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THE NEW CHIEF OF ENGINEERS.

The appointment of Col. THOMAS L. CASEY to be Chief of Engineers reflects credit upon the President, especially as it is understood that a considerable pressure had been brought to bear in favor of another officer, namely, General PARKE, now Superintendent of the Academy at West Point.

General PARKE is an honorable gentleman and distinguished soldier, and is not responsible for the acts or the arguments of his friends. It is, therefore, without any reflection whatever upon him that we offer some remarks concerning the following dispatch, which appeared July 11 in a leading New York daily paper:

WASHINGTON, July 10 (Special).—Considerable surprise was expressed in army circles when the President sent to the Senate yesterday the name of Col. Thomas L. Casey to be Chief of Engineers, with the rank of Brigadier General. It is true that Colonel Casey was the ranking officer, but the same considerations which induced the President several years ago to appoint Inspector General Baird over the head of General Jones, might, with greater justice, it is thought, have operated now to bring about the appointment of General Parke, the present Superintendent of the Military Academy at West Point.

served with distinction under Burnside, and at the close of the conflict was the commander of an army corps, the Ninth, while Colonel Casey saw little or no active service, being engaged during the war in superintending the construction of fortifications along the New England coast.

This is a summary of the arguments publicly and privately current while the President's action was yet in abeyance, and it appears to be stated in the above dispatch as an unfavorable criticism upon that action, after the fact. We think every one of the reasons thus suggested for the appointment of General PARKE is invalid.

1. As to the question of seniority. When the topographical engineers were consolidated, twenty-five years ago, with the engineer corps, the subject of relative rank was carefully considered. As the rate of promotion in the two different corps had not been the same, it was impossible to grade the officers according to length of service without disturbing existing relations throughout; and, as the only practicable arrangement, it was agreed that the officers of the consolidated corps should rank simply according to the dates of their commissions.

2. The distinguished service of General PARKE as a commander of troops is no ground for placing him at the head of the corps which has in hand all the national works of civil and military engineering. Having been a "Topog." before the war, a line officer during the war, and a bureau officer since the war, General PARKE has had, to speak plainly, no experience as an engineer whatever.

3. It is argued that General PARKE would necessarily be retired in two years, on account of his age, while Colonel CASEY has seven or nine years (we forget which) before retirement; so that to appoint the former would have enabled him to retire as Brigadier, leaving the latter to succeed, while the appointment of the latter now makes it impossible to reward in that way the eminent military services of the former.

A bill in Congress is the proper way of retiring with advanced rank any officer whose military services have deserved that reward. To put him in charge of great engineering works, not because of his special experience, but in order that he may be speedily retired with increased rank and pay is to seek a praiseworthy end in a very bad way.

We congratulate the Engineer Corps on the appointment of Colonel CASEY, an engineer of conspicuous ability and wide experience, who has the prospect of a term of office long enough to do some good. And we believe that in this utterance we express the sentiments of the working officers of the corps.

MINING LAWS OF VENEZUELA.

The mining law of Venezuela, which was passed in the spring of 1837, included under the head of "mining matter" all inorganic substances, and subjected their exploitation to limitations which, in the case of some of the commoner articles of commerce, were extremely embarrassing. In August of the same year, however, this law was repealed and another substituted, in which salt and all materials of construction were excepted from the provisions of the mining statutes.

The provisional title gives the discoverer a sixth part of the profits

from the workings if the mineral was found on the lands of a private person, provided that the owner of the lands contributes to the expenses. If he refuses to do this, the discoverer may continue his work, indemnifying the owner of the surface land according to the law of expropriation. If the discovery is made on mining property already being worked, the discoverer may oblige the owner to sell the newly found vein or quarry. On public lands the title gives sole right of property in the vein or quarry, and the discoverer will be preferred in obtaining property right in public lands needed for supplies of wood, water or other materials. This provisional title is transferable. The definite title only gives the right to the substance worked, and the surface land must be acquired by purchase, even on the public domain.

Mining concessions may be obtained by any person capable of making contracts, and foreign companies are simply required to exhibit and record proofs of incorporation according to the law of the country of their domicile. Foreign companies are required to maintain a resident agent in Venezuela. The duty on batteries and pulverizing machinery has been removed, as also the quarterly tax upon mines. The only special mining tax remaining is that of one per cent on the gross value of the entire product, and the following substances are exempted even from that: Silver, copper, iron, chromic iron, lead, quicksilver, tin, zinc, asphalt, mineral coal, fossil woods, peats, mineral waters, materials of agriculture and sculpture, and the raw materials for ceramic industry. The mines, buildings, and appurtenances are taxed the same as all real property.

Concessions, whether definite or provisional, lapse and are forfeited to the nation, upon failure to pay the mining taxes for six months, or in case of abandonment of the workings for five years.

These laws reflect in their liberality the great desire the Venezuelan Government expresses to encourage the investment of foreign capital in the development of the rich mineral resources of the country, and should facilitate the introduction of American mining machinery.

TRAINING SCHOOLS FOR PROSPECTORS AND MINERS

It is already evident that this subject, to which we alluded in our last issue, is one which has a great interest to many of our readers, and we have received several communications on the subject. Some of our correspondents go far beyond the modest rôle which we would suggest for these training schools.

We would, in fact, limit them to instruction having a direct practical bearing upon the efficiency of prospectors and miners in their everyday duties, and would strictly confine them to elementary instruction, and not make them substitutes for the higher mining schools, which are situated in the great cities, nor even for the lesser mining schools, such as those at Houghton, Mich., the Golden school in Colorado, the Dakota school at Rapid City, etc.

In New Zealand the experiment has been tried since 1884 with great success, and we may gain not a little from the experience there acquired. We are told* that these "schools of mines have been formed on the various gold fields, with the view of affording technical instruction on subjects relating to minerals, mines and mining. The distinguishing feature of the school is that it brings the instruction to the centers of the mining communities." The enthusiasm created among the miners after the first course of three lectures was so great that the instruction was extended and practical classes for the testing of minerals were promptly organized in different districts. The Minister of Mines, "recognizing the directness and practical character of the instruction thus given, the warm reception it was meeting with on the part of the miners, and the great advantages which, if properly managed, it could not fail to bring to the mining community, extended the movement to the whole colony, and fostered it into what has now become an important colonial institution."

It appears that in New Zealand the establishment of a school of mines in any district is left to the action of the miners themselves, who form themselves into a club or institute, usually called a "school of mines," and they elect their own officers and make their own rules. They fix the annual fee at from 5 shillings to £1 (\$1.25 to \$5), and with the money and that received as donations by mine owners, merchants and others, they buy from the government at about half cost chemicals and other assay office supplies.

The government on application sends one or more members of the teaching staff to give instruction in blow-pipe testing and assaying, and to give lectures on some mining subjects for a period of from two to ten or twelve weeks in each year. Professor BLACK, of the University of Otago, who has general charge of the scheme, describes at some length the character of the instruction given, and shows by the number of students attending the courses the great popularity it has attained. No less than 37 of these local schools had been organized within two years from the initiation of the system.

* The Handbook of New Zealand Mines, 1887.

The Thames School of Mines Association, with five local branches, had in 1886 a membership of 507. The membership fee was 10s. a year, but the banks and some private gentlemen donated considerable sums, from \$5 to \$250 each, to the schools, and the government gave in supplies an equal amount, thus enabling the Association to erect a building and provide it with lecture rooms, laboratory, museum, etc.

The Mines Department of the government imports chemicals and apparatus, and small collections of about 300 to 500 specimens of ores, rocks and various minerals and samples for blow-pipe assaying, and makes its contributions to the schools in these by selling them at half cost.

Since in this country the government occupies a more modest rôle, each community, school-district, or club or school, would have to provide the necessary outfit, and the services of able instructors and lecturers could be commanded by several of these clubs combining. The expense, which need not be large, is completely under the control of the club or school, and we believe could be easily raised. The richer clubs would have their reading rooms, as well as laboratories, lecture rooms, etc.

THE SUBJECTS TO BE TAUGHT.

It seems to us that the instruction should be elementary and above all practical in its bearing.

Courses of lectures on economic geology, illustrated with specimens and with, for example, the Ives strata maps; on mineralogy, with specimens of the chief minerals, and especially of those which have economic value; on the nature and modes of occurrence of the useful minerals, in veins and other deposits; on the methods of prospecting for such minerals, both by surface and underground work; on mining, with the view of showing how to save labor and cost by driving in the best directions as regards the bedding and cleavages of the rock; on how to pitch holes and to charge them so as to get the best results—these are indicated as subjects for lectures. Instruction should also be given in such simple tests of minerals by blowpiping and assaying as can be applied by prospectors and miners to determine qualitatively the contents of specimens; and lectures on the composition and use of explosives, on rock drills, pumps and other machines and appliances with which miners have to do.

In short, to give prospectors and miners such instruction as would enable them to apply their strength and intelligence to the greatest advantage, and thus to get better results from their labor. Instruction in the field should form an important feature in these clubs. This instruction should always be directed toward the attainment of greater practical efficiency, and be free from those fine distinctions and technical details, which to the comparatively untrained "practical miner" and prospector tend rather to obscure the instruction, and which they are apt to think constitutes "science," to which they consequently have an aversion.

Those who, getting this taste, want more substantial food, can go to the lesser or to the great mining schools, where higher instruction is given. Having thus introduced the subject and briefly outlined our suggestion, we trust those interested will give their views.

THE NEED OF A BETTER MINT.

The fifteenth annual report of the Director of the Mint is a more comprehensive document than its predecessors, for besides giving in detail the statistics of the operations of the active mints, Dr. KIMBALL proves the futility of maintaining the moribund Carson mint and recommends the renovation and enlargement of the Philadelphia mint. His admissions as to the antiquated designs of all the mints and the want of uniformity in their practice, suggest much more radical measures of reform and relief than he himself proposes. He says:

"I have taken occasion, under a different heading, to briefly state the serious disadvantages under which this mint labors, in common with the other mints of the Republic, from its continued equipment with machinery and appliances introduced nearly half a century ago, and far behind the state of advancement which has since been reached in the mechanism of many foreign mints and private metal works in the United States. From the pressure under which this mint is constantly impelled in order to meet the requirements of the bulk of the silver dollar and the whole of the minor coinage, the inefficiency of its mechanical equipment cannot be counteracted, as in some degree at the collateral institutions, by extra manipulations or deliberateness of work."

This remark is elicited by the fact that an extraordinary surplus occurred in the accounts of the smelter and refiner of the Philadelphia mint, due probably to his making unnecessary allowance to cover operating losses, at the expense, of course, of the bullion producer.

This undue surplus in the smelter's and refiner's department was supplemented by a still less justifiable and more mysterious surplus in the coiner's department. But while the Philadelphia mint returned an unaccountable gain, in the New Orleans mint the smelter and refiner, as well as the coiner, failed to account for the bullion paid for, the deficit amounting to \$13,243.83, or nearly one half of the legal allowance.

There seems, therefore, to be a lack of uniformity in practice and a deficiency of technical skill in the operations of the mints, which bespeak the need of reform as palpably as the slow processes dependent on the old machinery indicate the necessity of its replacement by tools of greater precision and more perfect automatic action.

Minting is a most delicate chemical and mechanical manufacture, requiring at every stage, not only scientific knowledge, but the command of hand and eye, which long practice alone can give. It can, therefore, be conducted with the utmost economy of material and labor only by thoroughly trained workmen, acting under the guidance of executive and technical officers of approved experience, who should be exempt from political influence and vicissitudes. The responsibilities thrown on the several officials are so exceptionally heavy that thoroughly competent men can be retained in the service only by the payment of good salaries. But as at present distributed, the work of the mint employs so large a number of salaried officials, that an adequate increase of compensation to the whole staff would amount to a sum which Congress would hesitate to sanction. The alternative plan, namely, to concentrate the coinage of the country in one mint, constructed on a consistent design, provided with the most perfect machinery, and presided over by a staff of chemists, metallurgists and mechanical engineers of recognized skill, under a master of the mint fitted for the position by a scientific and business training, as the present director is in an eminent degree, is one that commends itself from a business point of view.

The disproportion which the salaries of the officials of the mints bear to the wages tends to show that there is necessarily a waste of superintendence and consequently of salaries in the less active mints. Even in the Philadelphia mint the executive and technical labor must be much in excess of what would be required to supervise the same amount of work in a well-planned and equipped establishment. It follows that even if the present staff of the Philadelphia Mint were fully employed, the same staff would suffice to conduct a much larger mint, designed so as to economize labor and strength and save care and anxiety, instead of as in the present mint cunningly contrived to exhaust both body and mind. What wear and tear and misery poor Dr. BOOTH must have undergone through the loss of the bullion in his care, but for whose safe keeping no vaults were ever provided.

The work done at the three active mints during the fiscal year of 1887 was as follows :

| | Number of pieces coined. | Per cent. | Value of coins. | Per cent. |
|--------------------|--------------------------|-----------|-----------------|-----------|
| Philadelphia..... | 81,531,391 | 83.1 | \$23,277,600 | 40.3 |
| San Francisco..... | 5,380,126 | 5.5 | 23,215,812 | 40.2 |
| New Orleans..... | 11,210,000 | 11.4 | 11,200,000 | 19.5 |
| | 98,122,517 | 100.0 | 57,703,412 | 100.0 |

The expenditures were as follows :

| | Salaries of officers and clerks. | Per cent. | Wages. | Per cent. |
|--------------------|----------------------------------|-----------|--------------|-----------|
| Philadelphia..... | \$40,065.69 | 35.6 | \$292,379.88 | 54.6 |
| San Francisco..... | 41,856.56 | 36.6 | 169,079.88 | 31.6 |
| New Orleans..... | 31,841.29 | 27.8 | 73,997.58 | 13.8 |
| | \$114,363.54 | 100.0 | \$535,477.34 | 100.0 |

The expenditure for salaries in each of the three mints is approximately the same, despite the much greater amount of work done at Philadelphia than at either of the others, as shown by the larger number of coins struck and the greater outlay for wages.

As the San Francisco mint is devoted almost exclusively to the coinage of gold, the percentage value of the product is high, while the percentage of pieces coined is low. The Philadelphia mint makes all the minor or subsidiary money, therefore, while coining 83.1 per cent of all the pieces, turns out only 40.3 per cent of the value. As the coinage of gold demands special precautions, it would be fairer to draw comparisons between Philadelphia and New Orleans, neither of which coined gold. We find, therefore, that though Philadelphia coined 87.9 per cent, New Orleans only 12.1 per cent of the pieces struck off in these two mints, and Philadelphia turned out 67.4 per cent and New Orleans only 32.6 per cent of the value, yet the salaries were as 56 to 43.9 and the wages as 78.7 to 21.8.

Taking the mean of the percentage of pieces and values coined by the two mints, we have : In Philadelphia, 77.6 per cent ; in New Orleans, 22.4 per cent, or a difference of 55.2 per cent, which is almost exactly the difference of their percentage expenditure on labor, while the expenditure on salaries differs only 12.2 per cent.

But it requires no argument to prove that there must of necessity be a woeful waste of administrative energy, and consequently of salaries, in three establishments doing the work of one. And that therefore on the score of economy, and of greater executive and technical efficiency, through the employment of more highly skilled and better paid officials, all the coinage should be done in one mint, unless the cost of collecting the bullion and distributing the coin be prohibitory.

The day was when that would have been the case in this country, as it still is in Mexico, but that day has passed.

It would appear that \$22,360,000 of the \$22,393,879 of the gold coinage of 1887 was struck off in San Francisco, but only a small proportion of this total can have been circulated on the Pacific Coast. Only five millions of the eighteen millions product of the United States, came from California mines, the balance was produced elsewhere, and transported as bullion to San Francisco to be coined. Colorado and Dakota,

together, both of them east of the Rocky Mountains, turned out nearly as much as California; and Montana, whose outlet is naturally eastward, though still contributing only one half of California's output, bids fair to gain upon her. California can no longer claim a virtual monopoly of gold production, nor is San Francisco centrally situated to the gold mining districts of the country.

We believe, therefore, that California's bullion can be carried East and her gold coin be delivered to her from an Eastern mint at less cost than is now incurred in transporting all the gold of the country to its uttermost Western limit to be coined, and retransporting the greater bulk of the coin back over the mountains.

By far the larger part of our silver production finds its way in lead bullion to the large refining works of Omaha, Kansas City, Chicago, Ill.; St. Louis, Mo.; Pittsburg, Pa.; and Newark, N. J., all of them far distant from New Orleans, where, nevertheless, 11,210,000 standard dollars are coined, and tons of silver are being stored away.

Even if the sugar and cotton industries, tributary to New Orleans, consumed her total coinage, that amount of coin could be about as economically transported from an Eastern mint as the bullion is transported from the Eastern refining works to New Orleans.

The New Orleans mint certainly seems to be a geographical and economical anomaly, and we can not suppose that any one would dream of erecting a mint there, did one not exist.

With the machinery of the Post Office under its control, the transportation by the government of both gold bullion, and gold and silver coins, should be neither costly nor hazardous.

The Philadelphia mint is antiquated and confused in design, and utterly inadequate in size for the work thrown upon it, but it occupies most of a block in the most valuable part of the city. The New Orleans mint might be mistaken for the Custom House, situated, as it is, on the levee in the business quarter of the town.

Before appropriating a large sum, as recommended by Dr. KIMBALL, to enlarge the Philadelphia mint, it would seem to be the part of prudence to consider whether the New Orleans and Philadelphia mints should not be dismantled, and the buildings and ground sold, and the San Francisco mint used as an assay office only, and one central mint built, on a well-considered plan, capable of expansion, provided with the very best metallurgical and mechanical appliances, where, under one head and an efficient staff of deputies, the work of coining could be done as systematically, and with as little waste of labor and loss of material, as the great private manufacturing enterprises of the country are conducted, and which would remove the disgrace which attaches to our present mints of being the most backward of our great factories, and inferior to the great mints of the rest of the world.

A point is brought out conspicuously in Dr. KIMBALL'S report, to which we would invite the attention of our silver men. It points to seeming injustice, which, if it could be remedied, would compensate slightly for the low price of silver. The seignorage in silver for the fiscal year ending June, 1887, in other words the profits of the Government, or as Dr. KIMBALL puts it, "The difference between the cost of the bullion and the nominal value of the coin" was \$7,950,263.55. The seignorage profit from 1877 to 1887 was \$39,057,506.

The dividends paid by all the gold and silver and argentiferous lead mining companies of the United States in 1887 were \$8,708,000. Those paid by companies producing silver and argentiferous lead only were about \$7,000,000. The Government, therefore, seemingly made on the simple operation of coining more than the united silver industry made in producing the bullion. We use advisedly the word seemingly, for if the Government can not circulate its silver coin the profit is only apparent as is the producer's loss. The Government's profit is, of course, made by coining base money. The silver producers would not profit were the market value of the Bland dollar to fall to that of silver bullion, and were the Government's large profit to be thus wiped out.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested. All letters should be addressed to the MANAGING EDITOR. We do not hold ourselves responsible for the opinions expressed by correspondents.

Training Schools for Prospectors and Miners.

EDITOR ENGINEERING AND MINING JOURNAL :

SIR : The suggestion you make in last week's JOURNAL under this head is, I think, a good one; but I wish you would give a little more fully your idea of what these training schools should be. Would they not be, more or less, like the mining schools we have, and what advantages would they offer to the classes you mention ?

Would the miners and prospectors take any interest in such training schools, and who would be found to give the lectures, and how could the lecturers be paid ? My experience has been that miners do not take kindly to instruction from professors, and that the professor's instruction is not of much value to the miner in earning his living or seeking his fortune. Perhaps the former follows from the latter.

Give us some more light, for if properly managed the plan seems to me a good one.

B. B.

ASPEN MOUNTAIN: ITS ORES AND THEIR MODE OF OCCURRENCE.

By D. W. Brantch, M.E.

GENERAL DESCRIPTION.

That portion of Aspen Mountain represented by the accompanying illustration lies directly south of the city of Aspen and comprises a section of country about two thirds of a mile square, extending from the Enterprise Tunnel on the north to the La Salle shaft on the south, and from the slope of East Aspen Mountain to a short distance beyond the crest of West Aspen Mountain.

The model of Aspen Mount shown, in Fig. 1 is built on a scale of 40 feet to the inch, and is 6 feet 11 1/4 inches square. It is arranged to fault, as in Fig. 2, in order to show the interior structure of the mountain as disclosed in the underground workings. The different vertical sections, Figs. 3, 4, 5 and 6, are photographic reductions of colored maps about 7 feet square. The top of the first mudsill in the Enterprise tunnel was assumed to have an altitude of 5000 feet, and was taken as the datum line. From this point, which was also made the base of the model, the mountains shown at the back rise 1640 feet. Contours were taken at 20 feet intervals, and wherever possible the character of the rocks was noted at each station. At first it was supposed that considerable difficulty would be met with in determining the different outcrops, owing to the great depth of soil on some portions of the mountain, but here the ubiquitous prospector came to our aid, and his numerous prospect holes were found in every possible situation.

