral. This is a standard spring. When empty or unpacked, it is but half depressed under a weight of over 600 pounds. This is, of course, the best condition under which to apply it to service; its action and reaction being equal. It should be mentioned here, that the *blow* given to all springs comes first from below as the wheels strike the inequalities of the road. The weight above remaining the same, only *re*-acts on the springs—a fact often overlooked but proved by observation. To exhaust or bring the coils of this empty spiral home, would require a pressure of about 1,200 pounds. Since, in practice, no very delicate attention was paid to the loading or unloading of freight cars, it became desirable to produce a spring to meet the frequent contingency of an extra burden, without being affected in its range of motion. Impressed with this necessity, Mr. PERRY G. GARDINER, about six years since, devised the packing of the spiral, and adopted, as the best substance for this purpose, coarse wool (see FIG. 6). This material is elastic, compressible, does not suffer by abrasion, and does not interfere with the free action of the coils, as the amount of wool used is calculated to assist in carrying only the over-weight, after the spring is half depressed. For this, the coarse Donskoi (or Russian) wool is found the best. It was discovered that each spiral, when packed, would carry double weight, or about 2,000 pounds before exhaustion. The compressibility of this fibrous material is a quality equal in importance to its elasticity. Rubber, being elastic but not compressible, must, under pressure, change its form. Consequently, a rubber cylinder enclosed as a cushion in a steel spiral, is prevented by such confinement from developing its full elasticity. It must expand under pressure between the coils, causing friction, and interfering with the action of the spiral in the same degree as it serves to carry the weight. In order to secure these

spirals, after being tested separately, they are inserted in cylinders of one casting, with grooved recesses to receive the ends of spirals, (see FIG. 7), and a cap is placed over all and secured, (see FIG. 8). As eight springs, each containing six spirals, are used as journals for a freight car, we have a bearing capacity of 96,000 pounds.

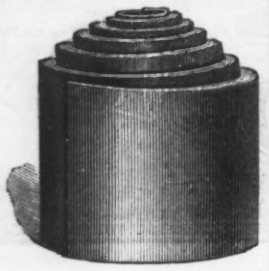

Fig. 4.—The Imported Volute Steel Spring.

Again, the range of motion of the spiral spring being governed by the number of coils, can be modified or increased to any required degree. On very rough roads, where the whole range of motion of any spring is frequently almost exhausted, fewer coils should be used to the spiral, just as experience shows a shorter and stiffer elliptic to be necessary on such roads. On very smooth roads, where only a small part of the range of the spiral is apt to be brought into play, longer spirals can be employed, forming the most delicate spring.

The durability of this spring is also one of its distinguishing features. Should a spiral break, it is still held in its place; and the injury is hardly perceptible, and is repaired at a small cost. In fact, the entire spring never becomes useless and lost, so as necessarily to be thrown away.

Fig. 5.—Union Steel Spiral, for Car Springs.

Fig. 6.—Union Steel Spiral Spring, with Wool Packing.

Their economy and easy action is attested by their daily increasing use. When applied to equalizing bars, (similar to Fig. 1, with either one or two springs) to locomotive tenders, they save in first cost, at least one hundred dollars per tender over ellipties. As buffers, some of our best railroads use them exclusively, though they are, for this purpose, of somewhat more difficult application.

Finally, we again call attention of master mechanics to the HEBBARD spring. (See FIG. 9). This is formed of spirals of different sizes, coiled concentrically right and left, and composing a neat spring of any required diameter and strength. The weight is borne, first by the outer and slightly longer spirals, the inner ones coming into action under increased pressure. The breaking of a spiral would but partially affect the action of the spring, and could be replaced at little expense. The easy application and great strength of the HEBBARD spring must recommend it as a most desirable buffer.

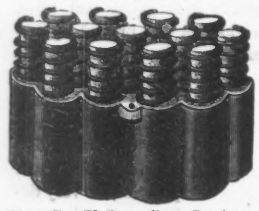

Fig. 7.—Union Car Spring.

Fig. 8.—Union Car Spring, with Cap closed.

Fig. 9.—The Hebbard Spring.

FIG. 2 shows the HEBBARD spring applied as a bearing; and FIG. 3, the Union wool-packed steel spiral spring, with the method of using it for journals.

Method of Working Coal.

MAHANOY CITY, PA., Dec. 4, 1869.

TO THE EDITOR: Sir—Those engaged in working anthracite coal-beds ranging in thickness from eighteen to forty feet, and in pitch from 30° to 90°, are frequently reminded, through scientific journals, that the system they are pursuing is not only antiquated, but extremely wasteful. Now all persons engaged in mining such beds know of and deplore this waste, and what they want is, that some of those who tell them of it should give in detail a system that will mine—say eighty per cent. of the coal contained in the beds, at a cost that will pay in the market for both labor and coal. Will your correspondent who has recently called attention to this waste give such a plan through your Journal?

MINER.

The Blow-pipe Assay.

BY PROF. A. B. PRESCOTT, OF THE UNIVERSITY OF MICHIGAN.

II.

SILVER.

[1. Argentiferous Alloys. 2. Argentiferous Minerals, Ores, and Products.]

2.—ARGENTIFEROUS MINERALS, ORES AND PRODUCTS.

Sampling.—The entire substance submitted to the assayer should be inspected, and such portions selected as will apparently represent an average of the whole. These portions are pulverized and mixed. If the material be not over one or two ounces, it is better to pulverize it all; if of several pounds weight, at least an ounce should be pulverized. *All* of the powder must be passed through a (coarse) sieve; or, if any particles (malleable) resist pulverization and will not pass the sieve, they must be carefully preserved, the whole of them assayed, and the result thereof calculated upon the entire weight sifted.

Pulverization.—Quartoze minerals are made friable by heating to redness and plunging in cold water. The *steel-crusher* and an agate mortar are portable and satisfactory instruments for pulverization. When an iron mortar is at hand, it is preferable for ordinary ores. It must be bright. In all cases, after sifting the samples, so much as is to be assayed must be reduced to an impalpable powder in an agate mortar. To ensure this it may be passed through a sieve of eighty meshes to the linear inch.

Weighing the Assay.—Precisely 0.100 is weighed for one assay. (An experienced operator may work, of poor ores, containing no reducible metal besides silver, gold, lead, bismuth, 0.200 or 0.300 in one assay.) As many assays must be worked and united into one finished globule, as shall make the globule large enough for weighing or measuring, or shall determine the absence of a notable quantity of silver. Five dollars of silver per ton (of two thousand pounds) is the proportion of 0.000132 of silver. Hence of ore as poor in silver as five dollars per ton, the globule from 1,000 grammes of ore will weigh 0.00013 grammes, and require a very delicate balance for its determination. But a globule from 0.100 of the same ore, and weighing 0.0000132, may be measured—certainly should be detected. It would rest on division 8, of the measuring scale to be noticed. Generally 1.000 to 2.000 of poor ore must be worked for a globule to be weighed; and 0.200 to 0.500 of poor ore for a globule to be measured. Measurement is necessarily less accurate.

Dressing the Assay.—Proof-lead may be measured with sufficient accuracy, it being a re-agent employed in excess. Exactness should be approximated, because the amount of lead is a datum for estimating cupellation-loss. The *lead-measure* is a glass cylinder, fitted with a wooden piston filling the length of the cylinder: the piston being graduated at one end in spaces equivalent to half-grammes of proof-lead displacing the piston within the cylinder at the other end. The instrument is easily made, with glass tube of about 3-16 inch internal diameter, and may be graduated by weighed half-grammes and decigrammes of lead, or by comparison with another instrument.

Borax.—For the blow-pipe assay, borax must be "vitrified" and pulverized. It is vitrified (dehydrated) by projecting crystallized borax, in small portions, into a large Hessian crucible kept hot, continuing heat till intumescence ceases, and pouring the fused salt upon a stone or porcelain slab—to be pulverized as soon as cool, and preserved in tightly-stoppered bottles.

The weighed assay is transferred from the balance to the mixing-dish (or weighed within the latter). It is dressed as follows:

Pulverized ore, 0.100; proof-lead, 0.500 (or enough more to remove the copper and nickel); borax, 0.100 (or 0.150, if iron, zinc, or antimony be present). Mix very intimately. Have cornets folded at hand.

Soda-paper and Cornets.—Dissolve ½ ounce of crystallized carbonate of soda (free from sulphate) in 1 fluid ounce of distilled water. Cut strips of fine writing paper, 1⅜ inches broad. Digest the strips in the solution for a few minutes, or until saturated; then dry them in the air. Cut the soda paper strips transversely into pieces ⅜ inch broad.

Obtain a wooden cylinder a very little over ¼ inch (about 9-32 inch) in diameter. Place the cylinder along one of the short edges of a piece of soda paper, so that the end of the cylinder shall be ¼ inch from the long edge of the paper. Double this free border upon the end of the cylinder, wind the paper closely and evenly about the cylinder, bending down the free paper upon the end of the cylinder at each quarter revolution. It is easier to do this accurately if the paper be previously folded along one of its long sides at ¼ inch from the edge. Finally, strike the end on the table and withdraw the cylinder.

The cornet is a necessity in all quantitative work on charcoal; and promotes the neatness and perfectness of many qualitative blow-pipe operations. When the paper carbonizes in the blow-pipe flame, a film of fused sodic carbonate remains, and this film protects the assay from loss (from blowing away, and from falling into creases in the charcoal) until the surface is so fused with flux that the material is secure.

By means of a scoop or horn of brass, or by a fold of glazed paper, transfer the dressed assay to a cornet, using the brush, and with forceps double over the free edge of the cornet. (The mixing is sometimes performed in a scoop.) It is a gain of time to dress and put up before reducing, as many assays as will be needed for the duplicated result.

After some experience, the total number of assays which may be known to be required for a *single* result, may be weighed and dressed in bulk, then divided by inspection into the number of portions provided for, and each portion cornetted, the oxidated globules from each being united into one for cupellation.

Reduction.—Select a good-sized piece of charcoal, and upon a surface cut transversely to the grain with the charcoal borer, make a cylindrical cavity deep enough to receive the entire cornet when pressed down. Press the cornetted assay firmly into the cavity.

Charcoal for quantitative blow-pipe supports needs to be well burned and free from fracture. It should be sawed into cubes, or parallelopipeds, with the surfaces to be used cut transversely to the grain. The cylindrical charcoal borer is an instrument of steel, for boring cylindrical cavities. It is of the same diameter as the cornet stick.

Direct upon the assay a strong and strictly reducing flame, until the flux is perfectly fused and quiet, and the reduced globules have gathered into one. The latter result is promoted by the rotation of the larger globule, while the flame is directed on the bead of borax glass; and by the inclination of the support to bring the rotating globule into contact with smaller globules. Continue the flame, for a short time, upon the completed globule. During the reduction, the support needs to be frequently turned, to prevent adhesion of the glass and the metal to the charcoal.

If the assay contains volatile constituents—sulphur, arsenic, mercury, antimony, or zinc—or if it contains the easily oxidizable elements, iron or tin, the reduction on charcoal is now changed to

Scorification.—The elements just named are to be expelled on the charcoal, previous to the oxidation on bone-ash. Sulphur, arsenic and antimony are drawn from the metal into the slag, to some extent, during the reduction. Sulphides cannot be reduced by the carbon of the charcoal, or of the flame, for carbon has little affinity for either sulphur or metals. Heat alone decomposes few sulphides. But $2\,PbS+2\,(NaO.\,2\,Bo_3)+C=CO_2+2\,NaS+Pb_2+4\,BO_3$.

This reaction is slow and incomplete. In assaying, as in metallurgy, sulphur, arsenic and antimony are most easily and perfectly expelled by a "roasting" treatment, in an oxidizing flame or current. This, performed upon charcoal, is termed the scorification of the assay. In this process, sulphur, arsenic and antimony are oxidized, and their oxides taken up by the slag, or vaporized and dissipated. At the same time, the *metals* of the sulphides, arsenides, etc., are also oxidized. Such metallic oxides are then reduced by the charcoal, or, in some cases, dissolved by the slag. Oxidation by the flame, and de-oxidation by the support, proceed simultaneously. $PbS+O_3=PbO+SO_2$, and $PbO+CO=Pb+CO_2$.

If the assay contains sulphates, arseniates, etc., these are changed to sulphides, etc., during the reduction.

Scorification is conducted as follows: When the reduction is completed, the flame is changed to an oxidizing one, the tip of which is directed upon the globule. This is continued till the volatile ingredients are expelled. Lead, copper, and even silver, appear after a time in metallic grains in different parts of the slag. By inclining and revolving the support, and by rotation of the main globule under the side of the flame, the operator gathers the grains into the globule. Some of the produced litharge will go with the flame to the adjacent portions of the support, where it will be reduced to metallic grains; but these grains outside of the slag may be disregarded. Some copper is oxidized, absorbed and retained by the slag as copper oxide, and thus got rid of. PLATTNER states that the time required for the reduction and scorification of an assay varies from five to eight minutes.

The solidified mass is removed from the charcoal by the forceps, wrapped in paper, and struck gently on the anvil with the hammer; when the slag will crumble, and the globule be found detached. It should be malleable, and bright. If not so, it is not "workable lead," suitable for cupellation. If brittle, it is likely to suffer loss in being detached, in which case the assay must be rejected. If it be still intact, a brittle or dark-colored globule may be re-scorified, as follows: Place it, with 0.100 borax, and, if advisable, an additional quantity of proof-lead, in a cornet, in a charcoal cavity; fuse, and continue the scorification.

If the assay contains zinc, the reducing flame may be continued, until all the zinc is expelled from the assay. (Zinc compounds are decomposed by carbon in presence of borax, and the metal vaporized.)

In case mercury is present, the reduction must be commenced very gently, lest portions of the material be mechanically carried away by the vapor of mercury.

Amalgams, solid or liquid, require preliminary treatment. As much as may be necessary to furnish a globule of precious metal sufficient for determination is weighed and placed in the bulb of a straight bulb tube of hard glass. The tube is placed transversely over a lamp, and heated at the bulb; at first, with extreme gentleness, finally, for some time, at a red heat. The mercury, condensed on the sides of the tube, may be collected by gently tapping, and by turning the tube. The argentiferous residue is transferred to the scoop and dressed. For pure silver amalgam, two parts of lead and half its weight of borax will be sufficient. If copper or other metal be present, the suitable quantity of lead and of borax will be added. Should the assay have adhered to the glass of the bulb, the adjacent glass is cut out and dressed with it, a little soda being added. The dressed assay is enclosed in a cornet, reduced, and cupelled.

Mineralized iron requires no other treatment of the assay than that included in its reduction and scorification. If much iron be present, 0.150 of borax should be used in the dressing.

Metallic iron, in alloy with silver, (argentiferous steel, argentiferous cast iron) must be sulphuretted, in order that workable lead may be produced by its reduction and scorification. Dress: 0.100 of the finely divided material, 0.75 sulphur, 0.100 borax, 1.000 proof-lead; inclose in a cornet. Reduce. Then add a fragment of borax glass, about 0.100 weight, and scorify.

The presence of tin requires the silver assay to be dressed with 0.050 borax, and 0.050 soda. Reduce. Scorify. It is the object of the operator to work the tin, as binoxide, into the

slag. During the scorification, if metallic grains appear in the glass, instead of endeavoring to gather them into the globule, suspend the work; when cool, detach the globule, dress it with 0.100 borax, inclose in a cornet, and continue the scorification (if necessary changing the flux a second time) until the globnle remains *bright* after cooling.

If scorificatiou be not conducted with care, the loss of silver in this operation is liable to be much greater than "cupellation loss." By roasting the pnlverized ore, before it is dressed, the volatile constituents are then so nearly expelled, that scorification is unnecessary, unless the assay contains iron or tin. The latter metals must be removed by a slag in process of scorifying.

Roasting the Assay.—The pulverized ore is subjected to a gradually increasing heat, in the opeu air; the heat being finally carried as high as may be done without fusion, which is to be strictly avoided. The assay is re-pulverized, and the process continued so long as volatile matter is evolved by heat after pulverization. *First method:* in shallow basins of iron-foil, hammered to the suitable concavity. These may be made of a diameter of one to two inches. The inner surface is thoroughly coated by rubbing with a piece of "reddle," the excess of which is brushed off. The pulverized ore for one completed assay, accurately weighed, is placed in the basin, over a lamp protected from currents of air. During the roasting, the ore is frequently and very cautiously stirred with a platinum or glass spatula. When the odor of sulphur, arsenic, etc., ceases to arise, the ore is re-pulverized in the agate mortar over glazed paper, and roasted again. This is repeated until no odor is evolved by heat after pulverization. It at any time fusion occurs, the ore is very cautiously re-pulverized. The roasted ore may be dressed in bulk, if too much for one reduction assay, (the basin and mortar being rinsed with a little of the borax) and divided for the cornets, by inspection. *Second method:* in clay basins with a "charcoal furnace," in the same manner as hereafter described for the copper assay. If over 0.300, the weighed ore is divided by inspection into parcels under that weight, and each parcel roasted separately. Charcoal is not added, as in roasting the lead assay.

The workable lead obtained from silver ores is subjected to oxidation on sieved bone-ash, uniting the globules if necessary; then to cupellation on elutriated bone-ash, as has been described for the workable lead from silver alloys.

Measurement of Globules.—HARKORT'S measuring scale is drawn upon a strip of polished ivory, six and a half inches long, two-thirds of an inch broad, and one-eighth of an inch thick. Two very fine and distiuct straight lines diverge from a zero point of contact, until, at six inches from the zero, they are four-hundredths of an inch apart. In the usual form of the scale, this distance (six inches) is divided into fifty equal spaces. On one side of the diverging lines are marked the numbers of these divisions; on the other side, at each division, is marked the contents in silver of the ore, from 0.100 gramme of which the globule of silver obtained by assay just fills the space between the diverging lines at that division. This value is given in loths per Saxon hundredweight (centner) of ore. A loth is 1-32 of 1-110 of the Saxon hundredweight, or 1-3520 =0.000284 of a Saxon hundredweight. As these denominations have no simple relation to ours, we use a table giving (instead of the loths per hundredweight) the *per cents.* of silver in the ore, for each divisiou of the scale. Exact coincidence of the periphery of the globule with the inner border of the black line is secured under a magnifier.

The following table gives the perceutage of silver, and of gold, indicated by a globule derived from 0.100 gramme of ore, and measured upon HARKORT'S scale:

Division of scale.	Silver. Per cent.	Gold. Per cent.	Division of scale.	Silver. Per cent.
1	0.000028	0.00006	27	0.54799
2	0.000223	0.00048	28	0.61116
3	0.000752	0.00164	29	0.67903
4	0.00178	0.00388	30	0.75170
5	0.00348	0.00757	31	0.82941
6	0.00601	0.01309	32	0.91229
7	0.00955	0.02079	33	1.00052
8	0.01425	0.03103	34	1.09426
9	0.02029	0.04418	35	1.19368
10	0.02784	0.06061	36	1.29894
11	0.03705	0.08066	37	1.41022
12	0.04811	0.10473	38	1.52769
13	0.06116	0.13296	39	1.65149
14	0.07639	0.16630	40	1.78182
15	0.09396	0.20455	41	1.91882
16	0.11404	0.24824	42	2.06268
17	0.13678	0.29776	43	2.21595
18	0.16237	0.35346	44	2.37160
19	0.19096	0.41570	45	2.53700
20	0.22273	0.48485	46	2.70992
21	0.25783	0.56134	47	2.89053
22	0.29644	0.64534	48	3.07898
23	0.33874	0.73741	49	3.27545
24	0.38487	0.83784	50	3.48011
25	0.43501	0.94699		
26	0.48933	1.06523		

The per cents. and decimals of per cent. in the table, divided by 100, express decimals of nnity. As the table is based on the assay of 0.100 gramme, the decimal of unity, divided by 10, gives the actnal weight of the globule in grammes. That is, the table figures divided by 1000, express the gramme weight of the globules, or, *the table gives the actual weight of the globules in milligrammes.* If the assay producing the globule be not precisely one decigramme, the per cent. figures must be divided by the number of decigrammes (or ten times the uumber of grammes) of the assay or assays from which the globnle was derived.

Globules containing both silver and gold cannot be determined by measure. As the weights of globules vary as the cubes of their diameters, and *absolute* accuracy of adjustment between the lines is nnattainable, globules which are within reach of the balance should not be determined by measure. The value of the scale has been fixed by experiment, the flattening of the globnles rendering a calculation of their weights from their diameters unreliable.

Calculation of the Value per Ton.—It is usually well for the assayer to report a three-fold statement of the result: First, the per cent. of precious metal; second, the number of troy ounces of precious metal per ton (of designated number of pounds); third, the commercial value (of precious metal) per ton of ore.

The United States silver dollar weighs 24.8 grammes, or 382.7 grains. Hence, one troy onnce of standard (ninety per cent.) silver makes $1.254 of United States coin, and one troy ounce of "fine" or pure silver makes $1.393 of United States coin. The cost of coinage, waste, and exchange lessen this sum, the market value of pure silver not being very far from $1.30 per troy ounce, in coin.

In 1 ton of 2240 lbs.	In 1 ton of 2000 lbs.
(avoird.) are 1,016,057.28 grammes,	(avoird.) are 907,200 grammes,
15,680,000 grains,	14,000,000 grains,
32,666⅔ troy oz.	29,166⅔ troy oz

Experiments with the Hagan Furnace.

NEW YORK, Dec. 3, 1869.

TO THE EDITOR: Sir—At your request I beg to submit to your kind attention a few facts concerning the HAGAN Furnace.

I erected last winter, on the grounds of the Manhattan Mining Company (late Mount Hope Mineral Company), a small experimental furnace, of one ton capacity, with the view of experimenting with the Doctor's process on the gold bearing conglomerate ledge of the Shawangunk Mountain. But that Company stopped work, and the experimeut has not yet taken place.

In the meantime, about the month of March, the protracted law suit of HAGAN *vs.* MASON, for the possession of the patent, terminated in the vindicatiou of the Doctor's absolute right to the discovery. But three years of costly litigation had discouraged the shareholders of the companies organized on that patent; and although the question was wholly decided, the whole business was completely prostrated.

It was then that some parties, desirous to see the process demonstrated to them, applied to me for the purpose of finding some rebellions gold ore and working it in that furnace. After a long search, I found in the city a package of ore (over one hundred pounds) belonging to the Montana Gold Company of Colorado, which ore was labelled as yieldiug $20 to the ton. It was the regular iron and copper pyrites of the Colorado formation.

When the furnace was snfficiently heated, I put the ore in, in battery size, and after forty-eight hours found it completely desulphurized and crumbled down to a fine state. From the furnace I dumped it into a barrel of water, where the sulphates were immediately dissolved, leaving the ore, as I thought, in a splendid condition for amalgamation.

I theu shipped the ore to the company's office, and a sufficient quantity was sent to Professor EATON, of Brooklyn. That gentleman found the ore free of sulphur and sulphates, the gold in it in good conditiou (not having been overheated), and a hasty amalgamation gave $84 to the ton. One of our party made a subsequent and careful amalgamation, boiliug the ore with mercury and water, and found gold at the rate of $110 to the ton, the full amount of the fire assay.

These experiments were only intended to show the perfect condition of the ore for treatment; as for the disintegration, a simple panniug will tell the whole story. Any one of the incredulous may gratify his curiosity by calling at the office and panning some of that ore.

This conclusive demonstration could not but revive the previons experiments, almost forgotten during the weary months of the law suit, and consequently the company owniug the right of the patent for the State of Colorado (the Colorado Gold and Silver Ore Separating Company) obtained the necessary funds to rent a mill near Mill City, Colorado, and put up there a twenty ton furnace. Doctor HAGAN has gone there, the furnace has been started, and I understand the results already acquired, when known by the public, will change the whole mining business of the country.

As soon as it is in my power, I shall give you the exact figures, and the results obtained on the ores worked in that furnace.

PAUL CAMPAIGNIAC, BOX 5372, P. O.

P.S.—I have also worked a lot of zinc-blende, which was desulphurized to the entire satisfaction of the interested parties.

New California Tin Mines.

From a communication of Professor ROESSLER to the New York Liberal Club.

