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SIMONS' PATENT VALVE.

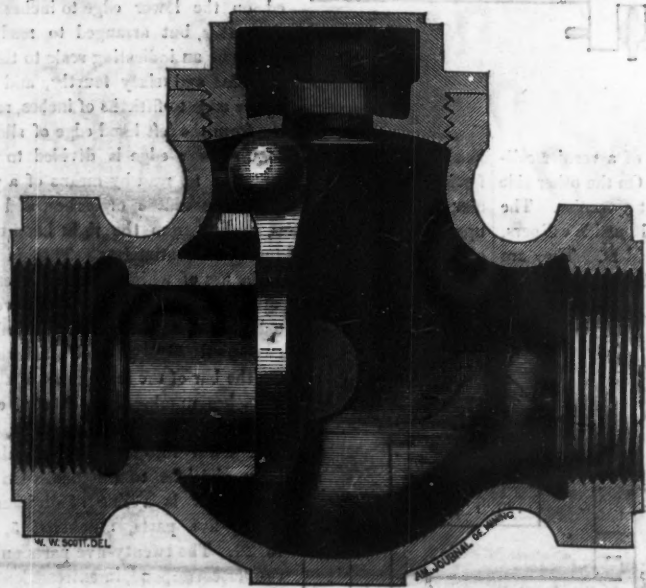
Among the various forms of valves used for pumps, the clack valve is probably the oldest, and is very simple. It consists of a flap of leather, or other material, covering the orifice and fixed down at one edge, so as to open, as it were, on a hinge. The leather flap requires to be covered on the top, bottom and central part with plates of metal, in order to

represent Simons' Patent Valve, which can be used as a suction, delivery or check valve. It is constructed on the principle of the old clack-valve, and is remarkably simple, effective, durable and easily repaired. Fig. 1 represents the sectional or interior view of the valve-casing, with a side elevation of the metallic valve, which is hung in a spherical seat. A small hole is drilled in the spherical hinge, into which a wire can be introduced and the valve easily lifted out, for the purpose of examination or refacing. Fig. 2 is a perspective view of the valve detached from its seat. Fig. 3 shows a top view, or plan, with the hexagonal cap removed. When con-

valve was patented by A. H. SIMONS, of Philadelphia, on June 30, 1868. Further information may be obtained from Messrs. BROOKS & BACON, 450 West street, who manufacture for all the States except Maryland, Delaware and Pennsylvania; or from T. P. PEMBERTON, Sole Agent, whose address is Box 5,969, or Room 15, No. 37 Park Row, N. Y. City.

PATENT ALARM GAUGE.

The principle on which this gauge is founded is that of metallic expansion, as being immutable and natural, making the operation of the gauge sure and reliable. It is neat, com-



SIMONS' PATENT VALVE—Fig. 1.

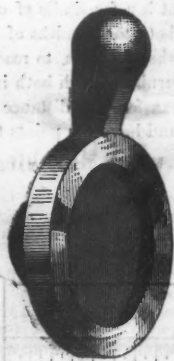


Fig. 2.

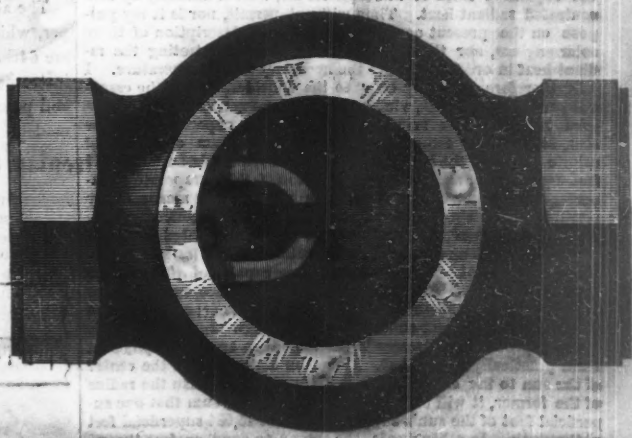


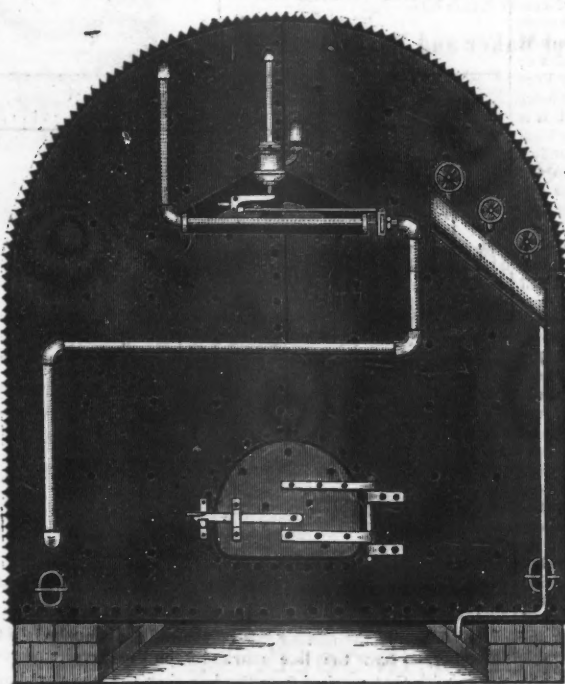
Fig. 3.

add to its weight, so that it may close rapidly and impart to it sufficient rigidity. These valves are frequently made of India-rubber closing upon a grating, instead of over one large opening. They are used principally in connection with marine engines, as valves connected with the air pump and hot well, and also as suction and delivery valves in the bilge pumps. Guards are fixed over the valves, to prevent them from rising too high. When one piece of leather, or other substance used for the valve is fastened down in the centre, so as to form two clacks, the arrangement is termed the butterfly clack. Another kind of valve is the conical form, which consists of a flat or slightly-curved plate of metal, of which the periphery is in the form of the frustum of a cone, fitting into a seat of corresponding shape. In order that this valve may rise vertically, it is sometimes furnished with a spindle, moving in guides, and sometimes provided with three or four guides, projecting from its lower surface, and fitting the pipe beneath the valve. Stops are placed above the valves to limit their rise. A valve commonly used for locomotive feed pumps, consists of an accurately-formed sphere of metal, working in a hollow spherical seat, its rise being regulated by guards. It is a great desideratum to obtain a valve which shall close rapidly, so that it may reach its seat before the column of water above it begins to return, whereby loss of water is obviated and concussions avoided. The surfaces of contact between valves and their seats are generally produced by scraping or grinding, so as to obtain the highest degree of accuracy attainable. When the valves are made of metal, they should be of the same kind as the seat, or otherwise galvanic action will ensue, causing the corrosion of that surface which is formed of the most electrically-positive metal. With a feed-pump for boilers are connected suction and delivery valves, and also a check-valve, the purpose of the latter being to prevent a reaction of the water after it has been forced by the pump through the delivery valves. The check-valve, as commonly used, has a conical seat, and the valve is placed within a metallic box, or casing, which is connected with the wrought-iron feed pipe. The check-valve is placed as near the point of feed on the boiler as possible. Understanding the use of the check-valve, it is at once apparent that its action should be reliable at all times and keep perfectly tight when closed. The accompanying engravings

ical valves are used, engineers constantly experience inconvenience by pieces of coal, dirt or chips getting in between the valve and its seat, thus preventing the effectual closing of the valve. Many engineers can testify to the "troublesome pump valves," which are constantly "sticking," or getting obstructed in their motion. The valve represented in the cuts is considered a most desirable one for pumps, and some of its advantages are, its simplicity and its non-liability

to stick; it forms its own seat, and if a new valve is required, the change is effected in a few minutes, by simply unscrewing the cap and removing the old one. Engineers and machinists speak very highly of this valve, and recommend it with much confidence, and no doubt it will soon be generally used for small pumps and for check valves. This

compact and simple, and is so constructed that it cannot be closed to prevent its giving an alarm without immediate detection. It has also an attachment which will sound an alarm at high pressure of steam, which is set under or at the same pressure the safety valve is set. And in case the safety valve should stick and not rise at the required pressure, this being on a flat surface, will immediately sound an alarm calling the attention of the engineer to the fact that there is an overpressure of steam. The action of this gauge is simple: there is no float-spring or fusible plug that requires replacing; it can be placed either on the boiler or alongside of it, all connections being on the outside; can always be seen, there being no cocks or valves that can be shut to prevent it giving an alarm at any time. The nut on the expansive tube being inside of a clutch, cannot be loosened up to prevent it from operating, as is the case with some others that have come under notice; it will also work as well for high water as any other gauge ever offered to the public. Once put up and properly adjusted, there is no further trouble or expense. It also shows high and low water, and high pressure of steam, the attachment being so constructed that the valves never require to be ground in, as there is no possibility of their leaking. The motion of the gauge, being all positive, trusting neither to the uncertainty of floats, fusible plugs or springs of any kind, makes it the most reliable detector ever offered to the public. The gauge is connected at the top and bottom of the boiler by half-inch pipes, thus giving free circulation, making it less liable to get corroded and stopped, as is often the case with gauge cocks or glasses, and being connected so near the bottom of the boiler, that should the boiler foam, the water in the tubes will remain undisturbed and show only the line of solid water. Should the water at any time rise above the upper connection in the boiler, it will sound an alarm in time to prevent all accidents from too much water. The disc of the whistle-box of the low-water detector and the one in the high pressure valve being made of a composition that is compressible and resting on a flat seat, there is no possibility of their sticking, as is often the case with others where the disk is made of metal. The high pressure valve has been so constructed that it can be attached to any detector or used separately. This gauge cannot be tampered with without detection. Should any unforeseen accident occur to



ALLYN'S PATENT ALARM GAUGE.

let the water so low as to be in danger of overheating the flues, the action of the gauge never for one moment being shut off will immediately sound an alarm, calling the attention of the engineer in time to prevent further injury, thereby showing it is not only a protection against all accidents occurring in such cases, but is also an insurance against explosions, as well as acting as an assistant to the man in charge. The frequency of explosions and the fatal consequences attending them shows the necessity of providing, by all known means, for the better protection of life and property. No boiler is safe without a low water detector. The best of men are liable to accident, no matter how careful they may be. Some will use the argument that they have a good man, but boilers have been blown up and thousands of lives lost by good men as ever took charge of a boiler.

For full particulars, address ALYN, FERGUSON & Co., 41 Pine street, New York.

The Solar Engine.

The following is an accurate translation of the chief part of Capt. Ericsson's late communication to the Swedish University of Lund, in which he announces the successful construction of his new motor: "I have, of late years, spent much time and considerable means on experiments to ascertain if the radiating heat of the sun can be concentrated in such a manner as to render it available for the production of motive power. Sir John Herschel's and M. Pouillet's experiments relating to the radiating heat of the sun, although interesting, are not satisfactory, as they deal with low temperatures, showing how much ice may be melted, or what elevation of temperature of water under the boiling point may be effected in a given time on a given surface. The purpose of my investigations and experiments, on the other hand, has been to ascertain what amount of heat can be developed at the high temperature obtained by concentrating the solar rays, viz., bringing their power to bear on a reduced surface, and to devise the most efficient means for effecting such a concentration of the radiating heat. Apart from these preparatory experiments I have also, at the commencement of the present year, constructed three different motors, which I term solar engines. One of these is actuated by steam formed by the concentration of the heat of the solar rays, while the other two are actuated by the expansive force of atmospheric air, heated directly by concentrated radiant heat. Time will not permit, nor is it my purpose on the present occasion to present a description of these solar engines, nor the means adopted for concentrating the radiant heat in order to obtain the necessary high temperature. I will, therefore, limit my essay to the consideration of the essential part of the subject, viz., the motive power itself. With regard to this, I have briefly to state that my experiments show that, at the high temperature requisite for steam engines and calorific engines, the heating power of the sun on a surface of 10 feet square will, although in itself too feeble, evaporate on an average, 489 cubic inches of water in the hour, by means of my mechanical contrivance for effecting the necessary concentration. The importance of this result cannot be overestimated when we reflect that such an amount of evaporation demonstrates the presence of sufficient heat to develop a force capable of lifting 35,000 pounds one foot high in a minute, thus exceeding one-horse power. As an incontrovertible evidence of the capability of the sun to develop a great amount of heat at high temperature, this result is probably of greater importance than any other physical truth practically established. The mean distance from the center of the sun to the earth being 214 times greater than the radius of the former, it will be found by squaring this sum that one superficial foot of the sun's surface must heat 45,984 superficial feet of the earth. In other words, the sun on an equal surface throws off 45,984 times more heat than the earth receives. We are therefore enabled, on the strength of the practical results now positively established, to infer that an area of 10 feet square on the sun's surface develops heat enough to actuate a steam engine, not a theoretical one with its small consumption, but a real steam engine of 45,984 horse power, demanding a consumption of more than 100,000 pounds of coal every hour. But this estimate, based on the evaporation effected by the concentrated radiant heat, is far below the actual development of heat by the sun. Fully one-half of the heat conveyed by the solar rays is lost during their passage through the atmosphere and through the apparatus by which the temperature is elevated to the necessary high degree. The actual development of heat, on the supposed 10 feet square of the surface of the sun, will therefore equal the amount of heat generated by the consumption of 200,000 pounds of coal per hour. The mind cannot conceive the intensity which must accompany such an inordinate consumption in so small a space. Still less can we form an idea of the nature of the combustibles or their sufficiency, when such an intense heat is perpetually kept up on the entire surface of a globe the diameter of which is more than a hundred times greater than that of the earth. But it is not my intention on this occasion to lay before the philosophical faculty my speculations regarding the properties of this wonderful orb; I have only designed to discuss the question as to the sufficiency of the radiant heat notwithstanding the enormous distance, and the use we can make of it as a mechanical motor. The result of my experiments, as already stated, having established the fact without an inconvenient extension of the mechanism which I have devised for concentrating the radiant heat, that sufficient power can be obtained for practical purposes, it will now be proper to point out what amount of mechanical power may be obtained by occupying a Swedish square mile with solar engines. Assume that one-half of the area is set aside for necessary roads, houses, &c., an available area would remain of 18,000 x 36,000—648,000,000 superficial feet on which the radiant heat might be concentrated. My several experiments having shown that the concentration of the solar heat on 100 square feet of surface is more than sufficient to develop a horse-power, it follows that 64,800 engines, each of 100 horse power, may be kept in motion by the radiant heat of the sun on a Swedish square mile. Archimedes enthusiastically exclaimed that his favorite device, the lever, had power enough to heave the earth out of its path. It may be more truly said, that the concentration of the radiant heat of the sun furnishes sufficient force to stop the earth in its course. I cannot omit adverting to the insignificance of the dynamic energy which the entire exhaustion of our coal fields would produce, compared with the incalculable amount of force at our command, if we avail ourselves of the concentrated heat of the solar rays. Already Englishmen have estimated the near approach of the time when the supply of coal will end, although their mines, so to speak, have just been opened. A couple of thousand years, drops in the ocean of time, will completely exhaust the coal fields of Europe unless, in the meantime, the heat of the sun be employed. It is true, that the solar heat is often prevented from reaching the earth. On the other hand, the skillful engineer knows many ways of laying up a snappy when the sky is clear and that great store-house is opened where the fuel may be obtained free of cost and transportation. At the same time a great portion of our planet enjoys perpetual sunshine. The field therefore awaiting the application of the solar engine is almost beyond computation, while the source of its power is boundless."

Practical Letters.

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

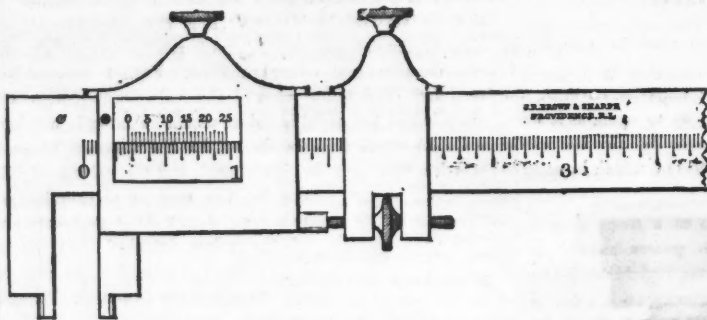
LESSONS ON MECHANICAL DRAWING.—No. XVII.

BY T. P. PEMBERTON.

VERNIER READING (Continued.)

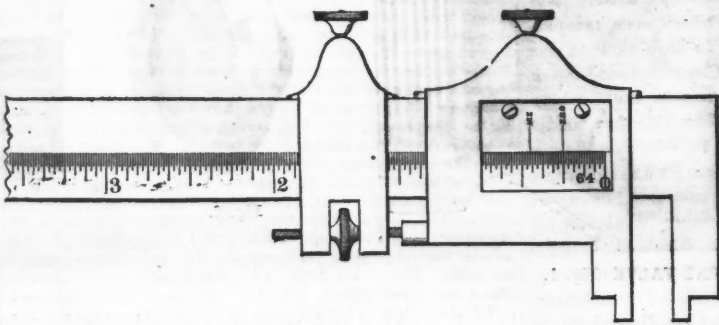
I stated in the last lesson that the vernier is as applicable to the straight line as to the circle. There is now so much accuracy exercised in the manipulation of machinery, and so much more attention paid to standard gauges and uniformity of size than formerly, that several ingenious tools have been invented by draughtsmen and machinists for the purpose of enabling them to obtain this precision in their measurements. I shall now explain one or two of such instruments, named vernier calipers.

FRONT SIDE.—FIG. 1.