TOPOGRAPHY.

Both East and West Aspen Mountains are exceedingly rugged and precipitous. Although the area covered by the model is only about 3350

size is so great that it is impossible to form any clear conception of its structure, but when it is viewed from Smuggler Mountain, a couple of miles distant, a beautiful bird's-eye view is obtained which shows the space between East and West Aspen Mountains to be a long narrow syncline, on both sides of which may be seen the upturned edges of the sedimentary strata. The bottom of the syncline dips rapidly to the north, and as we follow it southward the depth of sedimentary rocks in this long, narrow trough becomes less and less, until we find mine shafts, like the Best Friend and San Jacinto, reaching down into the lower carboniferous limestones near the very center of the syncline. A close examination of the pitch of the rocks where exposed upon the surface and in the underground workings on both East and West Aspen Mountain fully confirms this view. On the west slope of East Aspen Mountain the erosion has been carried down to the Cambrian quartzites, which dip to the northwest at an angle of about 30 degrees. The limestones outcropping on the west side of Spar Ridge have a general dip to the northwest of about 40 degrees; while, as we go westward through the workings of the Aspen and Connemara, we find the pitch gradually flattening out until it does not exceed 30 degrees. On West Aspen Mountain, between the Granite and the Traynor faults, the limestones pitch to the northeast at angles varying from 50 to 60 degrees. Eastward from the Traynor fault the pitch gradually decreases, and in the New York Tunnel, which is 1120 feet in length, the rocks pitch to the northeast at an angle of 34 degrees. Between this point and the Connemara the Lower Carboniferous rocks have not yet been pierced in the center of the syncline, but their continuity throughout can scarcely be doubted. Further south the workings from the east and west outcrops of this syncline have already approached each other so nearly that the identity and continuity of the rocks is no longer questioned.

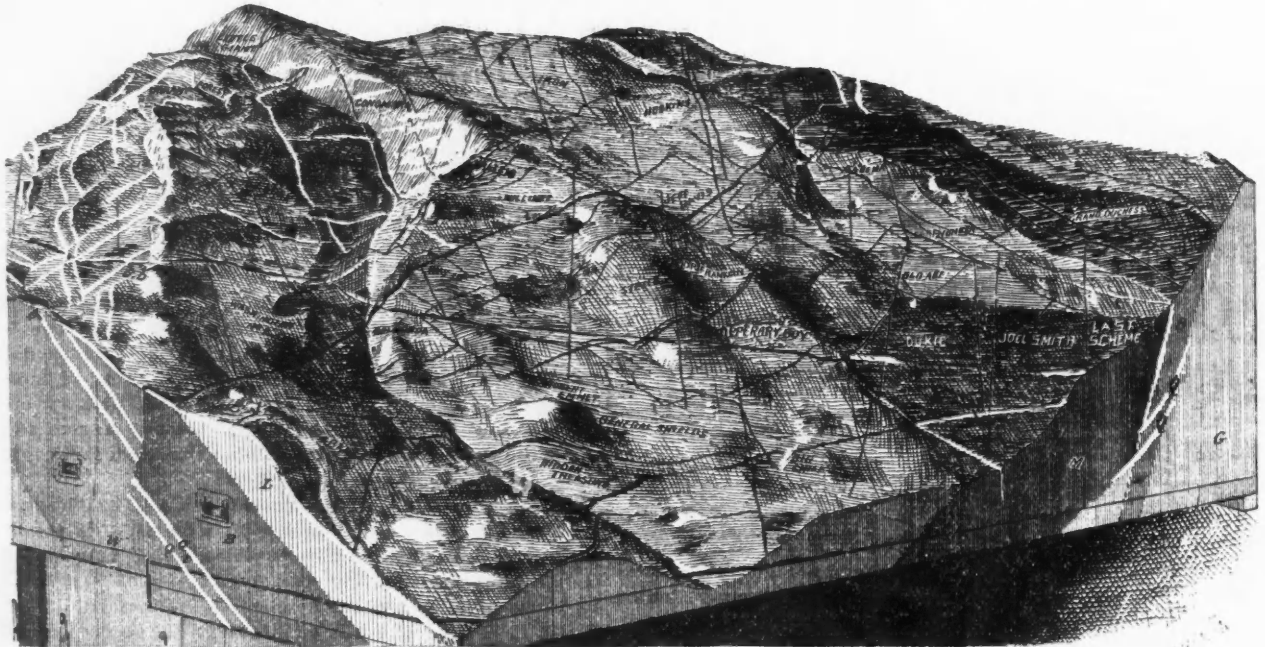


FIG. 1.—MODEL OF ASPEN MOUNTAIN.

KEY.

G. Metamorphic granite.
C. Cambrian quartzite.
W. White limestone.
Q. Parting quartzites.

D. Dolomite.
B. Brown limestone.
L. Blue limestone.
M. Middle carboniferous.

F. Faults.
P. Porphyry.
G L. Gray limestone.
O. Ore.

feet \times 3350 feet, there are within that area differences in altitude of 1640 feet. The western slope of East Aspen Mountain is so steep and rocky that the little ravines are used as timber slides, and mining timbers shoot from the top of the mountain to the bottom with little or no assistance. Along the crest of Spar Ridge and its continuation southward there is an irregular broken line of blue limestone cliffs, which at their highest point show a sheer precipice 115 feet in height. At the base of these cliffs the slope is so steep that the mine dumps have to be retained by heavy cribbing to prevent rocks from falling to the foot of the mountain and filling up the wagon road below.

Vallejo Gulch, in which the Aspen mine is situated, is the result of an enormous land slip, the debris from which covers an immense area at the foot of the mountain, and when viewed from a sufficient distance exhibits beautifully the characteristic form so common to land-slides. Both sides of West Aspen Mountain are remarkably steep, while in many places the sharp granite pinnacles which form its crest are only a few feet wide at their summit.

GLACIAL ACTION.

The cañon of the Roaring Fork River, which flows through the city of Aspen, is entirely of glacial origin. Nine miles above Aspen the bed of the cañon is completely covered with huge roches moutonnees, whose curved glassy surfaces are still so smooth and slippery that the stage road had to be "corduroyed" over them.

Opposite the city of Aspen, on both sides of the river, to a distance of about a thousand feet above the present channel, the mountain sides are covered with glacial debris and huge blocks of metamorphic granite, which have been brought there on the ice from further up the Saguache Range.

THE SYNCLINE.

Standing on Aspen Mountain or traveling about over its surface, its

EVIDENCES OF PRESENT MOVEMENT.

All over Aspen Mountain land-slides small and great are of frequent occurrence. As there must have been a time when the mountain side was less thickly covered with grass and trees than at present, it follows that the angle of repose must have been much flatter then than now, and the numerous land slips now occurring show that the mountain is probably rising and the slope angle increasing. The most careful resurveys show that many firmly fixed corner stakes have a steady movement year by year. A most elaborate system of measurements and surveys checked and rechecked proves that the portion of the mountain overlying the Veteran Tunnel has moved 3'4 feet in two years.

Among the many deep shafts at Aspen there are few, if any, which have remained vertical for any length of time. Usually the top of the shaft moves northward, so that the entire opening may be said to lean down hill, if such an expression can be used. In other cases the upper strata seem to slide directly across the lower, showing that the strata are moving upon each other as well as with the mass of the mountain. Along the line of the Traynor fault, on West Aspen Mountain, the upthrow side of the fault forms a more or less continuous cliff, the rocks of which are so much smoother near the base than higher up that the distinction can not fail to be remarked by the most superficial observer. The difference between the weather-beaten, moss, and grass-covered rocks at the summit of the cliff and the smooth, firm limestones at the base is probably caused by the greater length of time the summit has been exposed to the elements than the base. In other words, the rocks which have but recently, geologically speaking, risen above the surface on the upthrow side of the fault are much smoother and less weather-beaten than those near the summit of the cliff which have braved the storms of ages.

Throughout the mines the series of slips or modern faults, referred to in the next paragraph, afford, perhaps, the most conclusive proof that the

An Improvement in Photographing.—A German photographer, Herr Ottomar Anschultz, has succeeded in preparing photographic plates so sensitive that an exposure of 1-5000 of a second is sufficient. A very small lens must be used, so that the pictures are generally only 7-16 of an inch in length and breadth. Enlarged to an inch and a half on glass plates and rotated in series of twenty-four before a Geissler tube, the pictures are used for reproducing the motions of an animal on a large screen.

The Longest Tangent in the World.—The new Argentine Pacific Railroad from Buenos Ayres to the foot of the Andes has on it what is probably the longest tangent in the world. This is 340 kilometers (211 miles) without a curve. In this distance there is not a single bridge and no opening larger than an ordinary culvert, no cut greater than one meter in depth, and no fill of a height exceeding one meter. There is almost an entire absence of wood on the plain across which the western end of the road is located. This has led to the extensive use of metallic ties, which will be employed on nearly the entire road.

Revival of American Petroleum Trade with Syria.—According to the report of Consul Bissinger, from Beirut, Syria, the Russian petroleum which was introduced there about two years ago, wholly driving out American competition on account of its cheapness, has proven unsatisfactory, and more expensive in the end. It burns away more rapidly, and gives a poorer light, besides being insecurely put up, so as to cause loss to the dealers from leakage. Merchants in Beirut are again ordering shipments of American oil, owing to the demands of customers, and as this trade amounted in the past to over \$250,000 a year, its revival is a matter for congratulation.

The Metallurgy of Bismuth is the title of a paper contributed to the Journal of the Royal Society of England, by Mr. E. Matthey, in which he describes how, in order to separate gold and silver from bismuth, he adds two per cent. of zinc to the molten metal, allows the mass to cool gradually, and removes the surface crust. This process is repeated. The whole of the gold and silver is found in the skimmings. The bismuth litharge so obtained is fused in a crucible with borax. The gold sinks to the bottom, being at the same time freed from any base metals by the action of the bismuth oxide. The slag is again fused with addition of bismuth to separate the last traces of gold. The author separates bismuth from lead by means of repeated crystallizations, alloys of bismuth and lead melting at lower temperatures than bismuth itself. Bismuth holding twelve per cent. of lead contained only four per cent. after four crystallizations.

Electrolysis of Magnesium.—*Le Génie Civil* describes a process for the production of magnesium by electrolysis, the invention of M. de Montgela, which is as follows: A bath is formed, consisting of a concentrated solution of magnesium chloride combined with an equally concentrated solution of a chloride of some other metal, aluminum excepted. The preferred formula is chloride of zinc one part, and chloride of magnesium two parts, the combined solutions having a strength of 18 degrees Beaumé. The best results are obtained by the method of galvanic deposition with a simple pile. The exterior vessel of the pile contains the double solution of chlorides with a copper cathode, while an amalgamated zinc anode is placed in the inner vessel, which holds dilute sulphuric acid. The zinc deposits in slender filaments and arborescent forms, and the magnesium comes down in a state of crystalline grains. The zinc and magnesium are then collected, washed and dried, and afterwards melted in a crucible with a covering of common salt. The zinc volatilizes and leaves the magnesium pure.

[The latter stage of this process, as here described, seems questionable, for magnesium is volatile at the same temperature as zinc, namely, 770 degrees Fah.—EDITOR ENGINEERING AND MINING JOURNAL.]

Photographs of Lightning Flashes.—A correspondent to *Science* summarizes an interesting report of the Royal Meteorological Society, London, relative to photographs of lightning flashes. From sixty photographs obtained, there are six types of flashes observed, as follows: 1. Stream lightning, a plain, broad, smooth streak of light. 2. Sinuous lightning, an irregular flash, preserving, however, a line in one general direction. The thickness of this line varies greatly, often expanding considerably in the middle. 3. Ramified lightning, in which the flash is branched at one extremity, like the roots of a tree. 4. Wandering lightning, a wandering flash, often forming loops, and preserving no definite course. 5. Beaded or chapleted lightning, containing distinct brighter spots along the line, supposed to be points where the flash was altering its course abruptly. 6. Ribbon lightning, a common type, often partaken of by the other forms in part of their course. There is some doubt about the accuracy of the reproduction of ribbon flashes by the camera, and the Society hopes to be able to make new trials to verify these results. It is noticeable that the zig-zag form is nowhere seen. The Society is desirous of obtaining other photographs of lightning flashes, and request such contributions from all who will send them.

So-called "Electrical" processes for facilitating the amalgamation of gold and silver ores are extremely popular, and it must be confessed that electricity does sometimes exert a very favorable influence on amalgamation. In some, perhaps in all, these processes the effect of the electric current appears to be to keep the quicksilver bright, and in some at least this is probably effected by a very slight decomposition of the water or some chemical which produces a sodium amalgam or a formation of hydrogen sufficient to clean the mercury and make it more readily dissolve the gold or silver. Among the recent candidates for favor in this department is the Birmingham process which, it is claimed, has obtained very satisfactory results on refractory ores from the Washington avenue mine, Boulder County, Colo. We have not the details of the tests to refer to; but this is of little consequence, since the process can be tried at either Riotte's New York Metallurgical Works, or McDermott's Sampling and Testing Works in this city, and the ore from each mine should be tested to determine the process best adapted to its treatment. We, therefore, refer those who have difficult ores to treat or who are not saving closely in their present practice to the claims made by Mr. Birmingham in our advertising pages.

Prices of Rare Alloys.—The Cowles Electric Smelting and Aluminum Company, Lockport, N. Y., referring to the quotations from P. W. L. Bierman, of Hanover, Germany, published in our issue of July

7th, page 6, state: "We beg to submit for publication the following table, comparing German prices with those made by this company upon the same alloys. We omit aluminum brass, as Mr. Bierman does not give the composition. The prices we quote on aluminum bronze are subject to liberal discount for quantity orders. Our aluminum bronze is aluminum and pure lake copper. In reducing the measures used by Mr. Bierman to American equivalents we estimate 1 mark = 24½ cents, 1 kg. = 2½ pounds."

| Prices of P. W. L. Bierman's, per pound. | Aluminium bronze. | Prices of Cowles E. S. & R. Co.'s, per pound. |
|--|---------------------|---|
| 33 9-10 cents | 2½ per cent Alu. | 25 cents. |
| 44½ cents | 5 per cent Alu. | 33 cents. |
| 62 36-100 cents | 7½ per cent Alu. | 39 cents. |
| 74 6-10 cents | 10 per cent Alu. | 46 cents. |
| Ferro aluminium. | | |
| 61¼ cents | 5 per cent Alu. | 16 3-10 to 26 3-10 cents. |
| 72¾ cents | 10 per cent Alu. | 31 3-10 to 51 3-10 cents. |
| Silicon copper. | | |
| 61¼ cents | 3 per cent Si. | 31¼ to 46½ cents. |
| 72 3-10 cents | 3 to 4 per cent Si. | 38 to 56 3-10 cents. |
| | 6 per cent. | 55 6-10 to 95 6-10 cents. |
| | 8 per cent. | |

BOOKS RECEIVED.

[In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price! These notices do not supersede review in another part of the Journal.]

Das Erdöl (Petroleum) und Seine Verwandten. By Hans Höfer, Professor at the School of Mines at Loeben. Published by Friedrich Vieweg & Son Braunschweig, Germany, 1888. Pages 179 and Index. Illustrated.

Schmieröl Untersuchungen (Tests of Lubricating Oil). By A. Martens, Director of the Mechanical Technical Testing Laboratory at Berlin. Published by Julius Springer, Berlin, Germany, 1888. Pages 72. Illustrated.

A Description of the Desiccated Human Remains in the California State Mining Bureau. Bulletin No. 1. By Winslow Anderson, Md. Published by the California State Mining Bureau. Wm. Ireland, Jr., State Mineralogist, Sacramento, Cal., 1888. Pages 41. Illustrated.

Geology of Colorado Ore Deposits. By A. Lakes, Professor at the State School of Mines, Golden, Colorado. Published by the author. 1888. Pages 159 and Index. Illustrated.

PATENTS GRANTED BY THE UNITED STATES PATENT-OFFICE.

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

PATENTS GRANTED JULY 3d, 1888.

- 385,342. Clay Pulverizer. Jonathan Creager and Harry M. Creager, Cincinnati, Ohio.
- 385,344. Porous Cup for Galvanic Batteries. Asabel K. Eaton, Brooklyn, N. Y., Assignor of one third to Colin M. Thompson, same place.
- 385,343. Process of Obtaining Aluminium Chloride. Camille A. Faure, New York, N. Y.
- 385,373. Method of Making Cut Nails. Reuben H. Plass, New York, N. Y.
- 385,378. Device for Removing Water from Gas and other Pipes. James F. Shay, Toledo, Ohio.
- 385,379. Current-Collector for Series Electric Railways. Sidney H. Short, Denver, Colo., Assignor, by direct and mesne assignments, to the United States Electric Company, same place.
- 385,384. Method of Joining Pipes by Electricity. Elihu Thomson, Lynn, Assignor to the Thomson Electric Welding Company, Boston, Mass.
- 385,385. Method of Electrically Welding Chains and Links. Elihu Thomson, Lynn, Assignor to the Thomson Electric Welding Company, Boston, Mass.
- 385,386. Direct Electric Welding Machine. Elihu Thomson, Lynn, Assignor to the Thomson Electric Welding Company, same place.
- 385,387. Feed-Water Regulator. Wallace Thomson, South Manchester, Conn.
- 385,393. Magnesium Lamp. Theodor Weisser, Vöhrenbach, Baden, Germany.
- 385,397. Engine. Charles C. Worthington, Irvington, N. Y.
- 385,407. Fastening for Miners' Car Cnecks or Labels. Hamlet Corrigan, Forest City, Pa.
- 385,408. Metal Roofing. Amos A. Cushman, Shreve, Ohio.
- 385,413. Electric Railway, Power and Lighting Appliance. Isaac W. Heysinger, Philadelphia, Pa.
- 385,424. Smelting Furnace. Orrin B. Peck, Chicago, Ill.
- 385,425. Steam Generator. Orrin B. Peck, Chicago, Ill.
- 385,434. Rolling-Mill Guide. John W. Walsh, Troy, N. Y., Assignor to Mary Elizabeth Walsh, same place.
- 385,435. Excavating and Pipe-Laying Machine. William Watson, Minneapolis, Minn., Assignor to the National Steam Excavating Company of Minnesota.
- 385,437. Metal-Working Rolling Mill. Stephen W. Baldwin, Yonkers, N. Y.
- 385,444. Steam Boiler Furnace. John F. Clark, New York, N. Y.
- 385,458. Dynamo-Electric Machine. August Harding, Oakland, Cal.
- 385,484. Device for Securing Wire to Railroad Rails. Frederick Stitzel and Charles Weinedel, Louisville, Ky., Assignors to the American Semaphore Company, same place.
- 385,504. Rectifying Column for the Distillation of Liquids and Gasses. Walter E. Colwell, Cincinnati, Ohio.
- 385,506. Valve Mechanism for Oscillating Engines. William B. Coulter, Bristol, Conn.
- 385,509. Furnace for Steam Boilers. John T. Ellis and James H. Ellis, Toronto, Canada.
- 385,510. Steam Boiler. Joseph A. Eno, Newark, N. J.
- 385,521. Valve. Harvey S. Park, Chicago, Ill.
- 385,527. Apparatus for Hoisting and Moving Earth. John Ryan, Toronto, Canada, Assignor of one half to Maurice J. Sheenan, same place.
- 385,533. Valve and Valve Gear. Elijah F. Spaulding, Oil City, Assignor of one third to John K. Kallack, Erie, Pa.
- 385,535. Governor. Joseph W. Thompson, Columbiana, Assignor of one half to the Buckeye Engine Company, Salem, Ohio.
- 385,540. Power-Hammer. Herman J. Bierhart, Syracuse, N. Y., Assignor to Christopher C. Bradley, same place.
- 385,549. Disconnecting Device for Valve Rods. Thomas C. Dill, Philadelphia, Pa.
- 375,551. Ore-Concentrating Apparatus. George F. Gould, Grass Valley, Cal., Assignor of two thirds to William H. M. Cobb and Daniel F. Norton, both of Dayton, Nev.
- 385,552. Brick Mold. James Grant, Goshen, Ind.
- 385,596. Machine for Reducing Ores and Other Materials. Gurdon Conkling, Glens Falls, N. Y.
- 385,600. Hydraulic Well-Boring Machine. George W. Durbrow, Los Angeles, Cal.
- 385,614. Brick-Machine. William L. Gregg, Philadelphia, Pa.
- 385,615. Process of Manufacturing Brick. William L. Gregg, Philadelphia, Pa.
- 385,616. Apparatus for Galvanizing Metals. Robert Grey Struther's, Ohio.
- 385,619. Regulating-Valve. Melville O. Haldeman, Indianapolis, Ind.
- 385,623. Furnace. Ernest Hermann and Louis P. Cohen, Paris, France.
- 385,638. Stone and Ore Crushing and Pulverizing Machine. Frank B. Meech and Alfred H. Meech, Cleveland, Ohio.
- 385,647. Electric Meter. Elihu Thomson, Lynn, Mass.
- 385,653. Apparatus for Winning Coal, etc. Thomas Archer, Jr., Newcastle-upon-Tyne, England.
- 385,660. Ratchet-Drill Stock. William Coppaga, Terre Haute, Ind., Assignor of one half to William H. Larimer and Peter Craczenberger, both of same place.
- 385,661. Chemical Fire Extinguisher. William H. Cummings, Charlton Depot, Mass.
- 385,672. Electric Railway. Rudolph M. Hunter, Philadelphia, Pa., Assignor to the Electric Car Company of America, same place.
- 385,675. Electric Motor and Dynamo-Machine. Orasio Lugo, New York, N. Y.