No metal has been more eagerly searched after in the United States than tin; and it seems as though faithful efforts meet with their reward at last, as reliable information has been furnished this office of the existence of workable tin mines near San Jacinto, San Bernardino connty, California. The first discovery of tin ore in the United States was made by Dr. CHARLES T. JACKSON, of Boston, whilst engaged in a geological snrvey of New Hampshire. It was detected in EASTMAN'S hill; and the deposit consisted of five small veins in mica, slate and granite rock. They were so small, and disappeared so soon, as to be of no economical value. In the early days of gold mining, this metal was discovered in California, in the Temescal range of mountains, in what came to be designated as the Cajalco Mine. Miners rushed in, claims were taken np, shafts sunk, and for a short time much excitement prevailed. The mineral extracted was distributed as cabinet specimens. The ore was not a very clear specimen of oxide of tin, having mixed with it much earthy matter, and any but a practiced eye would overlook it. With the exhaustion of the miners' patience and money, these mines were abandoned. The next locality in which tin ore was discovered was in the vicinity of San Jacinto, San Bernardino county, California. The property was acquired by a New York company, and some works commenced; a shaft was sunk, and considerable bodies of rich ore were found; they were, however, in disconnected pockets, and from various other causes the company were discouraged from proceeding in their operations. Another company was organized in California, in the spring of 1868, which purchased the tract containing all the principal mines, consisting of abont fifty thousand acres of land, upon which have been exposed fifty-three ledges of tin. Their mining engineer engaged experts from Cornwall, and proceeded forthwith to construct new works. The latest reports show that they have driven down two shafts, ninety and one hundred feet respectively, and tunnels have been run four hnndred and fifty feet upon two levels under the vein, with four cross-cuts at various distances, for the purpose of disclosing the value of the deposits in an unmistakable manner. They are found to be from three to fonrteen feet wide, and producing ore which by assay yields from fourteen to thirty per cent. Additional shafts are being opened, to facilitate the extraction of the ore. The engineer's report, dated July, 1869, states that there was in view at that time a mass of ore estimated at three thousand seven hundred and fifty tons, which would average sixteen per cent. The cost of miniug and smelting appears to be moderate, and the necessary stamp mills and furnaces for the exploitation of the metal are beiug arranged for.

At the Seventh Indnstrial Fair, recently held in San Francisco, the company exhibited several sacks of the ore, a number of bars of metallic tiu extracted from the ore at smelting works in the city, a box of sheet-tin plate, also made on the spot, and finally a collection of tinware, such as milk cans and other utensils. The metal is found to be of great fineness, being equal to 98-100 of pure metal. A portion of the ores and manufactured articles exhibited as above, have been received at this office, and are now on exhibition in the Cabinet. There are no data before us to point out which are the geological connections of these veins; but, judging from the material received, they occur iu a dark soft rock, and are probably worked easily. In the Cornwall mines, the substances with which the ore is mineralized are a source of great trouble and expense, consistiug of sulphur, tungsteu, copper, arsenic and bismuth, and rendering the separatiou tedious and difficult. Twelve hundredweight of dressed ore, after treatment during twenty-four honrs in the furnace, yield but two hundredweight of tin, the remainder consisting of the above impurities.

In such an important matter as a successful establishment of tin works in the United States, prudence would dictate that all parties should not indulge iu sanguine expectations; but the plaiu and apparently faithful narrative from which we have obtained the foregoing details, would serve to indicate the existence in California of a tin mine almost inexhaustible in its snpplies of ore, and also the skill to extract the metal from it.

The Chameleon Diamond.

Of late there have been rumors of some very remarkable discoveries of peculiar parti-colored diamonds in Australia, and certain districts of the far interior of our own continent. A few of these jewels are represented as having all the hues of the raiubow, changing, commingling, and alternating like the flitting tints on the back of the chameleon.

We are reminded by these discoveries of some interesting facts on the subject of "chameleon diamonds," as they may be called, reported by M. FIGUIER, in his note-books for 1866. In that year, there was exhibited to the French Academy of Scieuces a very singular diamond, weighing about 4 grammes, or 20 carats. It was marked by a most unusual phenomenon. Its general hue was white, slightly tinged with brown, and was ranked a stone of the *first second water.* When submitted to the action of heat, it assumed a roseate hue. This it would retain for eight or ten days, and then resume its original color. The particular diamoud shown to the Academy had been thus tested several times, aud hence it would appear that the same experiment might be repeated indefinitely. Other diamonds of analogous color were similarly treated, but without the same result. Were the rose color produced by the action of fire permanent, aud were it possible to produce it at will, the process would afford an easy means of increasing the value of jewels of the second water in a high degree. The particular diamond to which we have referred, was estimated to be worth 60,000 francs, and could it durably retain the rosy hue imparted to it, this value would be tripled,

Ordinary colored diamonds, it is true, are less esteemed in general than colorless and limpid stones; but that is owing to the deficient sharpness and clearness of their hues. There are diamonds that reflect all the shades of yellow, green, red, and blue; diamonds of topaz, yellow, of deep green, of brick red, of pale blue, then brown, darkly-clouded, and entirely black diamonds; but all of these are more or less opaque, and thns are deficient in beauty and valne, since their opacity prevents the play of those reflections that come from the interior mass, and are called the *fires* of the diamond. However, when the color is clear and pellucid, without any detriment to the transparency of the stone, it augments its valne. One of the most celebrated colored diamonds is the Hope blue diamond, which weighs 44 carats, or 9 grammes. It nnites with the most beautiful shade of sapphire the most brilliant adamantine sheen, and the most varied prismatic hues, and Mr. Hope himself calls it "snperlatively lovely."

In his excellent "Treatise on Precious Stones," Mr. BARBOT hints the suspicion that the last named is but a fragment of the famons Blne Diamond of France, that once weighed sixty-seven carats, was worth three millions of francs, and was stolen in 1792, with other crown jewels. Mr. HOPE acquired the one he has for four hundred and fifty thousand francs.

The Saxon Treasury at Dresden has an emerald-green diamond, weighing thirty-one carats. The Marquis of Dree has a beantifnl rose-colored one of great size and value. The Prince of Riccia had one of an exquisite rosy hue, weighing fifteen carats. The reader has heard that in Europe a diamond

weighing over ten carats or two grammes, is called princely, and is deemed worth fully twenty thousand francs. Prices change and fluctuate to some extent, but we name the general average in round figures. A Mr. BAPST, in Paris, had a remarkable jewel, called the Dwarf Diamond. It is of the color of tobacco juice, and is valued chiefly for its oddity. It was purchased by Louis XVIII., for the crown, at the price of two hundred and fifty thousand francs, but it was never delivered. It was cut very thin, and its superficial brilliancy was very striking. It was said to have formed a part of the Dogni collection. There are many other very handsome colored diamonds known, and a few of them are in this country, but we have named the most celebrated. We might, says M. FIGUIER, add to this list the Great Mogul, one of the bulkiest cut diamonds ever seen, since it weighed two hundred and eighty carats. It was valued al twelve millions of francs.

The change of hue in the Chameleon Diamond mentioned at the beginning of these paragraphs, is not by any means an unparalleled phenomenon. Messrs. HALPHEN, the expert Parisian lapidaries who owned it, themselves speak of having seen another diamond which became rose-colored when rubbed, but almost immediately lost that hue again. A yellowish tint also may be imparted to the diamond, but it does not last for any time. The conclusion to which those singular facts directly lead, is that in the atelier of the lapidary there are wonders yet to be wrought out by heat, electricity, friction, and chemical combinations, as remarkably varied and captivating to the fancy as any in all the other realms of practical science.—*New York Mercantile Journal.*

Beton Constructions.

LONDON *Engineering* contains an interesting account of some of the French constructions of COIGNET'S famous concrete, concerning which so much has already been said in the columns of this JOURNAL, and of the *Manufacturer and Builder.*

For about twelve years, the "Béton aggloméré" of M. F. COIGNET has been employed in France; at first, sparingly, and with hesitation, but of late so largely, and with so much confidence, that many of the large works in and near Paris have been constructed for the most part, or entirely, with this material. So early as 1850, M. COIGNET had experimented further than his predecessors FLEURET (1800) and LEBRUN (1829), but the conglomerate he then produced was unsatisfactory. In the commencement, he employed a crude mixture of coal cinder with lime, and subseqnently he substituted sand for the former ingredient, and mixed it with powdered lime, moistening both together, instead of wetting the lime, as he had at first done. The second process at which he arrived, after modification and a long series of experiments with materials from different districts, and under varying circumstances, to ascertain the best proportions, is the system which has now grown into such a vast industry, and which bears his name.

The béton Coignet is a mixture of a large proportion of sand with a small proportion of lime, to which is added a percentage of cement varying with the amount of hardness or the rapidity of setting required. Only a very small quantity of water is employed to moisten the lime and sand. Thus tempered, the mass is reduced, in a grinding mill, to a stiff paste, and is introduced into monlds of any desired form, being then subjected to the action of repeated and heavy blows. By this means it is thoroughly agglomerated, and the mould being almost immediately removed, the béton, shaped to the desired figure, shortly becomes set, and acquires the hardness of stone.

The material thus mixed, and compressed under the hammer, when placed in the mould, receives a weight, strength, and density which renders it thoroughly trustworthy building material. On the average, 1.31 bushels of component parts of sand, lime, and cement, make a cubic foot of béton, which will weigh about 140 pounds, and offer a resistance of some 2½ tons per square inch, while ordinary mortar, formed of the same constituents, will exhibit very insignificant powers of resistance. The difference arises principally from the difference in manipulation; in mixing mortar, an excess of water is always used, which is distributed throughout the mass, and separates the particles of lime and sand, retarding the setting, and when after a time the water evaporates, it leaves the mortar more or less porous.

Theoretically, the COIGNET process fills all the necessary conditions, and produces a perfect béton, the sand and lime being moistened with a minimum of water, and mingled as intimately as possible. Besides the thorough cohesion of the particles induced by the mixing and compression, the small quantity of water used makes the setting more rapid and more uniform. In all cases, the lime used should be hydraulic, in fine powder, and well screened, to free it from lumps; for if there are any lumps admitted into the béton, they swell when the mixture is diluted, and weaken the material.

The cements used are always, if possible, heavy and slow setting. The quantity used is proportioned to the rapidity of setting required, and the hardness of stone which it is sought to obtain. For the third ingredient, river sand, mingled with small pebbles, is the best. If the pebbles are large, the concrete produced is rough and unsightly; if it is too fine, it retards the setting, and reduces the hardness. Pit sand will make very good work, but to produce a stone so good as that formed on a base of river sand, the proportions of cement and lime have to be increased. Very fine sands, like those of the Landes, require very careful mixing, and a prolonged compression in mould, to produce a first-class béton. The ingredients are measured into a mixing mill in barrows, and during the process, small quantities of water are gradually added as the mixing proceeds, until the béton becomes in the necessary condition; the more completely this part of the work is done, the more rapid will be the setting, and the harder will the stone become.

The ordinary form of grinding mill employed consists of an iron cistern, the bottom of which is perforated, and in the centre of which revolves a vertical shaft, armed with a number of helical knives, and carrying beneath it a cycloidal arm, which in each revolution discharges a part of the paste. A penstock covering the outlet regulates the discharge of the béton. The material thus obtained from the mill is in a firm but plastic state, and it is thrown into a mould, in thin layers, and each layer, as it is laid in, is beaten and compressed by the regular and even blow of a sixteen-pound hammer. In order to secure a perfect adhesion and union of the different layers of material, especially when fine sand is used, it is generally the custom to cross-cut the surface of the layer, in order that the superincumbent thickness may be thoroughly nnited to it.

There are two kinds of moulding to which the Coignet béton is applied, the first being used when the material is employed *en masse* in place, the second when it is moulded in blocks to be subsequently employed. The moulds which are intended to be used in place are composed of close boarding, kept in place by means of cross bracing. This mould carries the ornaments which are destined to appear upon the face of the structure after completion. In the second class of work, all kinds of ornament can be produced, from cornices to statuary.

Of late years the application of the Coignet béton has been equally extensive and varied. In Egypt, where it has been employed on a vast scale, light-houses have been reared out of the almost impalpable sands of the Isthmus of Suez. In Paris, some forty miles of sewers have been constructed of the same material; and arches of the basement buildings of the Exhibition of 1867, saw mills at Aubervilliers, the numerous cellars of many private houses, entire buildings of five and six stories in height, railway bridges at Sainte Colombe, on the Paris, Lyons and Mediterranean Line, a church at Vérinet, and above all, the large works connected with the new Paris water supply.

The exact proportion of materials employed on works of different classes, and with sand and lime produced from different districts, will be interesting. Thus the work about the Exhibition of 1867 was formed of a mixture by bulk of 5 of sand, 1 of lime, and ¼ of cement. The same proportion holds good for the sewers, and the rapidity of setting is so great, that the centering can be struck within ten hours after the béton is got in place, and the sewers can be put into service in four or five days after their completion. Arches, of which the rise is one-tenth of the span, are generally made with a mixture of 5 of sand to one of lime, and ½ of cement in bulk.

The church at Vérinet is one of the most interesting of the monolithic structure, and was constructed of sand from pits at Vérinet. The mixture was 5 of sand to 1 of lime and ¼ of cement. In the saw mill of Aubervilliers, the arches are twenty-seven feet ten inches in span, and thirteen and three-fourths feet thick at the crown, the proportions are also 5 and 1, and ½ of cement. One of the most generally useful applications of this material is in the construction of the basements of houses. In the ordinary form of construction, stone piers, supporting rubble masonry arches, are employed, involving numberless joints, and causing an absence of perfect uniformity. From this cause numerous settlements ensue, which are avoided by the use of the homogenous béton; for the whole substructure can be made in one single block, over which the superincumbent load is eqnally distributed, and a uniform pressure upon the foundation is obtained. One house, in the Rue de Miromesnil, is constructed entirely of béton, and it contains two staircases, the one formed in the usual way, with a number of moulded blocks, the other a spiral staircase, from basement to garret—a monolith.

The Béton aqueducts are now being constructed upon the works in course of construction for the supply of Paris with water from the Vanne. Already a part of the city draws its supply from the Dhuys, but the second portion of the system is not yet complete. The distance of Paris from the source of the Vanne is more than 94 miles, and in its course to the city the line has to traverse a series of valleys and ravines, to cross rivers, roads, and railways, and the numerous requirements of the works have involved the formation of extensive bridges, aqueducts, syphons, and tunnels. An immense reservoir will be completed close to the park of Montsouris, and a long aqueduct upon arches will be made almost close to the old Roman aqueduct of Arcueil. But the heaviest works upon the undertaking are those crossing the valley of Fontainebleau for a distance of more than twenty-five miles between the river Loing and the river Essones. This length, almost entirely without building materials, would have involved very costly works if masonry had been employed, and the Engineer-in-Chief, M. BELGRAND, has therefore availed himself of the Coignet process, and utilizing the vast masses of sand that lay ready to hand, has formed the works of béton. Not only have the aqueducts been constructed of this material, but the tunnels also, to the extent of several miles, about 6 feet 6 inches in diameter and 8⅝ inches thick, and these were all formed with the same success that has attended the application of the system to the sewers of Paris, the centres having been withdrawn almost immediately after the béton had been rammed into place. The aqueducts crossing the valley are supported upon arches, extremely light, and rising to a maximum height of 50 feet from the ground. The openings are about 42 feet 6 inches, and the thickness at the crown 15¾ inches. The success which attended the application of this material in the construction of the narrow openings supporting the aqueduct induced the engineer to extend its use to those wider arches spanning rivers, roads, and railways, and, a series of experiments having proved highly successful, monolithic structures of 98 feet 6 inches and 115 feet 9 inches openings, and with one-sixth rise, were rapidly formed.

It will thus be seen that while we have refrained from experimenting (with one exception) in this method of construction, French engineers have advanced to recognise its value, and to employ it largely for a variety of work, having tested its reliability by a series of exhaustive trials. The single exception to which we refer is the concrete bridge constructed by Mr. Fowler across the Metropolitan Railway at Kensington, but even that experiment was scarcely analogous, for the material employed was simply concrete, mixed with cement it is true, but mixed in the ordinary way, and thrown into the mould instead of being carefully set in layers and well combined, as in the Coignet process. But the extensive adoption of concrete structures in France will probably be followed by an equally extended adoption of the system here.

MINING SUMMARY.

Nevada.

REVIEW OF THE COMSTOCK MINES.

The San Francisco *Commercial Herald*, November 26th, has the following:

"KENTUCK.—The annual meeting of this company was held on the 24th inst., and from the Secretary's statement we take the following:

RECEIPTS.

Cash on hand, Nov. 1, 1868	$ 38,825 28	
Bullion product	805,732 82	
Premium on bullion	963 84	
Assessments—Nos. 1 and 2	40,000 00	
		$885,521 94

DISBURSEMENTS.

Reduction of ores	$374,995 45	
Labor	139,095 55	
Dividends—Nos. 27 and 28	100,000 00	
Advance to Virginia and Truckee R. R.	75,000 00	
Timber account	21,265 01	
Hoisting ores	12,381 48	
Mine supplies	12,020 63	
Sundry accounts	70 883 28	
Cash on hand, Nov. 21, 1869	78,880 54	
		$885,521 94

"From the Superintendent's report we copy the following comparative tables:

Year.	Ore yield, tons.	Gross yield.	Net yield.
1868	31,390	$1,257,563 85	$515,043 13
1869	27,876	804,732 82	178,531 70

Year.	Yield per ton.	Cost of production and reduction.	Net profits.
1868	$40 06	$23 65	$16 41
1869	28 88	22 47	6 41

"'The poor exhibit of the present year,' continues the Superintendent, 'as compared with the results of the previous year, is mainly, if not solely, attributable to the great fire which occurred in the mine on the 7th of April last, which for nearly five months caused an entire suspension of work in the principal ore-bearing localities. In the meantime all possible efforts were made by means of air-drifts and winzes, and powerful air-blasts from the surface, to reach the ore-bodies on the 800 and 900-levels, which, on the 20th of August last, we succeeded in doing, and commenced extracting ore; and since that time have extracted, on an average, 130 tons of ore per day.' During the fiscal year 27,867 tons of ore were extracted—the old West ledge, between the 400 and 200 levels, yielding 6,667, and the East ledge as follows: Between 700 and 550 levels, 9,500; 800 and 700 levels, 10,750; and 900 and 800 levels, 950 tons. The following named gentlemen are trustees for the ensuing year: J. D. Fry, (President) A. Hayward, Thos. Sunderland, A. K. P. Harmon and Wm. Sharon. Secretary, H. C. Kibbe. Superintendent, J. P. Jones.

"HALE & NORCROSS.—For the week ending November 20th the yield from the upper mine amounted to 466½ tons, and the lower mine 519 tons—total, 985½; previous week, 1,030½ tons. On the 21st inst. cross-cut No. 1 had penetrated the ore body 29 feet; in No. 2 they were drifting north and south on the vein, and No. 3 had been carried in 48 feet. On the 23d they were making preparations to extract ore from Nos. 1 and 2, and were running drifts to connect these cross-cuts. On that date No. 3 drift had reached the west wall, the ore being 49 feet wide at that point. The raise from this cross-cut is now upward of 20 feet above the level. As yet but a small amount of ore has been taken from the sixth level, but hereafter about one-half the supply will come from that level.

"CHOLLAR POTOSI.—During the week ending November 19th, 198 tons of ore were extracted, against 874 tons the previous week. The Blue Wing locality shows considerable improvement. The drift west from the main trunk, passing through the Grass Valley ground, has come out in the old Santa Fé slope, meeting with no ore while running the drift.

"GOULD & CURRY.—They extracted 367½ tons of ore during the week ending Nov. 22d. At the seventh station the cross-cuts to the west are each in 40 feet. The cross-cut from the drift going south has been carried through clay and porphyry, and the one running north is altogether in porphyry."

COPPER ORE SHIPMENTS TO ENGLAND.

The Humboldt *Register*, November 27th, says: "G. W. Rafford, Superintendent of the Battle Mountain Mining Company, limited, incorporated in Liverpool, Eng., sends us a specimen of copper ore from the company's mine at Egremont, Copper Canyon. The ore is of superior quality, and large quantities of it is now being extracted from the mine, and shipped to the company at Liverpool. An inferior quality is being piled on the dump until shipping charges are reduced. Mr. Rafford informs us that at present it costs $24 50 per ton freight to San Francisco, thence to Liverpool about $7 per long ton. The shipment of ore to San Francisco from the Humboldt mines is constantly increasing, and a liberal policy on the part of the railroad company will do much towards making it an immense source of revenue to them. The freight on ores shipped by rail should be reduced to the lowest possible rate for which they can be carried without loss to the company. Such a policy on the part of the railroad company would tend to encourage the development of the base metal mines, the ores of which, by present modes of reduction, cannot now be profitably worked in this county."

REPORTED RICH STRIKE.

A correspondent of the *Register*, writing from Galena, November 24th, says: "I understand a rich strike has been recently made in Copper Canyon, in the copper mine owned by the Battle Mountain Mining Company. A solid mass of almost pure virgin copper has been struck, but how wide the vein is or how extensive the mineral, I have been unable to ascertain. The other mines in the district are looking well, and work on many of them is being prosecuted vigorously. I hear of many new discoveries as being made, but am not sufficiently informed to furnish particulars at present."

WORK TO BE RESUMED AT THE ROCHESTER MINE.

"The same paper says: "In consequence of the immense volume of water encountered in the Rochester shaft, on the Montana ledge, Sacramento district, operations were suspended in September, and the Superintendent, Mr. Onderdonk, went East to consult with his company in regard to the mine. The prospects of striking a good mine being flattering, by direction of the trustees, Mr. Onderdonk has returned, prepared to resume work in the shaft immediately. A pump of sufficient capacity to drain the shaft will be put in the

works as soon as it can be procured from San Francisco. An engine for hoisting and pumping purposes is already in place on the ground, and work will be carried on steadily during the winter."

WHITE PINE MINES AND MILLING ITEMS.

We observe that capitalists from the East, upon satisfactory investigation by competent parties, are beginning to seek investments in the White Pine, which evidently proves the richness of that silver-bearing locality. In connection with this we make the following extracts from the *News* of the 20th: "A gratifying improvement in the bullion shipment over that of last week is shown—the shipment for this week being $57,331 48, against $32,632 33 for last week. In September the price of milling was reduced to $20 the ton. Since then, the price has again dropped—or, at least, is reduced by arrangement, so that large lots can be contracted for at $16 the ton. This accounts for the circumstance that perplexes some—namely, that the bullion shipment has not increased in proportion to the increased number of stamps. With the price for crushing reduced, mine superintendents prefer to work all ore, with scarcely any assorting. Thus the average yield of ore in mill for the last quarter was $58 59 per ton, while for the quarter ending June 30th it was $99 75 per ton. During the last quarter the number of tons of ore worked was 10,329, while for the quarter preceding the number of tons was only 4,174. Thus we are working cheaper ore and a larger amount of it—getting out the wealth of the mines more closely, affording more work, and consequently showing a lower average yield."

AMONG THE MINES.

A correspondent of the Elko *Independent*, writing from Shermantown, November 22d, says of the mines: "The ten-stamp mill at Swansea, which was brought over here from Humboldt county this Fall, will be set in motion in a few days. It is a fine structure, good machinery, and will work ore by the wet process. The Moyle mill, below Shermantown, is now presided over by Mr. Eeward Cutts, a young man well and favorably known in this locality. Mr. Cutts is an experienced millman, and is doing excellent work. The Kohler or Staples mill are both kept steadily at work, and are doing a smashing business. The Oasis mill loses no time and is turning out large quantities of bullion, the greater portion of which is shipped, via Elko, to Chicago and New York. The eight-stamp mill, formerly owned by C. O. Barker & Co., is now being run by McGee and Applegarth, and turning out bullion to the entire satisfaction of the lessees. Van Weo's and Vanderbilt's mills are both in good condition, are well patronized by mine owners, and are both running, at the present time, on the wet principle. Sanford Hall, the most enterprising gentleman in White Pine or elsewhere, has supplied our beautiful town—called by some infernal shoats, Hog Ranch—with a copious supply of water; and has also attached an extra wheel, etc., to his saw-mill for the purpose of furnishing the necessary wind for a double smelting furnace which he has erected alongside of his saw-mill; since the completion of which, however, he has sold—if he don't have to take it back to get even on the parties purchasing. The base metal range on White Pine mountain is now attracting as much, if not more attention, than any other particular locality or character of mines in the district. The mountain is almost one solid mass of mineral, of both high and low grade. Smelting furnaces are now to be seen in 'full blast' at every turn of the roads and bend in the canyons, while the late increase in the shipments of rich lead bullion attest the fact that the ore of the base metal range can be successfully reduced by the smelting process. There are millions of tons of ore in this range which, owing to the high rates of transportation, can not now be reduced either with profit to the mine owners or those engaged in the smelting business; yet there are millions of tons of smelting ore in this range which will yield a profit even at the present high rates of tariff charged by the railroad company. The Miser's Dream and the Cadis No. 1 and No. 2 are the principal ledges now furnishing ore to the smelting furnaces in this vicinity; yet work is being prosecuted upon scores of other ledges of equal richness. What is most needed here is the investment of a large amount of capital by parties experienced in the smelting and refining of lead and silver ores. A refining establishment here would preclude the necessity of sending our base bullion to San Francisco, thereby saving to us large sums of money now required to pay freight; besides, the lead is of great value to us here, as it is required for fluxing ores which do not carry a sufficient quantity of lead for smelting, as is the case with the ores of some of the richest ledges in the mountain. The ledges on the northwest side of White Pine mountain seem to be almost entirely free from base metal; so much so, at least, that no difficulty is experienced in working the ores by common mill process. In this vicinity is situated the Porcupine and other ledges of the White Pine Silver Mining Company, the titles to which are perfect and undisputed, and are considered by good judges as among the most valuable mines in the district. The White Pine Silver Mining Company is an Eastern corporation, and is one of the most judiciously managed properties in the State. In the early Spring, work for the thorough development of its mines will be commenced and prosecuted with vigor. The mines of Treasure Hill are yielding ore in larger quantities, though perhaps not quite so rich, than at any time since the discovery of this fabulously rich district of world-wide fame."