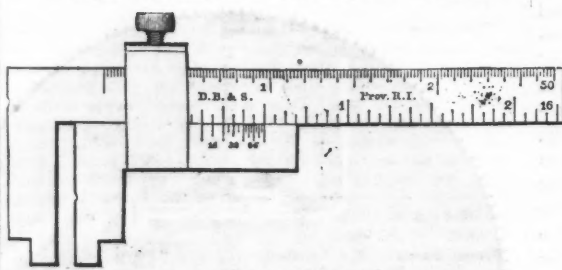
The above cut is a fac-simile of one side of a vernier caliper, which reads to thousandths of inches. On the other side are 64ths or 50ths of inches, to read without a vernier. The instrument is furnished with both inside and outside calipers, and points to transfer the distance with dividers. They are made of steel, and have the points tempered.

BACK SIDE.—FIG. 2.

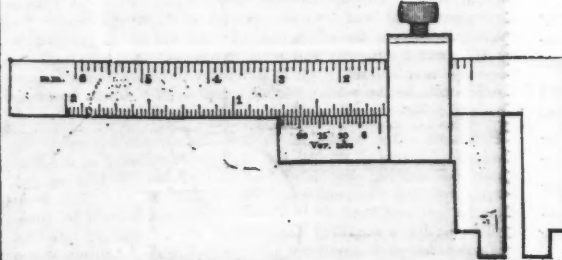


On the bar of the instrument is a line of inches, numbered 0, 1, 2, etc., each inch being divided into ten parts, and each tenth into four parts, making forty divisions to the inch. On the sliding jaw is a line of division (called a vernier, from the inventor's name), of twenty-five parts, numbered 0, 5, 10, 20, 25. The twenty-five parts on the vernier correspond, in extreme length, with twenty-four parts, or twenty-four for-

POCKET VERNIER CALIPER.—FRONT SIDE.—FIG. 3.



BACK SIDE.—FIG. 4.



tieths on the bar, consequently each division on the vernier is smaller than each division on the bar by one thousandth part of an inch. If the sliding jaw of the caliper is pushed up to the other, so that the line marked 0 on the vernier corresponds with that marked 0 on the bar, then the two next lines to the right will differ from each other by one thousandth of an inch, and so the difference will continue to increase, one-thousandth of an inch for each division, until they again correspond at the line marked twenty-five on the vernier. To read the distance, the caliper may be open, commence by noticing how many inches, tenths, and parts of tenths, the zero point on the vernier has been moved from the zero point on the bar. Now count, upon the vernier, the number of divisions

ions, until one is found which coincides with one on the bar, which will be the number of thousandths to be added to the distance read off on the bar. The best way of expressing the value of the divisions on the bar, is to call the tenths one hundred thousandths (.100), and the fourths of tenths, or fortieths, twenty-five thousandths (.025). Referring to the cut, it will be seen that the jaw is open two-tenths and three-quarters, which is equal to two hundred and seventy-five thousandths (.275). Now suppose the vernier was moved to the right so that the tenth division should coincide with the next one on the scale, which will make ten-thousandths (.010) more to be added to two hundred and seventy-five thousandths (.275), making the jaws to be open two hundred and eighty-five thousandths (.285).

In making inside measurements with the vernier, two-tenths or two-hundred thousandths (.200) of an inch should be added to the apparent reading for the bigness of the caliper points. When the other side of the instrument is used, no deduction is necessary, as there are two lines of division, one for inside measurements and the other for outside.

Figs. 3 and 4 are fac-similes of the front and back sides of a Pocket Vernier Caliper. The jaws are hardened and ground. The front side is divided on the lower edge to inches and sixteenths, but arranged to read by means of an indicating scale to thirty seconds, and sixty fourths, and the upper edge to fiftieths of inches, reading from the left hand edge of sliding head. On the back side, the lower edge is divided to forty-fortieths of inches, but arranged to read by means of a vernier on the sliding head, to thousandths of inches, and the upper edge to millimetres, reading from the right hand edge of sliding head and figured to centimetres. This is the French standard measure, the use of which has been recently authorized by Congress, and which it is expected will eventually be adopted as the standard measure throughout the United States. On the bar of the instrument is a line of inches numbered 1, 2, etc., each inch being divided into ten parts, and each tenth into four parts, making forty divisions to the inch. On the sliding jaw is a line of division of twenty-five parts, numbered 5, 10, 15, 20. The twenty-five parts on the vernier correspond, in extreme length, with twenty-four parts, or twenty-four fortieths on the bar, consequently each division on the vernier is smaller than each division on the bar by one-thousandth of an inch.

If the sliding jaw of the caliper is pushed up to the other, so that the line 0 on the vernier corresponds with 0 on the bar, then the next two lines to the left will differ from each other by one-thousandth of an inch, and so the difference will continue to increase, one-thousandth of an inch for each division, till they again correspond at the twenty-fifth line on the vernier. To read the distance, the caliper may be open, commence by noticing how many inches, tenths and parts of tenths, the zero point on the vernier has been moved from the zero point on the bar. Now count, upon the vernier, the number of divisions, until one is found which coincides with one on the bar, which will be the number of thousandths to be added to the distance read off on the bar. The best way of expressing the value of the divisions on the bar is to call the tenths one hundred thousandths (.100) and the fourths of tenths, or fortieths, twenty-five thousandths (.025). Referring to Figs. 3 and 4, it will be seen that the jaws are open one-tenth and one-quarter of one-tenth, which are equal to one hundred and twenty-five thousandths (.125). Now suppose the sliding jaw was moved to the left, so that the first line on the vernier should coincide with the next one on the scale, which will make twenty-five thousandths (.025) more to be added to one hundred and twenty-five thousandths (.125), making the jaws then open one hundred and fifty thousandths of an inch (.150).

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

ON THE VENTILATION OF COAL MINES.—NO. XV.

BY J. W. HARDEN, M. E.

RELATIVE VALUE OF POWER USED.

In following up the subject of these comparisons, I discover that I have ascribed to the power of Verzy's Ventilator more than is due to it. I have credited it with an excess of drag twice over. At horse-power utilized, the comparison is complete, and this is given us as 3.32 horse-power per pound of coal, being 51.40 per cent. of the power utilized, and 88 per cent. of the air circulated by the Hetton Furnace per pound of coal.

Of the kinds of fans and ventilators noticed, Guibal's and Fabry's have been shown to give the best results.

Of the air-pumps, we have seen that of Struve's, at Eglebush Colliery, in its every-day work, lifting 8,752 cubic feet of air per minute per pound of coal, with a drag of 12 lbs. per square foot on the area of the shaft; and in an experiment upon it—when we may fairly assume it would be put to its best performance—we have seen 10,935 feet of air per minute per pound of coal to be the quantity lifted, and 2.67 horse-power per pound, the power utilized.

That at Middle Duffryen Colliery, gave 9,230 cubic feet of air per minute per pound of coal, in its daily working; that at the Westminster Colliery—of which I did not give the particulars—gave 5,341 feet per minute per pound. Of the same kind of machine at the Risco Colliery, with a water-gauge pressure of 2.31 inches, we have given, as the effective work done, 5,248 cubic feet of air per minute per pound of coal, and 33.37 per cent. as the ratio of useful effect, to that of power expended.

As compared with the furnaces in question, in none of the examples adduced does the performance of the fan or the air-pump, in any of their forms, come so prominently to the front as our friend led us to anticipate they would; yet, there are circumstances, placed under which, either would excel the other.

It has been suggested, that to arrive at a more conclusive test of their relative value, each power should be placed precisely under similar conditions, experimented on at the same pit. Under some circumstances, such a course would answer the purpose; take the Hetton Colliery, for instance, with its capacious air-courses and upcast shaft. What power of fan or air-pump would it require to circulate the 225,176 cubic feet of air per minute, circulated there by the furnaces, and what would be the relative economy of their application? I once heard Mr. STRUVE say, that he could, with his ventilator, circulate the amount of air required in the daily working of this colliery, 170,000 cubic feet—with a power, utilized, of 31 horses. But, there are other circumstances under which such comparison could be of no practical value. In such we have seen that, at the Seaton Delaval Pit, Mr. FORSTER could obtain by the furnace 53,000 cubic feet per minute only; whereas, with the steam jet and the boiler fires necessary for the generation of the steam, he obtained 90,000 cubic feet per minute. In a similar manner the steam jet was employed at the South Peareth, the Usworth, and the Pemberton Collieries, with considerable advantage; while at the Hetton and Tyne Main Collieries, Mr. WOOD could make no practical use of it. At the Middle Duffryen Colliery, with the on'y available upcast under the circumstances, 32,000 cubic feet of air per minute was all that could be obtained by the furnace; yet, with the addition of the pumping shaft as an upcast, to which the furnace would not have been applicable—and the substitution of Struve's Ventilator as the motive power, 60,000 cubic feet of air per minute was obtained. In a conversation with myself on the spot, Mr. DONSON said:—"Under ordinary circumstances I much prefer the furnace, but the conditions here would not allow the preference. Not having sufficient area of upcast in that bratticed off the winding shaft, I was obliged to add to it the pumping shaft, in doing which, an abandonment of the furnace was made absolute."

Assisted by such facts, and a knowledge of the varied and unalterable conditions under which coal mines exist, practical men have long ago arrived at the conclusion that, although the physical condition of the mines of a district may be such as to add to the adoption of a general system of working and ventilation, yet, no one system can be made universally applicable to the altered conditions of separate districts. The one universality to which they are agreed—unless we may except Mr. L. BROUGH, a Government Inspector, who deems it "crucial to deprive the proprietor of the capital required to sink another (shaft) for furnace ventilation"—is, that, by no machine, be it furnace, fan, or air-pump, can one have a well and properly ventilated coal mine without air-ways spacious enough to keep down heavy drags, or without sufficient areas of downcast and upcast columns.

In South Wales and the west of England, where the air-pump is most to be found, the majority of the shafts are of so small a diameter, and the pits so shallow, that more frequently on adit-level, or a slope is all that is necessary to win the coal, and where, as a ventilating medium, the furnace would be quite out of place; the fan or the air-pump has, therefore, been the power in such cases applied. In 1847 the first of Struve's Ventilators was erected; in the summer of 1849 Brunton's Ventilator was opened at the Gelly Gaer Colliery, since which time there has not been a winning of any importance in Wales—to which the furnace was not specially adapted—that the fan or the air-pump, in one form or other, has not been applied. Brunton's fan, in the north of England, and Nasmyth's, in Lancashire, were erected; other kinds have also been supplied to shallow pits, to which I have before alluded, so that the move from the furnace to mechanical ventilation, spoken of as now taking place in England is not so near, nor will it ever become so universal, as our friend's readings have led him to suppose.

Mining Summary.

GOLD AND SILVER.

Nevada.

White Pine.—Public Interest in this remarkable district is more ardent than ever, and every scrap of intelligence with regard to it is eagerly read. Progress is reported in the *Austin Reveille*, Oct. 16. Says our contemporary: "We learn that the residents of the three towns on or in the vicinity of Treasure Hill, in the district of White Pine, are busy in preparing for the approaching winter; and the demand for lumber is constant and unremitting. The great elevation of the district, with its deep snows and sharp winds, requires that its human dwellers should be well housed from the peltings of the pitiless storms. The hardy men of White Pine are not the ones to be baffled by rigorous weather, but they will work and develop their mines and live comfortably in winter as well as in summer. Since the completion of General Page's mill at the town of Silver Springs, many buildings have been undertaken, and the activity in improvement is general. It presents the appearance of a live and growing town. Hamilton, the first-born of Treasure Hill, is equally lively, and tenements are being reared as fast as the mills can cut the lumber. Now, that Jeremiah Miller's mill has assumed the form and proportions of complete reduction works, which may be put in motion within the next fortnight, Hamilton feels prepared to hold her own with Silver Springs and Treasure City. The latter settlement, which is upon the summit of Treasure Hill, in the immediate neighborhood of the bulk of the claims, rather looks down upon its rivals, Silver Springs and Hamilton. These latter appear to be satisfied with their situation, however, and they are apt to remind the city on the Hill that it does not possess water enough to wash its face. They are brave little towns, and we wish them success."

Silver Peak and Palmetto.—Mr. B. B. STANSBERRY, just is at Austin from these districts, furnishes the *Reveille* with an account of mining operations there. Says that paper: "In the Palmetto Districts, which adjoins Silver Peak on the southwest, Catherwood's twelve stamp mill was nearly completed, and will be ready for work in November. The mill will be supplied with reverberatory furnaces and most approved amalgamating apparatus. It is the intention of the superintendent of the company for which the mill is being built to make it complete for the reduction of the ores of the district. Between fifty and sixty men are employed in the mines and the mill. The principal mines of the company are the Silver Champion, a fine ledge of three feet wide; the Kentucky, of six feet; and another, the name of which Mr. Stansberry could not recollect, of about two feet wide. These mines have produced upwards of 1,000 tons of first class ores, and their development is so well advanced that Mr. Stansberry believes they can easily supply the mill with ore. Leaving Palmetto, Mr. Stansberry went to Silver Peak, where he visited the mill and gold mines of the Silver Peak and Red Mountain Company. The agent of the company was overhauling the mill for the purpose of correcting certain defects in its construction as well as to add ten stamps to the battery. These improvements would be completed in about thirty days. In the meantime the veins of Red Mountain are made to produce countless tons of gold-bearing quartz of fine quality, and when the reduction works are flushed they may be constantly supplied with ore. Mr. Stansberry agrees with all who have had an opportunity of examining the property of the company, that it is the grandest in the State. There is a lively little settlement around the mill. There were three saloons, two stores, and three boarding-houses; and Wells, Fargo & Co. had established an office, with Mr. Harris, clerk of the mill company, as agent. About six miles west of the mill of the company a Mr. Barton was working a small arastra in reducing gold-bearing quartz from a vein about three-quarters of a mile distant. The trail between the mine and the arastra was exceedingly rough and precipitous, and the ore was packed by Indians at fifty cents a load of about 100 pounds. The labor is so severe that few of them make the second trip in a day. The ore is quite rich and yields from \$250 to \$300 per ton. Mr. Stansberry learned that the Gold Mountain Company, whose property is situated about forty miles south of Silver Peak, was preparing to build a mill. The ledge of the company is said to be of vast size."

Tuscarora.—Mr. JOHN W. BEARD, recently from this district, the "Goose Creek" of last year, reports that his five stamp mill is nearly completed, as about fifty tons of ore have been extracted from the Beard Ledge, which is estimated to yield from \$50 to \$100 of gold per ton. Three men, named Thomas Williams, Isaac Wells, and George Taylor, have dug a ditch 1-2 miles long, to bring water from McCann gulch into Gardiner gulch, where the dirt is estimated to pay from \$5 to \$15 per day to the hand. Gardiner gulch is some half a mile long and 200 feet wide, and the pay dirt is about 13 feet deep. Mr. Beard thinks the men have a good gulch. There were fifteen men in the districts, all engaged in mining or upon the mill.

Reese River.—The *Reveille* Oct. 7, says: "The South American mine on Lander Hill is reported to be producing a larger amount of good milling ore than ever before. The first class is of superior quality and yields upwards of \$2,000 per ton. The South American is one of the largest veins yet developed in Lander Hill, and frequently widens to five or six feet, although the finest and most valuable ore is generally obtained from the narrower points in the vein. We have faith in the South American mine and believe it will yield substantial dividends."

Products.—Mr. ALLEN A. CURTIS, the superintendent of the Manhattan Company, reports that there were reduced at the Manhattan mill during the month of September, 579 tons of ore, which produced the handsome sum of \$153,461 26. This is an immense product for a twenty stamp mill, and it may be questioned whether any mill in the State of the same capacity as the Manhattan has ever produced an equal amount of bullion in one month. . . . Eight tons of ore from the Stonewall and Little Rose mine, located on Chloride Flat, near Treasure City, in the district of White Pine, were recently worked at the Manhattan mill in Austin, and gave a yield of \$450 per ton. Burnett & Co. are the lucky owners of the Stonewall and Little Rose.

Oregon.

We have to report more new and rich gold discoveries in this State this week. A correspondent of the *Dallas Mountaineer*, writing from Canyon City, Sept. 3, says:—"For the last few days Canyon City has presented quite a lively appearance, occasioned by the recent discovery of new diggings which promise to be very rich, outstripping anything yet found on the waters of the John Day. It has long been known that gold existed on what is known as the left hand branch of the Canyon Creek, but for various reasons the stream was never prospected, except with the eye, until recently. Some time since a party left this place on a prospecting tour, and after rambling about for some time and failing to find a place suited to their notions, they at last con-

cluded to try this creek, and the result is, they have struck thirty cents to the pan and no bed-rock yet; the prettiest gravel in the world, and every indication of very rich diggings. Arrangements have been made for thoroughly prospecting the creek, which it is confidently believed will be far richer than old Canyon ever was. The extent of this new district is unknown, but from present indications it bids fair to furnish ample room for all who may desire to try their hand at gold digging. The new Burnt River camp is also creating considerable sensation. That rich diggings exist on Burnt and Powder Rivers is no longer a question of doubt, and many are leaving for these camps. The scarcity of water will prevent and retard the developing of that section this season, but this will be overcome by next season, as there are two large ditches now under way and will be completed this fall. It is generally conceded that Burnt River will be one of the best mining camps east of the mountains. From Lieutenant Henderson, who, by the way, is deeply interested in that locality, having recently taken, or rather pre-empted a claim, with the understanding of working it as soon as it will pay, I have obtained many interesting facts in relation to that section. The diggings, as a general thing are deep; but gold is found from the top down, that obtained on the bed-rock being very coarse and heavy. The facilities for working hydraulic power cannot be equalled, and there have been some very fine ones purchased at this place, and will be moved there as soon as water can be obtained. The news from Elk, Granite and Olive camps are quite cheering. The present season has been very remunerative so far, and promises a continuance. Claims are ranging very high. In the Valley, harvest is about over, the crops have been exceedingly good, and the yield beyond all expectation."

