

THE GAZETTE.

LEWISTOWN, PA. Thursday, April 15, 1858.

Notices of New Advertisements.

Bacon taken in exchange for Salt and Fish at Hoffman's. John Clark has disposed of his Carriage Making Establishment to James P. Hamaker, who continues the business. Mr. C. desires a speedy settlement of his accounts.

An interesting scientific article on the Manufacture of Iron—a subject in which all our citizens are, or ought to be, interested—from the pen of Gen. Irwin, appears in our columns to-day.

THE FAULTS OF PARTIES.

The Opposition and so called Democratic parties have each a glaring fault, so prominent that no one can well mistake it. With the opposition this fault consists in a bank mania, which almost invariably characterizes every administration that gets into power, either by re-chartering unstable old banks or suffering new charters to get into operation that never ought to have been granted.

With the Democratic party the great fault is, that it is in a measure subservient to the liquor interest, just about in the same degree as the opposition is to banks. In its ranks are many active and leading temperance men, who strive earnestly for the right, but whenever the test comes the liquor interest is sure to rule among the powers that be, from the Governor down to the most obscure member of the Legislature.

Both the above may not be very palatable truths to politicians, but they are nevertheless truths, and as such entitled to the serious consideration of all good citizens. The second one is undoubtedly a great evil, constantly kept before the public by daily evidences of degradation and shame, but could we look into all the minutiae of the distress brought about by bank failures, the former is not less so, save that it is not so general.

Pennsylvania Legislature.

The Legislature is dragging along slowly with public business, though a large number of private acts contrive to be passed, the provisions of one half of which will probably not be known until too late to be remedied.

From appearances the public works will be given to the Sunbury and Erie Railroad. The liquor bill will also pass.

Proceedings of Congress.

The House of Representatives at Washington by a majority of 8 votes determined to adhere to the Montgomery-Crittenden bill, thus throwing the responsibility on the Senate of further action. On Tuesday Mr. Green asked for a committee of conference, which created a warm debate.

The deficiency bill providing for expenditures over and above the estimates to the amount of nine millions of dollars, has passed the House. Wonder what the old Jackson men yet living, who charged John Quincy Adams' administration with extravagance for spending twelve millions a year altogether, will think of a Buchanan administration spending a hundred millions?

Mable & Crosby's French and American Circus will open the equestrian campaign at this place on Wednesday, April 28th, when a troupe of renowned artists will give their wonderful performances before Tony Pastor and the rest of mankind, most of whom are his relations.—(Those who desire to know who Tony Pastor is will of course be there to see.) Admission free on the payment of 25 cents.

LOCAL AFFAIRS.

NEW STORE.—Col. Butler has opened a new store at the stand in East Market street lately occupied by Jacob Everich, where a large and select assortment of all kinds of Dry Goods, embracing the latest styles of Dress Goods, &c. can be found at prices that will astonish the natives. B. K. Firoved, an accomplished salesman and excellent judge of the wants of customers, has the management of the concern, and will be happy to wait on all whether they come to purchase or examine.

CEMENT FOR ROOFS.—E. E. Locke & Co. were so well satisfied of the value of West's Patent Galvanic Cement, that they purchased the right for Centre and Mifflin counties, and now offer to furnish the article and put it on roofing. Its cost is about the same as shingling, and is rapidly replacing the old method of covering roofs in the principal cities and towns. We had occasion last summer to examine a roof thus covered, and were so well satisfied with its water proof properties and incombustibility that, for our part, we should want no other. We recommend our readers to inquire respecting this cement before they purchase shingles or other material.

TROUT FISHING.—To-day by law, trout fishing commences in the Kishacoquillas and its tributaries, and if the weather will permit numbers will no doubt avail themselves of the opportunity to hook a few of the speckled beauties. Some sneaks, we learn, who are ever bent on being contrary, have been fishing Honey creek for several weeks, catching trout when they were absolutely unfit for the table. It is to be hoped that the time is not distant when every resident along the Kishacoquillas and its branches will feel so far interested in the preservation of this fish, as to prosecute every violation of the law. Net fishing is altogether prohibited in the tributaries of the Juniata, under a fine of \$5 for each offence.

Mifflin County Agricultural Society.—The annual meeting of this association was held in the Town Hall on Wednesday evening, April 7, 1858. The list of members having been read, the following officers were elected for the ensuing year: President—E. E. Locke. Vice Presidents—Hon. John Henry, John Watt, Shem Zook, Gen. D. Milliken, Moses Miller, George H. Calbraith, Adam Harshbarger.