Arizona.

The mining camps of this Territory are full of life, and rich strikes are reported in several localities. According to the Prescott *Miner*, Nov. 6, some fifty or sixty miners were at work in the dry diggings back of La Paz, making from $3 to $30 per day, by dry washing process. Judges Cartter and Reavis report seeing recently, at La Paz, fifteen hundred dollars worth of gold that was taken out of the diggings in one week. Pieces weighing thirty and forty dollars have frequently been found in these diggings, and, occasionally, chunks as big as an old style ink bottle. Judge Harley H. Cartter, of La Paz, Yuma county, exhibits a splendid specimen of ore from a gold-bearing lode named the Constantia. The mine is situated close to the Prescott and La Paz wagon-road, thirteen miles this side of La Paz, convenient to wood and water. It belongs to an incorporated company, who are negotiating for a ten-stamp mill to crush the ore with. Thousands of tons of ore are in sight, and there can be no reasonable doubt of its containing sufficient gold to pay well for working it. Renewed activity prevails at Walnut Grove. C. G. Genung and Peter Smith are about ready to start their arastras on ore from the Sutler lode. Smith found recently, near the Placeritas, a lode of gold-bearing ore richer by far than any yet discovered in the district. The placer miners at work in McCloud's old claim were making from $5 to $7 per day. The miners at work on the Old Mexican Camp, Lower Lynx Creek, are doing first-rate, and many of them have well-filled purses. They are now working the bed of the creek, washing the dirt in rockers, there being an insufficient amount of water for sluicing purposes. We have the Tucson *Arizonian* of October 16th, and from it we learn that rich placer mines have been discovered in Sonora and an officer of the Mexican army offers protection to all Americans who will go there and work them. Eight citizens of Tucson had left for the diggings.

GOVERNOR SAFFORD ON THE MINES.

In an address to the citizens of Zavapia County, delivered at Prescott, November 4, His Excellency Governor Safford thus spoke of the present condition and prospects of the mining interests of Arizona. He said: "Now I come to the mineral resources of the country, and I feel that I can speak of this branch with more confidence than any other, because I have spent all my manhood in the mines—for eight years in succession I worked at placer mining, lived in a cabin, and cooked my own meals; and for nearly twenty years have been connected with mining enterprises of one kind or another. I have dammed the Yuba river twice in the same year—once when the water was low, and at another time when the water carried our flumes away. I have taken part in gold and silver quartz mining in California and Nevada, and have examined the principal mines and reduction works of Europe. My previous knowledge of mining has naturally led me to take special interest in examining the mineral resources of this country. I have travelled in various directions from the Southern boundary of Arizona north to this point. I have found the mountains threaded with veins rich in silver, gold and copper, far beyond anything I have ever seen elsewhere, and I here predict that the time will come in the not very far off future when Arizona will produce more gold and silver than all the balance of the Pacific coast. This may be considered enthusiastic, but when it is considered that there is hardly a mountain over this vast Territory that does not contain rich lodes of gold and silver, while for hundreds of miles the ravines show prospects for placer diggings that would gladden the heart of any old California miner, and when it is considered also that the wealth of these mines are yet untouched, the prediction will not appear so extravagant. The inquiry will be made, if Arizona contains such vast mineral wealth, why has it not been proven before this time? There are several reasons, either one of which is sufficient to result in the failure of any ordinary paying mine. First, the hostility of the Indians, which has almost wholly prevented prospecting for mines, and rendered their working insecure and expensive. Second, the expensive transportation of everything consumed or used that is not raised here. Third, the want of capital to open the mines. Fourth, the want of experience and knowledge how to extract the precious metals from the ore. To ascertain the method of extracting gold and silver from ores, and particularly those that are refractory, has in all new mining districts required money, time, and experience, but in no case has either of these metals been found in paying quantities, that a process has not been found to save them, nor will this country be an exception. The ores are found here in vast quantities, fabulously rich. In experiments that have been made here, through the extravagance or experience of those who have made them, the money has, in most instances, been uselessly squandered. Large mills have been erected before opening the mine, or attempting to ascertain a method of saving the metal. The consequence has been that the mill, when erected, could not be supplied with ore, or the parties managing it could not save the gold and silver; and the stockholder, who never saw the country, and knew nothing of the cause of failure, became disheartened, and the mine is abandoned and left to decay. If mining could be conducted with the same economy that the merchant conducts his business, or the farmer tills his fields, failures would seldom occur. But our eastern friends who have sent some capital for investment here seem to break loose from all the well established principles of doing business, and adopt a new system for mining. Instead of selecting a man to open their mines and erect their machinery who is experienced in the business, and has established a character for integrity, they either send some one they want to find a place for, who is incompetent to be placed in charge of business there, or the relative of some influential stockholder, or, perhaps, in some instances, very good business men, but invariably none of them know anything about mining, or machinery for the reduction of ores, and their education proves very expensive for the owner, and results in incalculable injury to the country. Laboring under all these disadvantages, still we have today in successful operation one of the best paying mines on the Pacific coast—the Vulture, at Wickenburg. The Apache Pass mine, at Apache Pass, is just starting, with equally favorable prospects of success. The mill at Big Bug will in a few days be in successful operation, with an inexhaustible supply of ore before it, and practical tests have demonstrated that Mr. Heslep, who is in charge, has overcome all obstacles, and that it will soon be numbered among the best paying mines on the coast. The same may be said of the Sterling. I visited it a few days since, and was impressed with the excellence of the machinery, and also with the regularity of the lode, and the large quantities of ore it contains. I say to you, not for the purpose of creating a false hope, to be of good cheer; as sure as the sun rises and sets, the day of your prosperity is dawning. Arizona has seen the worst; her immense wealth cannot lie dormant much longer. * * * * I would advise all who are not able to work their mines, and who have a sufficient amount of work done, to secure a government title as soon as possible. You are sure of your property then, wherever you go, and if you desire to sell, you have a title that gives confidence, more than a mere possessory right. When I arrive in San Francisco, I will endeavor to have the Surveyor General of California appoint a mineral deputy here, and as soon as that is done you can apply for a patent at once. The law provides that when the public surveys have not been extended to any mining district, then the Surveyor may establish some initial point, and connect all the surveys to it, and after the public surveys have been extended, then this initial point will be connected with them."

California.

THE MARIPOSA ESTATE MINES.

The Mariposa *Gazette*, Nov. 19, thus chronicles the successful progress of the Mariposa mill: "The Company's Quartz Mill in this town seems to be progressing in its work with commendable energy and enlivening results. The resumption of the 'wet process' in crushing proves very satisfactory; the rock now being taken out is remunerative, and the prospect continues to be of an excellent character. For the sake of all parties concerned, including the town of Mariposa, we wish them abundant success."

REPORT OF MR. J. G. RICE.

The following report from Mr. Rice, resident Engineer, furnishes the latest intelligence in regard to the mining affairs of the estate:

BEAR VALLEY, Nov. 25th, 1869.

MARK BRUMAGIM, ESQ., *Trustee Mariposa Estate.*

DEAR SIR: I can now report the dam in condition to resist in safety the winter floods. It has lately been strengthened by bracing below and filling in above, and there now need be no apprehensions for its safety. In October the Upper Benton mill was overhauled, and the foundations of the batteries, which had become somewhat out of shape, were straightened up. This was done during low water. Now it is in fine running order again, and the drums will again be put in operation, now that water is plenty. At the Middle mill two batteries have been connected into wet crushing with improved form of batteries, similar to the Oakes & Reese mill, where a test was made on our Pine Tree rock, yielding $16 92 per ton, with a loss of only $2 35 in the tailings. If it succeeds as well here, a great saving will be effected, and our crushing capacity doubled. A comparative test is now being made at the Benton mills between the wet and dry methods. The Lower (old) Benton mill is also undergoing repairs, the mortar block or foundation having become very rotten and badly beaten up by the dry crushing. A new foundation will be put in, and twenty-four stamps (instead of twenty, as heretofore) will be run, crushing wet. The three mills will then be able to crush about sixty-five tons. The railroad is in good condition now, and the expenses there will be lessened. The Pine Tree mine is in splendid condition. The shaft which is being sunk shows better in the bottom than it has before. The "Garden Shoot" of ore shows well also. The drifts should be recommenced, to cut through this "shoot" on the Engine level, as well as to tap it below in the Midway level. The Josephine mine has been comparatively idle from the overstock of rock at the mills, but is in condition to furnish abundance of ore at a day's notice. A large amount of rock is now at the mine, ready to be transported to the river. At the Mariposa mill about twenty-two tons are being crushed daily. It is found, however, that the mortars, being the old ones, are in a dilapidated condition, and some of them broken. They will be immediately replaced by new ones, similar to those at Benton Middle mill, fitted for wet crushing. The mine is being worked with larger force to supply the mill. The best ore comes from the western part of the main mine. The eastern portion does not look so well in quality of rock, but yields a great quantity, which is partially assorted. The Specimen shaft which in last month was commenced to be drained and cleaned out is now being sunk. The appearance of the vein is very favorable for a "pocket" or deposit of gold within a short distance. At any moment we may expect a discovery of that kind. Yours respectfully, J. G. RICE.

Michigan.

THE COPPER MINES.

We condense from the Portage Lode *Mining Gazette*, Nov. 18, the following interesting items of mining news from the Ontonagon district: "Affairs at the Evergreen and Aztec mines are greatly unsettled by the recent changes of the managements. The Aztec has, however, a good show of copper, and will undoubtedly come safely through her present difficulties and go ahead once more. The Ridee is working a large force and doing well. Some ten miners are at work at the Adventure with good prospects, and Capta'n Hoatson proposes to settle ten miners in the Evergreen. The Nonesuch will commence sinking and driving soon, and there is a rumor that the Knowlton will be worked on tribute." The same paper has the following items on the mines of Portage Lode district:

"IMMENSE PRODUCTS.

"The products of the Hecla and Calumet mines, for the month of October, were: Hecla, 381 tons; Calumet, 270 tons. The Hecla product is the largest ever made by any one mine since the commencement of operations on Lake Superior. Over 7,400 tons of rock were stamped during the month, giving a yield of a fraction over four per cent. mineral. The mineral will yield 79 per cent. of ingot copper. High figures all around. The lower openings of the Huron are progressing finely, and toward very fair copper courses, which will make it a little easier to make the product than it has been the past few months. No. 5 shaft of the Pewabic is down to the 190—by the way, the greatest depth obtained by any mine on Lake Superior—and considerable drifting done. The skip shaft is sinking as a winze—to expedite opening—when it will be squared up and ready for use by the time the stones are under way. Captain Hoskins is pushing everything as hard as it can be, and although it cannot legitimately be called up-hill work, it is far more difficult. Another head of stamps will be ready in a few days, when, we understand, the mill will be run day shifts only."

Montana.

PARTIAL SUSPENSION OF GULCH MINING FOR THE SEASON—QUARTZ MINING ACTIVE.

The Deer Lodge City *Independent*, November 13th, says: "The cold weather has nearly put a veto upon mining operations at Highland. A few companies are still drifting, and are said to be doing quite well. Prof. Swallow has closed his mill for the season, which has thrown a number of men upon the labor market. The Last Chance Company are still taking out very rich quartz, but they are the only company that are working quartz lodes in that district. We understand that work will shortly be resumed on the Nevins lode, and perhaps one or two others.

"French Gulch is now almost deserted on account of the cold weather. The ditches are all frozen up, and consequently mining is entirely suspended for the season. The mountains in the vicinity of French are now covered to a considerable depth with snow, which encourages the denizens of that burg to believe the coming mining season will be one of unusual prosperity. Should there be plenty of water there will be employment for a large number of miners, as the mines are rich and very extensive.

"The miners of German gulch are all working upon their bed-rock flumes, and doing well, considering the scarcity of water. It has required the expenditure of a vast amount of muscle and money to open up the gulch properly, but now a fortune is within the reach of all who have persevered. There are no idle men in the gulch, and we are informed that there never was but a very few of this class there at any time since the first stampede. Pay dirt has been struck by each of the fluming companies, which insures a large return for the capital invested, should that locality be favored with a liberal supply of water. Some companies are still drifting with good results."

Iowa.

MAHASKA COUNTY COAL MINES.

Mr. Boling writes from Enterprise, Nov. 24, in the Des Moines *Register*: "The county of Mahaska possesses, perhaps, a larger coal area than any county in the State, and the quality of the coal is not surpassed by any in the West. It would be useless to compute in tons or bushels the available product, but the amount will be sufficient to supply the demand of the country for many years. The D. V. R. R. Co. is building a switch of about one mile in length to the bank of Price, Evan & Co. This bank is the greatest in depth of any yet found in the State, the mining surface being eight feet four inches. The company is composed of practical miners and expert business men, and they intend within a month, at which time the track will be completed to the bank, to be able to supply the demand of the trade, let that be what it may. The D. V. R. R. Company have contributed largely to this enterprise, and it is a matter of much importance to the non-coal sections of the State to know that at a moment's warning they can be supplied by this company with as good coal as the West affords. The work upon the switch is progressing rapidly, and will be completed in two weeks, should the weather continue favorable. The iron and ties are all ready for laying the track."

MARKET REVIEW.

The Coal Trade.

NEW YORK, Dec. 10, 1869.

WHOLESALE.—Trade has been very dull during the past week, everybody anticipating a further decline in prices. Some few sales have been made to parties who must have coal before navigation closes. There is a good demand for Lehigh Stove and Chestnut, but very little is coming to the market. There is some Schuylkill Coal to be had, but the stock is not large. The last four days of cold weather has closed all the canals. This will throw all the transportation on the railroads, which, at the present high rates of freights, will necessarily curtail the supply. We understand that the shipment via the Philadelphia and Reading Railroad have fallen off one-half during the past week. This straw shows which way the wind blows. Schuylkill County can't put Coal into this market with the present high tolls and freights and compete with the prices named by the large Wyoming companies except at a great sacrifice.

It seems to be the general impression here that this market will be overstocked with Coal in a few weeks, and that prices, both at wholesale and retail, will rule very low.

The Delaware and Hudson Company have issned the following prices for their excellent coal for December:

WHOLESALE.		RETAIL.	
Lump	$5 50	Grate, Egg, Stove, } To families, delivered.	$7 50
Steamer	5 75		
Grate	6 00		
Egg	6 00	Grate, Steamer, } at yard	7 00
Stove	6 75		
Chestnut	5 50	Chestnut	6 50

The wholesale prices are "on board" at Weehawken. This notice will fall like a bombshell in the camps of wholesale and retail dealers. We don't know bnt that it is good policy to get prices at the bottom and have done with it, and not keep the trade in the state of uncertainty it has been in for the past three weeks.

The following table exhibits the quantity of Coal passing over the following routes of transportation for the week ending December 4, 1869, compared with the same time last year:

COMPANIES.	1868. WEEK.	1868. TOTAL.	1869. WEEK.	1869. TOTAL.
Phila. & Reading R.R.	75,289	3,587,052	78,442	3,698,905
Schnylkill Canal	33,248	979,864	29,428	676,765
Lehigh Valley R. R.	36,344	35,344	39,156	39,156
Lehigh and Sus. R. R.	23,226	498,198	33,654	890,624
Lehigh Canal	21,787	989,947	6,226	604,269
Scranton North	10,424	580,360	13,113	412,805
" South	29,463	1,028,106	35,065	986,325
Penn. Coal Co., rail	19,956	871,501	20,763	893,718
" " " canal		29,005		18,707
Del. and Hudson, rail			7,668	149,383
" " " canal, north	35,052	1,611,113	43,215	1,205,764
" " " south			2,872	116,265
Shamokin	10,207	472,960	11,548	442,118
Trevorton	1,287	32,764	8,264	94,561
Short Mountain	3,143	120,104	2,431	102,235
Lykens Valley Coal Co.	1,761	83,479	2,379	77,064
Huntingdon & Br'd Top	7,320	256,244	8,545	326,476
Wyoming South		319,714		329,650
" North	1,266	89,152		76,398
Williamstown, Col'y		178,467		195,398
Total	278,851	11,263,044	342,256	11,279,065
1869			278,851	11,263,044
Increase			63,405	16,021

The Lehigh Valley Railroad closed its official year Nov. 30th. The following is their statement of shipments up to that time:

	TONS.	CWT.
Forward East, from Mauch Chunk—		
1869	2,025,296	11
1868	2,221,630	02
Decrease	210,333	11

The *Miner's Journal* states that the official year of the Philadelphia & Reading Railroad also closed on Nov. 30th, and gives the following figures:

	TONS.	CWT.
1869	3,688,904	11
1868	3,087,052	04
Increase	601,852	07

RETAIL.—Trade has generally been dull during the past week. Notwithstanding the severe winter weather, consumers are not yet satisfied that coal is as low as it will be, and are putting off their purchases. Prices rnle from $7 50 to $9 50 per ton of 2,000 lbs.

FREIGHTS.—Freights remain remarkably low for the season, and no doubt, with a little increased activity in the trade, will advance rapidly; $1 25 to New Haven, and $1 95 to Boston from Elizabethport are the rnling rates to-day.

Schuylkill Coal Trade.

Report of coal transported over the Schuylkill Canal for the week ending Thursday, December 2, 1869.

	Tons. Cwt.
From Port Carbon	11,008 05
" Pottsville	1,257 10
" Schnylkill Haven	16,117 03
" Port Clinton	1,065 00
Total for week	29,427 18
Previously this year	646,336 14
Total	675,764 12
To same time last year	919,462 11

Report of coal transported on the Philadelphia and Reading Railroad for two days ending Thursday, December 2, 1869:

From St. Clair	10,401 10
" Port Carbon	2,883 04
" Pottsville	1,635 01
" Schuylkill Haven	11,330 02
" Auburn	1,337 02
" Port Clinton	4,829 10
" Allentown and Alburtis	28 06
" Harrisburgh and Danphin	3,796 11
Total paying freight	36,288 09
Coal for Company's use	930 07
Total for week	37,218 16
To same time last year	24,847 09

Report of coal transported over the Philadelphia and Reading Railroad for year ending Nov. 30, 1869.

	Tons Cwt.
From St. Clair	26,584 15
" Port Carbon	7,957 09
" Pottsville	4,383 15
" Schuylkill Haven	23,919 00
" Anburn	3,105 13
" Port Clinton	11,237 00
" E. P. R. R.	327 13
" Harrisburg and Dauphin	11,814 19
Total paying freight	88,350 04
Coal for Company's use	2,305 09
Total for week	90,655 13
Previously this year	4,148,054 17
Total	4,238,710 10
The time last year	3,574,873 14

Report of Coal Transported over Lehigh Valley Railroad

For four days ending December 4, 1869, and previously this season, compared with same time last year:

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	PREV'L'Y. Tons. Cwt.	TOTAL. Tons. Cwt.
Total Mahanoy	7,020 10		
" Beaver Meadow	6,744 13		
" Mauch Chunk			
" Upper Lehigh			
" Hazleton	18,609 11		
" Wyoming	7,391 17		
Total Anthracite	41,766 11		
Bituminous Coal recv'd from Cata. R.R.			
N. C. R. R.			
E. P. R. R.			
P. & N. Y. C. & R.R. Co			
Fall Creek			
Schroeder			
Towanda			
Total by rail and canal	41,766 11		
Same time last year	44,252 05		
Increase			
Decrease	2,485 14		
Forwarded East from M'h Chunk by rail	39,156 06		
Same time last year	35,344 10		
Increase	3,811 16		

RECAPITULATION.

Forwarded East from M'h Chunk by rail	39,156 06		
Delivered at M'h Chunk	6 02		
Delivered on line of road above Mauch Chunk	35 05		
Delivered above M. Chunk for use of L. V. R.R.	514 01		
To N. C. R. R., at Mount Carmel			
Forwarded North from L & B. Junction	1,451 16		
To L. & S. R.R., at P'n Hav., for railroad			
Do. for canal			
Do. Packerton for rail	126 14		
At M Chunk for canal	467 07		
Total Anthracite	41,766 11		
Bituminous Coal			
Total all kinds	41,766 11		

Lehigh and Susquehanna Railroad.

Report of Coal Shipped South for the week ending Dec. 4, 1869.

WHERE FROM	WEEK. Tons. Cwt	TOTAL. Tons. Cwt.
Total Mauch Chunk Region	10,732 19	226,647 18
" Hazleton "	177 01	123,529 06
" Upper Lehigh "	43 05	77,261 17
" Wyoming "	24,026 03	771,404 17
Grand Total	37,029 03	1,198,844 03
Corresponding week last year	31,439 11	978,666 02
Increase	5,590 00	217,177 18
Decrease		
Forwarded South from Manch Chunk	32,872 07	894,179 09
Delivered on line of Lehigh & Sus'na R. R., above Mauch Chunk	608 11	32,467 15
Delivered to Lackawanna & Bloom. R. R., at Plymouth Bridge	173 05	18,424 15
Delivered to Lehigh Valley R. R. Co., at Sugar Notch		5,151 03
Delivered at Coal Port, for shipment by Canal	3,375 08	205,220 18
Total	37,029 11	1,198,844 00

Lehigh Canal Coal Trade.

Shipped for the week Ending December 4, 1869.

WHERE FROM.	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
Total Mauch Chunk Region	1,403 06	192,443 18
" Beaver Meadow "	1,322 16	97,681 15
" Mahanoy "	81 12	2,705 07
" Hazleton "	91 00	118,126 00
" Upper Lehigh "	43 05	5,185 12
" Wyoming "	3,367 15	188,471 08
Grand Total	6,309 14	604,869 00
Corresponding week last year	21,787 09	969,917 05
Increase		
Decrease	15,477 15	365,078 05

Prices of Coal by the Cargo,

[CORRECTED WEEKLY.]

	AT NEW YORK, Dec. 10.		AT PHILADELPHIA, Dec. 9.	
SCHUYLKILL.	R. A.	W. A.	R. A.	W. A.
Lump	$— —	$6 00	— —	6 00 to — —
Steamer	— —	6 00	— —	6 00 to — —
Broken	— —	6 50	— —	6 00 to — —
Egg	8 00 to 8 50	7 25	— —	6 50 to — —
Stove	8 00 to 8 50	8 00	— —	6 50 to — —
Chestnut	5 75 to 6 00	6 00	— —	6 00 to — —
Pea	— —	— —	— —	— —
LEHIGH.				
Lump	— —	— —	— —	— —
Steamer	— —	— —	— —	— —
Broken	— —	— —	— —	— —
Egg	— —	— —	— —	— —
Stove	— —	— —	— —	— —
Chestnut	— —	— —	— —	— —
Pea	— —	— —	— —	— —
SPECIAL COALS.*				
Diamond Vein	R. A.	8 50	— —	— —
New England	"	— —	— —	— —
Locust Dale	W. A.	8 00	— —	— —
Honey Brook, Le'h	W. A.	6 25 to 7 50	— —	— —
Spring Mount	" "	6 25 to 7 50	— —	— —
Sugar Creek	" "	6 25 to 7 50	— —	— —
Sugar Load	" "	6 25 to 7 50	— —	— —
Fulton	" "	6 25 to 7 50	— —	— —
Stout	" "	6 25 to 7 50	— —	— —
Old Comp'y's	" "	6 25 to 7 50	— —	— —
Cross Creek	" "	6 25 to 7 50	— —	— —
Chauncey	" "	— —	— —	— —
Girardville	" "	— —	— —	6 00 to 6 50
Mt. Carbon	" "	— —	— —	6 00 to 6 50
Duncan	" "	— —	— —	6 50 to 7 00
Shamokin	" "	7 50	6 50	— —
Lykens Valley	" "	— —	8 00	— —
Broad Top	" "	— —	5 00	— —
Hill & Harris	" "	— —	7 00	— —
Henry Clay	" "	— —	7 00	— —
Powelton	" "	— —	6 50	— —
Burnside	" "	— —	— —	7 00
BITUMINOUS COALS.				
Kittaniug Coal Co.'s Phœnix Vein Lemon		f.o.b. at Phila	$5 25	
Cumberland C. & I. Co.'s on board		N. Y.	7 50	
Central C. & M. Co.'s		"	7 50	
Consolidated Coal Co.'s		"	7 50	

[*Dealers in these coals may be found in our advertising columns.]