Arizona.

Mining news to Sept. 12, through the *Prescott Miner*, continues to be favorable. Our cotemporary relates it as follows:—"Work will be commenced next week at the Sterling mine. The Superintendent, Mr. Borger, has employed T. W. Brooks, a good man, and thorough miner, to attend to the working of the mine. Two, and maybe three shifts of hands will be employed in getting out ore. Mr. Morgan is now at the mine, preparing to build furnaces. The chlorination fixings are on the road from California to Prescott. . . . Judge Fowler, Mr. Bradshaw, and three or four Mexicans, started September 11th for Black Canyon Diggings, Bradshaw Mining District. The Judge and Mr. B. talk of commencing work on a new lode there, as soon as tools, provisions and men can be taken there. We have no news from the placer miners, who have been at work for a couple of weeks past at Black Canyon. Several Mexican miners will shortly start from the Colorado River for these diggings. . . . Tunneling is still going on at the Chase mine, in the Hassayampa District. A shaft is being sunk upon the Patanca lode, in same district, and the 'Concentrators' are in high glee. . . . The miners of Walker's District are working away, and don't intend to clean up until the water dries up. . . . The other day Bob Osborn allowed us to take look at a chunk of gold about as big as a common-sized plum, which he recently found in his claim at Big Bng. . . . A recent letter from the Vulture mine, from one who is now and has been for a long time past, at work in the mine, says that the lode is looking well. Smith's claim is yielding plenty of good rock, and tons upon tons of the same sort are in sight. The Vulture Mining Co.'s claim is also yielding very rich ore, and recently the workmen struck a 'pocket' of very rich specimens. All the men at work in the mines are in the enjoyment of good health. . . . Mr. Graves is on his way from Arizona City with iron pipes, which he intends to use for desulphurizing the ores of Walker's District. . . . At Camp McPherson Indians tried to capture a lot of mules, but failed. . . . It is said that Gen. Devin had to fight Indians at White Tank Mountain, on his way South."

Dacotah.

THE SWEETWATER MINES.

A correspondent of a Colorado cotemporary writes:—"John Hutchins, Esq., an Eastern capitalist, who has been since July last examining the mines of Sweetwater, Dacotah, arrived at Empire, Oct. 16th, and brings the latest news from that district. The Indians in that section have been very troublesome for the past summer, and greatly impeded the working of the mines there. In August the citizens of South Pass City were obliged to organize themselves into a military camp for self-protection. They claim that the government will give them no protection, and they are now bound to protect themselves (our citizens should do the same). At South Pass City, Messrs. Tealer & Eddy have erected a six stamp mill for custom work. The ores are brought there from mines five miles distant, and the results so far are as follows, viz.: Ores from the Miners Delight lode averages \$82.00 per ton, coin value. Corissa lode gives ore from shaft 15 feet deep that averages \$21 per ton. The ore from the Young American lode for 33 feet, the present depth of shaft, has given an average of \$60.00 to the ton. These, with the Atlantic and Caraboo, are the principal lodes of the Sweetwater district. The Atlantic has the deepest shaft of any there, being 70 feet in depth, showing a crevice of 12 feet in width. The material from these lodes is all of a similar character, being a smoky quartz, carrying free gold. Mr. Hutchins reports Wind River Valley (some 40 miles from South Pass City), as being very rich in marble, iron and coal, also in oil, etc. This valley is from fifteen to thirty miles in width by one hundred miles in length, and is said to be of rich soil and well adapted to the raising of small grain. There has been much said against that country as being productive in mineral or anything else, but development will prove to the world the richness or barrenness of any country."

Vermont.

A Washington correspondent writes:—"In the eastern extremity of the Appalachian Chain another gold district has been discovered which promises to be of much importance. The talcose slate rocks of the New Hampshire side of that chain of mountains some time since yielded from their quartz ores \$300 up to \$850 per ton of the precious metal. On the Vermont side, at Bridgewater, a locality has been long known as auriferous, and the Commissioner of the General Land Office has within a few days received specimens of a quartz vein from near Manchester of a very rich quality. From the analogous geological structure of the country and the specimens in hand, a rich yield may be expected. Gulch mining has from time to time been resorted to, and has afforded enough to stimulate research for the vein from which the metal was conveyed to the stream and bottom lands. The recent discovery is regarded as another evidence of the almost universal presence of this metal in the talcose slates." [Those \$300 to \$850 ores must have been some of Flenny's, doctored with the Stevens Flux. In the hands of other men, and under different medical treatment, the New Hampshire slates are considerably more constipated than that!—Ed.]

Colorado.

A telegraphic dispatch from Denver City, dated November 2, says that "Mr. Weire, the commissioner sent by Napoleon to

examine the Colorado mines, has organized a French company with \$100,000 capital, to build a tramway from the coal beds, in view of furnishing cheap fuel for the smelting works. He also agrees to construct gas works here within 90 days."

St. Domingo.

A correspondent of the N. Y. *Herald* mentions, in the course of a lengthy communication, the following little incident as indicative of the mining prospects in St. Domingo:—"When Dr. Adelberg, the State Geologist, made his first tour of scientific observation he requested the natives at certain points to wash the grains of gold from a designated quantity of earth, if it should be found to contain any. Only the women with their calabashes responded to the request, and in a day or two after brought him a considerable quantity of clean, fine gold dust. He bought twenty ounces, all he cared for, and since then at least one hundred ounces have been brought to this city for sale. These localities are among the first on the plan of survey, but the mining sites will not be opened for claimants before the first of January."

Vancouver's Island.

We have accounts of the discovery of gold on Wolf Creek, near Victoria. A California cotemporary says:—"Considerable excitement exists in Victoria on account of the discovery of gold on the banks of Wolf Creek, 20 miles distant from that city, and three miles from Luck River. Two men arrived in town on the 12th inst. with \$97 in coarse gold, which they had taken out in one week. The largest piece is valued at \$27, and is said to be superior in quality to that of Cariboo. Owing to the scarcity of water, very little work can be done at present, but it is expected that as soon as water can be obtained good paying diggings will be found."

Norway and Russia.

Rich gold fields have been discovered on the Northern frontiers of Norway and Russia, stated to surpass those of California. The severity of the climate will, however, prevent the places being worked by emigrants from Southern and Middle Europe.

Asia and Africa.

THE NEW GOLD FIELDS—MINING IN SHANGTUNG, CHINA, AND AT BAMANGWATO, AFRICA—CHINESE IMPERIAL EDICT AND CONSULAR NOTICES—THE RUSH AND ROUTE IN AFRICA.]

By mail from Asia and Africa we have the following interesting details concerning the new gold fields lately opened in Shangtung, Chefoo District, China, and the Bamangwato territory in Southern Africa, which has been lately noticed in the JOURNAL OF MINING, through official reports received from Washington.

The China Fields.

Our files from China, dated in Shanghai on the 15th of August, contain the following statements—the latest—with respect to the movement from the cities of the empire towards the Shangtung gold mines. One paper says: The gold fever still rages, and is evidently becoming more infectious every day. Everybody is rushing for the mines, and the most flaming accounts are received from the "diggings," which are being thoroughly prospected, in spite of the combined opposition of mandarins and "Fung-Shuey." The steamers to Shanghai continue to run with full cargoes, even at enhanced rates of freight. A large business has been done in copper cash, of which extensive shipments have been made.

PROSPECTING AT THE MINES AND EXPERIENCES OF THE MINERS.

[From the Shanghai News Letter, Aug. 14.]

Our special correspondent writes under date of August 8, from Chefoo, as follows:—"You will doubtless be glad to learn of our safe return here and the success of our prospecting survey among the Shangtung mountains and ravines, in search of that gold which the Shanghai newspapers have of late so often been hringing up to the notice of their friends there and at home, to gaze and go mad upon. We organized a prospecting party of three—a Californian, an Australian and a General Ward's (American) man—immediately on our arrival at Tulloch's Temple, twenty miles from Chefoo, on the 29th ult. Our first effort was near a mandarin's tomb, where the Chinese said immense specimens were buried. A shaft was sunk, but a storm coming on flooded our plain and we retired demoralized back to our camp. The next day we prospected some six miles to the northwest and towards Lookout Mountain, fifteen miles south of Chefoo. Our China boy and muleteers early evinced a desire to fall back upon Chefoo, but we kept them in company and went on seeking gold in the deep ravines by the wayside. We raised mica, muddle, black sand and everything except gold, and were going in after that with a will, when the head man of a village near by ordered our packs to "move on." We moved on, as otherwise we would have been obliged to do our own packing. At the "Golden Hill Temple," fifteen miles south of Chefoo, we halted and put up for the night. That afternoon a rough map of the country was made from the top of Lookout Mountain. The next day we went down to a creek near by and watched some thirty Chinese washing out gold. It was after the rain, and they were evidently making a good thing of it. They used a shallow wooden vessel, something like a bread-tray, a blunted rake, dipper and spade, and got through a great deal more earth than we could with our tin pans. A portion of the gold was evidently lost in the raking, yet nearly all the trays showed at least thirty cents after a few minutes washing. We selected a spot some little distance above these fellows, and with a pan soon brought up the color with two shovels only. This satisfied us of the richness of the creek, and when we went back to our quarters the Chinese followed us with their dust, some of which we bought at a fair exchange for Mexicans. After making another satisfactory prospecting tour of some twelve miles among the hills and ravines, we changed our camp to a range of mountains which bordered a view at the distance of fourteen miles to the southwest of Lookout Mountain. The mountain sides were very rough and broken by deep and abrupt ravines, and sometimes difficult of passage, yet cultivation extended to all available places, and for the 150 miles or more that we traveled during our ten days excursion, richly cultivated valleys and terraced hills, with a teeming population of Chinese, met the gaze everywhere, and a fraction of the last was always at hand to disconcert us when we believed ourselves most alone in our deep conferences with the god of Mammon. We found the country people very friendly and ready to meet us half way with their chickens and eggs, while the head men of the villages seemed to be never more satisfied than when they kept us moving on. We camped on the 31st ult., at the foot of Ferguson's Peak, which we attempted to cross, but could not for want of a pass. A solitary Chinaman was here discerned down among the boulders and deep cliffs of the mountain, washing his twenty-five cents to the tray. We tried the bed of a dry creek below our camp, but found no gold, though indications were sufficiently good to warrant explorations at a future opportunity. We found a pass the next day, and scrambled over it with the aid of some villagers, who shouldered our "shenz," or mule litter, where the path was too rough and steep for the animals to turn with

their poles. After a night spent in a temple at the foot of the hills we struck off towards the westward, passing a broad valley and reaching camp distant thirteen miles west of "Temple Hill," where we rested, and, time being up, had to bring our excursion towards the "Pinto range" to a close. The next day a prospect of the ravines and hills was made to the distance of eight miles beyond, then we returned to the camp, packed up and struck off down the valley in the northeasterly direction for Chefoo, which was reached on the second day thereafter, or the 5th inst., when the first prospecting party of Shangtung miners broke up and went home to rest. On the following day a visit to a mining region, recommended by the Rev. Mr. Williamson, was made, in company with some friends from Shanghai and a well known mineralogist of Chefoo. The direction being southeast of Chefoo twenty-eight miles, our point of destination was reached after ten hours' traveling, and a temple made a snug sleeping quarters for a night. At early dawn a village was visited, but a mandarin's proclamation had been there before us, and the villagers made no sign, but evidently wished us well away. Our muleteers were clamorous for food, and for ourselves aid and comfort was needed; but the head man pointed to the notice forbidding any aid and comfort being given to foreigners or any other roaming, vagabond scoundrels, seeking convenient places to dig for gold. A learned scribe of the party quoted some of the golden maxims of Confucius (who, by the by, was a Shangtungite, born, bred and buried), consigning in the most concise terms all of his countrymen who would not feed a beggar in distress to the lower depths of bad Fengshnedom; but it was of no avail, and after a brief look at the hills to satisfy us that good was indicated thereabouts, we packed up and left for Chefoo again.

The following letter from an old Australian miner is worthy of perusal:

SHANGHAI, Aug. 10, 1860.

"For your information I beg to state that I have just returned from the Chefoo gold fields, after prospecting on them for three weeks. My furthest distance from Chefoo was sixty miles, in the Pinto District. I have met with no favorable result to pay white men; but, judging from the appearance of the district, I believe it to be highly auriferous. Silver in the solid reef I have also found; but from the opposition of the mandarins there is little chance of developing the district, unless say, 100 Californians or Australians were on the ground; then, I believe, they could go through the country unmolested. The living in the interior is not expensive, although the fare is not first class—no beef unless you buy a whole bullock, and then it would not exceed six cents a pound; poultry, eggs and flour are cheap. The natives are friendly; at all events, they showed us no hostility, but rather kindness. The great drawback is the Chinese authorities, who, I believe, are following orders from Pekin. I was visited one Sunday by a Taoutai, with thirty retainers; but he seemed satisfied on the production of my passport. I advise no one to come here—it is a venture—but after ten years on the Australian gold fields, I, for one, would go and try it again for a few months; but pause before you come! China is not either California or Australia when one is 'stumped up.'" VERITAS.

Extract from "Notes on the Productions, Chiefly Mineral, of Shangtung," by the Rev. A. Williamson, of Chefoo. Published in the "Journal of the N. C. Branch of the Royal Asiatic Society," new series No. 14, December, 1867: "When I first began to make inquiries regarding the minerals here, I was astonished at the universality of the knowledge of the existence of gold and the apathy regarding it. Every one seemed to know of it. A native literary friend said that 'it was found in the sand of almost all the streams in the eastern portion of the province after heavy rain.' Another well educated man, acquainted with the district, reported the fact in nearly the same words, and the other day a man, a scholar from Hai-yang, said that it was found in the rivulets in the neighborhood. But while it thus appears to be very widely distributed there are several places which stand out pre-eminent. The first is Kien-dien, seventy li (there are three li to a mile) S. E. from Lal-chow, latitude 37 degrees 12 min. N., longitude 120 degrees E. and ninety-five li N. E. of Ping-tu. Marvellous stories relating to the richness of the quartz and the sand are current among the people, which, of course, have to be taken *cum grano salis*. I was told that a tea-cupful of the quartz ground down, would sometimes yield two ounces of gold, and that 100 cattles of the sand was worth about \$1,000 cash; I was also informed that many years ago a man came from Shen-si with 300 followers, and in two months cleaned 50,000 ounces after paying all expenses, and so on. Two or three years ago a company of respectable men, belonging to the neighborhood, made a proposal to the Chi-hien mandarin to work the mine, but he demanded 10,000 taels in hand before he would allow them to commence operations. They offered 3,000 taels, but did not venture on a larger sum, more especially as they could not tell how much more might be demanded after they had commenced. The mandarin remained inexorable, and so the project was given up. I mention this to show why so few care to engage in the mining of the precious metal. The *que metallorum* lies with the Emperor and government, and they have no scruples in the matter of squeezing. The mandarins also say that they are afraid of disturbances among the workers of such mines. Another place famed as a market for gold dust is Ku-hien, about eighteen miles west by south from Chefoo. It is procured in the streams, which flow from the Lan-sze-shan. I have passed several old gold washings on the banks of the river which flows past the town. A third place is Kow-tew, near Ning-hai, sixty li southeast of Chefoo. In my last journey, having passed through a district of 100 li to the southwest of Chn-ching, lon. 119 degrees 45 minutes E., lat. 36 degrees 1 minute N., apparently full of minerals, and having arrived at the village of Kwun-sae and finished my work, I inquired of the inn-keeper—as my custom was—about the products of the district. He told me of a wonderful hill about ten li south of where we were, which he affirmed was full of metals. It was called the "Seven Precious Things," and yielded gold, silver, copper, lead, tin, iron and coal. He further said that it had been mined up to the close of the Ming dynasty, but was now forbidden. Deeming his story to be too good to be true, I sent out my assistant to inquire quietly about it, and he returned affirming that the matter was well known, and that two or three persons independently confirmed the inn-keeper's report. Though no one cares to engage in the regular operations of mining for the reasons already stated, yet any one is at perfect liberty to search the streams. Accordingly, every year a good many of the natives engage in this employment. They obtain fine nuggets of varying sizes, which is a great temptation to persevere in spite of failure. And yet last year I have been told that the gold washers made on an average about one dollar per day in the district of Tsi-hya."

OFFICIAL NOTIFICATION TO MINERS.

Whereas it has come under the observation of the undersigned that encouragements have been indirectly held out by the public press and otherwise towards an influx into this country of foreign adventurers, for the purpose of digging for the gold reported to have been discovered in Shangtung; and whereas a formal request has been addressed to the undersigned by the local authorities here, under instruction from the Tsung-li Yamen, to prohibit the resort of foreigners to the interior for mining

purposes. Notice is hereby given that the undersigned can on no consideration whatever further the objects of their nationals in the direction indicated until in the discretion of the high authorities at Pekin existing prohibitions shall have been modified or removed; and meanwhile they hereby inform their countrymen that they will be prepared to support the authorities in maintaining treaty stipulations.