THE METALLURGY OF STEEL.*

By Henry M. Howe.

(Continued from page 8.)

§ 228. AGITATION DURING SOLIDIFICATION.—Imagining that the pine-tree crystals, already referred to in § 222, were an important cause of blowholes, their tops protruding so far beyond the completely solidified portion of the ingot and into its still molten center as to mechanically detain rising gas bubbles, imprisoning them in the solidifying mass and thus causing blowholes, Chernoff would wash these crystals off, "Chern"-them-"off," I am tempted to say, by rotating the solidifying ingot at a constantly altering speed, with occasional reversals.^a Webb has used this method successfully in casting locomotive driving wheels, the rate of rotation gradually increasing till it reaches some fifty revolutions per minute, then gradually decreasing.^b

Forsyth^c would rapidly hammer the sides of the ingot mould, the jarring thus caused interfering with crystallization, and the waves set up washing off the delicate incipient crystalline axes.

On repeatedly applying the former method to freezing ice bottles I find that the formation of tubules is wholly prevented: many very minute spherical cavities result, whose total volume is much less than that of the tubules usually present. On remelting one lot of ice thus frozen and, without removing from the bottle, allowing to resolidify tranquilly, it developed a great mass of tubules, whose volume I estimated was at least ten times as large as that of the spheres formerly present.

Both with ice and steel it is probable that agitation, whether due to rotation or jarring, simply mechanically detaches the gas bubbles which adhere to the solidifying surfaces, and so promotes solidification in continuous layers free from blowholes.

Rotation should greatly diminish the volume of the pipe, by stirring up the molten and even pasty metal, thus rendering its temperature more uniform throughout its cross section. Hot metal from the interior is washed against the frozen shell, the cooling of the former is hastened, that of the latter retarded: thus the difference between the mean temperature of interior and that of shell at all times during freezing, including of course the time t' , is greatly diminished, and we have seen that the volume of the pipe should depend on this difference at the time t' . (§ 225.)

Rotation, in that it hastens the cooling of the center of the ingot should oppose segregation: but if extremely rapid it might possibly favor segregation by forcing the heavier components centrifugally and the lighter components centripetally, somewhat as the rapid rotation of milk hastens the separation of cream.

§ 229. LIQUID COMPRESSION, or subjecting the steel while still molten to pressure, was described by Bessemer in 1856, and has since been often tried, and abandoned because it did no good commensurate with its cost. It is said to be practiced by Whitworth and at Abouk off, with what result we will shortly consider.

A. Whitworth^d casts his steel in a flask consisting of a steel cylinder L, Figure 43, supported by steel hoops K. Within this is arranged a lining of unconnected iron rods M, pierced with numerous small holes for the escape of

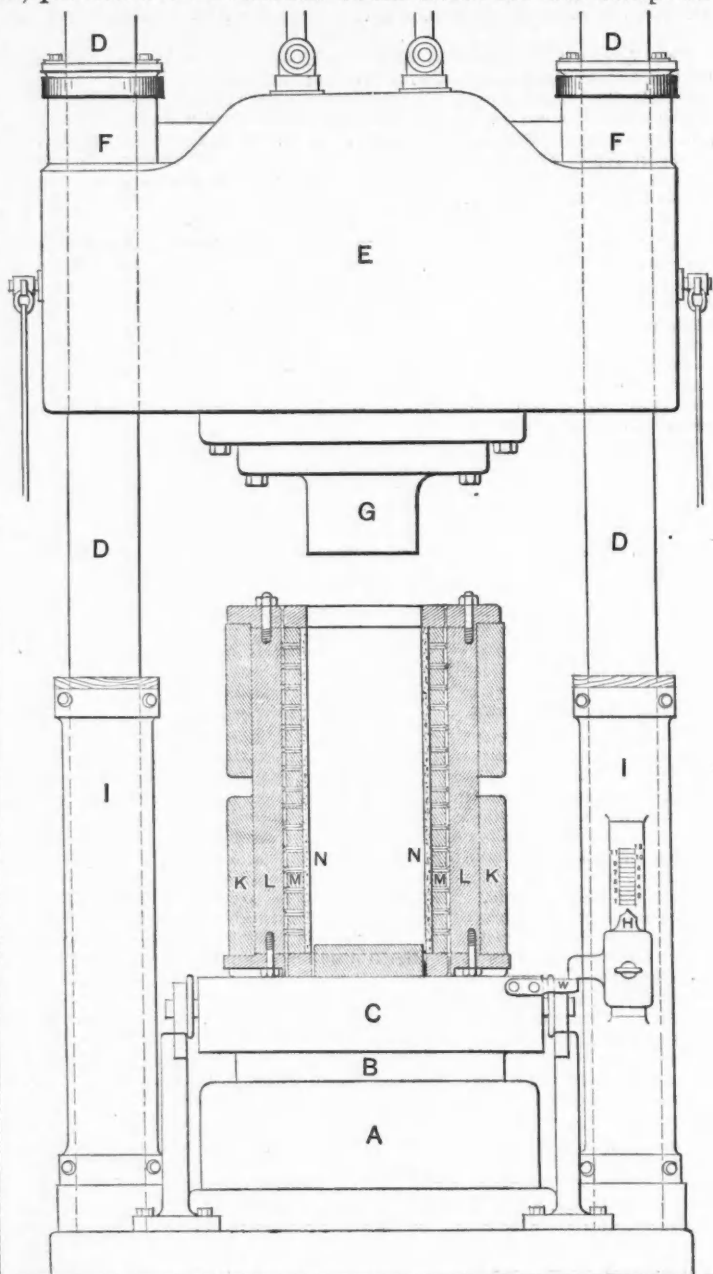


Fig. 43.

Whitworth's Casting Press for Liquid Compression.

(Press in elevation, mould in section.)

A, Main compressing cylinder. B, its plunger. C, carriage on which the flask rests. D D, four hollow pillars guiding and supporting the main cross-head. E, the main cross-head, raised and lowered by a hydraulic cylinder above it. F F, nuts for locking the main cross-head. G, boss against which the steel in the mould is forced. H, indicator, showing the rise of the main plunger B. I I, split stops, fastened to the pillars with bolts and clips, to support the head main cross-head when the press is not in use. K K, steel jackets for mould. L L, the mould. M M, perforated cast-iron lagging. N N, inner sand lining.

gas as shown, and within this a layer of moulding sand, N. By means of the car C, flask and steel are quickly transferred to the top of the vertical plunger B of a powerful hydraulic press. A is the cylinder in which this plunger plays.

^d Rept. Select Committee of U. S. Senate on Ordnance and War Ships, 1886, p. 23; Proc. U. S. Naval Inst., X., p. 637, Jaques. In British patent 1292, May 31st, 1856, Bessemer shows and describes an ingot mould with a vertical hydraulic ram at the bottom, and a sliding cover, for compressing the ingot when semi-fluid or after solidification. Whitworth, whose earliest patent which I have met relating to the compression of steel is that of Nov. 24th, 1865, No. 3,018 (British), thus seems to be antedated by some nine years: but his name has become so firmly attached to this method of compression that it would be difficult to replace it with Bessemer's, if, indeed, Whitworth's successful development of this process does not justify naming it after him. (Cf. Journ. Iron and Steel Inst., 1881, I., p. 197.)

^e "Steel and Iron," Greenwood, p. 510.

* Copyright by the Scientific Publishing Company, 1887.

^a Revue universelle, 2nd ser. VII., p. 154, 1880.

^b F. W. Webb of Crewe, Journ. Iron and Steel Inst., 1882, II., p. 522.

^c Private communication.

A massive crosshead E forming the cap of the press is immediately lowered until a projection G on its lower surface comes in contact with the upper surface of the liquid steel, completely closing the mould, when the crosshead is locked in position, and the plunger B on which the flask and its carriage rest is raised, forcing the steel upwards against the rigidly fixed crosshead. The device of moving the crosshead hastens matters, since it can be moved much faster than the slow-moving plunger of the hydraulic press: and it moreover enables us to restrict stroke of the latter to the distance by which the ingot is actually compressed longitudinally.

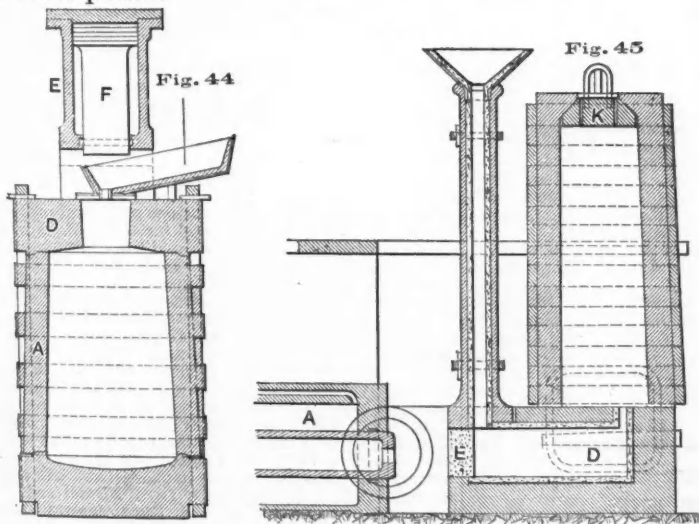
The pressure of the steel is gradually increased, usually till it reaches 6 tons, occasionally till it reaches 20 tons per square inch of the horizontal section of the ingot. The press at Aboukoff exerts a total pressure of 10,000 tons.^a With a 45 ton ingot the maximum pressure is reached in about 35 minutes.

During this time there is a "continuous and violent" evolution of gas and flame, and the ingot is compressed by one eighth of its length. A pressure of 1,500 lbs. per square inch from an accumulator is now substituted for the direct pressure of the pump, and is maintained until the—"metal is sufficiently cooled to insure no farther contraction in the mould"—(which taken literally means till it is completely cold), so as to follow up the contracting steel and prevent the formation of external contraction cracks, from local adhesion to the sides of the mould or from other cause.

The gas evolved is said to be chiefly carbonic oxide, and its evolution is said to cease towards the end of the compression.

At St. Etienne, at Worcester, Mass., and at Neuberg in Styria somewhat similar methods of compression have been employed. At Neuberg a total pressure of from 400 to 700 tons was applied, and maintained only for from 30 to 60 seconds.^b

Whitworth attacks the ingot at its strongest point, so that to accomplish given compression he has to expend the maximum of energy. To create even a slight pressure within the soft interior he must actually compress the most unyielding portion, the early freezing walls, and that too in a direction in which they resist most powerfully. In other methods the ingot is attacked at much weaker points.

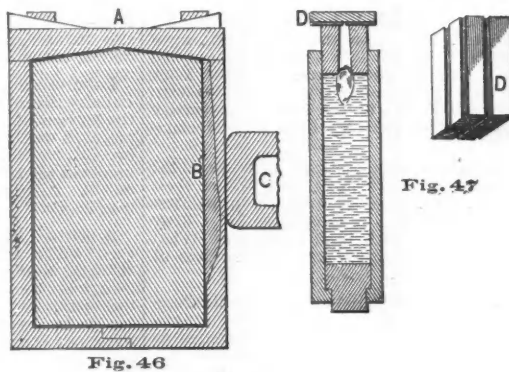


B. Daelen employs a number of expedients for compressing steel, one of which is illustrated in Figure 44.

^a "Steel and Iron," Greenwood, p. 510.
^b Engineering, XX., p. 107, 1875.

The steel is cast in a powerfully clamped iron mould A A (which, however, might be lined with sand, with an arrangement like Whitworth's for the escape of gas), filling it to the top of the cover D. The plunger F of a hydraulic cylinder E is then forced down into G, driving the metal into the body of the ingot. With small ingots the steel is bottom-cast in groups (Figure 45) with rather large runners, and the moulds, whose tops are closed, are strongly clamped to the base plate. A horizontal plunger A is forced by hydraulic pressure into one of these runners D, which had been temporarily closed with a brick plug E, forcing the steel thence into the moulds. The gas may escape through small holes in the mould-top, K.^c Daelen's apparatus is not now in actual use.^d

C. S. T. Williams^e employs a mould, one of whose inner faces is concave as shown in Figure 46, which represents the apparatus after the compression has taken place. As



soon as the shell of the ingot has solidified he opens the mould, which is covered with a hot brick A to retard solidification, and slips a plano-convex pressure-plate B between mould and ingot. The two sides of the mould are now gradually forced together by hydraulic pressure applied through the plunger C. The plane face of the pressure plate presses against the convex side of the ingot, forces it in, and drives the liquid steel from the interior of the ingot into the already partially formed and rapidly deepening pipe, completely filling it. Slabs which I examined hammered from these compressed ingots and broken across showed clearly that the pipe had been filled to overflowing. This process has been in use at Henry Disston & Sons' Tacony Works for over two years, and I am informed that during this time not a saw has split on account of piping. Fifteen presses are now in use, and 12 more are being built. Formerly about 30% of the weight of the ingot had to be rejected on account of piping, now only 5%. The cost of remelting the piped end is estimated by Mr. Williams at two cents per pound, if direct firing be used. This seems to me excessive. Another and most competent crucible-steel maker, who fires with gas, estimates it at half a cent a pound. Let us take it at 1.0 cents per pound for direct firing and 0.5 cents for gas firing. At Tacony one man at \$2.00 per day compresses one ton of ingots in one hour.^f

(TO BE CONTINUED.)

NOTE.—The publishers of the ENGINEERING AND MINING JOURNAL will thank the readers of this article if they will promptly call attention to any inaccuracies they may observe in it.

^c Engineering, XX., p. 278, 1875; Jeans, Steel, p. 501.
^d R. M. Daelen, private communication, Feb. 13, 1888.
^e U. S. Patent 331,856, Dec. 8th, 1885.
^f S. T. Williams, Superintendent of the Tacony Works, private communication, March 28th, 1888.

PERSONAL.

Mr. Samuel Stilwell Doughty, a former resident and well-known surveyor of New York City, died on the 9th inst., aged 78.

Mr. J. C. Hickok and Mr. R. D. Clarke have been in this city in the interest of the Deadwood, Dak., Reduction Works Company.

Mr. Raoul de la Riviere, a French expert, is in Colorado, for the purpose of examining some mines in Routt County for a syndicate of French capitalists.

Mr. H. Poole, mining engineer and chemist, New York, has gone to Canada to superintend the erection and start the working of a metallurgical plant for lead smelting.

Col. B. W. Frobell, one of the most distinguished of Southern railroad engineers, died on the 12th inst., aged 56 years. At the time of his death he was chief engineer of the Macon & Covington Railroad.

Président David J. Hill, of Bucknell University, Lewisburg, Pa., will accept the presidency of the University of Rochester, with leave of absence to study philosophy and institutions in Europe for one year, expenses paid.

Mr. John C. F. Randolph, mining engineer, New York, who is at present in the United States of Colombia, has been appointed Commissioner of Mining to the State of Tolima by the government of the Republic of Colombia.

Mr. Hiram Sibley, the widely known philanthropist, died at Rochester, N. Y., on the 12th inst., aged eighty-one years. Mr. Sibley's name was connected with the earlier telegraph enterprises, the New York & Mississippi Valley, the Lake Erie and the Western Union. He gave \$200,000 to the Cornell University at Ithaca, and founded the Sibley College of Mechanical Arts.

The Governor of Iowa has assigned districts to the State Mine Inspectors, and designated where their offices should be. Mr. Binks is assigned to the First District, with headquarters at Ottumwa; Mr. Gilroy to the Second District, with headquarters at What Cheer; Mr. Stout to the Third District, with offices at the Capitol, in Des Moines.

At a meeting of the Mine-Foremen Examining Committee held at Pottsville, Pa., for the purpose of passing finally upon the applications for certificates as mine foremen, the following were recommended the certificates out of a class of seventy: Fifth District—James C. Phillips, Harry Moyer, Cornelius Leahy, John Thurlby, Shenandoah; John Bryant, John Flynn, Michael Bradley, Mahanoy City; John Ballett, Yatesville; Edwin H. Gulliford, Brownsville; George W. Thomas, Gilberton. Sixth District—William Howell, David Davis, F. K. Schreffler, David Fulton, of Shamokin. Seventh District—Pilot Orme, St. Clair; George Krell, Tamaqua; Emanuel Jenkins, Keffer's; James Welsh, Middleport.

INDUSTRIAL NOTES.

A Thomson-Houston plant for an electric railway to cost \$60,000 is talked of at Seattle, Washington Territory.

The firm of Hussey, Howe & Co., Limited, steel manufacturers at Pittsburg, Pa., will shortly be dissolved, and an incorporated organization effected.

The Junction Iron Company, at Mingo, Ohio, will build a new furnace, which will be fitted with a new blowing engine. The capacity of the new addition will be from 150 to 175 tons a day.

The puddling department of the works of the Keystone Iron Company, at Pittsburg, Pa., were destroyed by fire on the 11th inst., caused by an explosion of natural gas. The loss will probably reach \$100,000.

The Stewart Iron Company's furnace No. 1, at Sharon, Pa., was blown out on the 10th inst., owing to the unsatisfactory condition of the iron trade, and it is not likely that the furnace will be blown in again inside of a year.

The Gogebic Furnace Company, which operated the furnace at Iron River, Mich., in 1887 and part of 1888, has blown out the furnace and given up the lease to the owners, the Iron River Furnace Company, of Fond du Lac, Wis.

The Paige Iron-Works has been organized, with a capital of \$25,000, in Illinois, to purchase iron, steel, copper, and other metals, and to manufacture articles from same. The incorporators are John Crerar, Edward S. Shepherd and Alonzo W. Paige.

Active operations have been commenced by the new stove works at Sheffield, Ala., the first stove cast being presented to the Sheffield Land, Iron and Coal Company, of that place. It was made from the iron of the Sheffield Furnace Company, of Sheffield.

The Allegheny Bessemer Steel Company, whose plant at Duquesne, Pa., is being enlarged, is placing a steel rail machine in its works to make three rails at once. The works, when completed, it is said, will be the largest in the country, excepting those of Carnegie.

The Reading Hardware Company, Reading, Pa., the works of which were destroyed by fire, as mentioned in our last issue, has notified its employes that work will be commenced in about two weeks in the buildings formerly occupied by the Manhattan Hardware Company.

The Lafin & Rand Powder Works at Cressona, Pa., blew up on the afternoon of the 13th inst. with terrific effect, killing two men and so badly injuring another that his death is expected at any moment. The village was badly shaken up. The cause of explosion is unknown.

The Tennessee Coal, Iron and Railroad Company now has in blast three furnaces at South Pittsburg. One at Cowan, Tenn., two at Birmingham, Ala., and two at Ensley City, Ala. By the 31st of next January it is expected to have two more going at Ensley City, making 10 in all.

The Howe Scale Works, Rutland, Vt., sold at auction on the 12th inst. for \$441,283. The sum includes the amount of liabilities (\$201,133), which are assumed by the purchasers. The works were bought by a syndicate of seven Rutland men. The new owners will take possession within 60 days. Work will go on without interruption.

The Bethlehem Iron Company, Bethlehem, Pa., will start up its rail mills on the 16th inst., under a new scale which reduces the wages from five to twenty per cent and guarantees continuous work until January. The men will probably accept the reduction in preference to continued idleness. The puddle department has shut down indefinitely.