Company Coals.

	L.	Str.	Gra.	Eg.	Sto.	Cst.
Scranton at E. Port	— —	— —	— —	— —	— —	— —
Pittston at Newb'g	— —	— —	— —	— —	— —	— —
Lackawana at Weh'kn.	5 50	5 75	6 00	6 00	6 75	5 50
Wilk'b're at Hoboken	— —	— —	— —	— —	— —	— —
Old Co. Lehigh at Pt. Johnston	— —	— —	— —	— —	— —	— —

For freights to different points, see "Freights."

Prices for Coal at Mauch Chunk.

	F. L.	Bro.	Gra.	Eg.	Sto.	Cst.
Lehigh	$4 00	$4 25	$4 50	$4 50	$4 75	$4 00
Wilkesbarre	4 00	4 25	4 50	4 50	4 75	4 00

For freight to Elizabethport and to New York see "Freights."

Prices of Foreign Coals.

December, 1869.
Duty $1 25 per ton.
Corrected weekly by PARMELE BROS., No 32 Pine street, New York.

Liverpool Gas Caking	$ 9 50@— —
" " Cannel	14 00@— —
" Honse "	17 50@18 00
" " Orrel	16 00@18 00
Per ton 2,240 lbs., ex-ship.	
PRICES FROM YARD.	
Liverpool House Orrel, screened	$16 00@18 00
" " Cannel, "	18 00@19 00
Per ton 2,000 lbs., delivered.	

Prices of Gas Coals.

December, 1869.
PROVINCIAL.
Duty, $1 25.

	Coarse. Gold.	Slack. Gold.
Block House	$1 75	@- 75
Gowrie	1 75	@- 75
Lingan	1 75	@- 75
Sydney	2 13½	@- 71½
Picton	2 13¾	@1 18¾
Little Glace Bay	1 50	@1 00
Caledonia	1 50	@- 75

AMERICAN.

	Coarse. Currency.	Slack. Currency.
Westmoreland Co	— —	@— —
Despard Coal Co	$8 50	@8 00
Penn	— —	@— —
Newburg Orrel Gas	— —	@— —
West Fairmount Gas Coal	— —	@8 00
AT PHILADELPHIA.		
Powelton		$7 00

Prices at Baltimore—Dec. 1869.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load	$7 50@8 00
Pittston and Plymouth	7 25@8 75
Shamokin Red or White Ash	6 50@7 00
Lykens Valley Red Ash	7 40@7 80
Trevorton, Red Ash	— —@— —
By retail, per ton of 2240 lbs. delivered	9 00@9 75
Georges Creek & Cumberland f. o. b. at Locust Point for shipping	4 85@5 00
West Fairmount Gas f. o. b.	— —@6 50

Prices at Georget'n, D.C., & Alexandria, Va.

December, 1869.

George's Creek and Cumberland f. o. b. for shipping	$4 75

Prices at Havre de Grace, Md.

December, 1869.

Wilkesbarre and other White Ash for cargoes	$— —@7 25
Lykens Valley	— —@7 50
Shamokin Red or White Ash	— —@7 25
Trevorton and Zebra Valley	— —@7 00

Freights.—DECEMBER, 1869.

TO EASTERN PORTS.	From Philada'a.	From E. Port and Port Johnston	From Newburg	From Rondout
Stamford	$2 00	$1 15	$1 30	$1 25
Norwalk	2 00	1 15	1 30	— —
Bridgeport	2 00	1 15	1 30	1 25
New Haven	2 00	1 15	1 25	1 25
Hartford	2 75	1 75	— —	1 90
New London	2 00	1 40	1 60	1 60
Norwich	2 00	1 40	1 60	1 60
Mystic	2 00	— —	1 45	— —
Stonington	2 00	1 50	1 60	1 60
Sag Harbor	2 00	1 25	1 45	— —
Bristol	2 25	1 40	1 55	1 55
Newport	2 25	1 45	1 55	1 45
Fall River	2 25	1 45	1 55	1 50
Providence	2 25	1 40	1 60	1 60
Digbton	— —	— —	1 60	— —
Warren	— —	— —	1 60	— —
Pawtucket	2 25	— —	1 75	1 65
New Bedford	2 25	1 50	— —	1 75
East Cambridge	3 10	— —	1 85	2 10
Salem	3 10	2 00	2 20	2 20
Newburyport	3 10	2 00	1 85	2 20
Portsmouth	3 10	2 00	2 10	2 10
Rockport	— —	— —	1 90	— —
Saco	3 25	2 00	— —	2 00
Portland	3 25	2 00	2 20	— —
Bangor	3 25	— —	1 75	1 80
Bath	3 25	2 00	2 00	2 00
Middletown	— —	1 50	— —	— —
Amesbury	3 25	— —	— —	— —
Boston	3 10	2 00	2 25	2 25
Cambridgeport	3 10	— —	1 85	2 05
Taunton	3 10	2 00	1 85	— —
Derby	2 00	1 25	1 90	— —
New York	1 55	80	85	85
Hackensack	1 75	— —	— —	— —
Jersey City	1 65	80	85	85
TO RIVER PORTS.				
Troy	1 75	1 25	60	65
Albany	1 75	1 24	55	50
Coeymans	1 60	— —	55	50
Stuyvesant	1 50	— —	50	45
Cocksackie	60	— —	45	45
Hudson	— —	90	40	50
Catskill	— —	— —	40	35
Poughkeepsie	1 60	75	30	25
Fishkill	1 60	— —	30	30
Haverstraw	1 60	— —	50	45
Nyack	1 60	50	50	55
Sing Sing	1 60	— —	60	50
Youkers	— —	40	60	55
New York	1 55	80	70	— —
Saugerties	1 55	— —	35	30
Rhinebeck	1 60	— —	30	35
Rondout	1 60	60	30	25
Tarrytown	1 60	80	60	— —
West Point	1 60	75	30	50

Foreign and Provincial Freights.

December, 1869.

Foreign.	
Newcastle and Ports on Tyne	£15@£17 keel
Liverpool	15s. —. do
TO NEW YORK.	
Provincial	
Sidney	$3 25
Lingan	3 25
Cow Bay	3 25
Port Caledonia	3 25
Little Glace Bay	3 25
TO BOSTON.	
Sydney	$2 75
Lingan	3 75
Cow Bay	3 25
Port Caledonia	3 00
Little Glace Bay	2 25

Towing Rates.

TO EASTERN PORTS.

	Per Ton.
To New Haven	$ 40
Bridgeport	40
Southport	40
Westport	40
Norwalk	40
Stamford	40
	Per Boat.
Greenwich	$70 00
Port Chester	80 00
Mamaroneck	70 00
Glen Cove	55 00
New Rochelle	55 00
East Chester	60 00
West Chester	30 00
White Stone	30 00
College Point	25 00
West Farms	25 00
Flushing	30 00
Harlem and Mott Haven	20 00
Port Morris	20 00
Ninety-first street and Astoria	16 00

Boats beyond Port Chester, with less than 200 tons, $20 per Boat.

TO RIVER PORTS.

Boats of 150—250 Tons.	Per Ton.
To Manhattanville	9 cents.
Spuyten Duyvil	9 "
Yonkers	10 "
Hastings	12 "
Piermont	15 "
Dobbs' Ferry	15 "
Nyack	16 "
Tarrytown	17 "
Sing Sing	18 "
Croton Landing	19 "
Haverstraw	19 "
Verplanck's	20 "
Peekskill	20 "
West Point	21 "
Cold Spring	21 "
Newburgh	22 "
Ponghkeepsie	22 "
Rondout	23 "
Boats of 100 Tons	Per Boat.
To Manhattanville, and Return	$12 00
Spnyten Duvvil	14 00
Yonkers	15 00
Sing Sing	25 00
Peekskill	25 00

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven	$2 50
From Port Carbon, 8 cents per ton more.	
TO ELIZABETHPORT.	
L. V. Railroad from Manch Chunk to Easton	$1 15
C. R. R., N. J., Easton to Elizabethport	1 70
Shipping expenses at Elizabethport	25
Total	$3 10
TO PORT JOHNSON.	
L. V. R. R.	$1 15
C. R. R., of N. J.	1 80
Shipping expenses	25
Total	$3 20
TO HOBOKEN.	
L. V. R. R.	$1 15
Morris & Essex R. R.	1 80
Shipping expenses	25
Total	$3 20
TO SOUTH AMBOY.	
L. V. R. R.	$1 15
B. & D. R. R.	1 10
Cam. & Am. R. R.	50
Shipping Expenses	25
Total	$3 00

BY CANAL.

Via Schuylkill Canal.

TO PHILADELPHIA.	
From Schuylkill Haven	$1 70
" Port Carbon	1 70
" Port Clinton	1 70
TO NEW YORK.	
From Schuylkill Haven	$2 20

Via Lehigh Canal.

TO PHILADELPHIA.	
Lehigh Canal	$1
Freight and towage	1 [illegible]
Total	$2 29
TO NEW YORK.	
Lehigh Canal	$ 71
Morris "	85
Freight	1 70
Towing	10
Total	$3 36
TO JERSEY CITY.	
Lehigh Canal	$ 71
Morris "	95
Freight	1 60
	3 26
For re-shipment	30
Total	$3 56

Via Delaware and Raritan Canal.

TO NEW YORK.	
Lehigh Canal	$ 71
Delaware Division Canal	43
Delaware and Raritan Canal	57
Freight	1 45
Towage	20
Total	$3 36
TO NEW BRUNSWICK.	
Lehigh Canal,	$ 71
Delaware Division Canal,	43
Delaware and Raritan Canal,	57
Freight,	1 20
Total,	$2 91

For Re-shipment—30 extra for shipping, and 10 cents. drawback.

METALS.

IRON.—Duly: Bars, 1 to 1½ cents ₱ lb; Railroad, 70 cents ₱ 100 lbs.; Boiler and Plate, 1½ cents ₱ lb; Sheet, Band, Hoop, and Scroll, 1¼ to 1¾ cents ₱ lb; Pig, 9 ₱ ton; Polished Sheet, 3 cents ₱ lb.

Pig, Scotch No. 1, ₱ ton	33 00@36 00
Pig, American, No. 1	40 00@49 00
Pig, American, No. 2	37 —@38 —
Pig, American, Forge	36 —@— —
Bar, Refined, English and American	85 —@— —
Bar, Swedes, assorted sizes (gold)	82 50@85 00
	Store Prices.
Bar, Swedes, ord'y sizes, less 5 ₱ ct	— —@140 —
Bar, Refined " "	95 —@100 —
Bar, Common " "	87 50@ 90 —
Scroll " "	120 —@130 —
Ovals and half-round " "	120 —@145 —
Band " "	120 —@— —
Horse Shoe " "	120 —@— —
Rods, ⅜ to 5-16 inch " "	100 —@155 —
Hoop " "	125 —@130 —
Nailrod, less 5 ₱ ct	8½@— 9½
Sheet, Russia, as to Nos. (gold)	— 10¾@— 11½
Sheet, Single, D. and T. Common	— 5½@— 7
Sheet, Galvanized	List 15@25 ₱ cent, discount.
Rails, English (gold), ₱ ton	56 50 @57 00
Rails, American, at Works in Pa	76 00 @77 00

STEEL.—Duty: Bars and ingots, valued at 7 cents ₱ lb or under, 2½ cents; over 7 cents and not above 11, 3 cents ₱ lb; over 11 cents, 2½ cents ₱ lb, and 10 ₱ cent ad val. (Store prices.)

English Cast (2d and 1st quality) ₱ lb	— 16 @— 29
English Spring (2d and 1st quality)	— 7 @— 10
English Blister (2d and 1st quality)	— 11 @— 18
English Machinery	— 11½@— 16
English German (2d and 1st quality)	— 13 @— 15
American Blister "Black Diamond"	— 10½@— 16
American, Cast, Tool do.	— 19 @— —
American, Spring, do.	— 10 @— 13
American Machinery, do.	— — @— 13
American German, do.	— 10 @— 13

COPPER.—Duty: Pig, Bar, and Ingot, 5; old Copper cents ₱ lb; Manufactured, 4½ per cent. ad val.

	All Cash.
Copper, New Sheathing, ₱ lb	— @— 32
Copper Bolts	— @— 33
Copper Braziers, 16oz. and over	33 @— 35
Copper Nails	38 @— 40
Copper, Old Sheathing, &c., clean	20 @— 21
Copper, Chili Pig	— @— —
Copper, American Ingot	21¼@— 22¼
Yellow Metal, New Sheating	— @— 27
Yellow Metal Bolts	— @— 27
Yellow Metal Nails	— @— 27

LEAD.—Duty: Pig, $2 ₱ 100 lbs.; old Lead, 1½ cents ₱ lb; Pipe and Sheet, 2½ cents ₱ lb.

Galena, ₱ 100 lbs	$— —@— —
Spanish (gold)	6 25 @6 37½
German, do.	6 25 @6 50
English, do.	6 25 @6 87½
Bar (net)	8 37½@— —
Pipe and Sheet (net)	8 37½@— —

TIN.—Duty: Pig, Bars, and Blocks 15 ₱ cent. ad val.; Plate and Sheets and Terne Plates, 25 ₱ cent. ad val.

	Gold ₱ lb.
Banca	33½@36
Straits	33 @—
English	31 @—

PLATES.

	Fair to Good Brands. Gold.		*Currency.*	
I. C. Charcoal, ₱ box	$8 00	@8 37½	$10 50	@11 00
I. C. Coke	6 75	@7 37½	8 75	@10 00
Coke Terne	— —	@6 00	— —	@8 00
Charcoal Terne	7 50	@8 00	9 75	@10 50

SPELTER.—Duty: In Pigs, Bars, and Plates, $1 50 ₱ 100 lb.

	Gold.
Plates, Foreign ₱ 100 lbs.	$6 — @6 25
Plates, Domestic ₱ lb.	9 @- 12

REMARKS.

COPPER.—Sales have been made at 21½c. @ 21⅝c. for Lake Baltimore, without much offering; many holders refnsing to sell below 22c.

TIN—Remains unchanged, with only a jobbing trade to report. Straits 33½c., gold; English I and F 31½c. @ 31⅝c.

Import, from Jan. 1 to Nov. 30th—	1869.	1868.
Pigs	No. 63,427	63,220
Plates	bxs. 949,588	776,953

SPELTER—Quiet; 6¼c., gold, for prime brands Silesian.

Import, from Jan. 1st to Nov. 30th—
1869.....plates 344,819 1868.....plates 195,465

LEAD—Dull at 6¼c. @ 6⅝c., gold, for ordinary foreign.

Import, from Jan. 1st to Nov. 30, 1869—

From Foreign Ports	pigs 481 596
Coastwise Ports	2,448
Total	pigs 484,044
Same time, 1868	360,103

IRON.—The demand for Scotch Pig has again subsided, as dealers have been pretty well supplied by recent purchases. The stock here is quite large, but holders are very firm in their views, refnsing to make further concessions. The market closes steady at $33 @ $36 for all brands; 150 tons Eglinton sold on private terms. American is in moderate request at steady prices, and we notice sales of 600 tons Gray Forge on terms we did not learn. There is a good inquiry for Wrought Scrap, and sales have been made of 250 tons at $40 from yard and $38 50 ex ship. New Rails are in request at $56 50 @ $57

gold, for English, and $76 @ $77, currency, for American at the Works in Pennsylvania. Bar is dull—from store there is no change, the market being very quiet at old quotations. Russia Sheet continues unusually dull, at about our quotations for lots from store. Common Sheet is unchanged.

Import, from Jan. 1st to Nov. 30, 1859—

	Bar. Tons.	Pig. Tons.	Sheet. Bdls.
From Foreign Ports	20,592	57,799	320,447
Coastwise	355	....	3,336
Total	20,947	57,799	328,773
Same time, 1868	13,083	28,833	240,907

ZINC.—American, dry, 8½c.; French, dry, 12c.; French, metallic, 13¾c.

MANGANESE—5½c. per lb.

Mining Stocks.

NEW YORK, Dec. 9, 1869.

Mining stocks are less active, at lower prices. The sales to-day at the Board comprised large lots of Quartz Hill at $2 35 @ $2 60; small lots of Smith & Parmalee at $1 65, and La Crosse 15c. @ 18c.

Copper stocks are still quiet. Mendota is quoted at $2 and Quiney at $25.

Petroleum stocks are still more advanced in price; 300 shares of Rynd Farm sold to-day at 45c. and 1,000 United States, b 60, at 85c.

Following is the latest report of prices at the Board:

	Bid.	Asked.
Bennehoff	39	40
Clinton Oil	—	—
Brevoort	1 50	1 85
Buchanan Farm	38	43
Home Petroleum	7 00	7 75
Central	72	74
New York and Alleghany		2 50
National	1 00	1 90
United States	80	1 00
Northern Light	60	1 00
United Petroleum Farms	19	20
Rynd Farm	48	50
Pithole Creek	1 60	2 00
Bergen Coal and Oil	35	45
Second National	40	70
Rathbone Oil	20	—
Union	—	—

San Francisco Stock Market.

SAN FRANCISCO, December 8, 1869.

(By Telegraph.)

	1st Board.	2d Board.
Savage	56¼	55¾
Crown Point	19⅝	19
Yellow Jacket	44½	43¾
Kentucky	1 55	1 48
Chollar Potosi	21⅝	—
Gould & Curry	79	78
Ophir	16¼	—
Alpha	20	19
Belcher	16¼	17
Imperial	41	40½
Hale & Norcross	1 56	—
Amador	2 94	—

(By Mail.)

SAN FRANCISCO, Nov. 25, 1867.

WASHOE.	Bid.	Asked.
Alpha Consolidated	20	21
Belcher	17½	17¾
Crown Point	14	14⅛
Confidence	20	25
Chollar-Potosi	22¼	22½
Daney	—	1
Empire	56	58
Exchequer	10	11
Gould & Curry	75	76
American	25	30
Gold Hill Q M C	25	—
Hale & Norcross	1 77	1 78
Imperial	49	47¼
Justice	2½	3
Julia	—	35
Kentuck	1 41	1 42
Lady Bryan	9	9¼
Occinental	15	15½
Ophir	15¼	15⅞
Overman	85	86
Savage	62	62½
Sierra Nevada	10	10½
Seg. Belcher	8¼	8⅜
Yellow Jacket	48	48½
WHITE PINE.		
Anrora Consolidated	16	—
Brodt	—	25c.
Chloride Consolidated	1	—
Mammoth	50	75
Noonday	1¼	1½
Original Hidden Treasure	9	—
Silver Wave	—	5
CALIFORNIA.		
Amador	290 00	— —
Eureka	250 00	— —
IDAHO.		
Golden Char't.	19 00	20 00

London Weekly Metal Report.

LONDON, E. C., November 26, 1869.

The metal market has been inactive, and prices generally tend in buyers' favor.

IRON.—The Welsh Iron trade continues firm. Makers are well supplied with orders, and the demand for rails appears to increase. Staffordshire Iron is in moderate demand. Scotch Pig is slightly firmer at 54s. 9d. cash.

COPPER.—The market is dull. English raw and manufactured unchanged. Australian has been sold at lower rates, Burra and Wallaroo £73 10s. Chili bars have been sold for £66 10s. and £66 15s., and are now quoted at £67. Ores and Regulus 13s. 3d., the charters for the first fourteen days, November, 1850 tons.

TIN.—The market is totally unhinged, and prices very irregular. The English smelters have met three times without coming to any decision, but refined has been sold at £6 and common £4, under nominal quotations. The nearest price of Straits here is £113, at which a very large parcel of Tin changed hands. Some large sales of Banca were made on Dutch account, £110 to £112 delivered here; but the nearest price now is £114. The Dutch market has declined to 65fl. sellers, but has since improved to 66fl.

TIN PLATES.—No improvement in demand.

LEAD—Is slightly firmer. Good soft English Lead, £18 17s. 6d. to £19; LB, £19 5s.; and WB, £19 15s.

SPELTER.—No business reported in Silesian, price nominally £19 10s. to £19 15s. here, and in outports £19. Specials, 7s. 6d. per ton extra. English, Belgian, and Rhenish, £19 5s. to £19 10s.

VON DADELSZEN & NORTH.

Another Tin Mine in California.

ANOTHER tin mine has been discovered a few miles northeast of San Bernardino. The ore is pronounced superior to the San Jacinto.

Tramways in Large Cities.

THE great deficiency in the means of locomotion in our large cities, is beginning to attract considerable attention. The tramways which have been laid down in Liverpool have proved an undoubted success, and the plan there adopted entirely overcomes any objection on the score of interference with the ordinary traffic. By the adoption of a small groove for the flange of the wheel to run in, too narrow to admit the wheel of even a light carriage, in preference to the old plan of rail raised above the surface of the street, the tram-plates allow of a passage across them of all kinds of traffic without any jolting. There are two extensive schemes now being matured for presentation to Parliament in the ensuing Session for the City of Glasgow. It is intended in Glasgow to lay tramways in all the omnibus routes throughout the city. The carriage to be adopted is large and commodious, and will be a far more comfortable conveyance than the time-honored 'bus, with its damp straw and the perils incident to escalading its knife-board. The roof of the new carriage is surrounded by a light hand railing, and leaves ample space for convenient passage to and fro, without injury to the nerves of the most sensitive, or peril to the most portly or stiff-limbed passengers. In accordance with the standing orders of Parliament, notices of the intention to lay down these tramways have been posted through the various streets through which they will pass, and the municipal authorities are favorably disposed towards the measure. If the introduction of these tramways should be hailed in Scotland with satisfaction, *à fortiori* should they be welcome in all our great towns, inasmuch as the 'buses of Edinburgh and Glasgow, in all that regards accommodation, cleanliness, and punctuality, leave little to be desired. In Birmingham, there are three schemes in existence, details of which will be presented; and in Leeds, similar exertions are being made for the establishment of these new roads.—*London Iron Trade Circular.*

The British Iron Trade.

THE heavy advance in the price of iron, £1 per ton, that has taken place in several iron districts of England, has caused considerable excitement in the trade throughout that country. The motives which led to the rise, and its effect upon the business, are commented upon at length, and various conclusions arrived at. The step is regarded by many as something like a leap in the dark. The condition of the trade it is thought scarcely justified the advance. So far as the market has yet been tested, heavy consumers evince a desire to hold back as much as possible, and do not hesitate to express a belief that when the orders now on hand are worked off iron will be cheaper than it is now. Some threats of a further advance after Christmas, are inducing some few parties to purchase now. Many firms who are not fairly employed continue to sell bars, plates, and sheets, at from 10s. to 15s. below the advanced quotations. In both North and South Staffordshire, ore, coal, and pig iron have all advanced in proportion to the rise in finished iron. In connection with this advance in price, the Belgian, French, and American competition question comes up. Although at the present time the works on the Continent are full of orders, their capabilities is increasing their production at a brief notice of generally admitted. The rapid advances in the price of iron in England a few years ago, greatly stimulated the manufacture throughout Germany and France. In regard to this market the rise has put a decided check upon consignments of sheet iron, both galvanized and black, and has, to a less extent, checked the trade in other kinds of iron.

New Gold Fields.