VTE. BRENIER DE MONTMORAND.

A. TETTENBORN. H. P. HANSEN.
W. H. MEDHURST. GEO. F. SEWARD.
GEO. BASIL DIXWELL. F. B. FORBES.
SHANGHAI, August 1, 1868.

THE CHINESE EDICT.

The Taontai of [Shangtung has sent the following despatch to the Treaty Consuls: "Ying, the Taontai, would inform the Consuls that on the seventh day of the sixth month (July 26, 1868), he received from the Board of Foreign Affairs at Pekin a despatch stating—that the opening of mines is strictly prohibited by Chinese law and that hitherto the Chinese merchants are not permitted to work them. Now, in the vicinity of Yien-tai and near the sea, since the opening of the place to foreign trade, Chinese and foreigners collect in considerable numbers, and if corrupt scoundrels of the interior, along with foreign wandering vagabonds, should secretly dig for mineral wealth and acquire riches, not only would it be a great injury to the people's Fung-shui, but also it is to be feared that it would easily give rise to quarrels, wherefore the Board of Foreign Affairs writes to each of the Foreign Ministers residing at Pekin, requesting them to order the Consuls at all the open ports to act in accordance with the prohibitions and strictly prohibit all foreigners from proceeding thither; and the 'Tsoung-li Yamen' or 'Foreign Board,' also writes to the Commissioner for the three ports and the Futai of Shangtung province to order all the local magistrates at the ports to examine, and at all the places formerly yielding gold, strictly prohibit all persons, whether Chinese or foreigners, from working for it. And if any villainous Chinese should secretly pursue this business, then order the local magistrates, along with the Consuls, immediately to prevent them. Now, as Shanghai is the common entrance for foreigners, should any of them get passports under false pretences or proceed without passports to the northern ports, when immediately along with the Consuls, to prevent their engaging in this business, and the board also writes to act in conformity to these orders. And the Taontai having received this, now writes to the Consul requesting him to examine the foregoing, and hereafter if any wandering vagabonds without means should want to repair to Yien-tai, the Taontai hopes the Consul will immediately prevent them. And when foreigners apply for passports, for sporting in the interior, he hopes the Consul will examine clearly as to what business they are going on, and to what place they are going to hunt, and to have the place named in the passport before affixing the seal, and if any foreigners without passports repair to Yien-tai and such places to dig for gold, and anything happen in the way of an uprising against them, the Chinese magistrates cannot afford them any protection. The Taontai hopes for a favorable reply to this despatch.

Ninth day of the 6th month, 28th of July, 1868.

The African Fields.

By mail from the Cape of Good Hope we have the following reports from the African gold fields dated to the 25th of July: [From the Natal Mercury, July 14.]

The news from the gold fields, received on Friday, is corroborative of our previous advices. It must be remembered that the letters from Seeheli's town brought to Potchefstroom by Mr. Solomon, referred to later discoveries by the diggers than those set forth in the letters received subsequently from them and dated the 4th of May. Up to that time they had been working in the valley of the Tatin river, and had been finding gold in small grains, some of which were of the size of large pin heads. They were then searching for the true reef, which, according to the later intelligence received week before last, they subsequently discovered, and found it to surpass in richness their expectations. Upon receiving this latter information, which, if we are not very much mistaken, was received before the regular direct letters came to hand, Mr. McKenzie, the missionary at Matjens-town, had sent off express kaffirs to return with reports and specimens. These were daily expected at Seeheli's, where Mr. McKenzie was to arrive from Matjens. As soon as he appeared an express would be forwarded to Potchefstroom, where this further and final news was momentarily expected. Our readers should mark the fact that this second despatch gives us an account of only the earlier proceedings of the diggers after their arrival at Ramaknoban, which they reached by a nine instead of a twelve days' wagon journey. It is highly satisfactory to find that the natives were quite friendly and that even Moselekaise needed only a little diplomatic treatment to secure his co-operation and to secure for digging parties admission to the northern gold fields. Captain Black has loyally given to Ramaknoban the name of "Victoria gold fields." May not this create confusion? and would not the original designation of "Victoria and Albert" give to the locality a no less loyal signification and prevent any mistake as to its African situation? By the next mail we ought to hear of Mr. McKenzie's arrival, with whatever tidings he may have to communicate. Meanwhile our government should, we think, take steps to represent to the northern chieftans that the objects sought by the Queen's subjects in their territories is nothing more than the acquisition of precious metals.

THE DISCOVERY.

[From the Transvaal Argus, July 6.]

Potchefstroom was thrown into a state of considerable excitement last Thursday afternoon, the 2d inst., when it became known that the Rev. Mr. McKenzie, so anxiously expected here, had arrived. The excitement became intense when it was ascertained that the reverend gentleman had brought intelligence of a late date direct from the Victoria gold fields, was the bearer of several letters from the diggers themselves, and, moreover, had brought a sample of gold from the new diggings. Of course we went to see, having been attacked for the time being with all the symptoms of the gold fever. The sample was minutely inspected, and we now declare on the sacred word of an editor that the said sample requires but to be seen in order to dispel the strongest doubts of even the most sceptical. The "myth," as the gold discovery has been termed, has resolved itself into a stupendous fact. The samples produced by the Rev. Mr. McKenzie, which can now be seen at Mr. Reid's, are two pieces of quartz richly crystallized, richly, very richly studded with gold, having solid pieces, some larger even than a pin's head, imbedded in the stone, and yet the richer pieces, parts of the same stone, had already been forwarded to his Excellency, Sir Philip Wodehouse, and also to Grahamstown; these pieces we have not seen, but the reverend gentleman assures us that they are richer far than those brought by him to Potchefstroom, and that all are parts of the same stone taken from the surface, picked up close to where the diggers are now at work, in fact at the outspan place. These pieces of quartz fully prove the superior richness of these new and vast gold fields, to which the name of Victoria has been

given, in honor of her Majesty, the Queen of England. All doubts, therefore, that may at one time have been felt, ought now, we consider, to be effectually dispelled. We for ourselves cherished none, fully relying on Herr Mauch's statements made to us, and since repeated by him in a speech at the agricultural dinner, when he said that it would ultimately be proved that the new gold fields surpass in richness either the California or Australian fields, which fact would fully warrant the expression used by him in a letter to the *Transvaal Argus*, dated December 3, 1867, when he stated that he stood as it were riveted to the spot, and for some time could not use his hammer, when these vast fields of gold for the first time broke on his sight. If the piece of quartz which Mr. Vander Byl took to the colony, and which was scarcely noticed here, would produce proportionately from eleven to fourteen ounces per ton, as stated by the *Standard*, what will not such quartz as is now exhibited by the Rev. Mr. McKenzie produce? We hesitate to express an opinion, for it would be set down as altogether fabulous. The question, therefore, of the existence of these vast and equally rich gold fields in Matchin's territory being satisfactorily set at rest, the rush will undoubtedly come which we asserted would take place when first this important announcement was made, and which a certain writer in the *Graaf Reinet Advertiser* so courteously designated, "an after dinner wandering," at the same time expressing his surprise that respectable colonial editors could transfer it to their columns. When the discovery was first published by us we depreciated any sudden rush, and advised the exercise of great caution, not knowing at the time what might be the disposition of the powerful native tribes in the immediate vicinity of these gold fields; but we now consider ourselves fully warranted in inviting all to come who may choose to do so and to come quickly. From the natives they have nothing to fear. Matchin has already tendered his allegiance and territories to the British government, has appointed two Englishmen as agents, to whom the nominal fee of one pound sterling per man for six months is to be paid, and the British flag already floats above the Victoria gold fields.

AT THE "DIGGINGS" AND THE YIELD.

The *Transvaal Argus* of the 24th of June has the following:—"We are indebted to Mr. A. Forsman for the following intelligence relative to the gold fields, extracted from a letter received by him from Mr. Taylor, dated Secheli's, 5th of June:—"We have just received news here that the gold field is turning out well. The Rev. Mr. McKenzie sent an express to Mr. Black for him to forward a reliable statement. On their return—that of the express—I will again write and inform you of the results." The Rev. Mr. McKenzie is expected in Potchefstroom within a fortnight, when we trust that he will be able to communicate such information as will effectually remove any doubts that may still be entertained with respect to the richness of these gold regions. Mr. Solomon, who has just come down from Secheli's, informs us that the diggers, now about sixty strong, had struck a vein of gold in the quartz, and that a small piece of quartz, about one inch and a half long, contained gold valued at three pounds sterling. We trust that on the Rev. Mr. McKenzie's arrival this statement may be confirmed.

MISSIONARY REPORT.

POTCHEFSTROOM, July 6, 1868.

"On Saturday evening I had the pleasure of a long conversation with the Rev. Mr. McKenzie, of Bamangwato, an enlightened gentleman and devout missionary, who came to these parts ten years ago with the first Zambesi Mission. I shall only touch on a few points of the utmost importance which, somehow, have escaped the vigilance of 'Argus,' whose voluminous extra will be before you. Mr. McKenzie tells me that Moselekatzé has voluntarily fixed his southern boundary on the N'Khuzi River, in 20 deg. 30 min. south, fifty miles north of the Victoria Diggings, acknowledging Matjen's claim to the country south of the N'Khuzi. So by virtue of Captain Black's taking possession—nine points of the law—if you allow Matjen's petition to pass for point No. 10, not only the Victoria Diggings, but the whole of Matjen's land, with the gold district extending, as I am about to show, down to Gokwe and Sernli Rivers, are now and henceforth British territory. He also informs me that since Mauch's discovery he has found an ancient, but well got-up and preserved, smelting oven on the banks of the Gokwe, from which fact we may safely infer that the quartz run extends down for a considerable distance towards the Limpopo, and that the southern gold fields are much more extensive than even Mauch imagined. On being asked whether he had not had an inkling of the existence of the noble metal in that locality before, Mr. McKenzie emphatically declared, 'No, it is a most complete and *bona fide* new discovery, and Matjen's tribe were as much astonished at it as myself,' saying, 'Who on earth can have made these holes and what for?' He also states that game is not at all scarce near the Tatin, and that one hunter could easily supply a party of thirty diggers with meat. That the climate is healthy even in summer. That not only the Tatin but also the Ramakhuban and the Sashin, all affluents of the Limpopo, are richly gold-bearing, and most probably the Gokwe also. Captain Black is a 'canny Scotchman.' He sent us down plenty of gold dust and just one piece to Mr. Forsman, 'to show that it was there.' It is fortunate that Mr. McKenzie, who likewise hails from Auld Reekie, was more liberal. People at the Cape have at last got into a white heat on seeing the small rich samples forwarded there through Mr. Van der Byl, and on finding that the big lump, sixty pounds in weight, in which no gold was visible, contained it at the rate of eleven to fourteen ounces per ton. What will they say when they see the nuggets?"

ROUTES TO THE GOLDFIELDS.

[From the *Natal Mercury*, July 25.]

"The following table of distances between the port and different stages on the two routes to the goldfields through Natal are authenticated by Mr. John Gray, who recently visited Pretoria:

FIRST ROUTE.	Miles.	ANOTHER ROUTE.	Miles.
In Natal:		To Maritzburg.....	51
To Maritzburg.....	54	" Mool River.....	42
" Ladismith.....	99	" Bushman's River.....	20
" Newcastle.....	55	" Tugela.....	22
Transvaal:		" Dodds.....	18
To Wakerstroom.....	36	" Sandspuit.....	16
" Heidelberg.....	130	" Harrismith.....	35
" To Pretoria, lat. 28 deg. long.		" Heidelberg.....	420
43 deg. 40 min.....	60	Total.....	227
" Nielsstroom.....	72	To Mauch's Station.....	386
" Crocodile River.....	63	Total.....	768
" Mauch's Station, between 22			
deg. and 23 deg. lat.....	144		
Total.....	760		

"The tract of 220 miles between Harrismith and Heidelberg is, we believe, well supplied with grass, and herds of game are to be found all along in abundance. Between Heidelberg and the Tatin, on the first route, there is a few hours' trek through the 'fly,' which is ridden at night without injury to the cattle."

OFFER OF CESSION TO THE ENGLISH—LETTER OF THE CHIEF OF BAMANGWATO TO HIS EXCELLENCY SIR P. E. WODHOUSE, K. C. B., GOVERNOR OF THE COLONY OF THE CAPE OF GOOD HOPE.

SHOSHONG, TOWN OF THE BAMANGWATO, March 29, 1868.

"May it please your Excellency—I beg to address you as the

representative of her Majesty Queen Victoria, and as the Governor of the Cape Colony, which, I understand, is the largest community of white men in South Africa. I would remind your Excellency that traders, hunters and travelers have for years visited the Bamangwato country, and more recently the Lako Ngami District, the country of Moselekatzé and the region of the Zambesi. I am happy to say that during all this period no blood has been shed, nor has any serious disturbance taken place in the intercourse between my people and the traders and hunters referred to. Some months ago I was informed that gold had been found in Shashe District, a part of my country traversed by the road leading to Moselekatzé; and, further, that the same metal has been discovered in Mashonaland, which lies on the northeast of Moselekatzé. I have since learned that snitahle tests have been applied to the ore in the Cape Colony and in Natal, and that it has been pronounced by qualified judges to be gold. I am also told that, without reference to the territory of others, the districts in which gold ore is to be found in my own country are so extensive, and likely to be so productive, that large numbers of gold diggers may be expected speedily to make their appearance. I am further informed that the majority, if not the whole number, of such gold diggers will be British subjects. Now, I conceive it my duty, in circumstances of such peculiar importance, to seek the counsel and the aid of her Majesty's Government. The Fransvaal Government, through Commandant Jan Viljoen, desires me to hand over to the republic the district in question, and assents me in return of the protection of the republic should the gold diggers molest my people. I shall decline to consider this or any other overture until I hear from your Excellency.

"1. I beg then humbly to submit to your Excellency, as her Majesty's representative, that the gold field or fields in the Shashe District are situated in the country which belongs to me, as chief of the Bamangwato, the boundary line being my country, and that of Moselekatzé is at Mokohe Town.

"2. I would not willingly give up this territory without compensation.

"3. Having, however, no reason to believe that my claims as owner of the district in question would be more ignored by her Majesty's Government, I beg to state my willingness to leave the amount of compensation, and the manner of its payment, as questions for future settlement.

"4. While I have hitherto lived on terms of friendship with English visitors and with a few English residents, I feel utterly unqualified to govern such a community as that of gold diggers is described to be. May it please your Excellency, these gold diggers are you people; therefore I invite you, and I beg you to come and occupy the gold country, in so far as it is at my disposal, and to govern the gold diggers in the name of the Queen of England. Meanwhile and until I hear from your Excellency, it is my intention to encourage such gold diggers as make their appearance by granting them permits to dig at a nominal price, by enrolling the names of such permit holders and by empowering one or some of their number to administer justice in the gold-field; and these steps I shall take in the earnest hope that speedily my weak efforts to sustain law and order among British subjects may be superseded by the advent of the power of England. I have the honor, &c.,

his
"MACEN, X Chief of the Bamangwato.
"mark."

IRON.
New York.

We take from a Troy paper the following account of the burning of the Bessemer Steel Works at that place, on the evening of the 20th ultimo:—"The flames caught in the roof of the mill near the cupola connected with one of the immense 'converters,' which is used in the conversion of iron into steel, from sparks eliminated in fiery showers from the molten metal during the process of the manufacture. The roof, which was of slate, was supported by wooden rafters, to one of which the fire was communicated. In consequence of the illumination which prevailed throughout the building from the fiery masses of iron which were being constantly handled by the operatives, the flaming rafter was not discovered until the fire had made considerable headway, and when the fire was observed little or nothing could be done to extinguish it. It had broken out at a most untoward hour; for the immense hydraulic pump connected with the works, which would have thrown more water than all the steamers in the city, and upon which the proprietors relied for safety against fire, was unfortunately broken and undergoing repairs. A vain effort was made to adjust a portion of it so as to throw water upon the flames, but this was soon abandoned, and a messenger was dispatched to the city to secure the assistance of the fire department. The mill was three hundred and fifty feet long. The fire caught at about the center, and spread both ways. The efforts of the steamers were directed to stop its progress in the northern portion, and succeeded in saving the pattern and machine shops uninjured. The central portion, in which was the machinery for the manufacture of the steel, consisting of two five-ton and one two-ton 'converters,' with hydraulic cranes and other apparatus, is a total loss, so far, at least, as the building is concerned, but most of the machinery, which, of course, was of the heaviest description, was saved. Two of the converters are probably uninjured, as were the moulds, but two of the hydraulic cranes were broken. The southern portion of the mill consisted of a wooden structure, in which was an immense steam hammer. The building was destroyed, but the valuable hammer was wholly uninjured. Fortunately there was a slight breeze from the west, and this kept the flames from reaching the engine building, located a short distance from the main structure. The mill the morning after presented the appearance of a mass of ruins, but the comparatively perfect manner in which most of the machinery will be secured, gives encouragement to the hope that the loss will not be so serious as might naturally be expected. The original cost of the building was about \$250,000; but it is not expected that the loss will exceed \$75,000, and it may not reach that sum. The building is the main thing to be replaced; Mr. Griswold and Chester were early on the ground the next morning arranging plans for the rebuilding of the structure. The loss is greatest in respect of the suspension of the works. The company were working upon a large contract for the manufacture of steel rails, and the Bessemer works were kept running night and day to supply the new rolling mill of Griswold & Co. with material for the rails. It is hoped that at least one small 'converter' can be set up and put in running order in the course of two or three weeks. A temporary roof for this converter was commenced immediately. The loss in the delay caused by the fire cannot be less than \$50,000, independent of the direct loss upon the building and machinery. So secure was the feeling of Mr. Griswold in regard to fire from the precautions adopted against it, and especially on account of the hydraulic pump in the building, that recently he caused the amount of insurance upon the mill to be reduced \$20,000. To the unfortunate accident to the pump may now be traced the destruction of the mill. The total amount of insurance upon it was only \$33,000. The number of employees thrown out of work temporarily by this calamity is about one hundred and twenty. We are happy to announce, however, that the contract for the new

mill, even more capacious than the old one, will be drawn up and executed within twenty-four hours, and that the work of rebuilding will be immediately commenced."