Work on the furnace at Riverside, belonging to the Montgomery Chemical and Furnace Company, Montgomery, Ala., to which we referred in our last issue, is to be resumed. Over \$70,000 has already been expended on this plant. The Louisville & Nashville Railroad Company have offered to buy an interest in this furnace, and the furnace people now have the matter under advisement.

Labor-saving machinery will be introduced into the Bellairs Steel-Works, Ohio, which will do away with the services of about fourteen men. One of the new pieces of machinery which will be erected is a simple process, worked by hydraulic pressure, for placing the ingots at the rolls in position to be reduced to slabs and billets. At present several men control the ingots by iron hooks.

A petition has been signed by a number of coal operators, which is to be sent to the Secretary of War. It asks that the government require that the new bridge to be erected at Memphis, Tenn., shall be 1000 feet span. One of the operators stated that the site for the bridge is one of the worst places on the Ohio River, and that they were particularly anxious that all precautions should be taken to lessen the danger of their craft.

The personal property of Messrs. Graff, Bennett & Co., at their Millvale and Clinton rolling-mills and at their warehouse in Pittsburgh, Pa., was sold at auction on July 10th, 11th and 12th, by the assignee, Hon. John H. Bailey. The court on the 11th inst. ordered the sale, on twenty days' notice, of the firm's three iron mills and all its real estate. The property is valued at \$800,000.

The property of the Schuylkill Valley Knights of Labor foundry at Spring City, Pa., was sold by the Sheriff on the 9th inst., the execution creditors being some of the stockholders who were employed in the works and sued the management for about \$1800 wages due. The plant and patterns are secured by chattel mortgage, and cannot be sold as yet, and the sale made was confined to coal, lumber, office furniture, etc., for which less than \$100 was obtained.

The Fuel Gas and Electric Engineering Company, Pittsburg, Pa., is at work on an order for a large number of meters for the Philadelphia Company, and before long they will be in general use. It is thought that the use of meters will be advantageous both to the company and consumer. Hitherto, under the contract system, there has been a great waste of gas. The meters are to be put in, the company say, as a matter of justice to its customers, and because their use will tend to economize the fuel. Among the meters being manufactured by the Fuel Gas Company is one with a registering capacity of a million and a half cubic feet, which will be enough for most of the mills in the vicinity of Pittsburg.

The wages scale of the Amalgamated Association of Iron and Steel Workers has been signed by the following firms, in addition to those reported in our issue of last week: Linden Steel Company, Newport Iron Company, of Newport, Ky.; New Albany Structural Iron Works, of New Albany, Ind.; Kittanning, Penn., Iron Company; Jones & Laughlin; Gate City Iron Company, Gate City, Ala.; the Licking Mill, of Covington, Ky.; Central Iron and Steel Company, of Brazil, Ind., and Brown & Company, proprietors of the Wayne Iron Company, of Pittsburg. Singer, Nimick & Co. have had special officers to guard their works and arrest strikers found trespassing upon the company's property. The strikers claim that only two departments of these works are in operation, and feel confident of ultimate victory, but one of the members of the firm states that nearly two hundred men are at work, that the 18 and 20-inch mill and the axle shop are running, and that new men are applying.

CONTRACTING NOTES.

Machinery and supplies wanted. See page xiv. Contracts open will be found on page xix. New contracts this week: No. 956, Sewers; No. 957, Canal Construction; No. 958, Sewers.

Mr. Aug. D. Ledoux, Chemical Engineer, New York, has just completed the erection of a large pyrites

burning plant for sulphuric acid at Baltimore, and has accepted contracts to erect similar works in North Carolina and at Savannah.

The Junction Iron Company, of Mingo Junction, Ala., has just contracted for a new blast-furnace, 17x75 feet, with J. P. Witheron, the well known engineer and contractor, of Pittsburg, Pa. It is to take the place of one of its former furnaces, and is not an additional one in the sense of increasing the company's plant. Contracts have also been made with Mackintosh, Hemphill & Co., for an additional blowing engine for immediate erection. When all is completed, however, the company will operate but one furnace, as has been its custom in the past.

The Public Service Committee of the County Board of Cook County, Ill., has awarded the coal contracts for the ensuing year as follows: Baker Brothers, for all the city buildings and the Normal School, Brazil Block at \$3 per ton. Weaver, Tod & Co., for the Insane Asylum and Infirmary, Brazil Block at \$2.90 per ton. James J. Kelly, for the county agent, in half-ton lots, delivered as directed, Mount Olive lump at \$2.75 per ton. Silver Creek & Morris Coal Company, for all the city buildings and Normal School, hard coal, range and nut at \$6.38; for the Insane Asylum and Poor-House at \$6.15; egg coal for Court-House at \$5.93 per ton.

GENERAL MINING NEWS.

We have received the following statement showing the gold bullion deposited at the United States Mint at Denver during the fiscal year ending June 30th, 1888:

| | Gold. | Silver. | Total. |
|-----------------|----------------|-------------|----------------|
| Colorado..... | \$1,568,789.32 | \$16,915.52 | \$1,585,704.84 |
| Arizona..... | 103,791.97 | 1,179.44 | 104,971.41 |
| Idaho..... | 7,919.38 | 77.65 | 7,997.03 |
| New Mexico..... | 66,139.35 | 585.05 | 66,724.40 |
| Oregon..... | 3,327.72 | 25.77 | 3,353.49 |
| Wyoming..... | 4,403.15 | 48.00 | 4,451.15 |
| Total..... | \$1,754,480.89 | \$18,831.43 | \$1,773,312.32 |
| Jewelry..... | 4,823.20 | 174.62 | 4,997.82 |
| Redeposits..... | 14,474.35 | 237.39 | 14,711.74 |
| U. S. Coin..... | 930.00 | ..... | 930.00 |

| | | | |
|---|----------------|-------------|----------------|
| Total fiscal year 1888..... | \$1,774,708.44 | \$19,243.44 | \$1,793,951.88 |
| Total fiscal year 1887..... | 1,553,889.14 | 18,927.39 | 1,572,816.53 |
| Increase, 1888..... | \$220,819.30 | \$316.05 | \$221,035.35 |
| Average per cent of fineness, gold..... | ..... | ..... | 768 |
| silver..... | ..... | ..... | 5,480 |

The El Paso Bullion publishes the following table, which gives the ore and bullion imports into El Paso for the week ended June 30th:

| | |
|---|----------|
| Silver coin by Wells, Fargo & Co. et al..... | \$41,022 |
| Silver bullion..... | 5,480 |
| Silver ore 928 tons, Mexican Ore Co. value..... | \$42,013 |
| " " 1096 " Con. K. S. & R. Co., value..... | 38,880 |
| " " 279 " R. G. S. & R. Co., value..... | 17,703 |
| " " 117 " Cusihiurachic M. Co., value..... | 30,781 |
| " " 22 " S. Lins, value..... | 1,113 |

Total value of ore, bullion and coin..... \$176,811

CONSOLIDATED KANSAS CITY SMELTING AND REFINING WORKS.—The Kansas City Smelting and Refining Works, the El Paso Smelting Works, the Arkansas Valley Smelting Works at Leadville, Colo.; Mexican Ore Company, El Paso; Eagle Pass Smelting Works, Tex.; and the Laredo Sampling plant, Laredo, Tex., has consolidated under one management, with central office at Kansas City. The company has a capital stock of \$2,000,000 and hereafter will be known under the above name. The officers consist of A. R. Meyer, of Kansas City, President and Treasurer; N. Witherell, of New York, Vice-President; Robert S. Towne, Second Vice-President; R. D. Everett, Secretary. The general supervision of the company's affairs will be in the hands of President Meyer and Vice-President Towne.

NORFOLK & WESTERN RAILROAD.—The business of this railroad, it is said, has grown so rapidly that the road, which was formerly managed in two divisions, has been divided into five—the Eastern, Lynchburg, Western, Radford and Flat Top, the latter including the coal branches.

ALASKA.

The last mail from Alaska brings us several protests against the sympathy expressed for Thos. S. Nowell in the Juneau City Mining Record (see ENGINEERING AND MINING JOURNAL, June 16th), and our correspondents rightly think such transactions as those of Nowell can only injure a mining camp.

There appears to be some difference of opinion as to Mr. Nowell himself, some asserting that he is an idiot, while others claim he is a knave. There appears, however, to be substantial unanimity of opinion that to whichever class he may be assigned the territory would be better without him, and, as some express it, "for the Eastern stockholders to leave the main 'bubble blower' in charge of the property seems to be the climax of folly." No doubt the Boston stockholders will put some one else in charge, and will seek the settlement and restitution from Nowell and his assistant promoters that the ENGINEERING AND MINING JOURNAL advised months ago.

Under date of June 29th, a well-informed and reliable correspondent, at Douglas, gives us the following items:

"Last week your correspondent visited a mining camp, commonly known as Seward, belonging, I believe, to the Berners Bay district, some sixty miles

northwest of Juneau on Lynn canal. At this camp is the contact of the slate belt with a hornblende rock (pronounced syenite by Dr. Arthur Krause, of Berlin, Germany). The veins occur in the syenite, are regular, bold and strong. One vein stands out from 5 to some 20 feet above the surface, 6 to 15 feet strong, for several hundred feet in length. Parallel with this ledge are found several smaller ones varying from a foot upwards. All veins are filled with quartz carrying free gold and gold-bearing iron and copper pyrites. Shortly before my visit the owners of the big ledge, while sinking on it, blasted out some of the finest gold quartz to be found. Unluckily very little work has been done in the camp. One of the smaller ledges is now in the hands of men with means, who started to develop it a few days ago. Their vein carries a large per cent of iron and copper pyrites, which, it is stated, assay well in gold. A little judicious work may make a valuable property of this claim, and it seems that the owners intend to do this work. Unfortunately the snow covered the claims higher up the mountains, but I shall go there again in a few weeks, when I expect also to be able to give a description of a property developed by nature to such an extent that it may be justly claimed as a developed mine of large value. The samples from this claim are high in gold.

Résumé.—The veins in or around Seward are in an unbroken formation, very regular, bold and strong. High as well as low grade ores are found. Work is as yet insufficient to demonstrate the actual value of the veins. Those intending to invest in fine looking prospects ought not fail to visit the district, and they will not be disappointed. Parties desiring developed properties will have a chance later on.

Those who intend visiting the camp will find a good trail over gently rising ground for 1½ miles, when they will be at the base of the hill. A good trail leads up it, and at an elevation of about 800 feet from the base, they will encounter the first large ledge. Wood and water are plenty for all purposes. The largest ocean steamer can land within 2 miles of the mines.

ARIZONA.

GILA COUNTY.

LUCKY CUSS MINING COMPANY.—This company has been organized with a capital stock of \$100,000, shares \$2 each. We are advised that the company owns a favorable prospect and it claims no more than this.

ARKANSAS.

BESSEMER MANGANESE MINING AND FURNACE COMPANY.—This company has been organized with a capital of \$1,000,000, to mine and deal in manganese in the State of Arkansas. Incorporators: George H. Trusedale, F. G. Kubler and Louis E. Denning.

CALIFORNIA.

NEVADA COUNTY.

WASHINGTON CEMENT GRAVEL MINING COMPANY.—This company has been organized to work the Daisy Cement Company's claim, with a capital stock of \$20,000, shares \$1 each. The directors are: Robert T. Roberts, Hugh J. Owens, H. Jones, Matthew G. Nixon and John Morris.

COLORADO.

LAKE COUNTY.

COLONEL SELLERS.—This mine, like the A. Y. and Minnie, has reduced its output on account of the low price of lead, but still continues to make large shipments. The ore is of much better grade than it has been for a long time. It is now averaging over 30 per cent lead, of course not high grade in silver.

SMALL HOPES CONSOLIDATED MINING COMPANY.—The company is working a small force of men and raising comparatively very little ore. Preliminaries are being arranged to sink a prospect drill hole in the bottom of the Carey shaft, with the view not only of ascertaining the stratification beneath, but also of determining if the held theory that sulphides exist at this particular point of the hill is a certainty.

PITKIN COUNTY.

ASPEN MINING AND SMELTING COMPANY.—The shipments of ore from the company's mines were as follows:

| | Tons. | |
|---|---------|--------|
| Gross bullion value per ton for Jan | \$34.88 | 4,809 |
| " " " Feb..... | 39.11 | 2,213 |
| " " " Mar..... | 42.94 | 2,143 |
| " " " April..... | 29.96 | 3,356 |
| " " " May | 40.00 | 3,594 |
| " " " June..... | 40.00 | 2,200 |
| | | 18,315 |

Average percentage of lead of all the ore shipped, 8 per cent.

DURANT MINING COMPANY.—This company has contracted with the Holden Smelting Company of Denver for the delivery of 5000 tons of ore, the contract to be filled in four months.

SMUGGLER.—According to reports, a body of as rich ore as has ever been found in this district has been opened, pieces of which shown will run no less than from \$5000 to \$8000 per ton.

DAKOTA.

LAWRENCE COUNTY.

DEADWOOD REDUCTION WORKS COMPANY.—Representatives of this company have been in New York making arrangements for the machinery of these works, which will have a capacity of 60 tons per day, and be completed by November 1st. The machinery to be used at these works will consist of two sets of 26-inch Krom rolls, five Brückner furnaces of a capacity

of three tons each; a large Blake ore-breaker; one large Gates rock-crusher, and two Buckeye engines. The ores of the Ruby and Bald Mountain District are very refractory, but, it is claimed, can be successfully treated by roasting and chlorinating. Successful experiments were recently carried on with 2500 lbs. of ore at the New York Metallurgical Works, of which Mr. E. N. Riotte is the manager.

PENNINGTON COUNTY.

HERMOSA HYDRAULIC COMPANY.—The clean-up for the two weeks ended June 24th amounted to \$1400. In our issue of October 29th, 1887, we referred to the incorporation of this company.

LOOKOUT MINING COMPANY.—This company owns a 40-stamp mill, which is now running to its full capacity on a very good quality of ore, and it is stated that there is a good supply in sight, sufficient to keep the plant in operation for a long time. Mr. E. J. Godfrey, formerly superintendent of the Oro Fino, prior to Mr. Alliston's taking charge, is general superintendent or manager of the company's affairs at mine and mill.

QUEEN BEE MINING COMPANY.—The work on the tramway is progressing. About half the distance is completed. When completed the tramway will discharge the ore in the top story of the mill, where the crusher will be located. As soon as the tramway is finished the mill will be started up again. A third concentrator is to be put in at once.

IDAHO.

KOOTENAI COUNTY.

PORTLAND MINING COMPANY.—This company has been organized at Portland, Oregon, where the principal office will be, with a capital stock of \$5,000,000, shares \$1 each. It owns four mines on Beaver Creek, Coeur d'Alene, the Silver Tip, Sitting Bull, Red Dragon, and Mule Deer, and has now a force of men employed in developing them. The officers are: Geo. B. Markle, Jr., President; J. C. Davenport, Vice-President; W. L. Sherman, Secretary and Treasurer.

ILLINOIS.

PRATT COUNTY.

Another vein of coal, two feet thick, was struck by the Diamond Drill Company, at Monticello last week. This is the second vein of coal found at a depth of 545 feet. Between the two veins is a vein of fire clay two feet thick. Another prospecting shaft will be sunk if the citizens will pay one half the expense, which will be \$800. The coal is said to be of good quality.

RANDOLPH COUNTY.

Three million feet of gas is the lowest estimate of the flow of natural gas every 24 hours from the well recently finished at Sparta. It is stated that the escape is attended by a roar that can be heard at Marissa, 10 miles away, and in the immediate vicinity the force exerted gives the earth a vibration similar to that noticeable in a factory building when the machinery is in motion. How to derive practical benefit from the well has not yet been decided.

INDIANA.

INDIANA BLOCK COAL RAILWAY COMPANY.—At the annual meeting, held at Brazil last week, the following directors were elected for the ensuing year: Josephus Collet, L. D. Thomas, Crawford Fairbanks, George Penn, J. H. Lunau, and Judge Joshua Jump. The road, twenty miles long, connects the Chicago & Indiana Coal Road at Brazil with its Chicago and Eastern Illinois division at Clinton.

GRANT COUNTY.

Natural gas well No. 5, of the series which will supply Wabash with cheap fuel, has just been drilled in on the Coan farm, south of that city. Trenton rock was reached at a depth of 910 feet, and the rock pierced 22 feet, resulting in a splendid well, with a daily output of about two million feet. Another well will be drilled on the Powell farm. The dip in Trenton rock, in the vicinity of the Coan farm, averages 100 feet to the mile.

KANSAS.

The Secretary of the Interior has instructed the Commissioner of the General Land Office to investigate all the facts connected with the mining of coal on the Fort Leavenworth, Kansas, Military Reservation under the act of Congress passed in 1868, and the patent in pursuance thereof granted to the Leavenworth Coal Company. Under this act 20 acres of land were sold to this company in fee simple and a privilege of mining under the whole of the reservation was granted for a period of 16 years, with the privilege of extension. Under the terms of the act the company was to furnish free to the government all the coal needed at the military post, and to pay to the government a royalty of one fourth of one per cent per bushel for all the coal mined not so furnished. It is claimed that neither of these conditions has been complied with, hence the investigation.

COFFEY COUNTY.

The citizens of Le Roy having been victimized with a "salted" mine, as mentioned in our issue of June 23d, will try their luck again. J. J. Warner, an expert driller from Paola, will commence in the bottom of the old hole and see what he can do.

LEAVENWORTH COUNTY.

TROST COAL COMPANY.—This company is making arrangements to sink its new coal shaft. It will be sunk on what is known as the Scott Farm, near Leavenworth. The company will build about ten miles of

track connecting its mines with all the railroads in the city. A barge line for the transportation of coal between Leavenworth and Kansas City has been established and has commenced operations. The barges will be run as the demands of trade require.

KENTUCKY.

MEADE COUNTY.

KENTUCKY ROCK GAS COMPANY.—This company is making arrangements to pipe gas to Louisville from its wells in Meade County, situated about 30 miles below the city, on the Ohio River. The fields in which boring is being done promise an abundant supply for all requirements of Louisville. Several companies are drilling in Meade County, all of which have been successful in finding gas, and the Kentucky Rock Gas Company have completed arrangements to lay the pipe line and purchase the outflow of the other wells, which will be added to its product and carried to the city. It has now, collectively, between 13,000,000 and 14,000,000 cubic feet of gas per day, by actual measurement, but expect soon to produce 40,000,000 to 60,000,000 of feet per day and will lay the mains accordingly. The company contemplate being ready to furnish gas to consumers by October.

MAINE.

Messrs. C. A. Russ & Co., granite contractors at Green's Island, have shut down their works rather than accede to the demands of the workmen for a monthly pay-day and a new scale of wages.

MEXICO.

From the Mexican *Financier* we take the following:

A company has been organized in the State of Guerrero for working the copper mines situated near the town of Xochilapa, District of Guerrero. The output of ore is large and the assay shows from 15 to even 40 per cent of copper.

There is great activity at the Mineral de Cruces in the Sierra del Carmen, where extensive works are in progress to facilitate the extraction and transportation of ore. A new wagon road is being built at a cost of \$30,000. It is proposed to bring 50 families of miners from the State of Zacatecas to work in this district. The most noted mines of the State of Coahuila at present are the Sierra Mojada, Cruces, San Felipe, Panuco, Ciénegas and Muzquiz. The mines have been accorded very liberal treatment by the State Government.

Experimental coke-ovens are about to be built in Mexico by a syndicate of New York capitalists, with the expectation of developing the great bituminous coal-beds in the State of Durango, some 50,000 acres in extent. Josiah Strickley, through the influence of H. C. Frick, of Pittsburgh, is at the head of the enterprise and is about to leave New York City, taking out men and tools to commence the work. The scheme is believed to be feasible, on account of the recent extension of C. P. Huntington's railway from Monterey in the direction of the coal-beds. Durango coal is believed to be equal in quality to the coking coal of Connellsville, Pa. The same parties are in possession of other large tracts of bituminous coal in Texas.

MICHIGAN.

LAKE SUPERIOR GOLD MINING COMPANY.—This company has been organized at Marquette with a capital of \$2,500,000, shares \$25 each. A portion of the stock is to be sold at 10 cents per share, and an assessment of 10 cents will be levied, the money to be used for purchasing the fee, exploring and developing the east half of the southwest quarter of sections 34, 48-28, a tract of land lying directly west of the Lake Superior Iron Company and "Gingress" gold finds on section 35.

COPPER MINES.