GOLD has been discovered in Lapland. Two men, who formerly worked in the California mines, wandered last summer over a part of Lapland, and, it is said, found gold in large quantities. One nugget, as large as an eight-ducat piece, was pure. The government of the district in which the discovery was made, bought this piece for ninety-three marks, and then forwarded it to Helsingfors. The men endured many privations during the four weeks employed in traversing an uninhabited region, and they were finally compelled to discontinue their search by scarcity of provisions. In conjunction with a third person, who had earlier been engaged in gold washing in Australia, they are now petitioning the government for permission to search for gold in Lapland. The results of the summer's work of the two men were satisfactory, for they obtained sixty ounces of gold, for which they received six thousand marks.

MINING COMPANIES AND STOCK QUOTATIONS.

GOLD AND SILVER COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
Alameda Silver		A. Queran, 108 Wall st	$2,000,000	$10 00		
Ada Elmore	South Boise, Idaho					
American Flag	Nevada District, Col	P. P. Fullerton, 71 B'way	600,000	10 00		
Atlantic and Pacific	Humboldt Co., Nevada					
Bates and Baxter	Colorado			50 00		
Benton	Colorado	W. F. Drake, 15 Broad	500,000	5 00	10	11
Briggs	Colorado	J. P. Davies, 19 Cliff	1,000,000	100 00		
Black Hawk	Colorado	C.T.Whittington, 48 Broad	2,500,000	100 00	20	40
Bohtail	Colorado	J. Stanton, Jr., 25 Nassau	1,000,000			
Bullion Consolid'ed Gold	Colorado					
Burroughs Gold	Colorado					
Church Union Gold	California					
Consolidated Gregory	Colorado					
Combination Silver	Nevada			100 00		
Columbia Silver	Austin, Nevada	J. M. Brown, 155 B'way	5,000,000			
Commercial Silver		J. E. Smith, 26 Pine	3,000,000			
Corydon	Gilpin Co., Colorado	J. Samuels, 40 B'way	500,000			
Downieville	Colorado		2,500,000	25 00		P.
Eagle Gold	Gold Dirt Dist., Col	J. P. Davies, 19 Cliff	300,000	1 00		
Empire Gold and Silver	BodieBluff,MonoCo,Cal	H. K. Gates, 70 B'way	1,000,000			
Edgehill		A. Fullerton, 71 B'way	10,000,000			
Esperanza Silver		Ezra Clark, Jr., 13 William	400,000			
Fisk Gold		H. Johnson, 195 Fulton	500,000			
Forest Queen		E. B. Beet, 62 B'way	1,000,000			
Golconda Gold	Sherbrooke, C. E	H. Adams, 71 Broadway	2,000,000			
Gregory	Colorado		1,250,000			
Gunnell Gold	Colorado	J. H. Rolston, 80 B'way	1,000,000	50 00		49
Gunnell Central	Colorado	C. B. Bostwick, 16 B'way	3,000,000	10 00		
Gold Rock		R. M. Lockwood, 93 Wall	400,000			
Grass Valley					36	39
International Silver		J. W. Brazier, 26 Pine	600,000			
Hope Gold	Colorado		5,000,000		10	11
Holman			2,000,000	25 00		3
Kipp & Buell	Colorado		300,000			
Knickerbocker Gold		J. H. Rolston, 80 B'way	200,000	100 00		
La Crosse Gold	Nevada Dist., Col	P. P. Fullerton, 71 B'way	1,000,000		14	18
Lander Hill T. & S	Nevada	M.L.Catherwood,74 B'way	1,000,000			
Lewis Gold	Georgia		1,000,000			
Liberty Gold					3	5
Manhattan Silver	Nevada	M. L. Ogden	400,000			
Maraposa commou	California	Jas. H. Perdon, 34 Wall	12,000,000		7⅛	8⅛
Mariposa preferred	California	do. do.			15¾	16¼
Montana Gold		G. De Cordova	400,000		5	9
Montana M. L. & M. Co.	Montana	A. M. Hoyt, 22 William	250,000			
Montrose	Clear Creek Co., Cal	W. W. Perkins, 71 B'way	1,000,000			
New York Silver	Nevada	Thos. Sproull, 78 B'way	1,500,000			
New York and Austin	Nevada	E. R. Siccomb, 70 Wall	500,000			
New York and Owyhee	Owyhee Co., Idaho		1,000,000			
New York and Eldorado		G. H. Munroe, 10 Wall	2,000,000			
N. Y. & Montana M. & D.	Montana	F. A. Chapman, 20 Nassau	1,250,000			
N. Y. & Silver Peach	Nevada	R. C. Root, 74 B'way	2,000,000			
N. Y. & Utah P. & M		W. H. Mailler, 108 Wall				
Ophir Gold	Comstock Lode, Nev	L. C. Warner, 70 B'way	625,000			
Owyhee Gold		W. H. Smith, 43 Ex. Place	1,700,000			
Pahranagat Central	Nevada	J. E. Smith, 25 Pine	6,000,000			
Quartz Hill Gold		F. Bernard	2,500,000		2 55	2 65
Reese River Consol'd	Nevada	W. B. Ogden	6,000,000			
Rocky Mountain	Colorado	S. M. Pond, 70 B'way	500,000	10 00	5	12
Rollins Gold		Thos. Bond, 132 B'way	600,000			
Sensenderfer	Colorado	H. A. Shewill, 19 Broad	1,000,000			
Silver Bend	?	F. W. Macy, 20 Nassau	1,500,000			
Silver Mt. Silver		H. A. Moen, 71 B'way	1,000,000			
Silver Peak & R. M	Nevada	W. B. Ogden, 52 Wall	5,000,000			
Smith & Parmelee	Colorado	W. H. Hollister, 6 Broad	2,500,000	20 00	1 70	1 75
Social & Steptoe Con		T. H. O'Connor, 24 Nassau	450,000			
Standard Gold		C. B. Bostwick, 169 B'way	500,000			
Symonds Forks					45	75
Twin River Silver	Nevada	J. F. R. Haddeu, 20 Nassau	800,000	100 00		
Texas Gold	Colorado		500,000	10 00		
Union Gold	Colorado	F. A. Potts, 110 B'way	1,200,000			
Wash. Mill & Silver	Nevada	W. W. Perkins, 71 B'way	300,000			
Wauba Yuma	Arizona	J. W. Silsby, 36 Pine	6,000,000			

COAL AND IRON COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
American Coal Co		M. A. Myers, 119 B'way	$1,500,000	$25 00		
Ashburton Coal Co		J. T. Rollins, 41 Pine	2,500,000			
Block House Coal		D. B. Keeler, Jr., 43 Pine	1,000,000			
Brewster Iron		H. Robison, 165 B'way	150,000			
Broad Top Coal & Iron Co	Pennsylvania	B. Love	2,000,000			
Cameron Coal Co		J. A. Simpson, 40 B'way	2,500,000			
Carbon Hill Coal Co		J. Silsby, 36 Pine	1,000,000			
Central Coal		F. P. White, 111 B'way	2,000,000	100 00		
Clifton Iron Co		P. H. Riordan, 34 Pine	1,250,000			
Columbia Iron		E. D. Webb, 77 Cedar	1,000,000			
Consolidation Coal	Maryland	J. S. Mackie, 71 B'way	5,000,000			
Crawford Coal		E. Clapp, Prest, 137 B'way	1,000,000			
Cumberland C. & I. Co		E. Kissan, 90 B'way	5,000,000		26⅜	27
Derby Coal Co		W. S. Davison, 11 Broad				
Dover Coal and Iron Co		L. Chase, 88 Wall				
Del. & Hudson Canal Co			10,000,000	100 00		
Ebervale Coal		G.L.Stout, Treas.,111 Br'y	500,000			
Fall River Bituminous		D. T. Blanvelt, 43 Pine	1,000,000			
Farrar Coal		C. H. Jones, 43 Pine	250,000			
Fisher Iron Co		M. Ellis, 19 William	100,000			
Hamp're & Balt. Coal		S. M. Pond, 70 B'way	500,000			
Iron Cliffs Co		C. J. Canda, 52 Wall	1,000,000			
Jackson Iron		G. P. Loyd, 119 B'way	300,000			
Kemble Coal & I. Co		R. A. Wight, 26 Ex. Place	300,000			
Keokuk Coal		J. F. Franklin, 112 B'way	100,000			
Lackawanna I. & C	Pennsylvania	E. C. Lynde, 52 Wall	1,200,000			
Lewis Run C. & I. Co		C. A. Sanborn, 80 B'way	750,000			
Lykens Val. Coal Co		F. A. Platt, 13 William	800,000			
McKean Co. Bit. Coal Co.		J. H. Rolston, 80 B'way	1,500,000			
Lehigh & Susquehanna						
Mahanoy			400,000	100 00		
McNeal C. & I. Co		C. C. Godwin, 71 B'way	500,000			
Mount Riga Iron		G. M. Newton, 42 Cedar	300,000			
New Boston Coal		C. H. Ogden, 55 B'way	2,000,000			
N. Y. Con. C. & I. Co		A. T. Levine, 16 Wall				
N. Y. & Lehigh Coal		T. Simpson, 111 B'way	150,000			
Pacific Coal Co		G. Wrighton, 31 Wall				
Peekskill Iron Co		W. Murdock, 7 Nassau				
Pennsylvania Coal Co		C. H. Mead, 111 B'way	3,200,000	50 00		
Richmond Iron Co		C. H. Smith, 165 B'way	1,000,000			
Scotia Coal Co		I. N. Soper, 42 B'way	2,500,000			
Spring Mt. Coal		C. Runyon, 111 B'way	1,250,000			
Springfield & D'p Run C.		E. D. Webb, 77 Cedar	600,000			
Stont Coal Co		G. S. Comstock, 111 B'way	500,000			
Susquehanna & Wyoming		E. Potter, 40 B'way	1,000,000			
Tannerdale Coal		I. T. Ludlaw, 71 B'way	250,000			
Wash. Mutual Coal		M. C. Baker, 117 B'way	420,000			
West Point Iron Co		R. C. Brock, 110 B'way	500,000			
Wilkesbarre C. & I. Co		W. H. Tillinghast, 80 Br'y	3,400,000			
Wyoming Val. Coal Co		E. Potter, 40 B'way	1,000,000			

COPPER AND LEAD COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED
Anita Copper	California	J. A. Ferguson, 8 Wall				
Corinth Copper	Corinth, Vermont	S. H. Howard, 191 B'way	$500,000	25 00		
Davidson Copper						
Eagle Harbor Copper	Michigan	W. H. Smith, 43 Ex. Place	500,000	25 00		
Evergreen Bluff Copper	Michigan	F. W. Caper, 44 Ex. Place	500,000	25 00		
Globe Copper		R. K. Rickard, 19 Nassau	200,000			
Grand Portage Copper Co		A. S. Kellogg, 22 Pine	500,000			
Guymard Lead		Samuel Vernor, 38 Pine				
Hilton Copper		W. H. Smith, 43 Ex. Place	500,000			
Hope Copper		J. W. Davis, 19 Nassau	500,000			
Hudson River Copper	New York	T. Clarkson, 22 William	1,500,000			
Indiana Copper Co		J. M. Mills, 25 Nassau	500,000			
Isle Royale Copper	Michigan	F. W. Caper, 44 Ex. Place	1,000,000			
Keweenaw Copper	Michigan	F. W. Caper, 44 Ex. Place	500,000			
Lake Superi'r Silver Lead	Michigan	A. S. Kellogg, 22 Pine	1,000,000			
Omiga Copper	Michigan	S. Cooper, 7 Pine	500,000			
Ridge Copper	Michigan	J. L. Gardiner, Jr., 43 Ex. P	500,000			
Rockland Copper	Michigan	A. Fullerton, 71 B'way	500,000			
St. Joseph Lead	Michigan	J. W. Jones, 6 Broad st,	1,000,000			
St. Marguret Copper		E. P. Sutton, 43 Pine	250,000			
Schoolcraft Copper		R. Walsh, 22 William	500,000			
Superior Copper	Michigan	A. Fullerton, 71 B'way	500,000			
Union Copper		A. S. Kellogg, 22 Pine	500,000			
Vermont Copper	Vermont	J. C. Fly, 191 B'way	500,000			
Wallkill Lead		S. M. Pond, 70 B'way			5	15

MISCELLANEOUS.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
American Zinc Co		W. E. Lawton, 19 Cliff	$1,000,000			
Bigelow Blue Stone Co		H. Bogardus, 14 Pine				
Quicksilver						
Covill B. L. M. & M'f. Co		C. R. Bostwick, 302 Pearl	250,000			
Manhattan Marble		H. K. Gates, 70 B'way	300,000			
N. Jersey Zinc Co	New Jersey	A. H. Farlin, 61 Malden L'e	1,500,000			

MARKET REVIEW.

The Coal Trade.

NEW YORK, Dec. 10, 1869.

WHOLESALE.—Trade has been very dull during the past week, everybody anticipating a further decline in prices. Some few sales have been made to parties who must have coal before navigation closes. There is a good demand for Lehigh Stove and Chestnut, but very little is coming to the market. There is some Schuylkill Coal to be had, but the stock is not large. The last four days of cold weather has closed all the canals. This will throw all the transportation on the railroads, which, at the present high rates of freights, will necessarily curtail the supply. We understand that the shipment via the Philadelphia and Reading Railroad have fallen off one-half during the past week. This straw shows which way the wind blows. Schuylkill County can't put Coal into this market with the present high tolls and freights and compete with the prices named by the large Wyoming companies except at a great sacrifice.

It seems to be the general impression here that this market will be overstocked with Coal in a few weeks, and that prices, both at wholesale and retail, will rule very low.

The Delaware and Hudson Company have issued the following prices for their excellent coal for December:

WHOLESALE.			RETAIL.	
Lump	$5 50	Grate,	To families, delivered.	$7 50
Steamer	5 75	Egg,		
Grate	6 00	Stove,		
Egg	6 00	Grate,	at yard	7 00
Stove	6 75	Steamer,		
Chestnut	5 50	Chestnut		6 50

The wholesale prices are "on board" at Weehawken. This notice will fall like a bombshell in the camps of wholesale and retail dealers. We don't know but that it is good policy to get prices at the bottom and have done with it, and not keep the trade in the state of uncertainty it has been in for the past three weeks.

The following table exhibits the quantity of Coal passing over the following routes of transportation for the week ending December 4, 1869, compared with the same time last year:

COMPANIES.	1868. WEEK.	1868. TOTAL.	1869. WEEK.	1869. TOTAL.
Phila. & Reading R.R.	75,289	3,387,052	78,442	3,688,905
Schuylkill Canal	33,248	979,864	29,428	675,765
Lehigh Valley R. R.	35,344	35,341	39,156	59,156
Lehigh and Sus. R. R.	23,238	498,198	33,654	690,624
Lehigh Canal	21,787	989,947	6,259	604,369
Scranton North	10,424	580,360	13,113	412,865
" South	29,463	1,028,106	35,065	986,325
Penn. Coal Co., rail	19,956	871,501	20,763	893,718
" " " canal		29,005		18,707
Del. and Hudson, rail			7,668	149,363
" " " canal, north	35,052	1,611,113	43,215	1,205,764
" " " south			2,672	116,265
Shamokin	10,207	472,900	11,54-	442,118
Trevorton	1,287	32,764	8,364	94,561
Short Mountain	3,149	120,104	2,431	102,235
Lykens Valley Coal Co.	1,761	83,479	2,379	77,064
Huntingdon & Br'd Top	7,380	256,244	8,545	326,476
Wyoming South		319,764		329,650
" North	1,266	80,152		76,998
Williamstown, Cal'y		178,467		195,398
Total	278,851	11,263,044	342,256	11,279,065
1869			278,851	11,263,044
Increase			63,405	16,021

The Lehigh Valley Railroad closed its official year Nov. 30th. The following is their statement of shipments up to that time:

	TONS.	CWT.
Forward East, from Mauch Chunk—		
1869	2,025,296	11
1868	2,221,630	02
Decrease	210,333	11

The *Miner's Journal* states that the official year of the Philadelphia & Reading Railroad also closed on Nov. 30th, and gives the following figures:

	TONS.	CWT.
1869	3,688,904	11
1868	3,087,052	04
Increase	601,852	07

RETAIL.—Trade has generally been dull during the past week. Notwithstanding the severe winter weather, consumers are not yet satisfied that coal is as low as it will be, and are putting off their purchases. Prices rule from $7 50 to $9 50 per ton of 2,000 lbs.

FREIGHTS.—Freights remain remarkably low for the season, and no doubt, with a little increased activity in the trade, will advance rapidly; $1 25 to New Haven, and $1 95 to Boston from Elizabethport are the ruling rates to-day.

Schuylkill Coal Trade.

Report of coal transported over the Schuylkill Canal for the week ending Thursday, December 2, 1869.

	Tons. Cwt.
From Port Carbon	11,108 05
" Pottsville	1,257 10
" Schnylkill Haven	16,117 03
" Port Clinton	1,065 00
Total for week	29,427 18
Previously this year	646,336 14
Total	675,764 12
To same time last year	979,462 17

Report of coal transported on the Philsdelphia and Reading Railroad for two days ending Thursday, December 2, 1869:

From St. Clair	10,401 10
" Port Carbon	2,883 04
" Pottsville	1,635 01
" Schuylkill Haven	11,330 02
" Auburn	1,337 02
" Port Clinton	4,829 10
" Allentown and Alburtis	28 08
" Harrisburgh and Dauphin	3,796 11
Total paying freight	36,288 09
Coal for Company's use	930 07
Total for week	37,218 16
To same time last year	24,847 09

Report of coal transported over the Philadelphia and Reading Railroad for year ending Nov. 30, 1869.

	Tons. Cwt.
From St. Clair	26,584 15
" Port Carbon	7,957 09
" Pottsville	4,383 15
" Schuylkill Haven	23,919 00
" Auburn	3,105 13
" Port Clinton	11,937 03
" E. P. R. R.	327 13
" Harrisburg and Dauphin	11,874 19
Total paying freight	88,350 04
Coal for Company's use	2,305 09
Total for week	90,655 13
Previously this year	4,148,054 17
Total	4,238,710 19
Same time last year	3,574,873 14

Report of Coal Transported over Lehigh Valley Railroad

For four days ending December 4, 1869, and previously this season, compared with same time last year:

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	PREV'L'Y. Tons. Cwt.	TOTAL. Tons. Cwt.
Total Mahanoy	7,020 10		
" Beaver Meadow	8,744 13		
" Mauch Chunk			
" Upper Lehigh			
" Hazleton	18,609 11		
" Wyoming	7,391 17		
Total Anthracite	41,766 11		
Bituminous Coal recv'd from Cata. R. R.			
N. C. R. R.			
E. P. R. R.			
P. & N.Y. C. & R.R. Co			
Fall Creek			
Schroeder			
Towanda			
Total by rail and canal	41,766 11		
Same time last year	44,252 05		
Increase			
Decrease	2,485 14		
Forwarded East from M'h Chnnk by rail	39,156 06		
Same time last year	35,344 10		
Increase	3,811 16		

RECAPITULATION.

Forwarded East from M'h Chnnk by rail	39,156 06
Delivered at M'h Chunk	6 02
Delivered on line of road above Mauch Chunk	35 05
Delivered above M. Chunk for use of L. V. R.R.	514 01
To N. C. R. R., at Mount Carmel	
Forwarded North from L & B. Junction	1,451 16
To L. & S. R. R., at P'n Har., for railroad	
Do. for canal	
Do. Packerton for rail	126 14
At M Chunk for canal	467 07
Total Anthracite	41,766 11
Bituminous Coal	
Total all kinds	41,766 11

Lehigh and Susquehanna Railroad.

Report of Coal Shipped South for the week ending Dec. 4, 1869.

WHERE FROM	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
Total Mauch Chunk Region	10,782 19	226,647 18
" Hazleton "	177 01	120,529 08
" Upper Lehigh "	43 05	77,261 17
" Wyoming "	26,026 09	771,404 17
Grand Total	37,029 03	1,195,844 00
Corresponding week last year	31,439 11	978,666 02
Increase	5,590 00	217,177 18
Decrease		
Forwarded South from Mauch Chunk	32,872 07	834,179 09
Delivered on line of Lehigh & Sus'na R. R., above Mauch Chunk	608 11	32,867 12
Delivered to Lackawanna & Bloom R. R., at Plymouth Bridge	173 05	19,424 15
Delivered to Lehigh Valley R. R. Co., at Sugar Notch		5,151 03
Delivered at Coal Port, for shipment by Canal	3,375 08	205,220 18
Total	37,029 11	1,195,841 00

Lehigh Canal Coal Trade.

Shipped for the week Ending December 4, 1869.

WHERE FROM.	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
Total Mauch Chunk Region	1,403 06	192,445 18
" Beaver Meadow "	1,322 16	97,621 15
" Mahanoy "	81 12	2,705 07
" Hazleton "	91 10	118,126 00
" Upper Lehigh "	43 05	5,185 12
" Wyoming "	3,367 15	188,471 08
Grand Total	6,309 14	604,869 01
Corresponding week last year	21,787 09	989,947 05
Increase		
Decrease	15,477 15	385,078 05

Prices of Coal by the Cargo,

[CORRECTED WEEKLY.]

	AT NEW YORK, Dec. 10. R. A.	W. A.	AT PHILADELPHIA, Dec. 9. R. A.	W. A.
SCHUYLKILL.				
Lump	$- —	$6 00	— —	6 00 to — —
Steamer	— —	6 00	— —	6 00 to — —
Broken	— —	6 50	— —	6 00 to — —
Egg	8 00 to 8 50	7 75	— —	6 50 to — —
Stove	8 00 to 8 50	8 00	— —	6 50 to — —
Chestnut	5 75 to 6 00	6 00	— —	6 00 to — —
Pea	— —	— —	— —	— —
LEHIGH.				
Lump	— —	— —	— —	— —
Steamer	— —	— —	— —	— —
Broken	— —	— —	— —	— —
Egg	— —	— —	— —	— —
Stove	— —	— —	— —	— —
Chestnut	— —	— —	— —	— —
Pea	— —	— —	— —	— —
SPECIAL COALS.*				
Diamond Vein	R. A.	8 50	— —	— —
New England	"	— —	— —	— —
Locust Dale	W. A.	8 00	— —	— —
Honey Brook, Leh'h	W. A.	6 25 to 7 50	— —	— —
Spring Mount	" "	6 25 to 7 50	— —	— —
Sugar Creek	" "	6 25 to 7 50	— —	— —
Sugar Loaf	" "	6 25 to 7 50	— —	— —
Fulton	" "	6 25 to 7 50	— —	— —
Stout	" "	6 25 to 7 50	— —	— —
Old Comp'y's.	" "	6 25 to 7 50	— —	— —
Cross Creek	" "	6 25 to 7 50	— —	— —
Chauncey	" "	— —	— —	— —
Girardville	" "	— —	— —	6 00 to 6 50
McMichael	" "	— —	— —	6 00 to 6 50
Duncan	" "	— —	— —	6 50 to 7 00
Shamokin	" "	7 50	6 50	— —
Lykens Valley	" "	— —	8 00	— —
Broad Top	" "	— —	5 00	— —
Hill & Harris	" "	— —	7 00	— —
Henry Clay	" "	— —	7 00	— —
Powelton	" "	— —	6 50	— —
Buruside	" "	— —	— —	7 00

BITUMINOUS COALS.

Kittaning Coal Co.'s Phœnix Vein f.o.b. at Phila		$5 25
Lemon " "	"	5 00
Cumberland C. & I. Co.'s on board	N. Y.	7 50
Central C. & M. Co.'s "	"	7 50
Consolidated Coal Co.'s "	"	7 50

[*Dealers in these coals may be found in our advertising columns.]

Company Coals.

	L.	Str.	Gra.	Eg.	Sto.	Cat.
Scranton at E. Port	— —	— —	— —	— —	— —	— —
Pittston at Newb'g	— —	— —	— —	— —	— —	— —
Lackawana at Weh'kn	5 50	5 75	6 00	6 00	6 75	5 50
Wilk'b're at Hoboken	— —	— —	— —	— —	— —	— —
Old Co. Lehigh at Pt. Johnston	— —	— —	— —	— —	— —	— —

For freights to different points, see "Freights."

Prices for Coal at Mauch Chunk.

	F.L.	Bro.	Gra.	Eg.	Sto.	Cat.
Lehigh	$4 00	$4 25	$4 50	$4 50	$4 75	$4 00
Wilkesbarre	4 00	4 25	4 50	4 50	4 75	4 00

For freight to Elizabethport and to New York see "Freights."

Prices of Foreign Coals.

December, 1869.
Duty $1 25 per ton.
Corrected weekly by PARMELE BROS., No 32 Pine street, New York.