COPPER.
California.

A Jackson, Amador County, paper says that the owners of the Cosumnes copper mines have put up a smelting furnace, and are now working low grades of ore that has accumulated at their mine. The result, so far, has been very satisfactory.

Manufacturing and Mechanical Notes

No. XXXVIII

The "Tubal Cain" Iron Works.

These works are situated at No. 105 Water street, Brooklyn, and are the property of JOHN ROBERTSON & Co. who manufacture machinery for making lead pipe, Hydraulic Presses, engines, sugar mills, shafting, gearing, pumps, rolling mills, etc. Mr. JOHN ROBERTSON, the senior partner of the firm, is patentee of a machine manufactured at these works for making sheet-lead and lead pipe. His invention consists in an improved construction, whereby provision is afforded for adjusting the core or inner die to vary the thickness of the lead, and also a method of discharging the pipe or sheet from the machine in a downward direction without being huddled. Mr. ROBERTSON has also made some very important improvements in atmospheric hammers, which obviate the crystallization and breaking of the piston rod and derangement of packing. A provision is also made for the more convenient variation and force of the blow, and for the striking of light blows, as in hand forging.

Messrs. ROBERTSON & Co. have just completed an engine and sugar mill for the Vista Hemosa Estate in Cuba. The engine is an inverted cylinder, 24 inches diameter, with 24 inches stroke. Bed plate, 12 inches deep, height of frames from bed plate to cylinder, 6 feet 6 inches. The fly wheel is 10 feet diameter. The sugar mill has rolls 34 inches diameter and 7 feet long. The journals of the top rolls are 21 inches diameter, and those of the bottom roll 20 inches. Diameter of the warm wheel 12 feet, width of cogs 14 inches. Diameter of warm 24 inches, and it is 3 feet 6 inches long. The height of the top roll from under side of pan to center, 5 feet 7 inches. The width of pan is 7 feet 6 inches, with a depth of 12 inches.

A new iron planer has just been added to the works, which has been expressly built for the concern by WILLIAM ROBERTSON of Johnstone, near Glasgow, Scotland. The length of the bed of this planer is 21 feet 6 inches, by 4 feet in width. It will plane 17 feet in length and 4 feet 6 inches in height. This tool is made in a very solid manner, peculiar to Scotch tools, and will repay an inspection by any one interested in a comparison of Scotch and American machinery.

Carbon in Steel.

In a lecture on the manufacture of cast steel, delivered before the Chemical Society, London, by C. W. Siemens, F.R.S., the following statement, showing the percentage of carbon in steel suited to different purposes, was read:

Description.	Carbon, per cent
Wootz.....	1.34
Steel for flat files.....	1.2
Steel for turning tools.....	1.0
Steel (Huntsman's) for cutters.....	1.0
Steel for cutters.....	.9
Steel for chisels.....	.75
Die steel (welding).....	.74
Double shear steel.....	.7
Welding steel.....	.68
Quarry drills.....	.64
Mason's tools.....	.6
Ramrods.....	.6
Common steel for stamping.....	.43
Steel for magnets (containing tungsten).....	.4
Steel for spades.....	.32
Steel for hammers.....	.3
Bessemer steel for rails.....	.25 to .3
Homogeneous metal armor plates.....	.23
Very mild steel from open furnace.....	.18
Sample before Spiegel was supplied.....	.05
Bessemer iron pure.....	trace.

The Canadian "Corner" in Oil.

An Oil Springs correspondent of the *Chatham Planet*, a week ago said that several new refineries were building at that place, and he then thought a stand would be made against the oil combination formed under Judge Higgins. In a later letter he says the new refiners appear to have succumbed, owing to threats of the combination to throw their oil on the market and ruin all concerned. It appears they have succeeded in bringing the new men into harness, with the understanding that they draw from the Combination warehouses, weekly, half the quantities of oil they could manufacture—paying for the same just what it would actually cost them to make it. This arrangement will be mutually advantageous, for the refiners will have half the quantity that they would have in case they persisted in running without any risk, and the Combination work off the large stock of oil they were compelled to purchase in order to control the market; and it will be to the interest of both to keep prices up.—*Toronto Monetary Times*.

The Velocipede Substituted for Horses.

The velocipede is suggested as a substitute for the horse for the rapid transportation of infantry. Celerity of movement is the desideratum; for it is a maxim that the strength of an army, like the power in mechanics, is estimated by multiplying the mass by the rapidity. Now, as to comparative speed. Recently, in France, there was a race between a velocipedist and a horseman for a distance of forty-five miles, when the latter won by only twenty-five minutes, after a run of six hours. It is stated that but for a head wind that blew all the time, the machine would have won. Imagine a body of troops moving on the enemy mounted on the velocipede. It would be a great sight.

MARKET REVIEW.

FRIDAY EVENING, NOV. 6, 1868.

Gold and Silver Stocks.—The sales reported at the Stock Board are mostly confined to Colorado Stocks, which have, with one or two exceptions, receded considerably in price.

Table listing various stocks such as Alameda Silver, American Flag, Bales & Baxter Gold, etc., with columns for Bid, Asked, and price.

Copper Stocks.—Davidson is reported held at 70c., and Knowlton at 50c.; \$2 00 is offered for Minnesota, and \$1.75 for Flint Steel River.

The following will show the prices of Copper stocks bid in Boston this day, (Nov. 6.)

Table listing copper stock prices in Boston, including items like Copper Falls, Franklin, Hancock, etc.

Petroleum Stocks.—Business has been dull during the past week, and prices have declined, being thus quoted to-day:

Table listing petroleum stock prices, including items like Bennehoff Run, Brevoort, Buchanan Farm, etc.

Miscellaneous Stocks.—Quicksilver Mining is quoted at 20@20 1/2; Wall-kill Lead, @15; Adams Express, 46; American Express, 41@42; Wells-Fargo Express, 25; Merchants Union Express, 30; Pacific Mail Steamship, 11 1/2; Western Union Tel., 23 1/2@24; Boston Water P., 15@15 1/2; N. Y. Central R. R., 11 1/2; Erie, 8 1/2; Hudson R. R., 12 1/2@12 3/4; Reading, 9 1/2@9 3/4; Mich. S. & N. L., 8@8 1/4; Cleve. & Pitts., 5 1/4@5 1/2; C. & N. W., 7 1/2; C. & N. W. B. R. Pref., 7 1/4@7 1/2; Cleveland & Toledo, 9 1/2@9 3/4; Chi. & E. L., 10 1/2; C. B. & Q. R., 17 1/2; Milwaukee & St. Paul, 6 1/4@6 1/2; Milwaukee & St. Paul Pref., 7@7 1/2; Illinois Central, 14 1/2; P. Ft. W. & C., 10 1/2@10 3/4; Ohio & M. E. R., 24 1/2@25 1/4; Chicago & Alton, 13 1/2@14.

Government Stocks.—Prices are thus quoted to-day: U. S. 6s, 1861, coupon, 111 1/4@111 1/2; U. S. 5-20s, '65, new coup., 107 1/2; U. S. 5-20s, 1862, coupon, 106 1/4; U. S. 5-20s, 1867, coupon, 107 1/2; U. S. 5-20s, 1864, coupon, 10 1/2; U. S. 5-20s, 1868, coupon, 108 1/2; U. S. 5-20s, 1865, coupon, 105 1/4; U. S. 10-40s, ex coupon, 103 1/2@103 3/4.

Foreign Exchange.—Foreign Exchange is very weak and irregular. We quote:

Table listing foreign exchange rates for various locations like London, Paris, Antwerp, etc.

Gold.—Gold opened to-day at 132 1/2, and fell to 132, and closed at 132 1/4. The stringency of money is, if possible, more aggravated. Stock borrowers, in needy circumstances, do not stop to bargain about rates, but readily pay 1/2 @ 3/4 per cent. per day, and the difference between cash and regular stock ranges from 1/4 to 1/2 per cent.

An afternoon paper says.—"The stringency in money has this morning resulted in a general break down in stocks. The market opened weak, and upon a large amount of 'puts,' on the St. Paul stock being presented to a leading operator in those shares, the price of the common stock fell to 65, a decline of 2 1/4 per cent. upon the figures of yesterday morning, while the preferred sold down to 70. The panic extended to Northwestern, which usually sympathizes more or less with St. Paul, and the common stock declined to 75. The elite stocks generally, fell off 3/5 per cent. in sympathy, New York Central and Hudson River being especially weak. The only stocks that exhibited any steadiness were Erie and Reading. About noon a very uneasy feeling prevailed, in consequence of a report of failures growing out of the break in prices. One leading operator was mentioned as temporarily embarrassed through his inability to procure money at the moment, though presenting the ample collateral; there is, however, no probability of his being unable to honor his obligations in full."

Securities offered as collaterals are subject to the most careful scrutiny, and only the best class are at present available in obtaining the needed accommodations, except at extreme quotations.

The following are the quotations for coin: American silver, 96 1/2@97; Mexican dollars, \$100@104; English silver, \$480@485; five francs, 96@97c.; English sovereigns, \$486@489; twenty francs, \$985@988; Thalers, \$70 @74.

The following are the San Francisco mail advices of October 22:—The San Francisco money market is one of the steadiest in the world. The quotations for eighteen months have undergone little change. Coin is abundant, and can be obtained in bank at the frozen rates of 1 1/4 per cent. per month. The cash employed to move our crops is returning again, increasing deposits and keeping the market easy. Bullion is inactive at present, and gold bars have changed to 80 from 75, at date of our last issue. Silver bars remain unchanged, ruling from par to 1/4 per cent. premium; currency bills have declined 1 per cent., being in fall of 3 per cent. since October 6, and are now 35@35 1/2 per cent. premium on gold; eight drafts, payable in coin, obtain 1 per cent. premium; telegraph transfers, 1 1/4 per cent. premium; sterling exchange 45 1/2@46; commercial exchange, 49 1/2; Mexican dollars, 4 1/2@5 per cent., being a decline of 4 per cent. since October 6. Large capitalists readily advance money on grain deposited in their warehouses, at 1 per cent. per month, while outside lenders demand 1 1/2 per cent. In this city, Legal Tenders are selling at 72@74.

The following will show the exports of specie from the port of New York for the week ending October 31, 1868.

Table showing exports of specie from New York for the week ending Oct 31, 1868, including gold and silver.

Total for First Nine Months, 1868, \$28,144,408 34. Corresponding period, 1867, 31,726,943 41.

Decrease this year, \$3,582,535 07.

Petroleum.—Crude in bulk is obtainable at 16c., with a small inquiry; 500 bbls. were sold at 16c. Refined, standard white is offered at lower prices, without tending to business; we quote at 28c. Naphtha.—The sale referred to yesterday embraced 15,000 cases. For Philadelphia delivery the market is dull and depressed. The stock is accumulating, and in the absence of any important demand lower prices are current, standard white closing at 27 1/2@27c., with sales of 3,500 bbls. at 27 1/2@28c.

Receipts for the week ending Nov. 3, pkgs. 14,448. Exports for the week ending Nov. 3, galls. 837,322. Exports from Jan. 1, galls. 46,727,215. Exports same time last year, galls. 26,457,007.

The following is the quantity exported from other ports, Jan. 1 to Oct. 31, 1868. From Boston, galls. 2,218,320. Philadelphia, 32,171,371. Baltimore, 2,417,215. Portland, 578,090.

400,000 pounds. For Dunbar delivery, 150,000 lbs., Detroit, has been sold at 23 1/2c. The English market has improved to 280 for Chill Bars. Straits continue in demand, with sales of 8,000 slabs, part to arrive in Boston, at 25c. @25 1/2c. gold. On the spot, 25 1/2c. @25 1/2c. has been paid for jobbing lots. Banca is dull at 27 1/2c.; English, 25 1/2c.

Spelter.—7@7 1/2c. gold, has been paid for jobbing lots on the spot; 6 1/2 is the quotation for Nilesian, to arrive.

Lead is unchanged at 6 1/2c. gold.

Zinc.—The price of Zinc Metal is 12 1/2c. @12 1/2c.; French Zinc, white, 12 1/2c.; American Zinc, white, 11 1/2c. @11 1/2c.

Lime.—The market for Rockland is steady at \$1 75 for Common, and \$2 00 for Lump.

Salt-petre.—The stock here is reported at 2,000 bags, and in Boston 10,250 bags.

Oils.—Lined.—There is only a trade demand; sales in lots at 98c. @1 00. Crude whale and sperm are unchanged; there are no sales to report.

THE IRON TRADE.

NEW YORK, November 6, 1868. There has been but little change during the past week. The market is quiet, with but a small advance. The stock of Forge Irons is small, and we quote sales at \$43; American Irons quiet, but higher prices are anticipated. We observe sales of 600 tons of Gray Forge on private terms. Sales of No. 1 at \$43, immediate delivery; 1,600 tons old Rails, double head T's, part at \$34, quiet. Scrap Iron is quiet, with prices somewhat advanced. Bar Iron is quiet and firm; Common Sheet is in small supply.

BOSTON, November 4, 1868. There is a firm feeling for Pig Iron, and with a small stock and light prospective receipts, full prices are expected for some months to come. Sales of Gartsherrie, Coltness and other brands of Scotch in lots as wanted, at \$42@44; and American Pig at \$40@45 per ton. Bar Iron is firm, but sales are confined to small lots. In Russia Sheet nothing of any consequence has been done. Prices at nominally 13@14c. gold.

Imports of Pig Iron from January 1 to October 31, 1868:

Table showing imports of pig iron from Great Britain and Coastwise Ports for 1868 and 1867.

PHILADELPHIA, November 3, 1868. In Pig Metal there is less doing. Sales of No. 1 Anthracite at \$42@43, and No. 2 at \$38@40. Scotch Pig is quiet at \$43 per ton, and Forge at \$35@35 1/2 per ton. Manufacturers Iron commands \$5@5 1/2 for Bars. Blooms are quiet.

Lehigh Valley Iron Trade.

Pig Iron transported by the Lehigh Valley Railroad Co. for the week ending Oct. 31, 1868:

Table showing Lehigh Valley Iron Trade statistics, including Carbon Iron, Lehigh Valley Iron Co., Thomas Iron Co., etc.

Total, 3,970 tons, 130,977.

Lake Superior Iron Trade.

Receipts of Ore and Pig Iron at Marquette, up to and including Saturday, Oct. 31, 1868, by the Marquette and Ontonagon Railroad.

Table showing Lake Superior Iron Trade statistics, including Lake Superior Iron Co., Cleveland Iron Co., Marquette Iron Co., etc.

Total Iron Ore, tons, 218,771. Total Pig Iron, tons, 24,229.

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Table showing Anthracite, Bituminous, Charcoal R. II. Last Week, This Week.

Total, 2,290 tons, 1,545 tons. Showing a falling off in sales of 655 tons as compared with the week ending October 24. We are reported the following sales:

Table showing Anthracite sales, including 900 tons Chickie's Forge, 100 tons White, delivered at Harrisburg, etc.

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORE.

Table showing bituminous coal sales, including 50 tons Western Red Short, 200 tons Open Gray Forge, etc.

CHIAFOCAL.

70 tons Hanging Rock Foundry, 50 tons No. 1 Foundry, etc.

CINCINNATI, November 2, 1868.

Pig.—Receipts have been very light for a few weeks past, and demand being in excess of the supply, prices have advanced 1/2@1 per ton for Foundry and Mill Hanging Rock brands, with a better feeling and some improvement in all descriptions.

Per ton. Days Tennessee Cold Blast, 43 45-80. Hanging Rock II. B. Fou., 41 42-90. Hanging Rock Cold Blast, 33 34-90. Hanging Rock Car Wheel, 65 60-90.

MANUFACTURED.—Trade is better, but no change in prices. MILWAUKEE, Wis., November 2, 1868.

No quotable change in prices. Buffalo Union, B. I., 49 00. Lake Superior No 1 (charcoal), 43 00. Lake Superior No 2 (charcoal), 42 00.

LONDON (Eng.), October 16, 1868.

Iron.—In Staffordshire, the accounts from all quarters represent the trade as in a position of tolerable activity, and full time is now the general rule at the works. As the rate of wages is low, and the workmen were long on short time, they are poor, and the result is they work more regularly than is usually the case. Some works which were standing have started, and from all appearances it is anticipated that we shall have a steady trade during this quarter. In Welch the trade is generally recovering from the depression which has prevailed during the last two years, and the improvement which has lately set in is fully maintained. The hands at the leading works are fully employed, and the additional orders lately received will, it is believed, afford employment to the end of the year. Home buyers are now beginning to purchase with something like freedom, and contracts are more numerous than they have been for several months past. Shipments of rails continue to be made to Russia, America, and the British colonies. Continental inquiries also are better, and as the railway system is expected to be largely extended in Europe, there is a prospect of an increased demand. In Swedish iron the demand has somewhat slackened. In Scotch pig iron the market has been rather quiet during the week, and the price, upon the whole, has somewhat declined, the last price from Glasgow being 62s. 9d., cash.