The outputs of mineral of the seven principal Lake Superior copper mining companies, including all but two of the producing mines of any prominence, according to the Boston *Transcript*, were as follows in June and the first half of the current year, in comparison with 1887:

| Mines. | June. | | Jan. 1 to June 30. | |
|------------------|-------|-------|--------------------|--------|
| | 1888. | 1887. | 1888. | 1887. |
| Calumet & Hecla. | 2,542 | 2,997 | 13,525 | 16,539 |
| Tamarack..... | 640 | 350 | 3,760 | 1,837 |
| Quincy..... | 342 | 210 | 1,927 | 1,371 |
| Atlantic..... | 222 | 202 | 1,397 | 1,226 |
| Osceola..... | 205 | 166 | 1,248 | 932 |
| Franklin..... | 182 | 201 | 1,080 | 1,204 |
| Huron..... | 118 | ... | 727 | 380 |
| Total 7 mines... | 4,251 | 4,126 | 23,664 | 23,489 |

FRANKLIN MINING COMPANY.—While drilling with the Diamond drill east, a few feet north of No. 3 shaft, at the thirtieth level, at a distance of twenty-seven feet from the foot wall of the shaft, a good looking amygdaloid was struck, which on the horizontal line is thirty feet wide, and seems to contain some stamp copper. A cross-cut will be started to prove it. There are some favorable indications which lead to the hope that the developments in this section of the mine will be productive of favorable results.

PENINSULA.—The water has already been lowered something over 200 feet, and there are still something like 200 feet to come out. It is probable that the mine will be entirely free of water by the middle of the month. As soon as the mine is in a condition sinking will begin at once. A crosscut will also probably be driven across for some distance, to strike some of the veins which are known to extend across the property.

QUINCY MINING COMPANY.—The company's interests are organizing the Quincy & Torch Lake Railroad Company, to run between the mine and the proposed new stamp mill. Samuel B. Harris, agent of the Quincy, is vice-president.

IRON MINES.

BEAUFFORT.—This iron mine, which was closed down last fall, is to be opened again and worked vigorously during the balance of the season. The mine has 6000 tons in stock and is capable of a large product.

WINTHROP HEMATITE COMPANY.—This company has sold the Mitchell and Winthrop mines to F. Braasted & Co., general merchandise dealers of Ishpeming. The mines will be put in charge Capt. Wm. J. Officer, and worked with a full force. The price paid for the property is said to be about \$500,000.

MISSOURI.

MORGAN COUNTY.

The syndicate which is said to control 7000 acres of coal lands lying ten miles from Versailles, in Morgan County, will incorporate a company with a capital stock of \$1,000,000 paid-up capital. The new coal-fields will be directly on the line of the Santa Fe's St. Louis extension when it is built. At present, Versailles is reached by a branch of the Missouri Pacific from Tipton. The distance from Kansas City to the mines is 149 miles by the Missouri Pacific, and will be 133 via the Santa Fe route when it is built. It is the intention of the company to ship all of its coal to Kansas City. They expect to handle 300 cars per day. They say they can land their coal on the track at Leavenworth cheaper than Leavenworth coal can be mined and hoisted, and expect to compete with Leavenworth, Rich Hill, and Fort Scott coal in the Kansas City and all Kansas markets.

MONTANA.

LEWIS & CLARKE COUNTY.

MONTANA COMPANY, LIMITED.—From the circular issued June 29th, we take the following: An approximate estimate of the monthly run for June shows about \$70,000, and working expenses about \$45,000.

This represents the result of the first clear month's working of the mills upon the low-grade ore from above the 400-foot level. The net profits for the quarter ending 30th June are about £16,000, or at the rate of 10 per cent per annum. Some time ago the directors determined to charge against the reserve fund all expenditure incurred on capital account for the cost and erection of the new hoisting gear, etc., as that fund was mainly founded to meet such a contingency; but after consulting with Mr. R. T. Bayliss, they feel convinced that the reserve fund (which is still intact but invested in stores and concentrates in course of realization) must be kept for working capital, and that the business of the Montana Company cannot be carried on without a working capital must be manifest to all. Under these circumstances, a large proportion of the cost of the new hoisting gear, etc., must be provided for out of the revenue of the current quarter, which only admits of the declaration of a further interim dividend of 3d. per share for the quarter ending June 30th, payable on July 16th, thus making a total distribution for the current six months of 1s. 3d. per share, being at the rate of 12½ per cent per annum.

The resident director at the mines has considered it advisable, in the interests of the undertaking, to stop all work in the lower levels connected with the No. 1 shaft, for the purpose of removing the old hoisting gear therefrom to the No. 2 shaft, and for replacing the gear by the erection of a new and more powerful engine and winding apparatus; and he has selected this particular time to effect the change, because he finds in the workings above the 400-foot level sufficient reserves of low-grade ore to supply all the mills during the period that must necessarily elapse while the changes referred to are being effected.

Had he postponed this work for some time, as many shareholders think he might have done, it would probably have necessitated its accomplishment during the winter months, which would have materially added to the difficulties and expense of its execution.

Mr. R. T. Bayliss, under date of 25th May, states: "All work ceased below the 400-foot level on the 26th May, and the stoppage will be for about three months, but this long stoppage will only affect the No. 1 shaft and the levels therefrom."

No. 2 Shaft.—"As soon as the hoist transferred from No. 1 shaft is erected, I shall commence drifting on the 500-foot level both north and south, and as soon as the shaft connects with the 600-foot level, which will probably be about the end of July, I shall continue upon the 600-foot level south. Our immediate developments in new ground will practically be confined to the south end of the 400-foot level, and the Armitage lode on the same level, but upon resuming work in the lower levels of the mine, I feel some confidence that, fortified by Professor Clayton's advice, and by the light he has thrown on some points, we shall be able to make some discoveries in those levels which will set all minds at rest, and reassure those shareholders who at present appear to be in some doubt as to whether the mine is ever going to regain its old position in the mining world."

When the hoisting gear is completed at the No. 2 shaft, the deepening of this shaft, the drivage of levels therefrom, below the 400-foot level, and the opening out of the lode in the southern part of the mine, will be vigorously continued, and it is hoped that important discoveries of ore will be made thereby. The position of No. 2 shaft is from 50 to 60 feet north of the Jubilee shoot, as seen at the 400-foot level.

For some time past the directors had observed that the 600, 700 and 800-foot levels had not conformed to the relative positions of the levels above the 400-foot level in which high grade ores were found to occur. This circumstance induced them to decide upon having the mine examined by some specially competent expert. Acting upon the suggestion of the directors, Mr. R. T. Bayliss selected for this purpose Prof. J. E. Clayton. This gentleman's report has not yet been received, but the following observations made by Mr. R. T. Bayliss on Professor Clayton's examination will be read with much interest, since it points to the existence of valuable quantities of high-grade ore in ground immediately contiguous to the lower levels: "In anticipation of the detailed manner in which Professor Clayton will deal with the disturbance which has recently been discovered in the south end of the 800-foot level, I will not endeavor to explain it further than to inform you that he has found that the Drumlummon lode has faulted at or about that point, and that the vein has been displaced about 40 feet at a point at or close to the station. This faulting is due to the intersection of the Drumlummon lode by a feldspar dike which Professor Clayton has traced through the entire length of the mine from this point up to Attwood's prospect No. 2, and it is possible that this dike is responsible for many of the disturbances which we have not hitherto been able to understand. Upon making a closer examination of the south end of the 800-foot level he discovered a slip in the lead which excited his suspicions, and upon driving into the east a distance of about 20 feet we found the true foot-wall of the lode, and, lying up against it, 7 feet of ore which is of good high grade."

"Professor Clayton is of opinion that further development in the direction which will be made upon the completion of the new hoisting plant, will result in the discovery of a very high-grade body of ore going south, and the present appearance of the drift, which has been advanced only a few feet, gives indication that the ore-body will improve as the drift is advanced in a southerly direction."

SILVER BOW COUNTY.

LEXINGTON MINING COMPANY.—Official advices to us show that the production for June amounted to \$9236.18 in gold; \$57,492.29 in silver, a total for the month of \$66,728.47, and for the first half of 1888, of \$507,028.37.

NEVADA.

ELKO COUNTY.

ELKO.—The mica mine situated in the Ruby Mountains is said to have a vein 12 feet wide and traceable a distance of 1000 feet. The mine has been sold to Salt Lake parties for \$60,000. Sheets of every size from 2 inches to 2 feet square are now on exhibition in Salt Lake City.

HUMBOLDT COUNTY.

While boring for water near Lovelocke natural gas was struck.

NYE COUNTY.

BARCELONA MINING COMPANY.—We are informed that the only work being done in the mine is on the new bonanza in the south end, which has an unbounded promise. A dispatch, dated the 10th inst., states that there is more ore in sight than there has been for the last six months.

DELABAR.—Important developments are looked for in this mine. It adjoins the Arizona, which produced so much ore in the early history of Belmont.

DE LONG.—The sale of this mine, situated in the Washington mining district, to Salt Lake parties for \$50,000 is reported.

STOREY COUNTY—COMSTOCK LODGE.

We take the following from the Virginia City Chronicle:

CONSOLIDATED CALIFORNIA & VIRGINIA MINING COMPANY.—During the week ended June 30th, 1225 tons of ore were shipped to the Morgan mill and 1811 tons to the Eureka mill. The average assay value of all the ore worked at the above mills during the week, according to battery samples, was \$35.81. The production for June amounted to about \$405,000. Preparations have begun for starting the California 80-stamp mill. It will be operated by the transmission on steel wire rope of the power furnished by the C. & C. shaft Pelton water wheel on the same system as on the date when the mill shut down.

The stamps will be ready to drop before the middle of the current month, or as many of them as are required to offset those that will be hung up in the Eureka mill for lack of power to operate them on account of the shrinkage in the Carson River flow.

The stage of water in that stream is beginning to diminish rapidly, and by the end of August will probably be too low to operate more than one fourth of the stamps in the mills along its course.

DEXTER.—Ore extracted from the tunnel level of this mine showed an assay value of \$20.40 per ton from car sample assays. The track floor of the Dexter tunnel is located at a height of 450 feet above the level of the hoisting-works floor of the Cons. Cal. & Va. E. H. Spooner, superintendent of the mine, will leave for New York on a business trip the latter part of this month. When he returns he will sink a shaft to cut the vein at a depth of 200 or 300 feet below the level of the present workings.

GOULD & CURRY MINING COMPANY.—The company has sold a large quantity of ore fillings, extracted from the old workings of the mine in explorations and thrown over the waste dump on account of the grade being too low to admit of it being profitably handled

by the company. This ore is being hauled to Mr. Thos. Hully's two five-stamp mills in the Sixmile Canyon, where he will work it.

HALE & NORCROSS MINING COMPANY.—It is officially announced that the 20 additional stamps being placed in the Chollar mill will begin crushing Hale & Norcross ore as soon as they are ready to drop. The bullion yield of the mine for June, it is estimated, will exceed \$170,000.

WASHOE COUNTY.

The recent ore development in the Wild Goose mine in Jumbo District, and later in the Harris, near Washoe City, says the Virginia City Chronicle, have resulted in creating a boom in those localities and the foot-hills west of Mount Davidson are swarming with prospectors for several miles in length, and the slopes of the barren, rocky hills are as thickly dotted with stakes and monuments, making boundary lines of mining claims, and location notices as an old burial ground with tombstones. The Pandora, Wild Goose, Little Nell and Willis are the principal mines in which the work of development is being pushed in this district. The Pandora is the only steady bullion producer, the ore taken out in sinking being all that is extracted from the others named above. The ore extracted from the Pandora yields above \$300 per ton in gold.

The fact that the veins so far discovered in Jumbo District dip downward almost vertically is considered an indication that they will prove to extend to great depth. The Pandora shaft was sunk to a depth of 80 feet, when water was struck; but at that depth the vein is broader and fully as fertile in the yellow metal as it proved nearer the surface. The Harris mine is producing high-grade ore from the new discovery, some distance from the old workings.

NEW MEXICO.

GRANT COUNTY.

CARLISLE GOLD MINING COMPANY, LIMITED.—We have received the following official information, showing that the bullion production for May amounted to: Gold, \$31,850; silver, \$700; base bullion (lead), (gold, 70 per cent; silver, 30 per cent; lead, 60,000 pounds), \$14,300; total, \$46,850. Since January 1st, 1888: Gold, \$140,400; silver, \$3660; base bullion (lead), \$14,300; total, \$158,360. All silver in above figured at \$1 per troy ounce. The smelter and mill are working satisfactorily and producing as usual. The lower or 520-foot level of the mine proves the vein to be as large and of equal value as in the upper workings.

OHIO.

Two tank-cars of heavy petroleum from the Lima oil district have already been burned under the boilers at the Cleveland Iron Mining Company's main engine-house, Mich. The new fuel has done its work well, but it has not yet been conclusively shown that it is preferable to soft coal.

The suit of the Columbus, Hocking Valley & Toledo Railroad Company against Stevenson, Burke et al. for \$8,000,000, to which we referred in our issue of May 26th, came to trial before Judge Buckingham on the 9th inst. in Common Pleas Court at Newark. The company claim the above sum to have been issued in stock and appropriated by the former officers to their own use without the consent of the stockholders. The defendants make denial to this, and claim it was issued with the full knowledge and consent of all the stockholders and voted by them. On the 11th inst., at the request of both sides, the plaintiffs and defendants have agreed to refer the matter to three arbitrators for final settlement. The arbitrators are J. C. Carter, of New York; E. A. Kittridge and Lawrence Maxwell, of Cincinnati; alternates, T. H. Hubbard, of New York, and Howell E. Jackson, of Tennessee. The arbitrators are to meet at Saratoga, N. Y., not before August 15th, and the decision to be made not later than November 5th, and to be absolutely final.

COLUMBUS & HOCKING VALLEY COAL COMPANY.—The company has now nearly completed another addition to its dock at Ashland, Wis., which gives it a capacity of 150,000 tons, with room for storing an additional 70,000 tons. Up to the present time the company has unloaded twenty-one vessels, and has, it is said, on its docks considerably over 20,000 tons.

HANCOCK COUNTY.

A syndicate of Eastern oil men has bought 160 acres of oil land near Findlay for \$192,000. It is said that the land was bought a few years ago by Judge Cary for \$5000.

STARK COUNTY.

YOUNGSTOWN.—Assistant Mine Inspector Robert Bell has ordered all the workings at the Youngstown mine, at Chapman, going towards the old Willow mine discontinued for the present, as he considered it dangerous in case of breaking through into the old Willow mine.

PENNSYLVANIA.

Operations are about to be resumed at some of the iron ore mines along the East Penn Railroad between Reading and Allentown. Work had been suspended on account of the depressed condition of the iron trade, and the miners found employment among the farmers in haymaking and harvest at \$1.25 per day. They now return to the mines at 80 cents per day for surface work and 90 cents for underground work.

COAL.

The miners at the Mineral and Excelsior Mining Companies' works at Shamokin have sued their employers for semi-monthly pay-days, as provided by law. They appealed to Governor Beaver for advice, and were recommended by him to take the matter

into the courts. It is to be made a test case, and is being pushed by the Knights of Labor.

BUCK RIDGE.—This colliery at Shamokin, which has been idle since 1883, resumed operations on the 11th inst.

PHILADELPHIA & READING COAL AND IRON COMPANY.—In consequence of the dissatisfaction existing among the miners employed by this company, owing to an alleged violation of the agreement entered into at the time of the strike last month, an open-air meeting of the assemblies of the Knights of Labor in the Schuylkill District has been called for next Saturday evening, July 14th. The meeting will be held at St. Clair, which is easily accessible to the employees of the different collieries. The miners claim that the agreement meant a resumption of work pending negotiations. They are now being paid six per cent below the basis, or \$1.88 per day. Laborers have suffered a reduction in proportion.

WARWICK.—After a year's work sinking the shaft and starting a gangway in this mine, near Boyertown, in search of the black vein ore, the workmen have found it at a depth of over 600 feet. It has a dip of 45 degrees, and the diameter is estimated at about 800 feet. Between 500 and 600 feet have been uncovered.

NATURAL GAS.

CHARTERS VALLEY GAS COMPANY.—The stockholders have been notified by the secretary as follows, under date of July 7th: "Owing to the great and wholly unexpected decline in gas shares, and consequent inability to sell our treasury stock at par, the directors of your company deem it prudent to pay no dividend at this time and to appropriate the income of the company (which from information received we believe will be about \$600,000 this year) to the liquidation of its indebtedness."

PENNSYLVANIA NATURAL GAS COMPANY.—It is stated that this company, which is leased by the Philadelphia Company, has called in the last installments of its capital stock and paid off mortgages on its property.

PHILADELPHIA COMPANY.—The company has struck a large gas well in the Canonsburg field, Washington County, and all having knowledge of the well state that the strike is one of the most important yet made.

PITTSBURG NATURAL GAS COMPANY.—This company has been organized at Harrisburg with a capital stock of \$10,000, with the privilege of \$350,000, and which was immediately availed of. The principal stockholders are Park Bros. & Co. and Wm. Clark & Co., and they propose to lay an 18-inch main to Murrayville, and have ordered 12-inch main from Murrayville for twelve miles, 16-inch main the balance of the way into Pittsburg, twelve miles. This line will at the start supply Park Bros. & Co., Wm. Clark & Co., and Hussey, Howe & Co.

OIL.

Exports of refined, crude, and naphtha from the following ports, from January 1st to July 7th:

| | 1888. | 1887. |
|-------------------|-------------|-------------|
| | Gallons. | Gallons. |
| From Boston..... | 1,498,198. | 2,453,830 |
| Philadelphia..... | 57,011,807 | 78,958,472 |
| Baltimore..... | 3,611,852 | 4,314,170 |
| Penn. Amboy..... | 117,094,44 | 8,915,001 |
| New York..... | 178,314,655 | 189,749,562 |
| Total exports .. | 252, 88,486 | 284,366,035 |

The chief of the Bureau of Statistics reports the total values of the exports of mineral oils from the United States for the month of June, 1888, and during twelve months ended June 30th, 1888, as compared with similar exports during the corresponding periods of the preceding year, as follows: June, 1888, \$3,558,490; June, 1887, \$4,224,019; twelve months ended June 30th, 1888, \$45,150,708; June 30th, 1887, \$45,423,474. The exports from the above-named ports comprise about 99 per cent of the total exports of mineral oils. It is stated on good authority that the distillation of 100 gallons of crude petroleum will yield 76 gallons of illuminating oil, 12 gallons of gasoline, benzine, or naphtha, 3 gallons of lubricating oil, and 9 gallons of residuum.

TEXAS.

INTERNATIONAL SMELTING COMPANY.—This company is now receiving ore and supplies, and is preparing to blow in at an early date for continuous work. Mr. Fitzgerald has intimated the El Paso *bulletin* that he has been experimenting successfully with dry ores with a new system. The process is based upon electric principles and amalgamating with metallic mercury and the addition of the bi-chloride of the same metal.

CHEROKEE COUNTY.

CHEROKEE LAND AND IRON COMPANY.—This company has been organized with a capital stock of \$1,000,000. It owns 20,000 acres of ore and timber land in Cherokee County, 12,000 acres of which is underlaid, says the *Age of Steel*, with a blanket deposit of brown hematite, averaging 50 per cent of metallic iron which can be mined for \$1.15 per ton delivered at the furnace. The company will erect a furnace at once, will invite other parties to locate furnaces, and will furnish them ore in the field without cost. Other industries, including rolling-mills, foundry and car-wheel works are negotiating for sites. A town will be laid out in the center of the ore field, to be called New Birmingham. This is the first large iron enterprise ever undertaken in Texas. The officers are: President and Treasurer H. H. Wibert, of New York City; Vice-President and General Manager, R. L. Coeman, and Secretary, Henry T. Kent, both of St. Louis.

UTAH.

The receipts of bullion at Salt Lake City, as reported by the *Tribune*, excluding all ores, for the six months amounted to \$1,839,747.38.

Our correspondent writes us that the decline of lead in the Eastern markets has brought with it the closing down of all the productive mines in West Mountain District, such as the Old Telegraph, Wislawaick lead mine and Lucky Boy.

DICKERT & MYERS SULPHUR COMPANY.—An action has been begun in the Second District at Salt Lake City, by the Utah Mining and Manufacturing Company, of Cleveland, Ohio, against this company, to determine the ownership and title of all of Lots 3 and 4 of Section 7, Tp. 26, S. R. 6 W. S. L. Band M., containing 7983 acres, and to recover from the defendant the possession of said described lands, and \$5000 damages for withholding the possession thereof from plaintiff, and the further sum of \$10,000, the rents, issues and profits during the time the possession was withheld from plaintiff, and for an injunction pending the litigation and on trial for a perpetual injunction restraining and enjoining the above defendant, and all persons acting or claiming under them from digging and working in, and extracting, removing, shipping and from taking away from any part of said lands and premises any sulphur or sulphur bearing rock, and for cost of suit. In our issue of June 30th we referred to the difficulties of this company.