Liverpool Gas Caking	$ 9 50@— —
" " Cannel	14 00@— —
" House "	17 50@18 00
" " Orrel	16 00@18 00

Per ton 2,240 lbs., ex-ship.

PRICES FROM YARD.

Liverpool House Orrel, screened	$16 00@18 00
" " Cannel, "	18 00@19 00

Per ton 2,000 lbs., delivered.

Prices of Gas Coals.

December, 1869.
PROVINCIAL.

Dnty, $1 25.	Coarse. Gold.	Slack. Gold.
Block House	$1 75	@- 75
Gowrie	1 75	@- 75
Lingan	1 75	@- 75
Sydney	2 13½	@- 71½
Picton	2 13½	@1 18¾
Little Glace Bay	1 50	@1 00
Caledonia	1 50	@- 75

AMERICAN.

	Coarse. Currency.	Slack. Currency.
Westmoreland Co	— —	@- —
Despard Coal Co	$8 50	@8 00
Penn	— —	@- —
Newburg Orrel Gas	— —	@- —
West Fairmount Gas Coal	— —	@8 00

AT PHILADELPHIA.

Powelton	$7 00

Prices at Baltimore—Dec. 1869.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load	$7 50@8 00
Pittston and Plymouth	7 25@8 75
Shamokin Red or White Ash	6 50@7 00
Lykens Valley Red Ash	7 40@7 80
Trevorton, Red Ash	— —@— —
By retail, per ton of 2240 lbs. delivered	9 00@9 75
Georges Creek & Cumberland f. o. h. at Locust Point for shipping	4 85@5 00
West Fairmonnt Gas f. o. b.	— —@6 50

Prices at Georget'n, D.C., & Alexandria, Va.

December, 1869.

George's Creek and Cumberland L. o. b. for shipping	$4 75

Prices at Havre de Grace, Md.

December, 1869.

Wilkesbarre and other White Ash for cargoes	$— —@7 25
Lykens Valley	— —@7 50
Shamokin Red or White Ash	— —@7 25
Trevorton and Zebra Valley	— —@7 00

Freights.—DECEMBER, 1869.

TO EASTERN PORTS.	From Philada's.	From E. Port and Port Johnston	From Newberry	From Rondout
Stamford	$2 00	$1 15	$1 30	$1 25
Norwalk	2 00	1 15	1 30	— —
Bridgeport	2 00	1 15	1 30	1 25
New Haven	2 00	1 15	1 25	1 25
Hartford	2 75	1 75	— —	1 90
New London	2 00	1 40	1 60	1 60
Norwich	2 00	1 40	1 60	1 60
Mystic	2 00	— —	1 45	— —
Stonington	2 00	1 50	1 60	1 60
Sag Harbor	2 00	1 25	1 45	— —
Bristol	2 25	1 40	1 55	1 55
Newport	2 25	1 40	1 55	1 45
Fall River	2 25	1 45	1 55	1 50
Providence	2 25	1 40	1 60	1 60
Dighton	— —	— —	1 60	— —
Warren	— —	— —	1 60	— —
Pawtucket	2 25	— —	1 75	1 65
New Bedford	2 25	1 50	— —	1 75
East Cambridge	3 10	— —	1 85	2 10
Salem	3 10	2 00	2 20	2 20
Newburyport	3 10	2 00	1 85	2 20
Portsmouth	3 10	2 00	2 10	2 10
Rockport	— —	— —	1 90	— —
Saco	3 25	2 00	— —	2 00
Portland	3 25	2 00	2 20	— —
Bangor	3 25	— —	1 75	1 80
Bath	3 25	2 00	2 00	2 00
Middletown	— —	1 50	— —	— —
Amesbury	3 25	— —	— —	— —
Boston	3 10	2 00	2 25	2 25
Cambridgeport	3 10	— —	1 85	2 05
Taunton	3 10	2 00	1 85	— —
Derby	2 00	1 25	1 90	— —
New York	1 55	80	85	85
Hackensack	1 75	— —	— —	— —
Jersey City	1 65	80	85	85
TO RIVER PORTS.				
Troy	1 75	1 25	60	65
Albany	1 75	1 24	55	50
Coeymans	1 60	— —	55	50
Sinysesant	1 50	— —	50	45
Cocksackie	60	— —	45	45
Hudson	— —	20	40	50
Catskill	— —	— —	40	35
Poughkeepsie	1 60	75	30	25
Fishkill	1 60	— —	20	30
Cold Spring	1 60	70	30	30
Haverstraw	— —	50	45	55
Nyack	1 60	50	55	50
Sing Sing	1 60	— —	60	50
Yonkers	— —	40	60	55
New York	1 55	80	70	— —
Saugerties	1 55	— —	35	30
Rhinebeck	1 60	— —	30	35
Rondout	1 60	60	30	25
Tarrrtown	1 60	80	60	— —
West Point	1 60	75	30	50

Foreign and Provincial Freights.

December, 1869.

Foreign.

Newcastle and Ports on Tyne	£15@£17 keel
Liverpool	15s. —, do

TO NEW YORK.

Provincial

Sidney	$3 25
Lingan	3 25
Cow Bay	3 25
Port Caledonia	3 25
Little Glace Bay	3 25

TO BOSTON.

Sydney	$2 75
Lingan	3 75
Cow Bay	3 25
Port Caledonia	3 00
Little Glace Bay	2 25

Towing Rates.

TO EASTERN PORTS.

	Per Ton.
To New Haven	$ 40
Bridgeport	40
Southport	40
Westport	40
Norwalk	40
Stamford	40
	Per Boat.
Greenwich	$70 00
Port Chester	80 00
Mamaroneck	70 00
Glen Cove	55 00
New Rochelle	55 00
East Chester	60 00
West Chester	30 00
White Stone	30 00
College Point	25 00
West Farms	25 00
Flushing	20 00
Harlem and Mott Haven	20 00
Port Morris	20 00
Ninety-first street and Astoria	16 00

Boats beyond Port Chester, with less than 200 tons, $20 per Boat.

TO RIVER PORTS.

Boats of 150—250 Tons.	Per Ton.
To Manhattanville	9 cents.
Spuyten Duyvil	9 "
Yonkers	10 "
Hastings	12 "
Piermont	15 "
Dobbs' Ferry	15 "
Nyack	16 "
Tarrytown	17 "
Sing Sing	18 "
Croton Landing	19 "
Haverstraw	19 "
Verplanck's	20 "
Peekskill	20 "
West Point	21 "
Cold Spring	21 "
Newburgh	22 "
Ponghkeepsie	22 "
Rondout	23 "
Boats of 100 Tons	Per Boat.
To Manhattanville, and Return	$12 00
Spuyten Duvvil	14 00
Yonkers	15 00
Sing Sing	25 00
Peekskill	25 00

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven	$2 50

From Port Carbon, 8 cents per ton more.

TO ELIZABETHPORT.

L. V. Railroad from Manch Chunk to Easton	$1 15
C. R. R., N. J., Easton to Elizabethport	1 70
Shipping expenses at Elizabethport	25
Total	$3 10

TO PORT JOHNSON.

L. V. R. R.	$1 15
C. R. R., of N. J.	1 80
Shipping expenses	25
Total	$3 20

TO HOBOKEN.

L. V. R. R.	$1 15
Morris & Essex R. R.	1 80
Shipping expenses	25
Total	$3 20

TO SOUTH AMBOY.

L. V. R. R.	$1 15
B. & D. R. R.	1 10
Cam. & Am. R. R.	50
Shipping Expenses	25
Total	$3 00

BY CANAL.

Via Schuylkill Canal.

TO PHILADELPHIA.

From Schuylkill Haven	$1 70
" Port Carbon	1 70
" Port Clinton	1 70

TO NEW YORK.

From Schuylkill Haven	$2 20

Via Lehigh Canal.

TO PHILADELPHIA.

Lehigh Canal	$1
Freight and towage	1 29
Total	$2 29

TO NEW YORK.

Lehigh Canal	$ 71
Morris "	85
Freight	1 70
Towing	10
Total	$3 36

TO JERSEY CITY.

Lehigh Canal	$ 71
Morris "	95
Freight	1 60
	3 26
For re-shipment	30
Total	$3 56

Via Delaware and Raritan Canal.

TO NEW YORK.

Lehigh Canal	$ 71
Delaware Division Canal	43
Delaware and Raritan Canal	57
Freight	1 45
Towage	20
Total	$3 36

TO NEW BRUNSWICK.

Lehigh Canal	$ 71
Delaware Division Canal	43
Delaware and Raritan Canal	57
Freight	1 20
Total	$2 91

For Re-shipment—30 extra for shipping, and 10 cents. drawback.

METALS.

IRON.—Duty: Bars, 1 to 1¼ cents ₱ lb; Railroad, 70 cents ₱ 100 lbs.; Boiler and Plate, 1½ cents ₱ lb; Sheet, Band, Hoop, and Scroll, 1¼ to 1¾ cents ₱ lb; Pig, 9 ₱ ton; Polished Sheet, 3 cents ₱ lb.

Pig, Scotch No. 1, ₱ ton	33 00@36 00
Pig, American, No. 1	39 00@40 00
Pig, American, No. 2	37 —@38 —
Pig, American, Forge	35 —@— —
Bar, Refined, English and American	85 —@— —
Bar, Swedes, assorted sizes (gold)	82 50@85 00
	Store Prices.
Bar, Swedes, ord'y sizes, less 5 ₱ ct.	— —@140 —
Bar, Refined " "	95 —@100 —
Bar, Common " "	87 50@ 90 —
Scroll " "	120 —@180 —
Ovals and half-round " "	120 —@145 —
Band " "	120 —@— —
Horse Shoe " "	170 —@— —
Rods, ⅜ to 3-16 inch " "	100 —@155 —
Hoop " "	125 —@180 —
Nail rod, less 5 ₱ ct.	— 8½@— 9½
Sheet, Russia, as to Nos. (gold)	— 10½@— 11½
Sheet, Single, D. and T. Common	— 5½@— 7
Sheet, Galvanized	List 15@25 ₱ cent, discount.
Rails, English (gold), ₱ ton	56 50 @57 00
Rails, American, at Works in Pa.	76 00 @77 00

STEEL.—Duty: Bars and ingots, valued at 7 cents ₱ lb or under, 2½ cents; over 7 cents and not above 11, 3 cents ₱ lb; over 11 cents, 2½ cents ₱ lb, and 10 ₱ cent ad val. (Store prices.)

English Cast (2d and 1st quality) ₱ lb	— 16 @— 29
English Spring (2d and 1st quality)	— 7 @— 10
English Blister (2d and 1st quality)	— 11 @— 18
English Machinery	— 11½@— 14
English German (2d and 1st quality)	— 13 @— 15
American Blister "Black Diamond"	10½@— 16
American, Cast, Tool do.	— 19 @— —
American, Spring, do.	— 10 @— 13
American Machinery, do.	— — @— 13
American German, do.	— 10 @— 13

COPPER.—Duty: Pig, Bar, and Ingot, 5; old Copper cents ₱ lb; Manufactured, 45 per cent. ad val.

	All Cash.
Copper, New Sheathing, ₱ lb	— @— 32
Copper Bolts	— @— 33
Copper Braziers, 16oz. and over	33 @— 35
Copper Nails	38 @— 40
Copper, Old Sheathing, &c., clean	20 @— 21
Copper, Chili Pig	— @— —
Copper, American Ingot	21½@— 22½
Yellow Metal, New Sheating	— @— 27
Yellow Metal Bolts	— @— 27
Yellow Metal Nails	— @— 27

LEAD.—Duty: Pig, $2 ₱ 100 lbs.; old Lead, 1½ cents ₱ lb; Pipe and Sheet, 2¾ cents ₱ lb.

Galena, ₱ 100 lbs	$— — @— —
Spanish (gold)	6 25 @6 37½
German, do.	6 25 @6 50
English, do.	6 25 @6 87½
Bar (net)	8 57½@— —
Pipe and Sheet (net)	8 37½@— —

TIN.—Duty: Pig, Bars, and Blocks 15 ₱ cent. ad val.; Plate and Sheets and Terne Plates, 25 ₱ cent. ad val.

	Gold ₱ lb.
Banca	33½@36
Straits	33 @—
English	31 @—

PLATES.

Fair to Good Brands.	*Gold.*	*Currency.*
I. C. Charcoal, ₱ box	$8 00 @8 37½	$10 50 @11 00
I. C. Coke	6 75 @7 37½	8 75 @10 00
Coke Terne	— — @6 00	— — @ 8 00
Charcoal Terne	7 50 @8 00	9 75 @10 50

SPELTER.—Duty: In Pigs, Bars, and Plates, $1 50 ₱ 100 lb.

	Gold.
Plates, Foreign ₱ 100 lbs.	$6 — @6 25
Plates, Domestic ₱ lb.	— 9 @— 12

REMARKS.

COPPER.—Sales have been made at 21½c. @ 21¾c. for Lake Baltimore, without much offering: many holders refusing to sell below 22c.

TIN.—Remains unchanged, with only a jobbing trade to report. Straits 33¼c., gold; English I and F 31½c. @ 31¾c.

Import, from Jan. 1 to Nov. 30th—	1869.	1868.
Pigs	No. 63,427	63,220
Plates	bxs. 949,588	776,953

SPELTER—Quiet; 6¼c., gold, for prime brands Silesian.

Import, from Jan. 1st to Nov. 30th—
1869.....plates 344,819 1868.....plates 195,465

LEAD—Dull at 6¼c. @ 6¾c., gold, for ordinary foreign.

Import, from Jan. 1st to Nov. 30, 1869—

From Foreign Ports	pigs 481 596
Coastwise Ports	2,448
Total	pigs 484,044
Same time, 1868	360,103

IRON.—The demand for Scotch Pig has again subsided, as dealers have been pretty well supplied by recent purchases. The stock here is quite large, but holders are very firm in their views, refusing to make further concessions. The market closes steady at $33 @ $36 for all brands; 150 tons Eglinton sold on private terms. American is in moderate request at steady prices, and we notice sales of 600 tons Gray Forge on terms we did not learn. There is a good inquiry for Wrought Scrap, and sales have been made of 250 tons at $40 from yard and $38 50 ex ship. New Rails are in request at $56 50 @ $57

gold, for English, and $76 @ $77, currency, for American at the Works in Pennsylvania. Bar is dull—from store there is no change, the market being very quiet at old quotations. Russia Sheet continues unusually dull, at abont our quotations for lots from store. Common Sheet is unchanged.

Import, from Jan. 1st to Nov. 30, 1869—

	Bar. Tons.	Pig. Tons.	Sheet. Bdls.
From Foreign Ports	20,592	57,799	320,447
Coastwise	355	....	3,336
Total	20,947	57,799	328,773
Same time, 1868	13,083	28,833	240,907

ZINC.—American, dry, 8½c.; French, dry, 12c.; French, metallic, 13¾c.

MANGANESE—5½c. per lb.

Mining Stocks.

NEW YORK, Dec. 9, 1869.

Mining stocks are less active, at lower prices. The sales to-day at the Board comprised large lots of Quartz Hill at $2 35 @ $2 60; small lots of Smith & Parmalee at $1 65, and La Crosse 15c. @ 18c.

Copper stocks are still quiet. Mendota is quoted at $2 and Quincy at $25.

Petroleum stocks are still more advanced in price; 300 shares of Rynd Farm sold to-day at 45c. and 1,000 United States, b 60, at 85c.

Following is the latest report of prices at the Board:

	Bid.	Asked.
Bennehoff	39	40
Clinton Oil	—	—
Brevoort	1 50	1 85
Buchanan Farm	38	43
Home Petroleum	7 00	7 75
Central	72	74
New York and Alleghany	2	2 50
National	1 00	1 90
United States	80	1 00
Northern Light	60	1 00
United Petroleum Farms	19	20
Rynd Farm	48	50
Pithole Creek	1 60	2 00
Bergen Coal and Oil	35	45
Second National	40	70
Rathbone Oil	20	—
Union	—	—

San Francisco Stock Market.

SAN FRANCISCO, December 8, 1869.

(By Telegraph.)

	1st Board.	2d Board.
Savage	56¾	55¾
Crown Point	19¾	19
Yellow Jacket	44½	43¾
Kentucky	1 55	1 48
Chollar Potosi	21⅝	—
Gould & Curry	79	78
Ophir	16¾	—
Alpha	20	19
Belcher	16¾	17
Imperial	41	40½
Hale & Norcross	1 56	—
Amador	2 94	—

(By Mail.)

SAN FRANCISCO, Nov. 25, 1867.

WASHOE.	Bid.	Asked.
Alpha Consolidated	20	21
Belcher	17½	17¾
Crown Point	14	14¾
Confidence	20	25
Chollar-Potosi	22¼	22½
Daney	—	1
Empire	56	58
Exchequer	10	11
Gould & Curry	75	76
American	25	30
Gold Hill Q M C	25	—
Hale & Norcross	1 77	1 78
Imperial	49	47¼
Justice	2½	3
Julia	—	35
Kentuck	1 41	1 42
Lady Bryan	9	9¼
Occinental	15	15⅝
Ophir	15¼	15⅝
Overman	85	86
Savage	62	62½
Sierra Nevada	10	10⅛
Seg. Belcher	8¼	8⅜
Yellow Jacket	48	48½
WHITE PINE.		
Aurora Consolidated	16	—
Brodt	—	25c.
Chloride Consolidated	1	—
Mammoth	50	75
Noonday	1¼	1½
Original Hidden Treasure	9	—
Silver Wave	—	5
CALIFORNIA.		
Amador	290 00	— —
Eureka	250 00	— —
IDAHO.		
Golden Char't.	19 00	20 00

London Weekly Metal Report.

LONDON, E. C., November 26, 1869.

The metal market has been inactive, and prices generally tend in buyers' favor.

IRON.—The Welsh Iron trade continues firm. Makers are well supplied with orders, and the demand for rails appears to increase. Staffordshire Iron is in moderate demand. Scotch Pig is slightly firmer at 54s. 9d. cash.

COPPER.—The market is dull. English raw and manufactnred unchanged. Australian has been sold at lower rates, Burra and Wallaroo £73 10s. Chili bars have been sold for £66 10s. and £66 15s., and are now quoted at £67. Ores and Regulns 13s. 3d., the charters for the first fourteen days, November, 1850 tons.

TIN.—The market is totally unhinged, and prices very irregular. The English smelters have met three times without coming to any decision, but refined has been sold at £6 and common £4, under nominal quotations. The nearest price of Straits here is £113, at which a very large parcel of Tin changed hands. Some large sales of Banca were made on Dutch account, £110 to £112 delivered here; but the nearest price now is £114. The Dutch market has declined to 65fl. sellers, but has since improved to 66fl.

TIN PLATES.—No improvement in demand.

LEAD—Is slightly firmer. Good soft English Lead, £18 17s. 6d. to £19; LB, £19 5s.; and WB, £19 15s.

SPELTER.—No business reported in Silesian, price nominally £19 10s. to £19 15s. here, and in ontports £19. Specials, 7s. 6d. per ton extra. English, Belgian, and Rhenish, £19 5s. to £19 10s.

VON DADELSZEN & NORTH.

Another Tin Mine in California.

ANOTHER tin mine has been discovered a few miles northeast of San Bernardino. The ore is pronounced superior to the San Jacinto.

Tramways in Large Cities.

THE great deficiency in the means of locomotion in our large cities, is beginning to attract considerable attention. The tramways which have been laid down in Liverpool have proved an undoubted success, and the plan there adopted entirely overcomes any objection on the score of interference with the ordinary traffic. By the adoption of a small groove for the flange of the wheel to run in, too narrow to admit the wheel of even a light carriage, in preference to the old plan of rail raised above the surface of the street, the tram-plates allow of a passage across them of all kinds of traffic without any jolting. There are two extensive schemes now being matured for presentation to Parliament in the ensuing Session for the City of Glasgow. It is intended in Glasgow to lay tramways in all the omnibus routes throughont the city. The carriage to be adopted is large and commodions, and will be a far more comfortable conveyance than the time-honored 'bus, with its damp straw and the perils incident to esealading its knife-board. The roof of the new carriage is snrrounded by a light hand railing, and leaves ample space for convenient passage to and fro, without injnry to the nerves of the most sensitive, or peril to the most portly or stiff-limbed passengers. In accordance with the standing orders of Parliament, notices of the intention to lay down these tramways have been posted through the various streets through which they will pass, and the municipal authorities are favorably disposed towards the measnre. If the introduction of these tramways shonld be hailed in Scotland with satisfaction, *á fortiori* should they be welcome in all our great towns, inasmnch as the 'buses of Edinburgh and Glasgow, in all that regards accommodation, cleanliness, and punctuality, leave little to be desired. In Birmingham, there are three schemes in existence, details of which will be presented; and in Leeds, similar exertions are being made for the establishment of these new roads.—*London Iron Trade Circular.*

The British Iron Trade.

THE heavy advance in the price of iron, £1 per ton, that has taken place in several iron districts of England, has caused considerable excitement in the trade throughout that country. The motives which led to the rise, and its effect upon the business, are commented upon at length, and various conclusions arrived at. The step is regarded by many as something like a leap in the dark. The condition of the trade it is thought scarcely justified the advance. So far as the market has yet been tested, heavy consumers evince a desire to hold back as much as possible, and do not hesitate to express a belief that when the orders now on hand are worked off iron will be cheaper than it is now. Some threats of a further advance after Christmas, are inducing some few parties to purchase now. Many firms who are not fairly employed continue to sell bars, plates, and sheets, at from 10s. to 15s. below the advanced quotations. In both North and South Staffordshire, ore, coal, and pig iron have all advanced in proportion to the rise in finished iron. In connection with this advance in price, the Belgian, French, and American competition question comes up. Although at the present time the works on the Continent are full of orders, their capabilities is increasing their production at a brief notice of generally admitted. The rapid advances in the price of iron in England a few years ago, greatly stimulated the manufacture throughont Germany and France. In regard to this market the rise has put a decided check upon consignments of sheet iron, both galvanized and black, and has, to a less extent, checked the trade in other kinds of iron.

New Gold Fields.

GOLD has been discovered in Lapland. Two men, who formerly worked in the California mines, wandered last summer over a part of Lapland, and, it is said, found gold in large quantities. One nugget, as large as an eight-dncat piece, was pure. The government of the district in which the discovery was made, bought this piece for ninety-three marks, and then forwarded it to Helsingfors. The men endured many privations during the four weeks employed in traversing an uninhabited region, and they were finally compelled to discontinue their search by scarcity of provisions. In conjunction with a third person, who had earlier been engaged in gold washing in Australia, they are now petitioning the government for permission to search for gold in Lapland. The results of the summer's work of the two men were satisfactory, for they obtained sixty ounces of gold, for which they received six thousand marks.

MINING COMPANIES AND STOCK QUOTATIONS.