STEEL.—In moderate request only.

Table showing iron prices, including Bars, Welsh, in L'n, 26 10 0, 26 12 6, etc.

Total, 10 0 0 10 0 0.

THE COAL TRADE.

NEW YORK, Nov. 6, 1868. Very little can be said about the state of the market this week, except to repeat the often quoted terms, "bare and brisk." Prices are high, but we see no prospect of any material change at present. We think that present quotations will continue for the season. In a few instances a change may be made, but it will not seriously affect the market. Egg and Stove sizes are in good demand, and over-anxious housekeepers are laying in a stock, regardless of prices. This has somewhat unsettled trade, and it may affect the prices of these sizes for a little time. From Philadelphia we learn that the market is still unsettled. There is a great demand for coal to ship to New York, and the freights have advanced to \$2 per ton. There is very little demand for coal to go east of New York.

The following will show the exports of coal from the port of New York for the week ending November 3, and for the season to that date, also the amount exported last year for the same period:

Table showing coal exports from New York for the week ending Nov 3, 1868, and for the season to that date.

The market is very firm for all kinds of coal, and prices are tending upwards. English Canal has been sold at \$17@19 per ton, for large and small lots. Pitcon and Sydney are nominally \$8 50 per ton, Cumberland \$9 per ton. Anthracite has again advanced and very high prices are expected for some months to come. In retail lots sales are now making at \$12 per ton, and cargo prices range from \$10 to \$11 per ton.

PHILADELPHIA, November 3, 1868.

There is rather more doing, and prices are higher.

The following table exhibits the amount of Coal that was passed over the various routes of transportation from the Pennsylvania Coal districts for the week ending Oct. 31, 1868, and for the season to that date. A comparison is also made with the amount transported the corresponding week in 1867 showing the increase or decrease, as the case may be:

Table showing coal transportation statistics for 1867 and 1868, including companies like Phil. & Read, R. R., Schuylkill Canal, etc.

Total, 298,888 11,274,720. Increase, 1107,301 586,192.

Schuylkill Coal Trade.

BY RAILROAD AND CANAL, FOR WEEK ENDING, NOV. 6, 1868.

Table showing Schuylkill Coal Trade statistics, including St. Clair, Port Carbon, Pottsville, etc.

Total, 90,274. Previously this year, 2,590,090.

Total, 2,650,304. Same time last year, 2,574,961.

Decrease, 194,657.

Decrease, 1,051,436.

Decrease, 894,505.

Decrease, 1,017,931.

Decrease, 1,017,931.

Decrease, 1,017,931.

Lehigh & Susquehanna Railroad.

Report of Coal shipped for the week ending October 31, 1868.

Table with columns: WHERE FROM, WEEK. Tons, Cwt., TOTAL. Tons, Cwt. Rows include Mauch Chunk Region, Hazleton, Upper Lehigh, Wyoming, Grand Total, etc.

Lehigh Canal Coal Trade.

Shipped for the week ending October 31, 1868.

Table with columns: WHERE FROM, WEEK. Tons, Cwt., TOTAL. Tons, Cwt. Rows include MAUCH CHUNK, BEAVER MEADOW REGION, MAHANAY REGION, etc.

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Prices of Coal by the Cargo.

Table with columns: Coal type, Price. Rows include Schuylkill R. A., Ordinary, W. A. Lump, Steamboat, Broken, Egg, Stove, etc.

Table with columns: Coal type, Price. Rows include Albany, Boston, Bridgeport, Fall River, Hartford, Hudson, etc.

Table with columns: Coal type, Price. Rows include Scranton Coal at Elizabethtown, Lamp, Steam, Grate, etc.

Table with columns: Coal type, Price. Rows include Lehigh Coal at Elizabethtown, Lamp, Steam, Grate, etc.

Table with columns: Coal type, Price. Rows include Wilkesbarre Coal at Hoboken, Lamp, Steam, Grate, etc.

Table with columns: Coal type, Price. Rows include At Baltimore, Wholesale prices to trade, etc.

Table with columns: Coal type, Price. Rows include At Georgetown, D. C. and Alexandria, Va., etc.

Table with columns: Coal type, Price. Rows include Prices of Gas Coals, Provincial, American, etc.

Table with columns: Coal type, Price. Rows include Rates of Freight from Newburgh, etc.

Table with columns: Coal type, Price. Rows include Coal Freight, (Corrected Weekly), etc.

Table with columns: Location, Price. Rows include Washington, Calala, Machiasport, Hoboken, etc.

Table with columns: Location, Price. Rows include TO NEW YORK, TO BOSTON, etc.

Table with columns: Location, Price. Rows include Foreign Freights, Liverpool, do. Walsend, etc.

Table with columns: Location, Price. Rows include Rates of Transportation to Tide Water, To Port Richmond, Philadelphia, etc.

Table with columns: Location, Price. Rows include To Elizabethtown, L. V. Railroad from Mauch Chunk to Easton, etc.

Table with columns: Location, Price. Rows include Shipping Expenses at Elizabethtown, Total, etc.

Table with columns: Location, Price. Rows include To Port Johnson, L. V. R.R., C. E. R. of N. J., etc.

Table with columns: Location, Price. Rows include To Hoboken, L. V. R.R., Morris & Essex R.R., etc.

Table with columns: Location, Price. Rows include To Philadelphia, From Schuylkill Haven to Port Richmond, etc.

Table with columns: Location, Price. Rows include To New York, From Mauch Chunk to New Brunswick, etc.

Table with columns: Location, Price. Rows include Expenses from Mauch Chunk to Jersey City for Re-shipment, etc.

Table with columns: Location, Price. Rows include Monthly Metal Circular, My last circular was dated 3rd Oct., etc.

Table with columns: Location, Price. Rows include Monthly Metal Circular, Gold continued to decline from 140 per cent., etc.

Table with columns: Location, Price. Rows include Monthly Metal Circular, Tin—During the first three weeks the market remained dull, etc.

Table with columns: Location, Price. Rows include Monthly Metal Circular, The London market has risen from 92s. for Straits, etc.

Table with columns: Location, Price. Rows include Monthly Metal Circular, Spelter remained dull at 6 1/2 to 6 3/4 cts., etc.

Table with columns: Location, Price. Rows include Monthly Metal Circular, Copper is dull. The manufacturers buy only for their immediate wants, etc.

Table with columns: Location, Price. Rows include Monthly Metal Circular, Lead has further advanced a little under a steady demand for consumption, etc.

Table with columns: Location, Price. Rows include Monthly Metal Circular, The stock is 1,000 tons, against 2,700 on the 1st Nov. 1867, etc.

Table with columns: Location, Price. Rows include SAN FRANCISCO STOCK MARKET, A telegram from San Francisco, dated Nov. 4, quotes: etc.

AMERICAN Journal of Mining.

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W. B. HARRISON is Editor of the Mechanical Department.

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NEW YORK, SATURDAY, NOVEMBER 7, 1868.

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NOTICE TO CORRESPONDENTS.

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THE UNITED STATES PACIFIC RAILROAD BONDS.

The United States have lent and will lend to the two companies building the main line of the Pacific Railroad, the sum of fifty million dollars in gold. The security for this heavy loan is a second mortgage on the property itself, and an agreement that one half the charges against the Government for the transportation of troops, supplies, etc., shall be credited toward the payment of the United States Bonds and their interest. Now what is the prospect that the Government, or in other words, the people, will be reimbursed for this outlay?

In the first place, the fact that troops and supplies can be much more rapidly conveyed to the point where they are needed, will enable us to get along with fewer troops and without the vast accumulation of supplies which are now required, and which entail upon the War Department

so much expense, waste and corruption. Army contracts on the plains will cease to be proverbially "fat things." Quartermasters will not get suddenly rich, and a sutler-ship will not be equivalent to an independent fortune.

In the second place, the railroad will probably be the means of preventing both Mormon and Indian wars—the most expensive undertakings, in proportion to their magnitude, in which the country was ever engaged—not even excepting the rebellion.

In the third place, the rapid settlement of the central third of the continent, and the development of its natural resources, will add so much to the wealth and power of the country that its ability to pay not only the railroad bonds, but the whole national debt, will be put beyond question or cavil.

All these considerations together would justify the construction of the road at the sole expense of the United States. But we propose to look at the question in its present aspect, as that of a loan on security. In so doing, we may set aside the land grant as really costing nothing to the Government. For every section of public land granted to the railroad, the price of another section has been doubled; so that the market price of the total public lands remains just as it would be if the railroad had received none, while their market value is enhanced. In other words, what land the Government retains along the line of the road, is much better worth \$2 50 per acre than the whole was formerly worth \$1 25. In point of fact, the greater part of it would not bring five cents an acre, but for the railroad. We believe that by this grant of twenty-one millions of acres of public lands, the United States has actually been the gainer by as many dollars. This land grant is the only real gift made to the companies. This they are not expected to repay; and we are, therefore, right in considering it a thing apart, independent of the loan of money, and justified on its own merits.

Finally, then, will the loan ever be repaid? We reply that the history of this road, ever before its completion, shows an unprecedented success. It is a great achievement to build such a road with such marvellous rapidity; but to operate it profitably all the time, as both companies have done, is even more wonderful. The Central Pacific has done a magnificent business from the start; having earned in 1867 a profit of more than one million dollars, gold, on an average of ninety-four miles operated. The Union Pacific is far behind these figures, as might be expected; since it does not traverse so populous a country as California, nor command at the beginning so large a way traffic. But even the Union Pacific, operating 472 miles, earned in the year ending June 30, 1868, a profit of more than a million and a half of dollars in currency. These profits are, in the case of the Central, seventy-five per cent., and in that of the Union, nearly thirty-seven per cent. of the gross earnings. The extraordinary profits of the Central will be somewhat reduced when the company brings down its tariff, as it should and will. The Union Pacific already reduced its charges twenty-five per cent. a year ago. Now either of the roads, in their incomplete condition, with their fragmentary and initial business, is able already to pay all the interest on both the mortgages, and leave a surplus for the stockholders. Does any one believe their business will decrease when they are completed?

The Government business over the road will amount (at present rates) to some \$3,500,000 per annum. Half of this is at once retained by the Government. Any unusual movement of troops would swell the sum considerably; and we believe that before the Indian question alone is settled, the United States will have received at least the capital of this railway loan in actual service, while both capital and interest will be paid off by the savings of the road. If we were to pay the railroad for Government transportation at the old wagon rates, the whole capital and annual interest would be covered in ten years. As it is, let the country bear in mind that every dollar paid to the railroad for transportation by the Government is in lieu of nearly four dollars paid formerly to the great army contractors for wagon-service.

It is in addition to all these incidental advantages to the Government, in addition to the interest on its first mortgage bonds, in addition to the deservedly large profits of managers and stockholders, that the Pacific Railroads will pay their debts to the United States.

COMMISSIONER WILSON AGAIN.

We took occasion, last week, to praise the official report of Commissioner WILSON, of the General Land Office, for the ability with which it treated of topics within a certain sphere, and the many facts of a desultory but interesting character which it contained. We wish we could speak as highly of the Commissioner's last decision under the mining law, which will be found in another part of this week's AMERICAN JOURNAL OF MINING. This extraordinary document is intended to prove that the so-called quartz-mining law of 1866 does not exclude placer-mines and cement-diggings. We do not propose to discuss, in the present article, the question of the relation of Govern-

ment to the placer-mines; nor can we follow the Commissioner through the learned, but exceedingly muddy definitions by which he convinces himself that a definition is impossible. We content ourselves with referring him to one or two points, which he seems to have overlooked in his investigations.

The Committee on Mines and Mining of the Senate, in reporting, May 28, 1866, the bill which subsequently became our mining law, used the following language:

"By this bill it is only proposed to dispose of the vein mines. . . . It is not proposed to interfere with, or impose any tax upon, the miners engaged in working placer-mines, as those mines are readily exhausted, and not generally remunerative to those engaged in working them."

The Commissioner himself quotes the language of the Act, which says "a vein or lode of quartz or other rock in place." Does not Mr. WILSON know that gravel, clay, mud, soil and cement are not "rock in place?" His statement that it is very evident to his mind that "no purpose or design existed in the minds either of the framers of the bill or the Congress that passed it, to exclude any class of miners that chose to avail themselves of its provisions," is confirmed by neither the general opinion of mining communities, nor the ordinary meaning of the terms used in the Act, nor the history of its passage, nor the possibilities of its application. How does he suppose the following clause could be applied to a gravel claim—"with the right to follow such vein to any depth, with all its dips, variations and angles?" If the law were applicable to gravel and placer claims (as it certainly is not), this clause would give the first locator on an ancient river-bed the right to the whole river below him. He might "follow his vein" wherever it led him.

The fact is, that the Mining Act of 1866 was an experiment, and as such, avowedly applied to one class of our mines only. Mr. ROSS BROWN suggested some important amendments, which have not yet been made. The present Commissioner will take occasion in his report to discuss the matter fully, and show that greater definiteness in the law is absolutely demanded. He will urge a suitable enactment for placer mines. Meanwhile, the less we have of attempts to stretch the present imperfect statute—making absurd and ridiculous what was only incomplete before—the better it will be for all concerned. The Commissioner of the General Land Office is wasting prematurely the erudition and ingenuity which he should rather save for the interpretation of a more perfect law.

WORKINGMEN'S BENEVOLENT ASSOCIATIONS.

The two words, benevolence and association, represent the highest and most Christian tendencies of modern civilization. To organize into systematic activity those impulses of good-will toward our fellow-men which the Gospel inspires, is to make them powerful in society and history. It is not, however, every "benevolent association" that deserves this praise. Men are frequently banded together for so-called benevolent ends in a spirit of mere self-protection, and their organizations are kept alive rather by enmity towards some outside class than by mutual love among their own members.

We have before us a copy of the Constitution and By-Laws of a Workingmen's Benevolent Association in Pennsylvania. This is a Miners' Union, under another and less appropriate name. The preamble says the association is formed "in order that the stranger may find the kind attention and fostering care of a brother when needing assistance, and be encouraged in resolution of morality and sobriety at all times;" but we do not find the laws themselves breathing any particular friendship towards "the stranger," unless he is a member, and so, not a stranger. The following section shows the spirit of the Association:

"Any miner who is a member of this Association, who has a breast, heading or gangway of coal to mine, and cannot make a wages, provided he is a good miner, and should ask more price and cannot get it, he shall then acquaint the committee of management of said branch of the same, before leaving; and, after so doing, no member of this Association will be allowed to work the same breast or heading or gangway; and if the committee decide against the person leaving said breast or heading or gangway, he shall then be satisfied and allow any other person to work the same."

We freely admit that if workingmen choose to submit to slavery like this, it is their own affair. So long as these "benevolent associations" forbid their own members only from getting work wherever they can, they do not violate the law, and their act is merely a folly, not a crime. But we wonder that sensible men do not perceive that this is merely an attempt to level the distinctions which skill and industry establish. When wages are made uniform throughout a guild, and kept up by artificial means, the result is that the good workman, who might rise to something better, is kept down by the weight of the shiftless and ignorant, whom he must support. The best miners in Pennsylvania are underpaid, in order that the poorest may be overpaid. This is, in the long run, benevolence to nobody.

When such associations interfere with the contract system, they go too far. Why should not miners stand to their contracts, like other people, and take their chances of profit or loss? And, at least, if one man fails to "make wages" (whatever that may be) from his contract, may not

another, who thinks he can do better, be allowed to try his hand? This may be "benevolence;" it is not freedom nor justice.

POETRY AND MINING.

The frisky editor of the Reese River *Reveille* does us the honor to quote at some length from our letter to this journal, describing the valleys of Eastern Nevada, and prefaces the quotation with the following neat, back-handed compliment:

"POETICAL SCIENCE.—It is a dull day, and we cannot do better than attempt to enliven the reader with an extract from the Editorial Correspondence of the AMERICAN JOURNAL OF MINING. The correspondent is the United States Mining Commissioner. He is the second marvel that has filled the position out of two appointments. The peculiarity of the first was that he was a rollicking Joker; that of the present is that he is a gushing Poet, whose 'mouth does scarcely open but out there flies a trope.' He is the Laureate of the Laboratory. The valleys of Eastern Nevada glow under his poetical touch. He sings."

We confess that our several rides through Smoky Valley gave us so much delight as to inspire a description considerably more poetical than the inhabitants of that region are likely to corroborate. Galloping over the sage-brush on a spirited horse, in glorious summer weather, and in good company, is a very different thing from living in the sage-brush, with no company at all. Even the intellectual consolation afforded by the daily *Reveille* scarcely reconciles men to such a fate. It is no wonder that the denizens of the desert habitually allude to it in a very prosaic manner. But the poetry that is in all men must break out somewhere; and our good friends of Nevada are quite as poetical over their mines and mills as we were over mountains and valleys, coyotes, lizards and alkali flats.

Mr. ROSS BROWNE may be at times a "rollicking joker," but he kept his jokes out of his official report (unless that little puff of Blackrock may be called a joke); and we may be at times a "gushing poet," but we shall try to put truth, not poetry, into all our statements concerning the mining industry of this country. Could not some people learn from these examples to be more poetic in their views of nature, and more truthful in their views of business?

GOLD IN ASIA AND AFRICA.