JUAB COUNTY.

EUREKA-BULLION-BECK COMPROMISE.—The important litigation long pending in the United States Supreme Court between Eureka Hill Mining Company and the Bullion Beck & Champion properties, has been compromised and settled on the basis of a division of the ground and ore bodies.

The settlement is threefold in nature, involving first the Eureka Hill, second the Bullion Beck. The dividing line between these two companies was agreed upon. It begins at the northeast corner of the Bullion, Lot 68, runs thence northeasterly to the intersection of the westerly side line of the Eureka lode claim, with the easterly side line of the Bullion lode claim, lot 68. Thence along the blue line established by the court as the western boundary of the Eureka lode. This line is a vertical plane, and runs north and south. The Bullion people take all the lodes and ores on the west side of the plane of the line just described and the Eureka people all the lodes and ores on the east side of said line. The ores taken out and stored heretofore under order of the court are to be divided accordingly to the locality from whence they were taken; those from the west of the vertical plane to go to the Bullion and those on the east side to the Eureka.

There are numerous suits for damages, infringement and injunctions brought by each party now pending in the courts. All these will be dismissed, and each side will pay its costs. Mutual releases for causes for action are given.

The third feature of the compromise is the dividing line between the German Mining Company and the Bullion-Beck California Mining Company. The compromise dividing line in this case is, generally speaking, though not exactly, the easterly side line of the Beck mining claim only to the northerly end of the line of the Beck. All ores taken out heretofore are to be divided as in the first instance.

Our Salt Lake correspondent says the settlement of the above case has occasioned no little satisfaction to every body nearabouts. It can be seen that the terms of settlement are not only honorable but must also be satisfactory to the litigants. We may now look for two good mining properties to be worked for all they are worth. Millions in value of the precious metal have been taken out of both mines, and it is well understood that millions still exist in them awaiting only the powder blast and the miner's pick.

This case was discussed editorially in the *ENGINEERING AND MINING JOURNAL* December 10th, 1887.

GEMINI MINING COMPANY.—This company owns the Red Bird, Talisman, Cornucopia, Keystone and Gemini mining claims, all situated in the Tintic mining district, and the Alpha, Talisman and Voltaire mill sites. It has been incorporated at Salt Lake City, where the principal office will be, with a capital stock of \$500,000, shares \$100 each. The officers are: J. Q. Packard, President; John M. Chrystal, Vice-President; L. S. Hill, Treasurer, and R. J. Hilton, Secretary.

SUMMIT COUNTY.

DALY MINING COMPANY.—The production for June was 67,295.64 fine ounces of bullion and \$7688.92 from ore sales.

ONTARIO SILVER MINING COMPANY.—The production for June was \$77,614.85 from ore sales, and of bullion 104,977.39 fine ounces.

TOOLE COUNTY.

HONORINE MINING COMPANY.—The monthly output, which consisted of 460 tons, went to the Hanauer Smelting Works under contract. It assayed 48 lead, 25 silver, and some gold.

LION HILL MINING COMPANY.—This company has been organized, with a capital stock of \$1,000,000, shares \$10 each, non-assessable. The corporators are J. A. Brown, Ellsworth Daggett, L. S. Hills, A. Miner, Joseph Woodmansee, Joseph Woodmansee, Jr., Charles Woodmansee. The company owns the Lion Hill mining claim, situated in the Ophir mining district.

WASHINGTON COUNTY.

The latest report of a find in the shape of anthracite coal comes from Pinto, Washington County. From

what should be reliable authority, we learn, says the *Salt Lake Herald*, that the vein is large and well defined. A company will probably soon be organized with a view to developing the find.

WASHINGTON TERRITORY.

Mr. McCulloch, manager of the works of the Moss Bay Hematite Iron Ore Company, accompanied by Mr. Palmer, engineer of the Northern Pacific, is inspecting the iron mines of the country on the upper Cle-Elum River, in Kittitas County, and looking over the railway survey made last fall. The company is developing the mines, and finds them more extensive than ever anticipated, and the ore of the best quality.

PIERCE COUNTY.

CARBONADA COAL AND COKE COMPANY.—Mr. N. S. Meany, agent of this company, has been in Pennsylvania, where he engaged 50 practical miners and coke-workers for this company, which is carrying on operations at Carbonado. Mr. Meany states that Washington Territory promised one of the most important coke-fields in the country, but that at the present time they were much handicapped by the necessity of shipping the product of their coke to the terminus of the Northern Pacific Railroad. All the coke is shipped to San Francisco. In the *ENGINEERING AND MINING JOURNAL* of April 28th we gave a description of the coal-fields of Pierce County.

FOREIGN MINING NEWS.

AFRICA.

DE BEERS.—Cablegrams from the Cape report a disastrous fire at the mouth of this diamond mine at Kimberley on the night of the 11th inst. Eight hundred miners are entombed in the burning mines, and it is considered certain that 500 of the imprisoned miners have been asphyxiated. It is said that Manager Lussay is among the buried miners, and he, with the other whites, are counted among those surely dead.

A later cablegram says that the mine has been explored by a party of searchers. Twenty-four whites and 200 natives were found to have been burned to death. The cause of the fire is unknown.

BRITISH COLUMBIA.

An inspection will be made of the anthracite coal mines on Queen Charlotte Island, with a view to their development.

CANADA.

PROVINCE OF MANITOBA.

The directors of the Anthracite Coal Company have decided to increase the works and open up new locations.

PROVINCE OF ONTARIO.

THORNBURY OIL AND MINING COMPANY.—This company, which recently began drilling at the foot of the Blue Mountains some three miles distant from Thornbury, has struck gas at a distance of 110 feet.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, July 13.

Statistics.

Production Anthracite Coal for week ended July 7th and year from January 1st:

| TONS OF 2240 LBS. | 1888. | | 1887. |
|----------------------|---------|------------|------------|
| | Week. | Year. | Year. |
| P. & Read RR. Co. | 124,227 | 2,917,986 | 3,961,294 |
| Cent. R. R. of N. J. | 95,631 | 2,584,491 | 2,494,89 |
| L. V. RR. Co. | 191,336 | 3,063,865 | 3,643,929 |
| D. L. & W. RR. Co. | 93,314 | 3,180,826 | 2,663,615 |
| D. & H. Canal Co. | 66,783 | 2,119,367 | 1,890,579 |
| Penna. RR. | 53,957 | 2,021,812 | 1,572,973 |
| Penna. Canal Co. | 29,564 | 781,415 | 713,192 |
| Penna. Coal Co. | 13,767 | 180,540 | 153,433 |
| Total..... | 668,599 | 16,749,302 | 17,392,604 |

Decrease..... 343,302

Increase..... 90,475

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

Production for corresponding period:

1883.....14,712,252 | 1885.....13,886,292

1884.....14,694,801 | 1886.....15,253,608

Production Bituminous Coal for week ended July 7th, and year from January 1st:

Production of Coke on line of Pennsylvania RR. for week ending July 7th, and year from January 1st, in tons of 2000 pounds: Week, 59,397 tons; year, 1,988,277 tons; to corresponding date in 1887, 384,571 tons.

EASTERN AND NORTHERN SHIPMENTS.

| | 1888. | | 1887. |
|---------------------------|---------|-----------|-----------|
| | Week. | Year. | Year. |
| Phila. & Erie RR. | 300 | 35,011 | 6,429 |
| *Cumberland, Md. | 63,255 | 1,780,621 | 1,416,926 |
| Baltimore, Pa. | 4,801 | 94,067 | 108,522 |
| Broad Top, Pa. | 4,439 | 136,342 | 179,664 |
| Cleaveland Region, Pa. | 1,899 | 67,871 | 87,178 |
| Snow Shoe..... | 2,149 | 76,115 | 100,009 |
| Clyde & Clearfield.. | 46,193 | 1,761,078 | 1,669,621 |
| Npton..... | 388 | 30,436 | 4,738 |
| Allegheny Region, Pa. | 10,391 | 457,885 | 551,594 |
| Galtzian & Moun sin. | 28,294 | 817,778 | 601,232 |
| Pocahontas Flat Top Coal. | 49,256 | 934,435 | 779,225 |
| Norfolk & West, W. Va. | ..... | ..... | ..... |
| Ches. & Ohio RR. | ..... | ..... | ..... |
| * Total..... | 211,365 | 6,239,190 | 5,535,033 |

* Tons of 2240 lbs.

WESTERN SHIPMENTS.

| | | | |
|---------------------------------|----------------|------------------|------------------|
| Pittsburg Region, Pa. | | | |
| West Penn RR..... | 6,023 | 204,357 | 162,479 |
| Southwest Penn. RR.... | 1,689 | 52,587 | 68,379 |
| Pennsylvania RR.... | 4,903 | 157,360 | 111,543 |
| Westmoreland Region, Pa. | | | |
| Pennsylvania RR.... | 26,869 | 897,512 | 765,532 |
| Monongahela Region, Pa. | | | |
| Pennsylvania RR.... | 10,252 | 212,537 | 207,356 |
| Total..... | 49,736 | 1,524,353 | 1,315,289 |
| Grand total..... | 261,101 | 7,763,552 | 6,850,322 |

Anthracite.

As we have been expecting for the past two or three weeks, the prices of anthracite have been advanced 10 cents a ton on Broken, 15 cents on Egg, and 25 cents on Stove and Chestnut, making the prices as follows: Broken, \$3.85; Egg, \$4.15; Stove and Chestnut, \$4.50 a ton f. o. b. These prices take effect from the 15th.

In anticipation of this advance, the market has been very active, and large quantities of coal have been sold. It is said that some of the companies have sold forward for a few months, and most of them have been out of the market except at the advance during the week past.

The effect of this advance will be at once to slack up the demand, and for two or three weeks we expect a quiet market; but after this month the demand will, no doubt, again increase, and there is every probability of the year's business exceeding that of last year, which itself was the largest on record.

During the first six months of this year the production has been greater than that of the corresponding period last year, and during the remainder of the year there is every probability of the demand continuing on the same scale. These facts outweigh all the political speeches that may be made to the contrary, for they indicate, beyond question, that the industry of the country is active, even if prices are not always as large and remunerative as they were a year ago. No one appears to be much afraid on political grounds of any disaster coming to the country, no matter what may happen in the election, or which side may win.

The improved demand and higher prices for the larger sizes of coal unfortunately stop there, pea and buckwheat coal continuing to be a drug, and we have heard of prices as low as \$2.10 f. o. b. for pea coal. Buckwheat has got below quotation. It is more than probable that a large contract for pea coal could be placed at the lowest figure we have quoted: \$2.25 is a common quotation to-day. Nevertheless, we hear of some companies getting as much as \$2.85 a ton.

The low prices of the small sizes is due to the encroachments of bituminous coal in the manufacturing markets of the East. It would be only fair, perhaps, if the anthracite producers were to offer these small sizes to the Panama Canal, for example, and other large consumers of soft coal, at figures which would make a new outlet. We again invite those who are disposed to bid for that trade to inform us, and we will put them in communication with the proper authorities.

Bituminous.

There is little worthy of note in this trade. Prices are still made far below the nominal quotations, though it is claimed that some of the Cumberland companies get full rates. Since the large contracts have been made there is no inducement for finding out just what prices are being obtained, but it is certain that soft coal for manufacturing purposes can be bought in the East at extremely low figures, so low that pea coal at about \$2.25 a ton, f. o. b. in this harbor, can not find a market in competition with it.

It is generally understood that some of the soft coals are delivered f. o. b. at tidewater as low as \$2.20, and possibly a little lower. And we have heard of \$2.85 being made in this harbor.

If our readers have forgotten what the nominal prices of bituminous coal f. o. b. at tidewater are, and it is quite possible they may not have met with them in their business for some time, we would remind them that they are \$2.60 f. o. b. for Baltimore and Georgetown, and \$3.25 for New York harbor.

Boston.

July 12.

[From our Special Correspondent.]

The market for anthracite coal has not recovered from the effects of July 4th, so far as transactions are concerned, but quotations are strengthening. The action of the Wilkes-Barre Company in advancing prices 25 cents on stove, 15 cents on egg and 10 cents on broken is said to be a forerunner of a general advance in a few days, and the trade is inclined to consider it so.

The market is bare of interesting matters in the line of bituminous coal, and the sales agents are earnestly hoping that it will continue so, as the only news now likely to occur would be of a more serious rupture of the pool provisions than has yet occurred. Quotations remain nominally \$2.50@2.60, f. o. b. Delivered prices can readily be had on that basis.

Freights are no firmer than they were and show little change.

We quote vessel rates, exclusive of discharging: New York, 70@80c.; Philadelphia, \$1@1.05; Baltimore, \$1.10@1.15; Newport News and Norfolk, \$1.05@1.10; Richmond, \$1.15@1.25. Provincial, \$1.60@1.75.

There is a good movement at retail for the season. The retail trade are still much interested, not to say exercised, over the result of the city bids, and they may well be. The cream of the contract, say 10,000

out of 15,000 tons, was taken by a new concern, which put in the regular prices agreed upon by the Coal Exchange, but gave options for 90 days instead of 30 days. This was rather for the benefit of the city, but the authorities were glad of any sign of breaking the combination, and readily gave the contract to the new company.

The gossip is that George B. Newton & Co., of New York, is behind this successful bidder, known as the Boston Coal Company, and that Keyes, of Charlestown, is the Boston man. At all events, they are said to have hired a wharf of 60,000 feet, well located inside of only one bridge, and apparently intend to do a large business if they can get it. Of course this means plenty of capital from some source. Why Mr. Newton comes into the retail market, as he is reported as doing, if not yet clear.

Buffalo.

July 12.

[From our Special Correspondent.]

The anthracite coal trade is moderately active at previous quotations. Stocks on track, in chutes and trestles fully adequate to all the requirements of the demand. No remarkable incidents to record other than the few items appended.

The bituminous trade continues in an unsettled condition, but may be quoted as a trifle better generally. Prices depend as a rule upon the coming together of seller and buyer. The published rates as a rule are entirely nominal ones.

Coke unchanged. There is a rumor floating around that another advance in the price of anthracite coal may be looked for August 1st. The reasons given are the short supply of cars, the active demand, the astonishing large increase in consumption "out West," and the light stocks on hand every where last spring. The expected advance will be from 20 to 25 cents per ton.

In consequence of lessened rail receipts, although the lake consignments have been so much heavier to date than a year since, the stocks of coal at Chicago are said to be smaller than they were twelve months ago.

The Western New York & Pennsylvania Railroad has commenced work on an extension of the line from Clermont to Johnsonberg, Pa., a distance of 36 miles. The road will be completed in 90 days, and when finished will be the shortest route to the coal regions of Pennsylvania.

Our Police Board have awarded the contract for hard coal to Messrs. Thos. Loomis & Co., at their bid of \$4.50 for grate and egg, and \$4.75 for stove and chestnut per net ton delivered and half a cent per ton for housing. There were many other bids, but all at same figures, the competition on housing ranging from 9 cents downwards to the half cent per ton.

Mr. Henry C. Springer, our well-known coal merchant, lost Wednesday morning by fire property here valued at about \$15,000. The extensive stables, 30 horses and livery outfit owned by him were burned to ashes, and in addition two stablemen were cremated.

Duluth expects to have a direct connection by railroad with the seaboard cities in from ninety to one hundred days, via the Duluth, South Shore & Atlantic route. Doubtless the great importance of this connection will be taken advantage of by its citizens, as it will be a formidable competitor with other places as a northwestern distributing point. Instead of being as now an "open navigation" port, it will be an "all the year round" business center. The completion of the shorter railroad route will have a stimulating effect upon the coal supply of the "Zenith City" and should insure lower prices in consequence of cheaper freight charges.

Lake freights continue firm at unchanged quotations. Demand for vessels excellent. This day business quiet, but handlers active. The shipments by lake westward from July 5th to 11th, both days inclusive, aggregated 82,430 net tons, namely, 28,550 to Chicago, 22,160 to Milwaukee, 6400 to Duluth, 3060 to Toledo, 3950 to Superior, 1450 to Green Bay, 2740 to Racine, 1060 to Detroit, 2450 to Manitowoc, 100 to Wallaceburgh, 530 to Windsor, 1300 to Marquette, 680 to Ludington, 650 to Escanaba, 900 to Lake Linden, 4200 to Ashland, 300 to Kelly Island, 650 to Menominee and 1300 to Bay City. Total shipments thus far this season (including vessels from Tonawanda not reported at the custom-house), 928,045 net tons. The rates of freight were \$1 to Chicago and Racine, 90c. to Green Bay, Milwaukee, Sheboygan, Manitowoc and Kenosha, \$1 to Ludington, \$1.10 to Racine, 95c. to Menominee, 75c. to Duluth, Superior, Portage and Ashland, 50c. to Windsor and Toledo and 40c. to Bay City.

Receipts of coal here for first week in July, 8924 net tons; shipments none; no charters. Bad break on canal near Rochester; navigation suspended probably until next Sunday at the earliest.

Pittsburg.

July 12.

[From our Special Correspondent.]

Coal remains steady, with a fair jobbing demand. The June rise failed, but the July one came with a rush, doing big damage. Before this is received at least 12,000,000 bushels will be traveling down the Ohio destined for the Western and Southern markets. The year's shipment to date is far in excess of all last year.

PRICE OF COAL PER 100 BUSHELS = 7600 LBS.

| | | | |
|------------------|--------|--------------------|--------|
| First pool..... | \$4.75 | Fourth pool..... | \$3.25 |
| Second pool..... | 4.25 | Railroad coal..... | 5.00 |
| Third pool..... | 3.75 | | |

Connellsville Coke.—There is no improvement to record. Coke is being disposed of below cost of pro-

duction. This is a bad condition of affairs, but a fact all the same. There has been an improvement in the demand but not in prices. We quote: Blast furnace, \$1.00 per ton; to dealers, \$1.10; Foundries, \$1.15.

Freight rates to Pittsburg, 70c. per ton; to the Mahanoy and Shenango valleys, \$1.35; East St. Louis, \$3.20; to Cleveland, \$2.80; to Chicago, \$2.75; to all other points the same proportions.

FREIGHTS.

Reduced Rates on Iron Ore in Colorado.

—A meeting was held last week at Denver, Colo., between the Denver & Rio Grande railroad, Colorado Midland and the Union Pacific railroad officials, regarding the reduction of the rates on iron ores. The officials decided that their respective roads would carry the ore from Leadville to Colorado Springs, Pueblo and Denver at a \$3 per ton rate, the ore to be used for fluxing purposes, and must not carry silver exceeding fourteen ounces and lead five per cent. The rate went into effect on the 5th of July. The railroads make a further proviso that the shippers of such ore shall agree to furnish them through their smelters or samplers in the valley a certificate of assay on each car-load of ore shipped. To insure themselves the railroads will appoint inspectors at this point to see that no one will avail themselves of the opportunity of shipping higher grade ore at this reduced rate.

Reduction of Railroad Freight Rates on Iron and Steel.

—The Joint Committee of the Central Traffic Association and Trunk Lines have authorized a reduction of the iron and steel freight rates, which corresponds with the cut made by the Baltimore & Ohio between Pittsburg and eastern cities, on June 26th. The basis of the new tariff is 21 cents per hundred on car load lots, and 20 cents on cars from Chicago to New York. This makes the rates between Pittsburg and New York 13 cents for car loads lots and 16 for less; Pittsburg and Philadelphia, 11 and 14, and Pittsburg and Baltimore, 10 and 13.

The Lake Shore & Michigan Southern has issued its tariff to correspond to this reduction. Its rates between Pittsburg and Rochester, N. Y., on bar iron, are reduced from 14 and 11 cents to 12 and 10 cents; between Pittsburg and Syracuse and Utica, 16 and 13 to 14 and 11; Pittsburg and Albany, 18 and 15 to 16 and 13; Pittsburg and New York, 18 and 15 to 16 and 13.

Reduction of Freight Rates on Iron Ore from Lake Erie Shipping Ports.

—All railroad lines leading from Lake Erie shipping ports to the points of Johnstown, Fairchance, Lamont, Dunbar, and Scottdale, Pa., have reduced their rates on iron ore shipped by the car-load to \$1.60. This reduction is made on the basis of Pittsburg tariff rates.