GOLD AND SILVER COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
Alameda Silver		A. Queran, 108 Wall st	$2,000,000	$10 00		
Ada Elmore	South Boise, Idaho					
American Flag	Nevada District, Col	P. P. Fullerton, 71 B'way	600,000	10 00		
Atlantic and Pacific	Humboldt Co., Nevada					
Bates and Baxter	Colorado			50 00		
Benton	Colorado	W. F. Drake, 15 Broad	500,000	5 00	10	11
Briggs	Colorado	J. P. Davies, 19 Cliff	1,000,000	100 00		
Black Hawk	Colorado	C.T.Whittington, 48 Broad	2,500,000	100 00	20	40
Bobtail	Colorado	J. Stanton, Jr., 25 Nassau	1,000,000			
Bullion Consolid'ed Gold	Colorado					
Burroughs Gold	Colorado					
Church Union Gold	California					
Consolidated Gregory	Colorado					
Combination Silver	Nevada			100 00		
Columbia Silver	Austin, Nevada	J. M. Brown, 155 B'way	5,000,000			
Commercial Silver		J. E. Smith, 26 Pine	3,000,000			
Corydon	Gilpin Co., Colorado	A. Samuels, 40 B'way	500,000			
Downieville	Colorado		2,500,000	25 00		P.
Eagle Gold	Gold Dirt Dist., Col	J. P. Davies, 19 Cliff	300,000	1 00		
Empire Gold and Silver	BodieBluff, MonoCo, Cal	H. K. Gates, 70 B'way	1,000,000			
Edgehill		A. Fullerton, 71 B'way	10,000,000			
Esperanza Silver		Ezra Clark, Jr., 13 William	400,000			
Fisk Gold		H. Johnson, 195 Fulton	500,000			
Forest Queen		E. B. Beet, 62 B'way	1,000,000			
Golconda Gold	Sherbrooke, C. E	H. Adams, 71 Broadway	2,000,000			
Gregory	Colorado		1,250,000			
Gunnell Gold	Colorado	J. H. Rolston, 80 B'way	1,000,000	50 00		49
Gunnell Central	Colorado	C. B. Bostwick, 16 B'way	3,000,000	10 00		
Gold Rock		R. M. Lockwood, 93 Wall	400,000			
Grass Valley					36	39
International Silver		J. W. Brazier, 26 Pine	600,000			
Hope Gold	Colorado		5,000,000		10	11
Holman			2,000,000	25 00		3
Kipp & Buell	Colorado		300,000			
Knickerbocker Gold		J. H. Rolston, 80 B'way	200,000	100 00		
La Crosse Gold	Nevada Dist., Col	P. P. Fullerton, 71 B'way	1,000,000		14	18
Lander Hill T. & S	Nevada	M.L.Catherwood, 74 B'way	1,000,000			
Lewis Gold	Georgia		1,000,000			
Liberty Gold					3	5
Manhattan Silver	Nevada	M. L. Ogden	400,000			
Maraposa common	California	Jas. H. Ferdon, 34 Wall	12,000,000		7⅛	8⅛
Mariposa preferred	California	do. do.			15¾	16¼
Montana Gold		G. De Cordova	400,000		5	9
Montana M. L. & M. Co.	Montana	A. M. Hoyt, 22 William	250,000			
Montrose	Clear Creek Co., Cal	W. W. Perkins, 71 B'way	1,000,000			
New York Silver	Nevada	Thos. Sproull, 78 B'way	1,500,000			
New York and Austin	Nevada	E. R. Siccomb, 70 Wall	500,000			
New York and Owyhee	Owyhee Co., Idaho		1,000,000			
New York and Eldorado		G. H. Munroe, 10 Wall	2,000,000			
N. Y. & Montana M. & D.	Montana	F. A. Chapman, 20 Nassau	1,250,000			
N. Y. & Silver Peach	Nevada	R. C. Root, 74 B'way	2,000,000			
N. Y. & Utah P. & M		W. H. Mailler, 108 Wall				
Ophir Gold	Comstock Lode, Nev	L. C. Warner, 70 B'way	625,000			
Owyhee Gold		W. H. Smith, 43 Ex. Place	1,700,000			
Pahranagat Central	Nevada	J. E. Smith, 25 Pine	6,000,000			
Quartz Hill Gold		F. Bernard	2,500,000		2 55	2 65
Reese River Consol'd	Nevada	W. B. Ogden	6,000,000			
Rocky Mountain	Colorado	S. M. Pond, 70 B'way	500,000	10 00	5	12
Rollins Gold		Thos. Bond, 132 B'way	600,000			
Sensenderfer	Colorado	H. A. Shewill, 19 Broad	1,000,000			
Silver Bend		F. W. Macy, 20 Nassau	1,500,000			
Silver Mt. Silver		H. A. Moen, 71 B'way	1,000,000			
Silver Peak & R. M	Nevada	W. B. Ogden, 52 Wall	5,000,000			
Smith & Parmelee	Colorado	W. H. Hollister, 6 Broad	2,500,000	20 00	1 70	1 75
Social & Steptoe Con		T. H. O'Connor, 24 Nassau	450,000			
Standard Gold		C. B. Bostwick, 169 B'way	500,000			
Symonds Forks					45	75
Twin River Silver	Nevada	J. F. R. Hadden, 20 Nassau	800,000	100 00		
Texas Gold	Colorado		500,000	10 00		
Union Gold	Colorado	F. A. Potts, 110 B'way	1,200,000			
Wash. Mill & Silver	Nevada	W. W. Perkins, 71 B'way	300,000			
Wauba Yuma	Arizona	J. W. Silsby, 36 Pine	6,000,000			

COAL AND IRON COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
American Coal Co		M. A. Myers, 119 B'way	$1,500,000	$25 00		
Ashburton Coal Co		J. T. Rollins, 41 Pine	2,500,000			
Block House Coal		D. B. Keeler, Jr., 43 Pine	1,000,000			
Brewster Iron		H. Robison, 165 B'way	150,000			
Broad Top Coal & Iron Co	Pennsylvania	B. Love	2,000,000			
Cameron Coal Co		J. A. Simpson, 40 B'way	2,500,000			
Carbon Hill Coal Co		J. Silsby, 36 Pine	1,000,000			
Central Coal		F. P. White, 111 B'way	2,000,000	100 00		
Clifton Iron Co		P. H. Riordan, 34 Pine	1,250,000			
Columbia Iron		E. D. Webb, 77 Cedar	1,000,000			
Consolidation Coal	Maryland	J. S. Mackie, 71 B'way	5,000,000			
Crawford Coal		E. Clapp, Prest, 137 B'way	1,000,000			
Cumberland C. & I. Co		E. Kiscan, 90 B'way	5,000,000		26½	27
Derby Coal Co		W. S. Davison, 11 Broad				
Dover Coal and Iron Co		L. Chase, 88 Wall				
Del. & Hudson Canal Co			10,000,000	100 00		
Ebervale Coal		G.L.Stout, Treas., 111 Br'y	500,000			
Fall River Bituminous		D. T. Blauvelt, 43 Pine	1,000,000			
Farrar Coal		C. H. Jones, 43 Pine	250,000			
Fisher Iron Co		M. Ellis, 19 William	100,000			
Hamp're & Balt. Coal		S. M. Pond, 70 B'way	500,000			
Iron Cliffs Co		C. J. Canda, 52 Wall	1,000,000			
Jackson Iron		G. P. Loyd, 119 B'way	300,000			
Kemble Coal & I. Co		R. A. Wight, 26 Ex. Place	300,000			
Keokuk Coal		J. F. Franklin, 112 B'way	100,000			
Lackawanna I. & C	Pennsylvania	E. C. Lynde, 52 Wall	1,200,000			
Lewis Run C. & I. Co		C. A. Sauborn, 80 B'way	750,000			
Lykens Val. Coal Co		F. A. Platt, 13 William	800,000			
McKean Co. Bit. Coal Co		J. H. Rolston, 80 B'way	1,500,000			
Lehigh & Susquehanna						
Mahanoy			400,000	100 00		
McNeal C. & I. Co		C. C. Godwin, 71 B'way	500,000			
Mount Riga Iron		G. M. Newton, 42 Cedar	300,000			
New Boston Coal		C. H. Ogden, 55 B'way	2,000,000			
N. Y. Con. C. & I. Co		A. T. Levine, 16 Wall				
N. Y. & Lehigh Coal		T. Simpson, 111 B'way	150,000			
Pacific Coal Co		G. Wrighton, 31 Wall				
Peekskill Iron Co		W. Murdock, 7 Nassau				
Pennsylvania Coal Co		C. H. Mead, 111 B'way	3,200,000	50 00		
Richmond Iron Co		C. H. Smith, 165 B'way	1,000,000			
Scotia Coal Co		I. N. Soper, 42 B'way	2,500,000			
Spring Mt. Coal		C. Runyon, 111 B'way	1,250,000			
Springfield & D'p Run C.		E. D. Webb, 77 Cedar	600,000			
Stout Coal Co		G. S. Comstock, 111 B'way	500,000			
Susquehanna & Wyoming		E. Potter, 40 B'way	1,000,000			
Tannerdale Coal		I. T. Ludlaw, 71 B'way	250,000			
Wash. Mutual Coal		M. C. Baker, 117 B'way	420,000			
West Point Iron Co		R. C. Brock, 110 B'way	500,000			
Wilkesbarre C. & I. Co		W. H. Tillinghast, 80 Br'y	3,400,000			
Wyoming Val. Coal Co		E. Potter, 40 B'way	1,000,000			

COPPER AND LEAD COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED
Anita Copper	California	J. A. Fergnson, 8 Wall				
Corinth Copper	Corinth, Vermont	S. H. Howard, 191 B'way	$500,000	25 00		
Davidson Copper						
Eagle Harbor Copper	Michigan	W. H. Smith, 43 Ex. Place	500,000	25 00		
Evergreen Bluff Copoer	Michigan	F. W. Caper, 44 Ex. Place	500,000	25 00		
Globe Copper		R. K. Rickard, 19 Nassau	200,000			
Grand Portage Copper Co		A. S. Kellogg, 22 Pine	500,000			
Guymard Lead		Samuel Vernor, 38 Pine				
Hilton Copper		W. H. Smith, 43 Ex. Place	500,000			
Hope Copper		J. W. Davis, 19 Nassau	500,000			
Hudson River Copper	New York	T. Clarkson, 22 William	1,500,000			
Indiana Copper Co		J. M. Mills, 25 Nassau	500,000			
Isle Royale Copper	Michigan	F. W. Caper, 44 Ex. Place	1,000,000			
Keweenaw Copper	Michigan	F. W. Caper, 44 Ex. Place	500,000			
Lake Superi'r Silver Lead	Michigan	A. S. Kellogg, 22 Pine	1,000,000			
Omiga Copper	Michigan	S. Cooper, 7 Pine	500,000			
Ridge Copper	Michigan	J. L. Gardiner, Jr., 43 Ex P	500,000			
Rockland Copper	Michigan	A. Fullerton, 71 B'way	500,000			
St. Joseph Lead	Michigan	J. W. Jones, 6 Broad st,	1,000,000			
St. Marguret Copper		E. P. Sutton, 43 Pine	250,000			
Schoolcraft Copper		R. Walsh, 22 William	500,000			
Superior Copper	Michigan	A. Fullerton, 71 B'way	500,000			
Union Copper		A. S. Kellogg, 22 Pine	500,000			
Vermont Copper	Vermont	J. C. Fly, 191 B'way	500,000			
Wallkill Lead		S. M. Pond, 70 B'way			5	15

MISCELLANEOUS.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
American Zinc Co		W. E. Lawton, 19 Cliff	$1,000,000			
Bigelow Blue Stone Co		H. Bogardus, 14 Pine				
Quicksilver						
Covill B. L. M. & M'f. Co		C. R. Bostwick, 302 Pearl	250,000			
Manhattan Marble		H. K. Gates, 70 B'way	300,000			
N. Jersey Zinc Co	New Jersey	A. H. Farlin, 61 Malden l.'e.	1,500,000			

Notes from Southwestern Virginia.

BY A. EILERS, MINING ENGINEER.

III.—THE COPPER MINES—CONTINUED.

DURING their experimental working of the last two years, the Hale Copper Mining Company have shipped from their small smelting works $17,000 worth of copper, a small part of which was refined at the mines; the balance was sold to the Boston and the Taunton smelting works in the shape of black copper, containing from ninety-three to ninety-six per cent. of copper. As there is extremely little arsenic and lead, and no antimony, bismuth, etc., in the ores, the metal produced by the very simple treatment it underwent, was very good, and was eagerly bought up in the North, after its qualities were once known. The metal shipped would have paid all expenses for working the ores and even left a fair profit, had not the large amount of dead work done in the deep shaft and the cost for making roads, etc., swallowed the profits. But as the main outlay for such work has got to be made only once, I insert the following calculations relating to the cost of production of the metal, in order to show that, although the mines contain what in other parts of the United States would be considered poor ores, a good profit may be relied upon even from the manufacture, at the mines, of nothing but metallic copper. The figures are taken from the books of the Hale Copper Mining Company, and are entirely reliable. The capacity of the furnaces is ten tons per day, so that two hundred tons of ore might be converted into matte, and fifty tons of matte into black copper, every month; but thus far it has been impossible to raise as much ore as that, partly because the mines were not sufficiently opened, partly on account of the scarcity of skilled miners. As soon as the furnaces can be run to their full capacity, the cost of smelting will be less than it has been hitherto, when only about seventy-five tons of ore were smelted per month:

Cost of *mining* 75 gross tons of 6 per cent. ore, and delivery to roast sheds at $10 per ton		$750 00
Cost of *roasting* 75 tons of ore, in two open heaps, and two fires:		
Wood, 10 cords, at $1 20	$12 00	
Labor, 16 days, at $1	16 00	28 00
Cost of *smelting* for 25 per cent. matte, 9 days (1½ days allowed for blowing in and out):		
2,000 bushels of coal, at 7 cents	$140 00	
2 engineers, 9 days, at $1 25	22 50	
18 cords of wood, sawed and split, at $1 75,	31 50	
2 smelters, 9 days, at $1 15	20 70	
4 backhands, 9 days, at $1 00	36 00	
1 charge-roller for rolling 125 tons of ore, black copper slag and flux at 3 cents per 500 lbs	$15 00	
Lubricating material, tools, etc.	10 00	
Repairing furnaces after campaign	75 00	350 75
The resulting 19 tons of first matte will have to be saved until enough is on hand to make a campaign of—say 75 tons; the smelting of the 19 tons of matte, to convert it into black copper and concentrated matte will then cost one quarter of the single matte smelting	$87 63	
To which amount the cost of seven roast-fires in open heaps, at $5 40, will have to be added	$37 80	125 48
The result of this smelting will be about 7,500 lbs. of 95 per cent. black copper, and 4,000 lbs. of say 56 per cent. concentrated matte. To get the concentrated matte also in the shape of black copper, it will have to pass through three roastfires in stadels, and is then added in the next black copper smelting at the the following cost:		
For roasting in 6-ton stadels	$2 19	
smelting	8 00	10 19
The 10,000 lbs. of black copper thus produced will make two charges in a reverberatory refining furnace; the cost of refining is less than one half per cent. per lb. of copper, say		47 50
Cost of shipping 9,500 lbs. of refined copper to New York, at $18 50 per ton		87 88
Superintendence and sundry outside expenses		250 00
		$1,649 75
9,500 lbs. of copper sold in New York at 22 cents per lb., amount to		2,090 00
Leaving a monthly profit of		$ 440 25

This profit could be increased by at least $300, if the company kept a store, so that over $700 clear profit could be made monthly, even with the present apparatus for beneficiation, if the cost of the deep shaft, which has been a little over $300 per month, had not to be covered out of that amount.

But by far a larger amount of profit can be realized from these mines by using every opportunity offered by nature in the large mineral deposits contained in them; by not alone making the metallic copper, but by also manufacturing the same into such merchantable articles as can be made at a very low cost on the spot, and will secure a much higher gain per pound of copper made. This again will permit of working such low-grade ores as have not been beneficiated at all up to to the present time; and, in the processes employed for that purpose, additional new articles, which have so far not contributed to swell the net profits, will be made for the market.

For this purpose, the company intend to enlarge their works very considerably during next spring, and it has been decided by the directors to work in future on the plan hereinafter contained.

All ores of 6 per cent. and over are to be smelted, as before, to black copper. This is to be melted down, and the impurities to be oxidized in a reverberatory blast furnace (spleissofen.) After the copper has acquired the necessary grade of purity, it is to be tapped into a basin of cold water, and granulated. The granulated copper is to be dissolved in lead-lined vessels, under full access of the air, by sprinkling over it hot sulphuric "chamber acid," made at the mines. The blue vitriol thus formed is to be dissolved in hot water, recrystallized in lead-lined tanks, then washed, dried and shipped. According to the chemical formula of sulphate of copper, one pound of the metal will make four of blue vitriol; and thus the company will secure, by but very little more outlay in addition to the cost for smelting, 40 cents per pound of copper, instead of 22.

The ores containing less than 6 per cent, of copper, of which there are unlimited quantities on the property, averaging, say 3 to 4 per cent., are to be worked by precipitation. For this purpose they are to undergo the following treatment. The ores, being wet when brought from the mines, have to be calcined, once in open heaps, in order to dry them; then they are to be ground fine, roasted in a PARKE'S double-roasting furnace, with stirring apparatus, so as to transform all the copper into sulphate; next, the ore is to be leached, the copper to be precipitated from the solution by iron, and added to the charges of the granulating furnace. From this point on, it is to pass through the same operation as the copper produced by the smelting operation above described, and finally to be sold as blue vitriol. The liquor remaining after the copper has been precipitated out of it, is to be condensed in large evaporators, drawn off into settlers, and the copperas to be crystallized in lead-lined tanks. This is to be washed, dried and shipped as a pure article. The scum from the evaporator and the settlings from the bottom of the settlers are to be burned at a high heat in a roasting furnace, and the resulting colcothar (Venitian red) to be sold.

To carry out this plan, an outlay of about $25,000 for additional apparatus is required, as will appear in the estimates here following:

I.—MACHINERY.

One 40-horse power engine and boiler	$3,500 00	
" small cylinder blast	800 00	
" pair fluted, and two pair smooth crushers and fixings	500 00	
" light battery of stamps for stubbs	150 00	
Countershafting, pulleys, and belts	400 00	
Building to cover the whole	500 00	$5,850 00

II.—GRANULATING FURNACE.

One reverberatory blast furnace	600 00	
Windpipe, granulating basin, iron ties, etc.	130 00	730 00

III.—SULPHURIC ACID WORKS, OF A CAPACITY OF 1,000 POUNDS OF CHAMBER ACID OF 48° BEAUMÉ PER DAY.

Leadchamber 40 x 12 x 15 feet = 7,200 cut feet space, requiring 2,520 square feet of ¼ inch sheet-lead; lead for fastening the chamber to the frame and pipes, 700 square feet, altogether 3,220 square feet, at 7 lbs. = 22,540 lbs. at 10 cents	$2,254 00	
Iron pipe for connection of kilns and chamber 1,000 lbs., at 7 cents	70 00	
Iron vessels for saltpetre	40 00	
Sheet-lead for condensing nitrous acid and two vats, 600 square feet at 6 lbs. = 3,600 lbs., at 10 cents	360 00	
Soldering chamber with hydrogen, and other work	500 00	
One 30 horse-power steam boiler to furnish steam for acid-chamber and blue vitriol works, delivered at the mines	1,300 00	
Two kilns, 10,000 bricks, $60; door-frames, doors, and iron-work, $75; mason-work, $25	160 00	
Frame for acid-chamber, and building to cover the whole	600 00	$5,284 00

IV.—CEMENT COPPER AND COPPERAS WORKS.

One Parke's double roasting furnace, 9 feet in diameter, stirring apparatus, iron tank, cars, etc.	1,000 00	
Six leaching vessels of a capacity of one ton each, with double bottoms, at 50 cents	300 00	
Two large vats, for condensing and precipitating purposes, brick-arched and lead-lined, 30x10 x2 feet; 5,500 lbs. lead, $550; wood-frame, $150; masonry, $500; iron ties, pipes, etc., $200	1,400 00	
One heating tank for water, with copper pipes and one pressure-vessel for sending the mother-liquor back into the heating tank, with lead pipes	300 00	
Containing 1,536 cubic feet. 2 Crystallizing tanks 4 x 6 x12 feet, lead-lined, at $170	340 00	
Containing 1,536 cubic feet. 8 crystallizing tanks 4 x 6 x 5 feet, lead-lined, at $105	840 00	
1 washing floor, lead-lined, 10 x 30 feet	200 00	
1 system of drying boxes	100 00	4,480 00

V.—BLUE VITRIOL WORKS.

Three tanks, lead-lined, one for heating dilute sulphuric acid, one as reservoir, and for heating the acid, mother-liquor, and one for cold water; with steam pipes for heating purposes; each tank to be 10 x 4 x 5 feet, requiring 510 square feet or 3600 lbs. of sheet-lead, at 10 cents	360 00	
Wood-work, $60; pipes, $75	441 00	
Three dissolving vessels, 4 feet deep, and 3½ feet square, requiring 207 sq. feet lead at 7 lbs. = 1,449 lbs. at 10 cents, $144 90, and woodwerk $120	264 90	
One trough, lead-lined, 150 x 2 x 1½ feet; 756 square feet at 7 lbs. = 5,292 lbs. lead, $529 20; wood-work, $50	579 20	
One washing floor, 75 x 3 feet, with 18-inch back, all lead-lined, requiring 337.5 square feet, at 6 lbs. = 2,025 lbs. at 10 cents = $202 50; wood-work, etc., $50	252 50	
Two pressure barrels, one for acid mother-liquor, the other for the last mother-liquer, with all necessary pipes, lead-lined	250 00	
One dissolving pan, 15 x 10 x 2½ feet, lead-lined, requiring 275 square feet at 6 lbs., = 1,650 lbs. of lead, $165; wood-work, $35	200 00	
Four large crystallizing vessels 4 x 6 x 12, requiring 275 square feet, at 7 lbs. = 6,048 lbs. lead at 10 cents = $604 80; wood-work, $100	704 80	
Eight smaller crystallizing vessels, 4 x 6 x 5 feet, requiring 944 square feet at 7 lbs. = 6,608 of lead at 10 cents. = $660 80; lumber $160	820 80	
Two washing tubs 3 x 3½ x 4 feet, and baskets, the former lead-lined, requiring 122 square feet lead, at 6 lbs. = 732 lbs., $73.20; wood-work, $20; baskets, $8	101 20	
One washing floor, 20 x 10 feet, lead-lined, requiring 200 square feet, at 6 lbs. = 1200 lbs. lead at 10 cents, $120; wood-work, $12	132 00	
One trough 6 x 6 inches, and 52 feet long, requiring 80 square feet at 6 lbs. = 480 lbs. lead at 10 cents, = $48; lumber. $5	53 00	
One drying system, double bottom boxes, etc.	100 00	
Lead-pipes, siphons, etc	500 00	
Building to cover copper and iron vitriol works, 100 x 60 feet; partly three stories high	1,200 00	
Sundries not included above, including superintendence, etc., during the erection of the works	2,500 00	
Besides the above, the company intend to have $12,000 on hand, to carry on mining operations, until the products of the werks can go to market, and to provide $12,000 more for the expleration of the vein in depth	24,000 00	
Total investment		$48,443 40

By this outlay the company expect to be, and undoubtedly will be, enabled to reach such results, as will appear from the following calculations relating to the first cost of articles to be manufactured:

The mining and smelting cost of 75 tons of 6 per cent. ores is (according to statement given above) up to a point where all the copper has been converted into black copper	1,264 37	
The black copper (about 10,000 lbs.) will now have to be melted down, and the impurities oxidized in a reverberatory blast-furnace. When the sample shows the necessary purity, the copper is tapped and granulated by allowing it to cross in a thin stream, a stream of cold water which falls with the metal into the granulating tank. The cost of this operation is $11 40 for each charge; for 10,000 lbs. (two charges) therefore	22 80	
The result would be, say 9,000 lbs. of granulated copper.		
The cost of converting the copper from 75 tons of 3 per cent. ores into black copper, will be as follows:		
Mining 75 tons of 3 per cent. ores and delivery at roast-sheds at $7	525 00	
Drying 75 tons, one fire in open heaps	14 60	
Crushing 75 tons at $1 per ton	75 00	
Roasting 75 tons in PARKE'S double roaster at $2	150 00	
Leaching 75 tons, and precipitating copper in baskets, including cost of 4,500 lbs. of old iron at $2 90; work, $40	130 00	
Forming to bricks and smelting, say 5,000 lbs. of 85 per cent. cement copper in granulating furnace	15 00	909 00
The cost thus far will produce 13,500 lbs. of granulated and nearly fine copper. To convert this into blue vitriol, and to gain all the copperas and red paint, which can be saved, the following additional cost will have to be incurred:		
All the work in the sulphuric acid works can be done by *three men* (including breaking of ore) at $40, $26, and $26 per month	92 00	
Wood to start roasting, 2 cords, at $1 75	3 50	
Salpetre, 1,000 lbs. per month, at 10 cents.	100 00	
Wear and tear of apparatus per month	50 00	245 50
All work in the blue vitriol and copperas works to be done by eight hands, 2 at $32 50 and 6 at $26 per month	221 00	
Wood for steam-boiler, 2 cords per day, at $1 75	105 00	
Wear and tear of apparatus per month	75 00	
150 barrels to pack 60,000 lbs. copperas at 70 cts.	105 00	
108 " " 54,000 lbs. blue vitriol at 70 cents	75 60	
Shipping 57 tons to New York at $18 50	1,054 50	
Superintendence and general expenses	460 00	$2,096 10
		$4,537 77

The monthly expenses for manufacturing the products contemplated under this plan and shipping them to New York by fast freight, would be $4537.77. Of this amount there will be about $3000 paid to workmen at the mines, two-thirds of which will be taken up in goods at the company's store, furnishing a profit of thirty per cent., or $600. Deducting from this the salary of the storekeeper and one clerk at $100 per month, $500 monthly profit will remain from the store, or in other words, the cost of the articles produced will be that much less, say $4050 per month. For the market the company will have

54,000 lbs. of blue vitriol at 10 cents	$5,400 00
60,000 lbs. of copperas, at 1¾ cents	1,050 00
	$6,450 00

The cost of production being $4050, the execution of the foregoing plan will secure $2400 monthly profits to the company. In this estimate the amount of red paint which can be made from the settlings in the concentrating vats, is not included, because the quantity which can be made monthly must be determined by practice. The cost for working, fuel, etc., in the above estimates is above the real one, and the price of the articles produced is assumed lower than their present market value. Thus it may be fairly expected that the company will really reach the results indicated.