In our mining summary will be found some interesting particulars concerning the new gold fields of Shang-tung, China and Bamangwato in South Africa. There is a wide difference between the probable reception of foreigners in the two places. In China, the Taoutai declares the natives who may attempt to work the mines to be "villainous Chinese," and worthy of punishment, while he stigmatizes prospectors from abroad as "wandering vagabonds," and calls on our consuls to warn them off. We are reminded of some of our Christian mining districts, in the "laws" of which occur such sentences as this: "No Asiatics shall be allowed to mine in this district." Now the Chinamen have got a gold field of their own, and will practice, no doubt, the "higher civilization" they have learned in California.

The chief of Bamangwato, on the other hand, feels himself "utterly unqualified to govern such a community as that of gold-diggers is described to be," and begs the privilege of ceding (for a compensation) his territory to England. He, too, it seems, has learned a trick of us. He knows it is better for the original locator to "sell out and leave." But at all events his course throws open the country to enterprise; and if any one is smitten with the desire to go to South Africa, he can easily go. Perhaps the old Colonization Society may now come to life again, and prove more successful as a speculation than it ever was as a piece of philanthropy. Who knows?

AFTER GRANT WHAT?

We congratulate our readers that the election is over, the fate of the country sealed, and its citizens free to go about their business—which, between you and us, dear red-hot Democrat or Radical, is one of the very best ways to defend, exalt and glorify the country aforesaid. After the stupendous struggle which has agitated the continent, produced earthquakes throughout a hemisphere, nearly ruined the Sandwich Islands, totally eclipsed the sun at Aden, dethroned the Queen of Spain, caused a riot at Rotterdam, and, in short, turned the *World* topsy-turvy (not to say the *Tribune* also)—after this universal commotion, gratifying as it was to our national pride and sense of the true position of the United States in the solar system—we suppose everybody will be glad to rest a little, and contemplate some things which may have been overlooked in the confusion of elemental conflict. It is therefore an appropriate occasion for us to urge upon the attention of both great political parties a matter of great importance, which was accidentally omitted in their platform, but is not on that account less worthy of attention. We refer to the duty of every citizen to inform himself thoroughly as to the resources of his country, and that

science which is required for their exploration and application. If any benighted politician desires further explanation, we can only say that we mean, *Subscribe for the AMERICAN JOURNAL OF MINING!*

The Cornish Copper Trade.

A Cornish paper gives the following statement of the sales of copper ores in the first three weeks of September, 1860, 1864 and 1868:

	Sales 1st week.		Sales 2d week.		Sales 3d week.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
1860....	3,134	£20,726	3,094	£19,861	4,766	£28,314
1864....	2,897	15,888	2,053	10,397	4,506	20,871
1868....	1,969	6,888	1,155	3,867	3,523	13,750

The three sales in 1860 amounted to..... 11,024 tons, at £68,901
The three sales in 1868 amounted to..... 6,846 tons, at 24,585

Decline in eight years in amount..... 4,678 tons. In value, £44,366
Or about 42.4 per cent. in amount, and 64 per cent. in value.

This shows a decrease in the quality as well as the quantity of the ore sold. The Cornish copper business is said to be "looking up," however, and a better autumn and winter trade is expected.

Mulum in Parvo.

A good deal may be known about any country by noting the character of the people one meets on its highways. The following is offered as an epitome of the traveling population of the central portion of this continent, as it appears from the window of a Wells-Fargo coach:

Pounding and swearing at his steers,
Behold the grim "bull-whacker,"
While in a cloud of dust appears
The galloping "horse-backer;"
Beyond, his train of loaded mules
Betrays to us the "packer,"
And, lugging his own clothes or tools,
The "knapsacker"
Asks for a "chawtoacker."

ANSWERS TO CORRESPONDENTS.

B.—, TROY.—The Andreasberg mining district is in the Harz Mountains, formerly Hanover, now Prussia. The geological formation is Devonian, bordering on the east the Silurian slates. The extent of the Andreasberg Devonian is limited. The principal strata are greenstone, quartz-porphry and clay slates. In the latter mainly occur the mineral veins, which comprise veins of silver ore, and those of iron ore. The vein-formation of the district is very complicated. CREPNER'S (German) treatise on the subject is one of the best. You can get it through us, if you desire it, at a cost of about one dollar, but you will probably not be able to solve the problem, which has hused the best geologists and mining engineers in Germany—why the silver veins should all give out on striking a certain limit. In consequence of this unfortunate fact, the mines, once among the richest in the world, have been abandoned; and the population of the district is otherwise or elsewhere employed.

M. B., MONTANA.—In reply to your first question, we refer you to a decision of Land Commissioner WILSON, dated Jan. 31, 1868, in which he says that the re-locator of an abandoned mine cannot avail himself of the work done by his predecessor as a basis for his application for a U. S. patent, under the law of 1866, which requires \$1,000 of work to have been done upon the claim before application is made. Your second question, asking our opinion of Wilson's last, is sufficiently answered in our editorial columns. You ask how any one could so misunderstand the meaning of the words "vein" and "in place." We can only guess that the Commissioner thought "in placer" was the same as "in place," only more so, and confirmed his opinion by recalling the fact that placer gold is frequently sought in vein!

MRS. G., INDIANA.—Prof. FARADAY is dead; and we cannot put you in communication with him as you desire. You might try a "medium," but we warn you that the old gentleman was decidedly opposed to spirit-rappings when on earth, and it isn't likely that he will condescend to pay much attention to you.

A. T., NEW YORK, desires to know whether HAUPT'S Rock Drill has any agent in this country. As the Machine is an American invention, we presume it is represented here; but we cannot at this moment recall by whom.

A. D. H., CHICAGO.—You will find the manufacture of vulcanized rubber described in this Journal, Vol. V., page 145, March 7, 1868. It is a business requiring considerable capital.

Correspondence.

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

Analysis of Alaska Coal.

GEOLOGICAL AND MINERAL CABINET, GENERAL LAND OFFICE, WASHINGTON, D. C., Nov. 5, 1868.

EDITOR AMERICAN JOURNAL OF MINING:

The Hon. Secretary of the Treasury has recently presented this department with a specimen of coal from Sitka, Alaska. A thorough examination of the same shows that it is a variety of brown coal, evidently of very recent origin, probably tertiary, and resembles some of the brown coals of the tertiary basins of Germany (miocene). It dissolves completely in nitric acid; on dilution with water, a resinous substance falls, which has an odor similar to pine rosin.

The following analysis, made by Dr. F. A. GENTH, of Philadelphia, shows the chemical constitution of this specimen:

Water	—15.725 per cent.
Volatile matter	—35.168 per cent.
Carbon	—45.772 per cent.
Ash	— 3.335 per cent.
	100.000

The coal contains only 0.18 per cent. of sulphur. The ash has a yellowish brown color, it being very ferruginous; and it has an alkaline reaction.

A determination of the calorific power of this coal showed that one part reduces 20.15 parts of lead from the oxide, while pure carbon reduces 34 parts.

A. R. ROESSLER, U. S. Geologist.

Scientific Meetings.

POLYTECHNIC BRANCH OF THE AMERICAN INSTITUTE.

Testing Steam Engines.

The regular weekly meeting of the Polytechnic Branch of the American Institute was held on Thursday evening, Nov. 5, Professor TILLMAN in the chair. The subject taken up "was the best modes of testing the power and economy of steam engines," which had been discussed at a previous meeting. Mr. STETSON was called to the stand and remarked that much had been said upon the subject of economy in the engine, but the importance of "Regulation" had been entirely overlooked, and much information was desirable upon this subject, especially as regards the stationary engine. He instanced weaving, in which looms or lines of shafting are connected and disconnected instantaneously, where it is of the utmost importance that the speed be kept regular and constant. He observed that the experiments made by the American Institute, in June, 1858, had never been published. He had prepared an elaborate report and also an abbreviated one, the latter of which was published in the London *Practical Mechanics' Journal* in 1858. Of the two engines tested at the Fair in the trial referred to, the variation had been as much as twenty-eight per cent. The method employed to test this irregularity of motion was by means of a pencil making a series of marks, one at each rotation of the fly wheel, across a long strip of paper, which was slowly unwound from a reel by a regular motion. The variation of space between the lines thus produced exhibited the variation of time between the revolutions of the engine. The oscillation of the engine, as it is "getting into speed," was also indicated by this apparatus. The chairman gave a description of a self-regulating stove, in which this oscillating movement was seen until it was "regulated," and observed that this oscillation of motion was apparent in all self-regulating machines.

Mr. EMERY made some remarks upon the importance of clearance at the end of engine cylinders; as much as one inch and a half had been formerly used, and he deemed it necessary that the ratio of motion to resistance should be better understood. He also thought that the so called economy due to the cut-off was much exaggerated. Leakage of steam past the piston when in motion was another evil, and much loss of power was occasioned by condensation of the steam in the cylinder, but this evil could be somewhat remedied by jacketing and superheating. He had observed that the best method of regulating the speed of the engine was by means of rotating fans or vanes, and for this purpose he had used the Dimpfel blower, with very good success.

Some desultory discussion followed these remarks, and the meeting adjourned for one week.

Original Papers.

[FURNISHED THE AMERICAN JOURNAL OF MINING BY THE HON. HUGH MC CULLOCH, SECRETARY OF THE TREASURY.]

OFFICIAL REPORT OF HON. J. ROSS SNOWDEN, UPON THE MINERAL RESOURCES OF COLORADO.—NO. III.

SOUTH PARK.

At and near Fairplay, Buckskin, Mosquito, and other places in the range of mountains near the South Park, and in the gulches running into the Park, there are valuable mines of gold and silver. The Philips lode at Buckskin has produced largely, but at present is not much worked. There are in this vicinity also the Union, Excelsior, Era, Sublet, Bates, and others, which will be profitably worked when labor and transportation becomes less expensive. The "Teu-Forty" at this locality is a rich silver mine, and a good amount of valuable ore has been produced from it.

CALIFORNIA GULCH.

This place is beyond the range which divides the waters of the Platte from the Arkansas; the principal gulch mining is done about four miles from the latter river. This gulch has yielded large results to the miners, and is now being extensively worked in sections of about 1,000 feet each. There are about 60 men employed at present, and the average proceeds to each man is about one ounce of gold each day. It produces better than any other gulch or placer mining in the territory.

The "Five-Twenty" lode was discovered in October 1867. It is located on "Free Gold Hill," near the gulch. Since its discovery other lodes have been found on the same hill. The "Five-Twenty" produces a good quality of decomposed auriferous quartz, which is readily reduced by the stamp process. So also is the ore from the "Non Pariel," in the same vicinity. There is one mill now erected, and another will in a short time be constructed. There will no doubt be large and profitable results from these mines when the mills are in operation.

CASH CREEK.

This is a tributary of the Arkansas. It is simply a gulch mining district. A company is now working the gulch with good results.

GRANITE DISTRICT.

Is in the same region. Quartz bearing gold was discovered there three years ago; but no work was done until the last year. At present several lodes have been opened. There are three stamp mills of 10 stamps each now at work,

and some others under construction. The ore is of good quality and is not difficult to reduce. This district will in a year or two be one of the most productive in the territory.

"TARRY ALL" AND HAMILTON.

Where the "Tarry All" Creek enters the South Park from the range of mountains, there was, a few years ago, very productive bar and placer mining. This section, and others in the Park near the mountains, from which there have been for centuries deposits made in the gulches and plains, is rich in stream or placer gold. At present not much work is done upon these mines. The few persons employed are receiving remunerative returns for their labor. A few miles above Hamilton, auriferous quartz mines have been discovered, one or more of which have been opened and worked with good results.

COLORADO CITY.

This place is situated near the foot of Pike's Peak, which gave name to this region when gold was first discovered. It is a place of great interest, although at present it produces none of the precious metals. Near at hand is "The Garden of the Gods," so called because of the curious monumental red sandstone rock, which there are found. In the same vicinity, on "Monument Creek," and "Camp Creek," are numerous remarkable rocks resembling monuments, pyramids and castles, of great beauty and singular construction. There are Soda Springs of great medicinal value near Colorado City, on the "Fountain gully" river, which flows from the foot of Pike's Peak. These and other natural advantages, embracing that of climate and scenery, will render this place one of great attractions, when facilities of traveling thither are increased. Coal, iron and copper are found near this place; and there is an abundance of pine timber on the adjacent mountain. Near the streams, where they leave the mountains, excellent crops of wheat, oats, barley and some other cereals, and abundance of vegetables are produced. I may here state that the agricultural productions of the territory at numerous places in it surprised me very much. The statistics of production show that during the present year 600,000 bushels of wheat will be harvested, and great quantities of other grain produced. The finest vegetables are raised; the yield of which, as well as that of cereals generally, is much greater than in the middle state.

Recently a considerable amount of gold finds its way to the Branch Mint at Denver, from the Cimarron Mines in New Mexico, on the borders of Southern Colorado. The mines are said to be quite extensive. The gold deposits from that region, which I saw at the Branch Mint, are of unusual fineness.

DENVER CITY.

Where the Branch Mint is located, is a handsome and well-built city of about 6,000 inhabitants. It is beautifully situated on the south branch of the Platte River, at the mouth of Cherry Creek, and is about twelve miles from the foot hills of the Rocky Mountains. Long's Peak, to the north about fifty miles, and Pike's about seventy-five miles to the south, are in view, and also the range of Snowy mountains between these prominent land marks. It is the commercial capital and seat of the government of the territory. Its prominence as the entrepot of the territory has been somewhat diminished since the construction of the Union Pacific Railroad to and beyond Cheyenne, on account of there being a nearer wagon road from Cheyenne to the mineral regions of Central City and Georgetown, via Golden City. But when the railroads now in progress are completed, by which Denver will be connected with the Union Pacific at Cheyenne, and with the Eastern Division of the Union Pacific at some suitable point, the supremacy of this city will be restored as the commercial capital of the territory.

In many other places besides those herein described, the gulch or placer washings are worked with some success. If labor was not so high they might be profitably produced. But the bars and placers in this country in general produce uncertain results, and many of them are regarded as exhausted. Some localities that were heretofore prominent in producing gold from bar washings, have ceased to be of importance. The people in such places have turned their attention to more profitable pursuits, namely—agriculture, and the raising of cattle and horses.

The time I allotted to these examinations would not permit me to make them as thorough as I could wish. My visit was a brief one, and my observations were limited, and I fear imperfect. To make a proper mineralogical examination of that extensive territory would require months, if not years.

But I have seen sufficient to justify the remark that the Colorado mines of the precious metals are rich, abundant and apparently inexhaustible. Already much has been accomplished in developing these mines, and the energies of an active and vigorous people are intelligently at work producing good results. This will increase from year to year, until its productions will culminate in a vast increase to the metallic treasure of our country and the world.

I have with some care gathered information as to the

production of gold and silver in this territory during the fiscal year ending June 30, 1868. In this matter, as well as in others connected with the shipment of the precious metals, I have been greatly assisted by Mr. GEORGE T. CLARK, and others. Mr. CLARK is of the firm of GEORGE T. CLARK & Co., Bankers at Central City. His letter to me I attach to this report. The estimate I make is as follows:

Product of gold in the Territory of Colorado from July 1, 1867, to June 30, 1868.....	\$2,200,000
Silver during same period.....	50,000
Total.....	\$2,250,000

Of this amount only \$360,000 was received and melted at the Denver Branch Mint; the balance was shipped directly by the Banks and by individuals, and some of it was manufactured by jewelers in the territory. Judging from the deposits at the Branch Mint, and the shipments of gold since I came into the territory, and from the activity evinced in the places that I have visited, there will be a great increase during the fiscal year, which commenced July last. I therefore estimate the amount as follows:

Gold.....	\$3,500,000
Silver.....	500,000
Total.....	\$4,000,000

These considerations and estimates show the magnitude of the interests involved in the mining operations of this territory, and the propriety of the government of the United States doing what it can legitimately to advance and promote them.

[NOTE.—This is the end of Commissioner SNOWDEN's report. The reports of the Territorial Assayer, of Mr. HERRICK on the silver mines, and of Mr. CLARK on the product of gold and silver will appear in subsequent issues of the JOURNAL OF MINING.—ED.]

Mining Titles—The Mineral Land Act to Cover Placer Claims.

The following decision of the Land Commissioner is of great importance to the mining interests of the country:

DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE, Aug. 28, 1868.