The latest actual charters to July 12th, per ton of 2240 lbs:

From Philadelphia to:—Alexandria, .85; Annapolis, .65; Bangor, 1.15@1.25; Bath, Me., .95; Beverly, 1.05; Boston, .90; Cambridgeport, Mass., 1.17 1/2; Charlestown, .75; Charleston, .75@80; Com. Point, Mass., 1.00 @1.05; Fall River, 85@90; Gardner, Me., 1.00; Gloucester, 1.00; Hingham, 1.50; Lynn, 1.10@1.30; Marblehead, 1.10; Milton, 1.20; New Bedford, 85@90; Newburyport, 1.15; Newberne, .80; New Orleans, 1.25; New York, .90; Norfolk, .65; Portland, .90; Portsmouth, N. H., 1.00@1.05; Providence, 85@90; Quincy Point, 1.05; Richmond, Va., .75@80; Saco, Me., 1.15; Salem, Mass., .90; Saugus, 1.15; Savannah, 1.00; Washington, .85; Wilmington, N. C., .85.

From Baltimore to:—Bangor, Me., 1.00; Bath, 1.10; Boston, 1.00; Bridgeport, Conn., 85@90; Brooklyn, .85; Fall River, 85@90; Galveston, 3.00; New Bedford, .85; Newburyport, 1.30; New Haven, .80; New London, .80; New York, .85; Portland, 1.00; Portsmouth, N. H., 1.00; Providence, .85; Richmond, Va., .60; Salem, Mass., 1.00; Savannah, 1.00@1.10; Williamsburgh, N. Y., .85; Wilmington, 1.00@1.10.

From New York to:—Bath, Me., 80@90; Beverly, .90; Boston, .80; Bridgeport, Conn., .55; Cambridge, Mass., .80@85; Cambridgeport, 80@85; Chelsea, .80; Com. Pt., Mass., .80; E. Boston, .80; E. Cambridge, .80@85; E. Greenwich, R. I., .75; Fall River, .75; New Bedford, .80; Newburyport, .95; New Haven, .55; Newport, .75; New London, .70; Norwalk, Conn., .55@.60; Portsmouth, N. H., .90; Providence, .75; Salem, .80.

* And discharging, 3c. per bridge extra. † Alongside ‡ And towing.

MARKETS.

NEW YORK, Friday Evening, July 13.

Prices of Silver per ounce troy.

| July | Sterling exchange | London Pence. | N. Y. Cents | July | Sterling exchange | London Pence. | N. Y. Cts. |
|------|-------------------|---------------|-------------|------|-------------------|---------------|------------|
| 7 | 4.88 1/4 | 42 1/2 | 92 | 11 | 4.88 1/4 | 42 1/2 | 92 1/4 |
| 9 | 4.88 1/4 | 42 1/2 | 92 | 12 | 4.88 1/4 | 42 1/2 | 92 1/4 |
| 10 | 4.88 1/4 | 42 1/2 | 92 | 13 | 4.88 1/4 | 42 1/2 | 92 1/4 |

* 42 3-16.

Foreign Bank Statements.—The governors of the Bank of England, at their weekly meeting, made no change in its rate for discount, and it remains at 2 1/2 per cent. During the week the bank lost £307,000, and the proportion of its reserve to its liabilities was re-

duced from 40 35 to 38 48 per cent, against an advance from 38 35 to 40 55 per cent in the same week of last year, when its rate for discount was 2 per cent. The weekly statement of the Bank of France shows a loss of 7,475,000 francs gold and a loss of 9,875,000 francs silver. Bar silver was firmer at £42 1s. 6d. per ounce English standard.

Copper.—The feature of the past week in the copper market has been the operations of some "bears," who (evidently influenced by the very limited quantities being offered) commenced thus early in the month to cover their shorts for July delivery, no doubt fearing that if they waited much longer they might find themselves cornered. The effect of their purchases was to put the price of Lake copper, for spot and July delivery, up to 16 90 per pound, but it is understood that they have sold again, for November and December delivery, at 16 43 and 16 35 respectively. The short interest in copper is said to have amounted to between 500,000 and 750,000 pounds. The latest quotations for Lake copper are: Spot, 16 85; July, 16 85; August, 16 70; September, 16 60; October, 16 55; November, 16 55. It is rumored that the lake companies, acting on behalf of the syndicate, have commenced negotiations with the manufacturers, respecting the next pool sale, and the opinion prevails in some quarters that the price will probably be fixed at 17c. per pound, but in view of the undoubted accumulation of stocks in the hands of the syndicate and the not inconsiderable falling off in consumption, it would appear to be a very unwise policy to attempt to advance the price. On the contrary, it would be better to gradually reduce it, and thereby encourage enlarged consumption, which would tend to bring about a diminution of the stocks and a much sounder condition of the market generally than that at present existing.

Outside brands still continue difficult of sale, and prices show no improvement in sympathy with the rise in Lake descriptions.

In London Spot Chili Bars have declined during the week from £81 2d. 6s. to about £78 5s., whilst 3 months' futures remain unaltered at about £78, and this would rather imply that the syndicate are working in the direction of bringing the market down to a broader, sounder basis.

Private advices intimate that the syndicate is preparing to buy or is buying the English stocks of copper which have of late had such a disturbing and annoying effect on the market.

Some of the New York daily papers, following the lead of the London papers, have been predicting the early collapse of the syndicate. There is not the least probability of this happening. The sales made by our companies are well secured for one year, and in some cases for a longer period, and the contracts can be enforced, the *Times* to the contrary notwithstanding.

Tin.—Notwithstanding the rapid advance in London (part of which has since been lost), our market, although sympathizing to some extent with the rise in quotations abroad has since become flat. The recent rise being a purely speculative movement, consumers have shown great reluctance to follow it, and the tone is rather unsettled, although we consider the present prices comparatively safe. During the week the amount of business done has been small, and our closing quotations are: Spot, 18 50; July, 18 50; Aug., 18 40; Sept., 18 40.

The effect of the recent Anglo-French tin corner is well shown in the following statistics of exports of tin from Singapore and Penang, which are furnished us by Mr. Chas. Nordhaus, of 89 Water street, New York:

Exports of tin in June, 1888, to America, 200 tons, as compared with 650 tons in 1887; to England, 100 tons in June, 1888, and 1,200 tons in 1887. Total exports since Jan. 1: To America, 855 tons in 1888 and 2600 tons in 1887; to England, 10,000 tons in 1888 and 6600 tons in 1887.

Lead.—The well known operator in this market having left things pretty much to themselves during the past week (a course which he occasionally pursues), we have again to report a weak and dull market, as nobody else seems to be inclined to go in and give it a lift, and consumers are only purchasing what they need to meet their current requirements. In consequence of this quotations have declined again, and with only a moderate amount of business transacted we close at Spot, 3 92½; July, 3 95; August, 3 97½; September, 4 02½. During the week the London market has also given way, and the last cable prices are £12 17s. 6d. for Spanish and £13 2s. 6d. for English.

Importation of Lead Ores.—Senator Edmunds presented to the Senate on the 5th inst. the report of the Judiciary Committee on the laws relating to the importation of lead in gold and silver ores. The Senate on June 11th adopted a resolution asking the committee to investigate the subject of the importation free of lead ore. The committee says: That lead ore, in a legal and commercial sense, is dutiable at 1½ cent per pound, but from the examination of the papers on the subject, referred to the committee, it appears that the question involved is the importation of what are known to the Treasury Department as gold and silver ores. In the case of ores of this character the committee inclines to the opinion that when they contain more lead than gold or silver in quantity, but more of gold or silver in value, the lead is not subject to duty. Prior to the act of 1883 these ores were known as gold and silver ores, and it is to be presumed that Congress knew of this commercial interpretation when the law was enacted.

Messrs. Everett & Post, of Chicago, telegraph to-day as follows: The market remains about the same, if any thing a shade weaker. Offerings are larger, but inquiries from consumers are good. Buyers, expecting a decline, are holding off, and buy only for immediate wants. Sales are limited, aggregating not more than 300 tons at 3 90.

Messrs. John Wahl & Co., of St. Louis, telegraph to-day as follows: Business has been quiet and of a limited character, with quotations at 3 77½@3 85. Sales will scarcely foot up 500 tons.

Spelter.—A rather better tendency has been observed in this market, and the quantity offered is very small. Considering the powerful combination among the European producers to limit production and support prices, it was a matter of some surprise that quotations should have declined as they did. It is therefore not to be wondered at that during the last few days the market has suddenly become active, with prices tending upward. The closing quotations are: Domestic, 4 55; Foreign, £16 15s., London, or 5½ cents here.

Antimony.—There is nothing new to report in this market, and the present quotations are: Cookson's, 12; Hallett's, 10.

Thirty seats on the Metal Exchange were sold by auction on the 9th inst., the owners of them having failed to pay their dues. The first sale was at \$50, but after that the bidding grew more spirited, and the price kept rising until the last seat was sold for \$100.

Chemicals.—The general chemical market shows little change from the prevailing dullness here recorded last week. Trade is almost entirely of a jobbing character. All large contracts have been placed and none expire before the latter part of August, about which time several prominent local dealers say trade will revive.

In heavy chemicals, there are no changes in prices given last week. Sales are in small lots. Caustic soda ash, 48 per cent, although lacking animation, is firm at 1 25@1 30, with nothing procurable under the former figure. Small lots are occasionally held for better figures than 1 30.

Carbonated soda ash, 48 per cent, continues quiet. The stock on the spot is small.

Caustic soda, 60 per cent, while quiet and dull, is much easier in price than last week; 2 35c. is frequently quoted. The higher tests, 70@74 per cent, are in fair demand at 2 20c. We hear of a quotation of 77 per cent at 2 25c.

English sal soda shows increased strength, some dealers demanding 1 15c. for small lots. While futures are scarce, we may quote for goods to arrive, 95c. American sal soda shows little or no change.

Bleaching powder is dull, and prices are usually a little lower than those asked last week, depending upon quantity and brand; 1 87½@1 92½ are quotable figures. Large orders for future shipments would probably show a little variation of these figures.

Acetic acid is in slight demand, although quotations are improved at 2¼@2½c.

Sulphuric acid, 66 degrees, remains at about 90@95c. per 100 lbs., according to quantity, seller, etc. For jobbing lots 1@1 20c. is quoted.

Oxalic acid has been meagerly dealt in at last week's figures, 6½c.

Tartaric acid is quoted at 43@45c. for crystals, and 44@46c. for powdered.

The fertilizing chemical market is an exception to the general dullness. The increased activity recorded last week continues. While some of the smaller houses are trading only in small lots for immediate delivery, several of the larger dealers have their hands full with large contracts.

Our quotations of last week are changed considerably, a general improvement in price being noted. They are as follows: Dried blood (city), low grade, 2 30@2 32½ per unit; Western, high grade, finely ground, 2 35@2 40 per unit. Tankage, high grade, \$24@25 per ton; low grade, guaranteed 7 per cent ammonia and 25 per cent bone phosphate, \$22@23. Fish scrap is about the same, at \$24.50 f.o.b. factory. Sulphate of ammonia is \$3.15@3.20 per cwt. Steamed bones, \$20@22 per ton. Dried Charleston rock is \$6 per ton, f.o.b. at mines; undried, \$5 per ton. Refuse bone black is \$18@19 per ton, guaranteed over 70 per cent bone phosphate. Dissolved bone black is 90c. per unit for available phosphoric acid and acid phosphate; 75c. per unit for available phosphoric acid.

High grade sulphate of potash is firm at 2 20 on basis of 90 per cent sulphate of potash.

Double manure salt is in fair demand at 1 05 on a basis of 48@52 per cent sulphate of potash. We give on another page information as to the relative values of these articles.

Muriate of potash is steady, with perhaps a slight improvement in price; 1 80 is the ruling figure.

Kainit is very firm and scarce. The small stock in store is held at \$11.50 per ton, an advance on last week. Futures are offered at \$9@10 per ton, according to date of shipment, quantity, etc.

Brimstone is offering more freely. Future shipments are easier, at \$19.50 and \$19.75, according to date, etc. Sales to arrive soon are reported at \$22, which is probably a little lower than the spot price.

Thirds are still quoted at \$19.25 for future shipment.

Nitrate of soda is easier, owing perhaps to several

importations. We quote \$2 ex vessel, and \$3.05 ex store. Futures may be had at \$2.02½.

Mr. F. B. Nichols furnishes the following statistical summary in his semi-annual report on the nitrate market:

| | 1888. | 1887. |
|---|---------|---------|
| In store and afloat at Atlantic ports | | |
| January 1st..... | 62,940 | 72,786 |
| Arrivals to July 1st..... | 314,848 | 232,274 |
| Exports..... | 19,870 | 23,329 |
| Deliveries for consumption to July 1st. | 224,688 | 224,476 |
| In store and afloat July 1st..... | 133,230 | 56,835 |
| Average price..... | 2.06½ | 2.18 |

Our Charleston correspondent writes us under date July 10th, as follows:

Prices of rock are as follows: Crude Land Rock, f.o.b. vessel, at mines, Ashley River, \$4.90; city loading from such mines as are beyond navigation, \$5, and Kiln Dried, \$5.90 and \$6 respectively; f.o.b. cars, \$5 and \$6 respectively. Ground rock f.o.b. vessel city loading \$7.50, and ex-vessel New York \$9.60. I hear of a sale just closed at the latter price. The Miners' Exchange are anxious to advance prices, and rumor says it will be done this month. Some of the mines have sold up to the quota allowed them by the exchange, and the scarcity of labor, which will doubtless continue until the crops are gathered in, will prevent an over production in mining. The river companies are all pretty well in the hands of one party, and their workings are kept as close as possible. They refuse to name prices and ask for firm offers from buyers in this country only. All their foreign sales are made by Wylie & Gordon abroad.

Fertilizers.—The capacity of the works will be increased about 50,000 tons this season over last, which the company claim will not be in excess of the last, they having brought over about that quantity from the previous one. The shipments of 1886-7, ending May 1 last, were 53,149 tons over same period of 1887-8. The increased capacity is confined to four of the old companies and one now being erected. Price of acid phosphate, \$10.50 to \$11 in bulk, f.o.b. at works, cash.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, July 13.

Extreme quiet prevails in all branches of the iron business. Prices are unchanged and are for the most part not firmly held.

American pig-iron shows no change except that in some quarters the opinion is gradually gaining ground that bottom prices have been reached. Current transactions are not large in volume, and there has not yet been shown any decided disposition to contract ahead.

The production of pig-iron in this country for the first six months of 1888 is estimated at 1,984,179 gross tons, against 3,359,923 tons during the second half of 1887. Anthracite pig-iron has fallen off from 1,015,125 gross tons in the second half of 1887, to 843,275 tons, the first half of 1888. Coke iron has fallen off from 2,063,763 to 1,901,281 tons, and charcoal iron from 281,032 tons to 239,615 tons.

There is absolutely nothing to be said about other departments of the iron trade, business having been very light, with very little inquiry, and no disposition to buy. This is the usual state of business early in July. There is, however, a decided feeling that the present state of things will not last many months, and that the early fall will witness a revival of business all along the line.

The latest dispatches from Pittsburg indicate that the mills have practically all assented to the scale of wages demanded by the Amalgamated Association. This may be taken as an indication that the mill owners do not take, by any means, a despondent view of the business situation.

Current prices will be found in our weekly register of quotations.

The National Association of Bar-Iron Manufacturers was organized at Cleveland last week. Press dispatches from that city credit the so-called association with being practically a "trust" formed for the purpose of regulating both the prices and output of bar iron in the mills comprising the association. All the manufacturers present pledged themselves to this effect. All orders are to go directly to the association. The executive committee of that body will decide who shall fill the orders, and at what price. Myron C. Wick, of Youngstown, Ohio, was elected President, and George H. Taylor, of Cleveland, Secretary.

Cleveland, O.

Iron Ore.—The Cleveland *Iron Trade Review* of the 9th inst. says the shipments from upper lake ports since the opening of navigation aggregate 1,275,000 tons, against about 1,350,000 tons shipped up to the corresponding period last year. Vessel rates are still growing more and more favorable to the shippers. The Escanaba rate is now 85c., while charters can be obtained from Ashland at \$1.15 and from Marquette at \$1.10. The strike at Pittsburg and other iron centers has interferred perceptibly with the active buying movement noted one week ago. The same influences will probably be felt this week, but if the labor troubles in which our purchasers are so directly interested are adjusted quickly, there are excellent prospects for a fair ending to a season which started out poorly. Considerable Gogebic ore has been sold during the past week—one 25,000-ton lot for far Eastern delivery bringing a price equivalent to \$4.70 f.o.b. vessels

Cleveland. Additional sales of non-Bessemer hematites are reported at \$3.50, and very fair grades of non-Bessemer Menominee ores have been bought for \$3.70@3.85 per ton. The following are the quotations:

Table with 2 columns: Description of ores (e.g., No. 1 Specular and magnetic Bessemer ores) and their prices per ton.

Louisville. July 10.

[Reported by HALL BROTHERS & Co.]

The market presents the same general appearance as last reported. Some orders for round lots, both for immediate and future shipment, have been closed during the past few days, and inquiries still continue good. Some furnaces are turning their attention now to filling old orders, in preference to entering new ones. There is a good request for both cold and hot blast charcoal metals.

Quotations for cash f.o.b. cars at Louisville will be found in our weekly register of prices.

Pittsburg. July 12.

[From our Special Correspondent.]

The iron situation at present is a very unsettled one, and from present indications is likely to continue for some time. The fact is neither capital nor labor show any particular anxiety on the subject. While several of the Amalgamated scales have been signed, they are not in the shape first presented. That is all right. Let each side make concessions and the trouble will soon end. The feeling among manufacturers is growing to cut loose from both the Knights of Labor and Amalgamated Societies. The success that has attended the Black Diamond and Clark Co. Solar Works have set other men to thinking. The firm of Singer, Nimick & Co. have decided to try the experiment, and declare publicly that hereafter while they will pay the best of wages in all departments, they will recognize no committee, but will deal with the men themselves.

This is an important movement and will be watched by parties interested.

The situation is about as satisfactory as could be expected, all things taken into consideration. Last week we had the Fourth of July to celebrate, business being a secondary consideration. Young America was on hand in full bloom. A big time was the result. This week we had something of a more serious nature to contend with, an extraordinary flood in the Monongahela River doing immense damage from the head waters to the mouth, causing suspension of mills, foundries and furnaces on both sides of that river, the loss of coal boats, barges and material being very large. Pig-iron for certain grades prices held their own, for others a shade lower prices were the rule. Bessemer—the demand remains steady with a good deal changing hands, principally for future dealing. Old rails are very dull, not wanted. Muck bar steady, not active. Steel slabs and billets are much fancied. Demand for foundry iron light.

Coal and Coke Smelted Lake Ore.

Table listing prices for various grades of coal and coke, such as 3000 Tons Bessemer, 1000 Tons off Bessemer, etc.

Coke, Native Ore.

Table listing prices for native coke, including 500 Tons Gray Forge, 50 Tons Extra Silvery, etc.

Charcoal.

Table listing price for 100 Tons No. 1 Foundry charcoal.

Steel Billets.

Table listing prices for steel billets in various quantities, from 2000 Tons to 1250 Tons.

Muck Bar.

Table listing price for 300 Tons Neutral muck bar.

Steel Crop Ends.

Table listing price for 350 Tons Crop Ends.

Old Iron Rails.

Table listing price for 550 Tons American Old Iron Rails.

Scrap Material.

Table listing prices for various types of scrap material, including 100 Tons No. 1 Wrought Scrap, etc.

Philadelphia. July 13.

[From our special Correspondent.]

Efforts are being made by outside makers of pig-iron to do some business in Eastern Pennsylvania. No inducements are being offered in the way of prices. The home trade is very indifferent to stocking up at present. Mill owners see no reason for making extensive purchases at this time. Foundrymen are utterly

indifferent, and are purchasing in a hand-to-mouth way, as they have been doing for months. Inferior brands have been hawked about and are offered at what seem to be low prices, but very little business is doing. No large transactions need be expected for some time to come, if present indications are to be taken into account. The Western strike will be settled in a few days, probably, and buyers will then begin to talk. Handlers of foreign material say they have inquiries, but have no sales to report. Within the past few days buyers of blooms have been asking for figures on fall lots, but no large business has resulted yet.

The bar-iron men are having a little run of small orders for refined and medium iron, at \$1.80@1.90. There is not much business, although some few of the inquiries received are from very large consumers. There is no anticipation of any lower quotations, and as it is generally taken for granted that there will be a better fall trade, makers here conclude that they will have a good August business from consumers who want to make themselves safe.

An occasional lot of nails is sold below current quotations. The well-known brands are held firmly. The wrought iron pipe demand is very trifling. Muck

IMPORTATIONS AT NEW YORK FROM JULY 3 TO JULY 9, AND FROM JAN. 1 TO SAME DATE.

Large table with multiple columns: Week, Year, Tons, and descriptions of various iron and steel products like Spelter, Steel Sheets, Billets, Forgings, Old Rails, Sheet Iron, Scrap-Iron, Charcoal Iron, Tin Plates, Bar-Iron, and Steel & Iron Rods.