These copper properties in Southwestern Virginia are, in my opinion, destined to create a manufacturing industry, and thereby, such lasting wealth to the State and to those engaged in the enterprises sure to spring up on that basis sooner or later, as few other localities in the United States will be able to rival. Extremely cheap labor and fuel, abundance of raw material, and low rates of transportation to the northern markets, combined with able management, are certain to accomplish that end.

Patents for Mill Sites.

A Washington correspondent writes the Colorado *Tribune* as follows:—The question having been raised as to the propriety of issuing patents for mill sites in connection with mineral claims, Commissioner Wilson has replied in substance as follows:—

"The ninth section of the Mining Act of 26th July, 1866, provides that the owners of water rights shall be maintained and protected in the same whenever they are recognized and acknowledged by the local customs, laws, and decisions of courts, but makes no provision for issuing patents for them. The Act, however, enables claimants of mineral veins to include in their diagrams and obtain patents for such reasonable quantity of surface ground as may be necessary for the convenient working of the same, as fixed by local rules. Consequently, when a mill-site is used in connection with a mine, and reduction works erected upon it, it is thought that a fair and liberal construction of the Mining Act will authorize the General Land Office in treating such mill-site as part of the mining claim, provided it is so held under the local mining laws or customs, and to include it in the patent with the vein or lode; and actual contiguity between the lode and mill-site is not deemed absolutely essential. In no other manner, however, than as part of a mining claim, does the Act authorize the issue of patents for mill-sites."

In another case, where an original location of 6,300 feet had been made in a lode by a number of individuals, the present holder of their possessory claims inquires if he can enter and receive a patent for 2,200 feet, and abandon the residue of his claim, or whether he will be obliged to take the whole as originally located. The Commissioner has replied that the answer to the question is to be found in the provisions of the local mining customs of the district in which the claim lies; that the General Land Office issues a patent to any *bonâ fide* claimant of a vein or lode, who has previously occupied and improved his claim, according to the local customs or rules of miners in the district where it is located; has expended on it in actual labor and improvements an amount of not less than one thousand dollars, and in regard to whose possession there is no controversy or opposing claim."

THE ENGINEERING AND MINING JOURNAL.

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[*Illustrated Articles are marked with an asterisk.*]

ROSSITER W. RAYMOND, Ph. D., Editor,

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The Darien Ship Canal.

THE successful completion of the Suez Canal confers new vitality upon the scheme of a similar artificial maritime highway across the Isthmus of Darien. This subject, as is well known, attracted much attention from Secretary SEWARD, who negotiated through Mr. CALEB CUSHING a ship-canal treaty with the Colombian government. That treaty has never been fully ratified, and may be considered dead—a circumstance which need occasion no regret, since the notorious avarice of the Colombians demanded, and Mr. CUSHING weakly conceded, conditions which made the whole project ridiculous. No capitalists could have been found to undertake an enterprise, burdened with the perpetnal payment of thirty-five per cent. of the gross receipts in return for nothing but the right of way. Unlike other nations, who measnre their importance by their territory, population, and industry, the United States of Colombia trade on their littleness; and, happening to lie in a highway of traffic, propose to lift themselves above the necessity of labor by the happy expedient of taking toll from all passers. They are the robber-knights of the nineteenth century, and only differ from the *Raubritter* who used to swoop down from his fastness by the Neckar or the Rhine to plunder peaceful travellers, in the fact that they have neither courage nor enterprise themselves, and are largely protected and supported by the victims of their extortions.

Mr. CUSHING, like Mr. REVERDY JOHNSON and many another diplomat, was led away by his desire to obtain for himself the credit of accomplishing successfully the work entrusted to him. He made enormous financial concessions to Colombia, and his boasted success amounted to a treaty which, had it been ratified, could not have made a ship-canal possible, and which actually failed of ratification, because the effect of the concessions made was to stimulate the greed of the robber-beggars who received them. The Colombian Congress refused to sanction the treaty because, having gained so much, they saw no reason why they should not be able to exact more. And, indeed, this conclusion was logical enough.

We repeat that the failure of the CUSHING treaty is not to be regretted. What is to be regretted is the fact that it was ever negotiated at all. It will be difficult to conduct diplomatic efforts in the same direction hereafter, on a basis of common sense and fair mutual advantage. In fact, our government cannot do better than to drop that part of the bnsiness where it is, and leave the matter to be managed more wisely by private parties.

Both the President's Message and the Report of the Secretary of the Navy refer to this subject, and declare that surveys will be prosecuted, if the permission of Colombia can be obtained, for the pnrpose of discovering the best ronte for a ship-canal. The report of Admiral DAVIS, pnblished some years ago, discusses snperficially several routes, and seems to demonstrate that the proper line will be fonnd somewhere in the vicinity of the ronte from St. Miguel to Caledonia Bay. The principal conclusion to be drawn from it, however, is that we have not yet the necessary knowledge of the interior to locate a ship-canal. There will never be more than one canal through the Isthmns, and this should therefore follow the ronte which is absolntely the best. There is therefore no objection to the step proposed of continued and thorough surveys of the interior. But Admiral DAVIS does not seem to have had at his disposal the information possessed by the engineers of the Panama Railway Company, who are of all men the most familiar with the country; and while, as we have said, there can be no harm in further investigations, there is still a great deal of knowledge already acquired, which has apparently been disregarded in official reports.

The Panama Railroad Company, by the terms of its charter, mnst be a party to any arrangement for a ship-canal. The Colombia government is explicitly bonnd not to grant the right of way for such a work, withont the consent of that company; and the company is bound not to withhold its consent, except so far as to secure full indemnity for the damage caused to its lucrative bnsiness by the construction of a canal. The immense extent and profitable character of that business are well-known. The Pacific Railroad does not, and cannot, seriously impair it; for it is mainly the trade of the South American coast with France and England, which ponrs its tide through that channel. The whole California traffic was not more than one-sixth of the business of the Panama road, and not even all of that is taken away by the Pacific railway.

The construction of a ship-canal, however, would annihilate at once the whole business. Local traffic there is none; the Panama railroad is simply a portage between the two oceans; and the moment water-communication is established, it might as well not exist; for its occupation will be gone. If a ship-canal company has to indemnify the road for this utter and absolute loss, the cost of that work will be necessarily augmented by an enormons sum.

Moreover, if we are not mistaken, the Panama Railroad Company holds the exclusive right to a canal as well as a railroad over the route from Aspinwall to Panama; and this route is incomparably the best thus far discovered. The fact that it is not open to other parties must explain why it is so often disregarded, while vast schemes are propounded, involving locks, huge tunnels, and many miles of expensive cuttings. The distance from sea to sea by the Panama ronte is less than fifty miles; the heaviest grade in the road does not exceed sixty feet to the mile; and the utmost altitude, according to our present recollection, is less than 150 feet. The rock constitnting this ridge is volcanic breccia, not difficult to excavate. If any one fancies that any spot exists where the continental chain of mountains can be passed nnder more favorable conditions than these, he must be very sanguine.

In this connection, we pause to notice the prevalent notion, countenanced by some scientific men, that the two oceans were, in a recent geological period, nnited across the Isthmus. "The map," it is said, "produces that impression on the mind at once." Now the map probably reflects the impression already in the mind; and it is quite as natural to believe the Gnlf of Mexico to have been hollowed ont by the encroachments of the sea, as to consider the Isthmns a recent conquest of the land. In point of fact, the marine fanna on the two shores, though only separated by a few miles, are totally different. We believe there is no single species common to both. The recent discovery of a bed of sulphur in Louisiana, five hundred feet below the surface, indicates that the volcanic region of Central America extends beneath the Gulf of Mexico to the Sonthern States, and may be a piece of important collateral evidence as to the original shape of the continent. We allude to this subject, becanse the hypothesis referred to is made the basis of a snpposition that still lower passes than that of Panama will be discovered in the monntains of the Isthmus. Of course no one can predict what will or will not be discovered; but it seems to ns that the expectation is scarcely well-founded. In all hnman probability, the Panama ronte will remain, as it now seems to be, the *only* one upon which a *tide-water canal, without locks or tunnels*, can be constructed; and, at the same time, of all possible lines, the shortest. The idea of going off to another line, for the sake of a longer transit, cursed with innumerable difficulties of level, excavation, and water supply, strikes ns as folly.

But this route has another unique advantage. The existence of the railroad is more than half the battle in the construction of the canal. The saving of actual expense in transporting materials, would be enormous; and the mortality among workmen (found to be a notable canse of increased cost in the construction of the Panama road itself), would be avoided by the facility with which all hands could be transported, after the day's work should be over, ont of the miasms of the Chagres to the salubrious heights and sea-air of Panama.

To sum np this argument, it seems very plain to us that the Panama Railroad Company possesses the route for a ship-canal, and is also placed by its charter in the best position for negotiating with the government of Colombia. The men who recently obtained, in spite of MOSQUERA and the English, the renewal of that charter, will be likely to do mnch better than another CUSHING in securing favorable terms for a canal. Whoever proposes to bnild a canal should therefore *buy the Panama Railroad.* This is virtually the same thing as indemnifying the road for the destruction of its business, which would have to be done on any plan. But there is a better way yet: the Panama Railroad Company should build the canal, and thus secure its construction under the most favorable political circnmstances, with the greatest economy and rapidity, and on the best line; while, on the other hand, the old company, merged in the new, wonld perpetnate a prosperity which, nnder a different plan, might be taken ont of their reach.

The Tin Ores of the United States.

IN another column we publish one of the interesting communications of Professor ROESSLER, of the United States General Land Office, referring to the recent reports from the tin mine of San Jacinto, in California. The Professor's resumé of tin discoveries in this conntry is incomplete, since it omits all mention of the operations in Missouri, and of the very handsome stream-tin found in Idaho, the original deposits of which have also, it is claimed, been discovered. Nor do we quite agree with the statement concerning the Temescal mines, which, it is hinted, never furnished more than a few cabinet specimens of tin-stone, and were abandoned because the miners could find no ore. Those mines furnished at different times a considerable number of tons of rich ore; and the chief cause of their abandonment before they had been fully developed was the litigation which encompassed the title of DON ABEL STEARNS, their owner. Since the first abandonment, shipments of ore in small quantities have been reported as the result of "squatter" workings; but we have no trustworthy data concerning these.

On the other hand, the difficulties attending the production of tin in this country have always seemed to us (the supply of ore being assnmed) of an economical rather than a metallurgical character. The great danger in California, for instance, will not be a failure of smelting processes, but a direct competition with East Indian metal. Until that commerce is established, however, or the Californian market becomes important enough to be worth a struggle on the part of the Dutch and other tin monopolists, it is quite likely that a moderate production, to satisfy the local demand of the Pacific Coast, may be carried on with considerable profit. In other words, at the present rates of tin, it may be mined and smelted in favored localities in this country with profit. But those rates are made np of four elements—the cost of mining and reducing in the East Indies; the cost of shipment by sailing vessels; the tariff; and the profits which the mining and trading companies choose to demand. It is a notorious fact that the conditions of tin-mining in Cornwall, Saxony, and Bohemia do not determine the market price, but are, on the contrary, largely affected by that price, as fixed at the Amsterdam sales. Herein lies the risk of mining and selling tin; and as Professor ROESSLER well remarks, "prudence wonld dictate that all parties should not indulge in sanguine expectations."

Boiling Water.

THERE is a popular notion that the heat of boiling water is always the same, namely, 212° Fahrenheit, or 100° Centigrade. This arises from the fact that in most cases water is boiled nnder the ordinary atmospheric pressure of fifteen ponnds to the square inch. But many persons do not realize that tho boiling point of a liquid depends npon the pressure to which it is subjected, and that any variation of this pressnre changes the boiling point. As we rise in altitude above the sea, for instance, the height of the atmosphere over us is diminished, and at a corresponding rate, its pressure decreases. Boiling water is not so hot on the top of a mountain as at its base. In Qnito, for instance, some six thousand five hundred feet above the sea, the pressure of the atmosphere is only a little over ten pounds, and water boils at 194° Fahrenheit. This is not hot enough for all cooking purposes; hence some kinds of food cannot be eaten boiled, in Quito, as they are in other cities.

A practical and frequent instance of the increase of boiling temperature, on the other hand, is found in steam boilers. Here the water is nnder a pressure of steam; and the temperature of the water rises with the pressnre. The proportion of this increase is not difficult to be discovered; since the temperatnre of boiling water, confined in contact with steam, is *exactly that of the steam.* Superheated steam is another matter entirely, and does not enter into this discnssion, since superheated steam cannot be produced while water is present. We may even say that the water at the bottom of a boiler is hotter than the steam, since it is under the additional pressure of the column of water itself. If the steam has a pressnre of one hundred pounds, and the temperature of 388° Fahrenheit, which belongs to that pressure, then the water must be at least as hot as that, to generate more steam. A sudden diminntion of pressnre will freqnently canse an explosion, by lowering the boiling point of the water, and allowing a large quantity of fresh steam to be generated at once. This is a danger acknowledged to attend the use of safety-valves; and hence the engineer wishes his safety-valve to leak under pressure, not to open suddenly a wide escape for the steam.

The Poorman.

A PERFECTLY trustworthy private communication from Ruby City, Idaho Territory, informs ns that the Poorman looks far better than last summer. A winze has been sunk from the lowest level south in a body of fair milling ore fifty feet in depth, the vein having taken an abrupt change and dipping abont sixty degrees to the east. It has kept the same dip, showing well defined walls all the way down the winze, and is eighteen inches wide on an average. This was sufficiently enconraging to induce Mr. WALBRIDGE to sink the shaft eighty feet, and it is now going down. The Golden Chariot looks well, as does the Ida Elmore, and some fine ore is coming out of the Allison, now under lease by the Owyhee Company.

Bricks from Gas-Coal Ashes.

WALLS of remarkable lightness, porosity, and dryness may be built cheaply of bricks made from the ashes of the coke derived from gas-works. Mr. Wagner, the first inventor of the process for effecting this, instructs us as follows as to his *modus operandi*: "The ashes, after being taken from the retorts, are spread on the surface of a clean floor; they are then finely pulverized, and ten per cent. of slacked lime, together with a small proportion of water is intimately stirred and incorporated with them. After a rest of twenty-four hours, the mixture is made into bricks by the ordinary process. These bricks are immediately transferred to the drying-sheds where a few days of exposure renders them fit for use.—*The Manufacturer and Builder for November.*

Quartz Miners Strike in Montana.

A TELEGRAM from Helena, December 7th, says: "Yestereay the quartz miners of the Columbia Mining Company at Unionville, struck on account of the reduction of wages. New men were set at work, but were driven off by the strikers. Five of the strikers were arrested by the Sheriff, but they were instantly rescued by their friends. This morning every miner in the district, some three or four hundred, struck and armed themselves against the Sheriff. The latter collected a posse of about four hundred citizens, and proceeded to Unionville this afternoon, but the Mining Company acceded to to the demands of the strikers, who then gave themselves up and were discharged."

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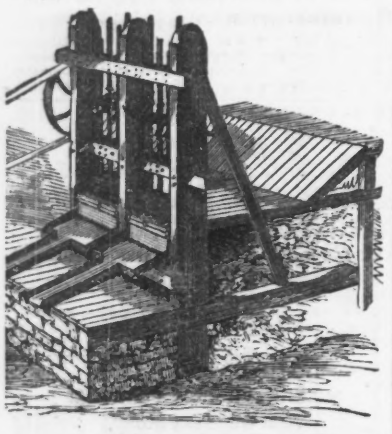

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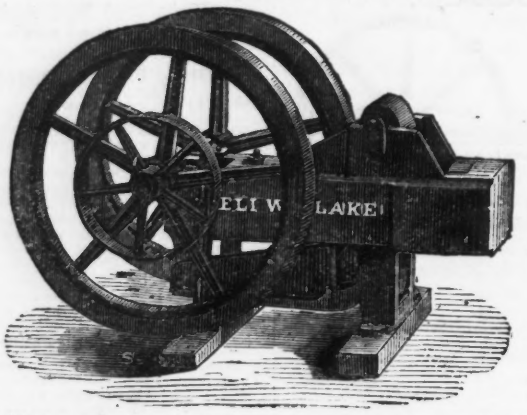

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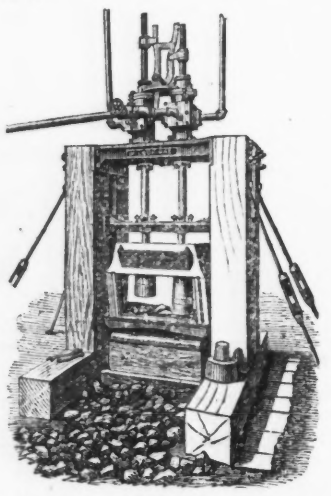

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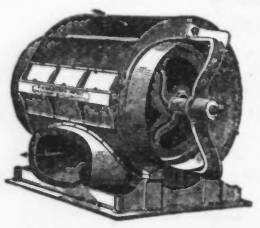

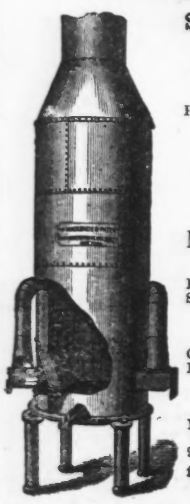

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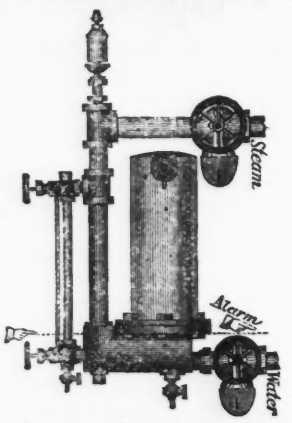

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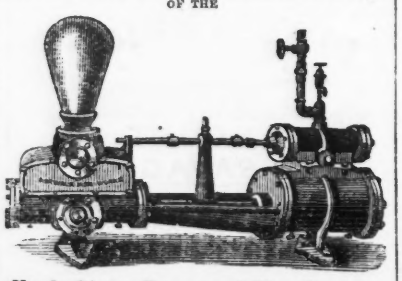

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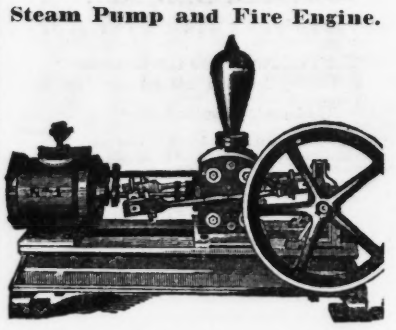

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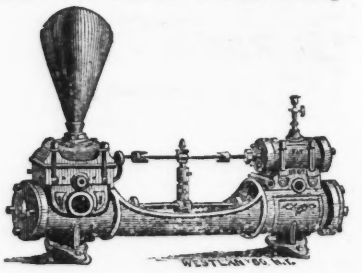

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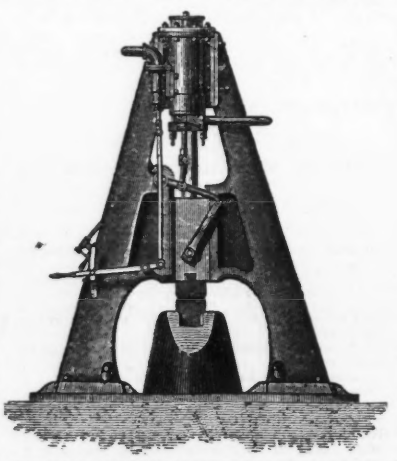

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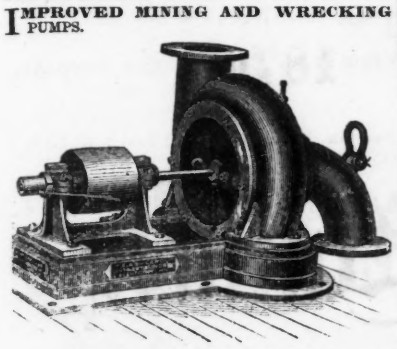

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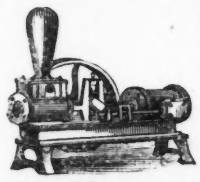

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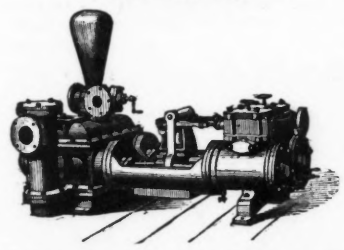

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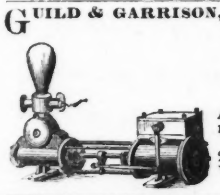

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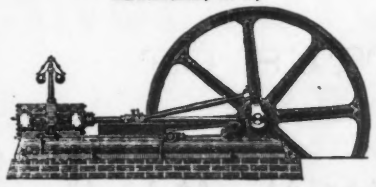

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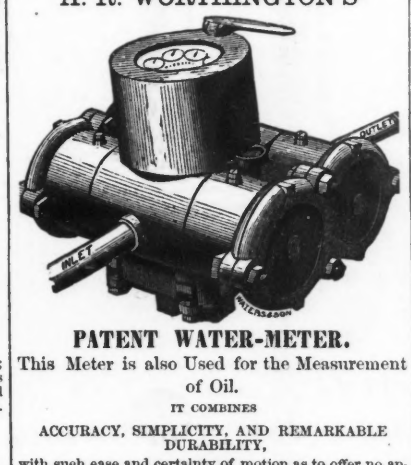

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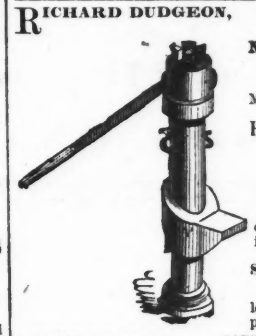

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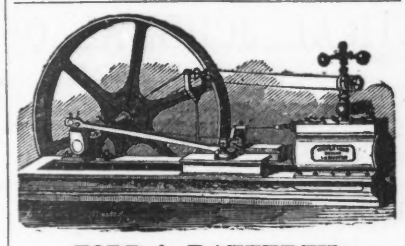

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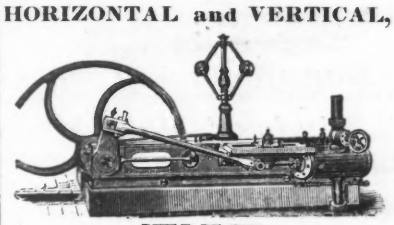

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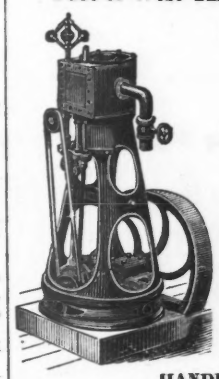

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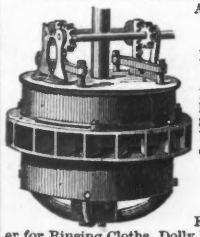

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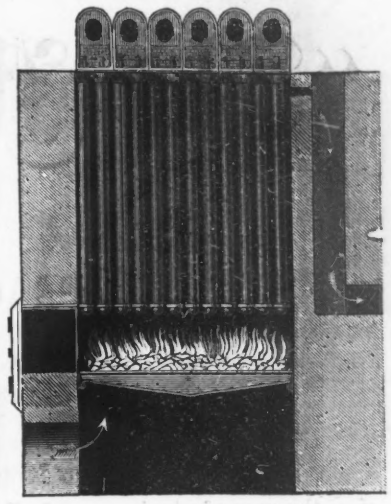

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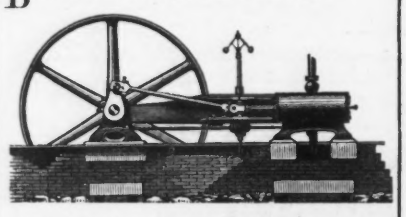

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