Register and Receiver United States Land Office, San Francisco, Cal.—GENTLEMEN:—This office has received a letter from A. Casselli, of San Francisco, President of the "Cherokee Flat Blue Gravel Company," incorporated under the laws of California, requesting to be informed whether said company can obtain a patent for their claim under the Mining Act of July 26th, 1866. In reference to the subject, the following is communicated: The Mining Act provides for patenting veins, or lodes of quartz, or other rock in place, bearing gold, silver, cinnabar or copper, but furnishes no definition of the terms vein or lode. In geology and among miners they imply generally an aggregation of metallic matter found in the fissures of the rocks which encloses it, but are of great variety, veins differing very much in their formation and appearance. Lode is a term in general use among the tin miners of Cornwall, in England, and was introduced on the Pacific coast by emigrants from the Cornish mines, and signifies a fissure filled either by metallic or earthy matter. In Nevada the term ledge is usually employed in regulations concerning mines, and in Montana the terms lead, lode or ledge are similarly used. Ledge would seem to convey the idea of a layer or stratum of metal interposed between a course or ridge of rocks. Veins may be either sedimentary, plutonic or segregated, or of infiltration or attrition, depending upon their peculiar formation, or the mode of occurrence of the metallic deposits. In California, the ancient river channels, or what are supposed to be such, found in various mining districts, filled with a compact blue gravel rich in gold, are called the "blue lead," and frequently, in common parlance, the "blue vein." Even the shallow "diggings" or placers, are sometimes found to occur in such regular layers or courses as to receive from the miners working them the names of veins or leads. There is also another form of deposit of all or of some of the four metals mentioned in the Mining Act, different from either of those mentioned above, called contact-deposit. European miners mention still others, called in England "Floors," in Germany "Stockwerke," and a form of deposit known as "Fahlbands." These latter are, more properly speaking, ore-bearing belts, irregular in their dimensions, but presenting a degree of parallelism with each other. Neither is the mode of occurrence designated as "contact-deposit" considered as a true vein or lode. In fact, if the question were raised, neither of the forms known as contact-deposit, Fahlbands, or segregated veins, could be accepted as true metalliferous veins, nor could it be made to appear without expensive excavations, whether the metal in the mine for which a patent is applied for occurs in the form of a true vein or not. Hence we discover that a very strict construction placed upon the terms used in the Mining Act, would exclude from its benefits a large class of claims, even of the branch of rock mining, from the impossibility of providing the metallic deposit to occur in the form of a true vein. But there is no reason for supposing that the terms were employed according to their strict geological signification. The plain object of the law is to dispose, for money value, of the mineral lands of the United States, and if the claimant is willing to pay the price named in the Act it is clearly a matter of indifference to the Government whether the metal occurs in the form of a true or false vein, or whether in the form of a vein at all. There is certainly no public policy to be subserved by favoring one class of miners and excluding others, nor has the Commissioner ever heard any reason assigned why vein mines should be patented, and other deposits excluded from patent, nor any intimation expressed that such was the intention of the Act. An idea may have prevailed at the time of the passage of the law that the placers were becoming exhausted, and that their claimants did not care about buying the land or obtaining patents; or it may be that the Act was drafted mainly in view of localities where placer mining constitutes a very inconsiderable branch of the business compared to rocky min-

ing, and hence the phraseology of the Act seems to have more direct reference to vein mining than any other branch. But whatever may be the cause of the phraseology, it is very evident to the mind of the Commissioner that no purpose or design existed in the minds either of the framers of the bill or the Congress that passed it, to exclude any class of miners that chose to avail themselves of its provisions. Consequently the law should receive the most liberal construction that the language will admit of, and every class of claims that, either according to scientific accuracy or popular usage, can be classed and applied for as a vein or lode, may be patented under the law. It may be observed as an important point that no proof is required to establish the vein formation of the deposit, the law evidently contemplating none. It requires the Surveyor-General to certify "to the character of the vein exposed;" but that is understood to mean that the certificate should show whether the exposed vein contains gold, silver, cinnabar or copper, as it would frequently be impossible for the Surveyor-General, even if his knowledge of mineral veins were sufficient to render him otherwise competent, to determine whether the deposit conformed to one class of veins or the other, or whether it was a true vein at all, without extensive excavations—a requirement certainly not contemplated by the Mining Act.

The applicant claims a certain number of feet along the vein or lode, and as much surface ground on either or both sides of the same as is necessary for the convenient working of the mine. He may claim as many feet as the local law or mining regulations permit him to hold, not inconsistent with the Act of Congress, and as much surface ground as he needs, taking care not to conflict with any other claimant. The case being presented in this form, no proof is necessary to show that the deposit appears in the form of a vein, the phraseology of the Act appearing to render it evident that the claimant was not to be put to the necessity of producing such proof; the evidence called for being confined to the posting and publishing the necessary notices and diagrams; to proving the local mining customs; the location of the claim; possessory rights of the applicant, and the amount expended in actual labor and improvements; which being satisfactory, and the Surveyor-General having made a proper survey and plat of the claim, with the required indorsements and certificates, a patent must issue to the applicant.

No reason is perceived why a blue gravel lead might not be presented in this form, both in the application and on the diagram and plat, and being presented, if the applicant is the bona fide holder of the claim, and it is clear of conflict, it will be patented to him without any proof being required as to the mode in which the deposit occurs.

To conform to the language of the Act, however, the claim must call for so many feet along the lead, and a given quantity of surface ground on one or both sides of the same.

You will please to communicate to Mr. Casselli the purport of this letter.

Very respectfully, your obedient servant,
JOSEPH S. WILSON, Commissioner.

Special Notices.

Fisk & Hatch.

SIX PER CENT., GOLD INTEREST, PRINCIPAL also payable in COIN—First mortgage bonds based upon the valuable franchises, grants, railroad equipment, &c., of the Central Pacific R. R. Co., now nearly completed, and forming one of the most assured and productive lines of traffic in the world. The way traffic alone is large and remunerative, independently of the immense through business soon to follow. A portion of this loan is offered to investors at 103 per cent., and accrued interest in Currency.

The Bonds have semi-annual gold coupons attached, payable January and July in New York city. Information, &c., to be had of

FISK & HATCH,
Bankers &c., 5 Nassau street, New York.

Patent Claims.

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

83,192.—APPARATUS FOR STORING PETROLEUM.—Ignace Mathei, Antwerp, Belgium:

I claim, 1st. The herein described method of storing or warehousing petroleum, mineral oils, and other liquids, by the employment of a series of inclined planes, arranged in a reservoir or basin of water, substantially in the manner shown and set forth.

2d. An apparatus for warehousing petroleum and other like liquids, constructed substantially in the manner herein specified.

83,274.—PICK-AX.—Morgan Gale, San Antonio, Mexico.

I claim the detachable socket, C, constructed with a base, d, with or without the side or brace flanges, e, in combination with the pick-head, B, substantially as herein shown and described, and for the purpose set forth.

83,357.—MANUFACTURE OF PIGMENTS FROM SULPHURETS OF ZINC AND LEAD.—Nathan Bartlett, Centerville, N. J., assignor to himself and Franklin Osgood, Richmond County, N. Y.:

I claim, 1st. The manufacture of pigments from sulphurets of zinc and lead, combined in the manner and by the means substantially as herein described. 2d. Also, the pigments made from the sulphurets of zinc and lead, as a new article of manufacture.

83,542.—FURNACE FOR THE MANUFACTURE OF IRON AND STEEL.—Auguste Ponsard, Paris, France:

I claim a furnace for the manufacture of iron and steel, constructed substantially as specified, and provided or fitted with tubes or ore, carbon, and flux-receptacles, B, B, in combination at their base with the basin, D, at the furnace, essentially as shown and described.

83,551.—FURNACE FOR THE MANUFACTURE OF IRON, AND FOR OTHER PURPOSES.—Henderson Ross, Pittsburgh, Pa. Antedated Sept. 30, 1868.:

I claim so constructing the fire chamber or furnaces used in the manufacture of iron and steel that the interior walls of said chamber shall consist of iron, which are surrounded with water, substantially as herein described and for the purpose set forth.

83,582.—EXTRACTING GOLD AND SILVER FROM THEIR ORES.—John W. Kidwell, Washington, D. C.:

I claim the use of finely divided iron, prepared according to Bischoff's patent process, in connection with the amalgamation of gold and silver ores, as herein described and set forth.

"Galena," the name of the native sulphuret of lead, is generally supposed to originate from that of a Greek physician, Galenos, of Pergamos (born 121). According to Landerer, however, the ancient library at Patmos, a very excellent and well stocked collection, contains an antique roll, in which the name is found derived from galena (new Greek; galina), signifying: the quietly spreading sea, thalatta galenaia. "The sea in the sunlight presents a bright, extended mirror full of color, as does also the native mineral, which likewise shows upon the freshly broken surface a fine lustre. Hence the same name for both."

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EDWARD C. BIDDLE, President. FRANCIS H. JACKSON, Sec. and Treas'r.

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JNO. WHITE LINDLEY H. FOWLER. LOUIS T. SNOW. dec30ly

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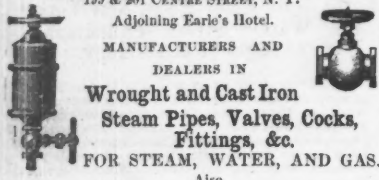
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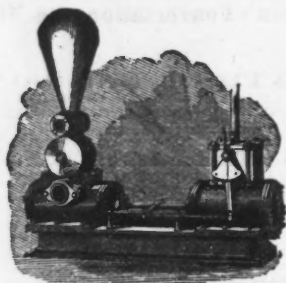
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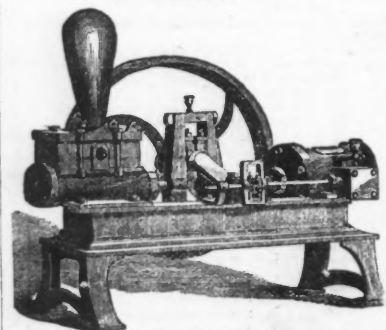
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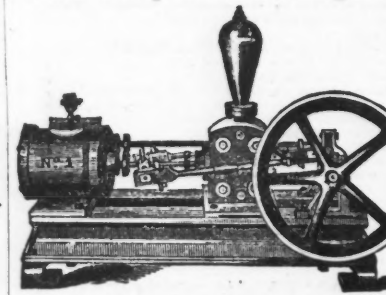
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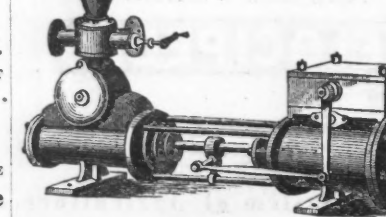
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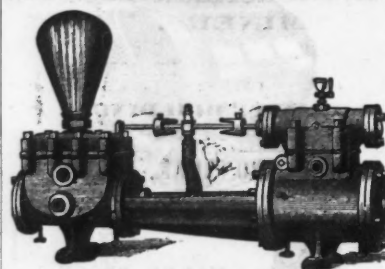
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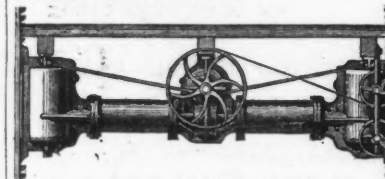
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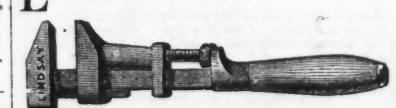
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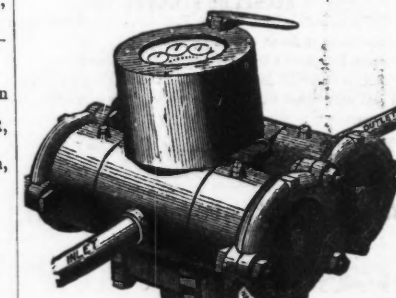
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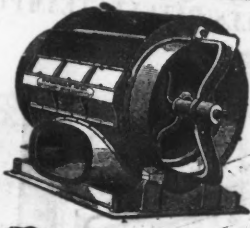
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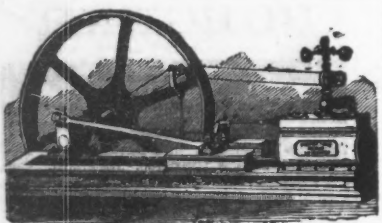
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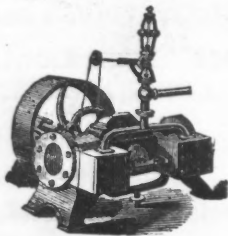
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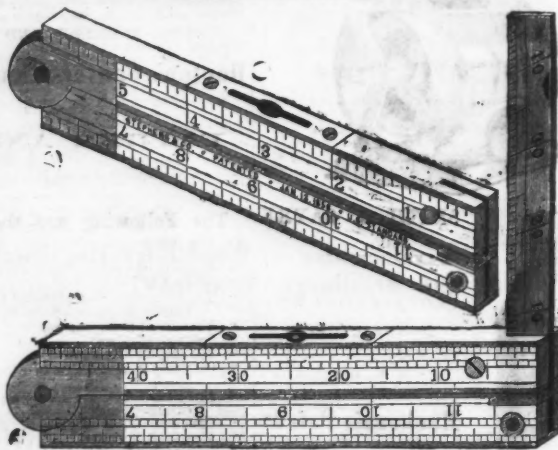
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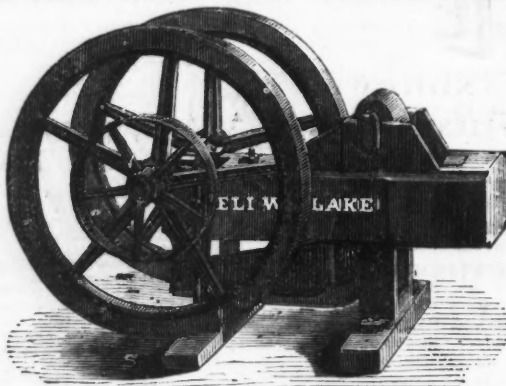
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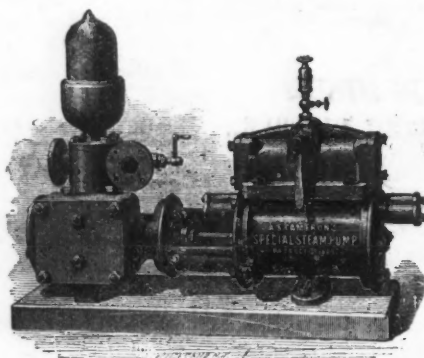
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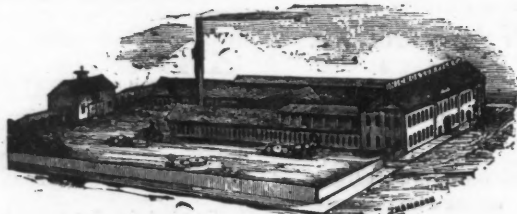
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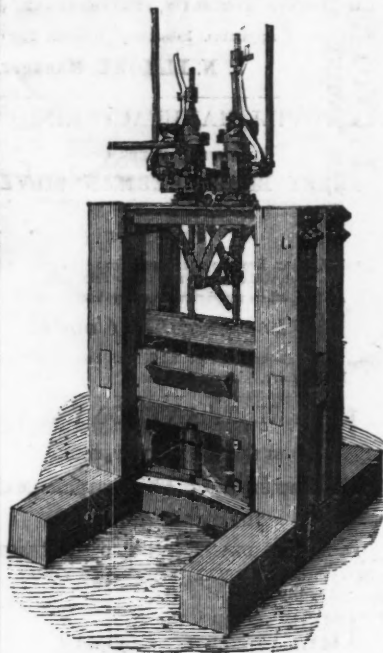
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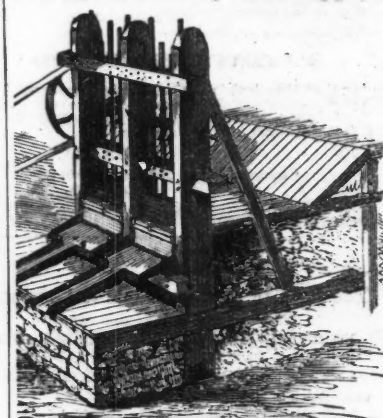
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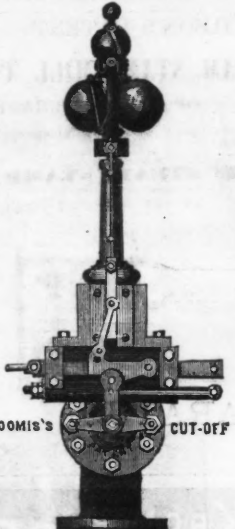
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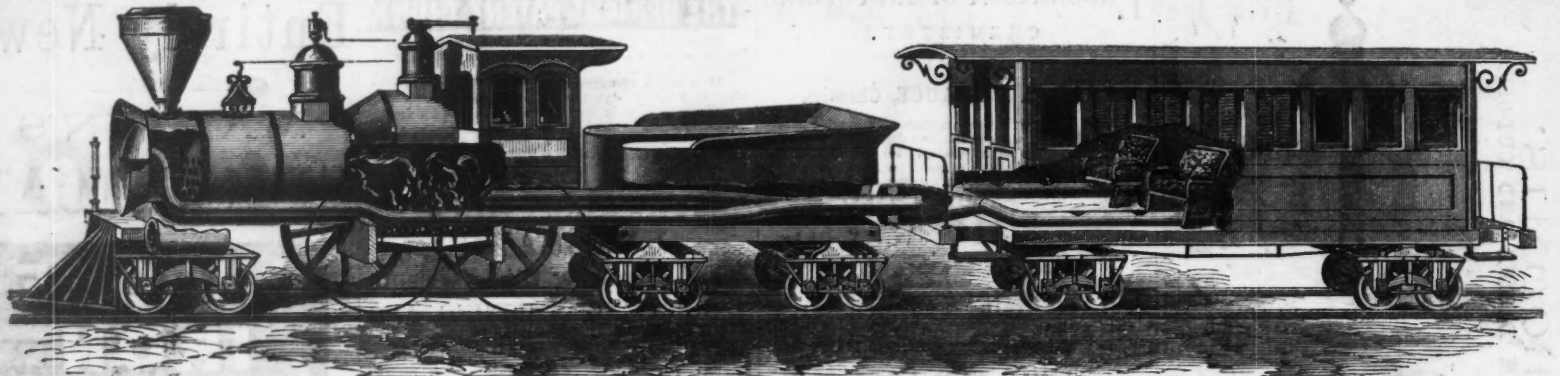
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