CURRENT PRICES.

CHEMICALS.

Table listing various chemical products and their prices, including Sulphur, Brimstone, Talc, Vermillion, Zinc Oxide, and various acids and salts.

Table listing various building materials and their prices, including Bricks, Tiles, and various types of stone.

Table listing various building materials and their prices, including Bricks, Tiles, and various types of stone.

Table listing various metals and their prices, including Aluminum, Bismuth, Cadmium, Calcium, and various other metallic elements.

Table listing various metals and their prices, including Aluminum, Copper, Lead, Tin, and various other metallic elements.

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Table listing various metals and their prices, including Aluminum, Copper, Lead, Tin, and various other metallic elements.

Table listing various steel products and their prices, including Steel Blooms, Steel Billets, and Steel Nail Slabs.

Table listing various steel products and their prices, including Steel Wire Rods, Steel Rails, and Structural Iron and Steel.

Table listing various steel products and their prices, including Steel Plates, Steel Pipes, and Cast-Iron Pipe.

Table listing various steel products and their prices, including Iron Plates, Wrought Iron Pipe, and Merchant Steel.

Table listing various steel products and their prices, including Bar Iron, Cast-Iron Pipe, and Wrought Iron Pipe.

Table listing various steel products and their prices, including Cast-Iron Pipe, Wrought Iron Pipe, and Merchant Steel.

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STOCK MARKET QUOTATIONS.

Table listing Baltimore, Md. stock market quotations, including Atlantic Coal, Balt. & N. C., and various other companies.

Table listing Birmingham, Ala. stock market quotations, including Ala. Cons. C., Bir. Min. & Mfg., and various other companies.

Table listing Pittsburgh, Pa. stock market quotations, including Allegheny Gas, Bridgewater Gas, and various other companies.

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Table listing Foreign Quotations, including Alturas Gold, Arizona Copper, and various other international stocks.

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DIVIDEND-PAYING MINES.

NON-DIVIDEND-PAYING MINES.

Main table with columns for Name and Location of Company, Capital Stock, Shares, Assessments, Dividends, and Date and amount of last dividend. Includes entries for Adams, Alice, Alturas, Amy & Silverwatts, etc.

G. Gold, S. Silver, L. Lead, C. Copper. * Non-assessable. † This company, at the Western, up to Dec. 10th, 1881, paid \$1,400,000. ‡ Non-assessable for three years. § The Deadwood previously paid \$275,000 in eleven dividends, and the Terra \$75,000. ¶ Previous to the consolidation in Aug., 1884, the California had paid \$31,321,000 in dividends, and the Con. Virginia, \$44,000,000. ** Previous to the consolidation of the Copper Queen with the Atlanta, Aug., 1885, the Copps, Queen had paid \$1,350,000 in dividends.

NEW YORK MINING STOCKS QUOTATIONS.

Table with columns for 'DIVIDEND-PAYING MINES' and 'NON-DIVIDEND-PAYING MINES'. Each section lists company names and their stock prices for various dates from July 7 to July 13, along with sales figures.

*Assessment unpaid. †Dealt in at the New York Stock Ex. Unlisted Securities. Dividend shares sold, 15,420. Non-dividend shares sold, 129,670. Total New York, 145,090.

BOSTON MINING STOCK QUOTATIONS.

Table listing Boston Mining Stock Quotations with columns for company names and stock prices from July 6 to July 12, including sales data.

*Ex dividend. Boston: Dividend shares sold, 4,780. Non-dividend shares sold, 12,653. Total Boston, 16,833.

COAL STOCKS.

Table listing Coal Stocks with columns for company names, par value of shares, and stock prices from July 7 to July 13, including sales figures.

**Bid †Asked. **Of the sales of this stock, 56,597 were in Philadelphia, and 211,880 in New York. Total sales, 371,631.

San Francisco Mining Stock Quotations.

Table listing San Francisco Mining Stock Quotations with columns for company names and closing quotations from July 6 to July 12.

*Ex dividend 50 cents a share.

bars are quoted nominally at \$27. Plate iron, to all appearances, will improve from this out. Prices, however, will not be advanced, and all the mill owners are quoting down low, in order to capture as much business as possible. The ship yards are busy. Structural iron has not actually improved, but there is just sufficient work coming along to prevent an idleness. A good deal of bridge plate will be placed under contract next month. Sheet iron is beginning to improve. There is also a liberal movement in small lots of merchant steel. There is more inquiry for steel rails, but sales are small. Dealers in old rails have buyers looking up stocks. Scrap iron is dull. For quotations see our table of current prices.

FINANCIAL.

NEW YORK, Friday Evening, July 13.

A little more interest has been shown in the mining share market, and in consequence the transactions were larger than in previous weeks. Prices show but little change.

Colorado stocks were neglected. Silver Cord shows a small business towards the close of the week at from 35@40c. Lacrosse at 8@10c. Cahier went from 9@6c. Small Hopes shows one sale at \$1.10. Little Chief a few at from 25@23c. Chrysolite is quoted at 40c.

The price of Silver Mining of Lake Valley advanced from 39 to 50c.

It is said that a majority of the stockholders of the Sutor Tunnel Company have assented to the plans of reorganization; nevertheless the Reorganization Committee have given a final extension of time up to July 25th, to enable European and other stockholders who have not been reached yet to come in and protect their shares. In the meantime the foreclosure proceedings are being pushed, and it is expected that a decree will be obtained within a short time. The stock has been very active during the week, the transactions amounting to 79,600 shares, at prices ranging from 6@11c.

Consolidated California & Virginia shows the usual business, and sold at from \$9.63 to \$10.63. Sierra Nevada declined from \$3.85 to \$3.45. Ophir from \$7.38 to \$6.50, but to-day sold again at \$7.13. Hale & Norcross went from \$7 to \$6.50, Gould & Curry from \$3.30 to \$2.80. Union Consolidated shows one sale at \$3.70. Scorpion one at 85c. Mexican sold at from \$3.60 to \$3.95. Julia was firm at from 50c. to 55c., Best & Belcher at from \$4 to \$4.40.

Considerable interest continues in Barcelona, and sales were made at prices ranging from \$1@1.10.

Little is doing in the Tuscaroras. North Belle Isle shows transactions only on Tuesday, at prices ranging from \$3.85@4. Belle Isle was dealt in towards the close of the week at from 60@75c. Found Treasure shows one sale at \$2.

El Cristo shows a slight advance, going from \$1.10 @ \$1.20.

Silver King shows a further decline, and went from \$1.25 to 75c.; later in the week the price advanced again to \$1.05.

The stock of the Sutter Creek Gold Mining Company, of Amador County, California, was dealt in for the first time on the Consolidated Stock and Petroleum Exchange, on the 9th inst. The opening price was \$1 per share. The application to the Listing Committee of the exchange states:

"The company was incorporated under the laws of the State of California, May 15th, 1888. The capital stock is \$500,000, divided into 100,000 shares of \$5 each. Shares are assessable. The transfer agent is E. R. Grant, whose office is at 57 Broadway, New York City. The stock is registered by the American Loan and Trust Company. The officers are: President, Martin Jones; Vice-President, Geo. McWilliams; Secretary, F. E. Luty; Superintendent, Jas. H. Tibbetts. The property has been worked before by J. R. Tucker, and by Allen and J. H. Tibbetts.

"The capacity of the present milling machinery is 15 tons per day; of the hoisting and mining machinery, 125 tons. The average value of the ore by reduction test is \$5@8 per ton; by assay test, \$6@7."

Some 2300 shares of the stock changed hands during the week at from \$1 to \$1.10. Amador was steady all week at \$2.40, but to-day declined to \$2.25. Middle Bar sold on Saturday at 44c., but since then has been firm at 45c. Astoria remained at 24c., and Holywood at 39c.

Plymouth Consolidated appeared on the list only on Tuesday, when 140 shares sold at from \$8 to \$3.25.

Brunswick shows no transactions.

Quicksilver Preferred, a few at from \$36.75 to \$37.

Bodie Consolidated opened at \$2.90, and declined to \$2.55 on Wednesday. On Thursday it advanced to \$3, and to-day declined again to \$2.55. Bulwer went from \$1 to 80c. Mono appeared once at \$1.80.

Fronstite opened at \$1.15, but declined to \$1.05. Shoshone sold all week at 14c. Holyoke records one sale at 6c., and Castle Creek at 7c.

Deadwood Terra, after an absence of many weeks, came out at \$1.60. Father de Smet at 45c. The price of Homestake continues at \$11. Iron Hill has gone down to 17c.

San Sebastian, as last week, was dealt in only on Saturday at from 70@72c.

Rappahannock declined from 13c. to 11c.

Ontario advanced to \$31, at which price a few hundred shares changed hands. Horn-Silver shows one sale at 85c.

Meetings.

Gregory Bobtail Mining Company, No. 1 Nassau street, New York City, August 1st, from twelve o'clock noon to one P.M.

Kilworth Mining Company, Ishpeming, Mich., August 6th, at nine o'clock A.M. Special meeting for the purpose of levying an assessment upon the capital stock of the company.

Morgan Mining Company, No. 227 Main street, Salt Lake City, Utah, August 4th, at four o'clock P.M.

Triple Thermic Motor Company, Room 215, Potter Building, No. 38 Park Row, New York City, July 25th, at ten o'clock A.M.

Dividends.

Atlantic Mining Company, of Michigan, has declared a dividend, No. 10, of one dollar and a half per share, or \$60,000, payable August 1st, at No. 76 Wall street, New York City.

Central Mining Company, of Michigan, has declared a dividend, No. 27, of one dollar and a half per share, or \$30,000, payable August 1st, at No. 76 Wall street, New York City.

Colorado Central Consolidated Mining Company has declared a dividend, No. 23, of five cents per share, or \$13,750, payable August 10th, at the Farmers' Loan and Trust Company, No. 22 William street, New York City.

Confidence Silver Mining Company, of Nevada, has declared a dividend, No. 3, of two dollars per share, or \$49,920, payable July 10th, in San Francisco.

Hale & Norcross Silver Mining Company, of Nevada, has declared a dividend, No. 39, of fifty cents per share, or \$56,000, payable July 9th, at room 58, Nevada Block, San Francisco.

Iron Silver Mining Company, of Colorado, has declared a dividend, No. 23, of twenty cents per share, or \$100,000, payable July 28th, at No. 145 Griswold street, Detroit, Mich.

Idaho Mining Company, of Grass Valley, California, paid, July 2d, dividend No. 225, of seven dollars and a half per share, or \$23,250.

North Star Mining Company has declared a dividend of fifty cents per share, payable July 11th, at No. 18 Wall street, New York City.

Philadelphia (Natural Gas) Company has declared its regular monthly dividend, No. 33, of one per cent, or \$75,000, payable July 25th in Pittsburg.

Assessments.

| COMPANY. | No | When levied. | Delinquent in office. | Day of sale. | Am'tn. per share. |
|--------------------------|-----|--------------|-----------------------|--------------|-------------------|
| Allouez, Mich. | ... | June 6 | July 25 | ... | 1.00 |
| Alta Idalia, Dak. | ... | 1 May 24 | June 20 | July 16 | .001 |
| Anchor, Utah. | ... | 6 June 1 | July 5 | July 26 | .10 |
| Best & Belcher, Nev. | 40 | June 5 | July 10 | July 31 | .25 |
| Big Hole Pl., Utah. | ... | 3 May 7 | June 12 | Aug 15 | .01 |
| Bodie Tunnel, Cal. | 15 | June 5 | July 9 | July 31 | .25 |
| Challenge Cons., Nev. | ... | 4 May 29 | June 29 | July 18 | .50 |
| Cora, Dak. | ... | 2 June 2 | July 6 | July 27 | .00 1/2 |
| Four d'Alene, Idaho | ... | July 6 | Aug. 6 | Aug. 27 | .05 |
| Diana, Nev. | ... | 7 June 5 | July 10 | July 31 | .10 |
| Dickert & Myers, Ut. | ... | 1 June 13 | July 21 | Aug. 15 | 2.50 |
| Gould & Curry, Nev. | 59 | June 22 | July 6 | Aug. 16 | .50 |
| Iron Hill, Dak. | ... | 13 June 27 | July 30 | Aug. 18 | .04 |
| Live Oak Drift, Cal. | ... | 9 June 13 | July 17 | Aug 16 | .05 |
| Mikado, Mich. | ... | June 12 | July 13 | ... | .15 |
| New Era, Dak. | ... | 4 June 11 | July 12 | July 30 | .01 |
| Nye, Nev. | ... | 1 May 28 | July 5 | July 24 | .05 |
| Pet Gravel, Cal. | ... | 5 May 11 | July 2 | July 17 | .01 |
| Occidental Cons., Nev. | ... | 2 Mar. 3 | July 2 | July 25 | .20 |
| Rattler Gilroy, Dak. | 12 | June 17 | July 30 | Aug. 18 | .01 |
| Ruby Bell, Dak. | ... | 7 June 9 | July 19 | Aug. 9 | .01 |
| Russell, Cal. | ... | 2 June 6 | July 9 | July 31 | .10 |
| Scorpion, Nev. | 23 | May 25 | June 22 | July 16 | .10 |
| Seacury-Calkins Dak | ... | 9 June 5 | July 10 | Aug. 1 | .00 1/2 |
| Sierra Nevada, Nev. | 92 | July 10 | Aug. — | ... | .25 |
| Silver Bar, Dak. | ... | 1 May 24 | June 20 | July 16 | .001 |
| Silver King, Ariz. | ... | 1 June 22 | July 30 | Aug. 23 | .50 |
| Seg. Belcher Cons., Nev. | ... | 1 June 5 | July 9 | July 30 | .25 |
| Summit, Cal. | ... | 10 June 8 | July 11 | July 31 | .10 |

* Delinquent day and day of sale postponed to dates given above.

Assessment No. 6, levied April 18th on the stock of the Bryant, Czar, General Miller, J. mestown, Jeannette, and Maryland mining companies, of Alaska, is now delinquent, and will be sold August 11th in San Francisco.

Twenty-six thousand shares of the Michigan Gold Company, represented by certificates Nos. 1, 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 56, 57, 58, 61, 62, 63, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121 will be sold at public auction at Ishpeming, Mich., August 6th, at 10 o'clock A.M., the holders having failed to pay the assessment.

Pipe Line Certificates.

Messrs. Watson & Gibbon, brokers, 49 Broadway, report as follows for the week:

At the time of writing our last report upon crude petroleum the field news and outlook were not bullish, as there was a probability of several wells being brought in that might materially affect the market. But such has not proven to be the case, and in the absence of any new developments in the field the price of oil has steadily and rapidly advanced during the past week, until it shows a gain of ten points from the lowest on Friday last to the highest to-day. This can be attributed, first, to the reason above ascribed, and second, to the fact that the Producers' Association have been holding a secret session in Bradford, for several days past, the result of which, it is sur-

mised, will be a continuation of the shut-down movement, so-called, to continue for six months from the 1st of November next, when it was to have expired.

We should think oil has had about all the advance that these conditions would at present justify; but so long as consumption exceeds production, and no new territory is discovered, we do not look for any material decline in the price of this commodity, although the manipulators may see fit to mark it down for a time.

CONSOLIDATED STOCK AND PETROLEUM EXCHANGE.

| | Opening. | Highest. | Lowest. | Closing. | Sales. |
|--------|----------|----------|----------|----------|-----------|
| July 7 | 76 3/4c. | 78 3/4c. | 76 3/4c. | 78c. | 610,000 |
| 9 | 79 1/2 | 80 | 78 1/2 | 79 1/2 | 678,000 |
| 10 | 79 1/2 | 82 3/4 | 78 1/2 | 82 1/2 | 529,000 |
| 11 | 83 | 83 3/4 | 81 1/2 | 82 1/2 | 598,000 |
| 12 | 81 1/2 | 83 3/4 | 80 3/4 | 83 | 73,000 |
| 13 | 83 1/4 | 84 3/4 | 83 1/4 | 83 1/4 | 1,724,000 |

Total sales in barrels 4,862,000

NEW YORK STOCK EXCHANGE.

| | Opening. | Highest. | Lowest. | Closing. | Sales. |
|--------|----------|----------|---------|----------|-----------|
| July 7 | 7 5/8c. | 7 5/8c. | 7 5/8c. | 7 1/4c. | 714,000 |
| 9 | 7 5/8 | 80 | 7 5/8 | 7 5/8 | 1,211,000 |
| 10 | 7 5/8 | 82 3/4 | 7 5/8 | 82 3/4 | 1,440,000 |
| 11 | 8 1/2 | 8 1/2 | 8 1/2 | 8 1/2 | 1,630,000 |
| 12 | 8 1/2 | 8 3/4 | 8 1/2 | 8 3/4 | 1,101,000 |
| 13 | 83 3/4 | 84 3/4 | 83 3/4 | 83 3/4 | 912,000 |

Total sales in barrels 6,885,000

Financial Statements.

The following are the financial balances of the various mining companies on July 1st:

| CASH ON HAND. | |
|-------------------|-------------|
| Alpha Con. | \$14,307.48 |
| Andes | 15,626.12 |
| Belcher | 6,879.66 |
| Belle Isle | 8,148.54 |
| Bodie | 42,053.31 |
| Bullion | 9,738.32 |
| Bulwer | 19,084.88 |
| *Con. Cal & Va. | 172,942.93 |
| †Confidence | 134,265.83 |
| Crocker | 15,270.85 |
| Crown Point | 16,027.00 |
| Dudley | 47.16 |
| Eschequer | 10,522.56 |
| Found Treasure | 466.59 |
| Imperial | 4,229.09 |
| Independence | 4,835.80 |
| Julia | \$1,524.88 |
| Mexican | 7,130.63 |
| Mono | 18,675.24 |
| No th Belle Isle. | 30,087.07 |
| Navaj | 714.05 |
| Occidental | 8,181.51 |
| Orleans | 410.59 |
| Ophir | 2,221.35 |
| Peerless | 18,867.01 |
| Pond-ra | 1.59 |
| Ser a Nevada | 3,537.25 |
| Standard | 42,05.91 |
| Sydeare | 9,853.89 |
| Utah Cons. | 27,606.31 |
| Weldon | 4,340.30 |

†With the closing bullion shipment for May to be added.

*Cash in bank and unsplit bullion on hand of the value of \$178,392.61, with large shipments to be received before the close of the fiscal month.

INDEBTEDNESS.

| | | | |
|----------------|------------|---------------|-------------|
| Best & Belcher | \$5,123.89 | Nevada Queen | \$28,381.75 |
| Chollar | 46,535.48 | North Common- | 9,036.41 |
| Commonwealth | 11,761.03 | wealth | 1,643.07 |
| Del Monte | 3,701.41 | Peer | 55,570.49 |
| Gould & Curry | 8,196.64 | Posid. | 49,937.40 |
| Grand Prize | 30,183.13 | Savage | 28,719.63 |
| Locomotive | 6,107.41 | Seg. Belcher | ... |

Mexican Mining Stocks.

There is a marked improvement in the Pachuca mining share market, says the Mexican *Financier*, and in all the leading securities there has been an advance, and, in some cases, a further rise is anticipated.

Santa Gertrudis is at the top of the market and shares are in active demand at high prices. Two dividends were paid last month and two more will be declared this month. A month ago shares were quoted at \$550 to \$600, but now find ready sale at \$725, with a sharp upward tendency. The Amistad sett, belonging to the above company, is doing finely, and shares are selling at \$350 to \$400. Holders are firm and the demand is brisk.

San Rafael Anexas continues in first-rate condition. The company is paying dividends with regularity. Shares, \$550 to \$600.

Real del Monte continues in excellent condition and there is a good demand for shares at \$1250, but nobody will sell at those figures. Holders stand firm for \$2000, and it is not improbable that shares may reach this figure.

Maravillas has received back its bonanza mines, and pumping operations have been vigorously begun.

Espiritu Santo has improved and purchasers are anxiously demanding shares at very low rates, offering from \$16 to \$18.

La Palma is selling at \$50.

La Blanca is in good prospects, owing to the fact that the rich vein in the Amistad sett probably passes through this property. Shares flat at present.

The reduction works shares are standing firm. Guadalupe continues regular dividends. Shares, \$800. The Progreso is doing well. Last sales at \$150.

Boston Mining Stocks. July 12.

[From our Special Correspondent.]

In copper stocks the past week there has been only a fair degree of activity, and with the exception of Boston & Montana prices are very well maintained. In Boston & Montana there seems to be a good deal of stock for sale when it reaches about \$47@47 1/2, and the result is on pressure to sell it drops off again to \$44, as it has done this week. It opened quite strong at \$47, advanced to \$47 1/2, and then gradually declined