Executive Committee in addition to the officers:—James McCord, David Witherow, Robert Campbell, Joseph Kyle, Jr., Wm. Mitchell. Corresponding Secretary—F. J. Hoffman. Treasurer, Librarian and Curator of Seeds—Hon. T. W. Moore.

Rec. Secretaries—George Fry-singer, H. J. Walters, James S. Brisbit, John R. Weekes. The following resolutions were then adopted: Resolved, That the Committees at the next Annual Fair make report on the morning of the third day at 11 o'clock, and that the Treasurer be authorized to pay premiums immediately thereafter in the order entered in the book of entry.

Resolved, That to compete for premiums all articles must be entered before 12 o'clock on the second day of the Exhibition. Resolved, That the Executive Committee be authorized to fix the time and place for the next Exhibition, and revise the list of premiums as they may deem expedient.

On motion, it was determined to hold meetings for the discussion of Agricultural Subjects as follows: Thursday, May 20th, at McVeytown—Subject—The red Weevil, or insect destroyer of Wheat. Belleville, Thursday, July 15—Subjects—Rotation of Crops, and Improvement of Stock generally. Wednesday, August 4th, at Lewistown—Subject—How to interest Agriculturalists in their profession.

Farmers generally are invited to attend these meetings and participate in the proceedings. The proceedings of Court are embraced in the following report: CIVIL LIST. M. Buoy, vs. R. Bogle. Issue to try whether a note was paid. Verdict for defendant. Robert Newlin, vs. R. Cummings. Defendant's counsel with leave of court, gives judgment in favor of plaintiff for \$63.33. Casper Dull vs. Jacob Philips, Administrator of John Philips. An action to recover the value of some hogs alleged to have been taken in a drove by defendant in his lifetime. Defendant pleads that Jacob Philips is not defendant's administrator, and is not his sole administrator. Plaintiff, with leave of court took a nonsuit. John S. Miller for vs. J. A. Cunningham. Action in debt. Verdict for defendant. D. Fichtorn vs. Z. M. Orner. Ejectment for land of ground on West Market street, Lewistown. Verdict for plaintiff.

Commonwealth vs. Jacob Price. Indictment, keeping a disorderly house and selling liquor to minors. Verdict, not guilty, but defendant to pay costs. Same vs. John Miller. Indictment, fornication and bastardy. True bill. Defendant not taken. Same vs. James McConahy. Indictment, burglary and larceny, on oath of Geo. W. Gibson, for robbing his jewelry store of watches and jewelry sometime since. Verdict not guilty. Same vs. Jas. McCurdy Jr. Indictment, larceny. A true bill. Recognizance forfeited. Same vs. M. Bloom, Robt. McCurdy and J. McCurdy, jr. Indictment, burglary and larceny, on oath of Samuel Comfort, for robbing his smoke house. True bill. E. M. McCurdy not taken, M. Bloom escaped, and the recognizance of Jas. McCurdy, jr. and the bail forfeited.

Same vs. Elmina Everhart. Indictment, larceny. Ignoramus. Same vs. Jane Prettyleaf. Indictment, murder and concealing death of bastard child. No bill. Same vs. Wm. Womelsdorf. False pretences—true bill. Defendant not appearing, no cognizance forfeited. Same vs. John Peachy and Benjamin Byler. Indictment, obstructing private road, no bill, and Wm. McClelland to pay costs. Same vs. Joseph Broughton and Maria Hoop. Indictment, lewdness, &c. No bill and county to pay costs.

On sundry charges against John Fichtorn and Joseph Broughton for assault and battery, S. M. Jennings for fornication and bastardy, and H. M. Imhoff for obtaining money under false pretences, the district attorney, with leave of court, entered nolle prosequi. Com. vs. R. A. Means—continued. All the licenses applied for were granted with the exception of that of Walls at McVeytown.

NOTICE.

TIME undersigned having disposed of his Carriage Making Establishment, requests all persons indebted to call and make payment without delay, as he is desirous of leaving this section of country. A few finished Carriages on hand for sale very low. JOHN CLARK, Lewistown April 15, 1858.

HAVING taken the establishment of Mr. Clark I purpose carrying on the Carriage Making Business in all its branches, and will always have on hand, a stock from which Pleasure and Business Carriages can be readily selected, at prices to suit the times. Repairing promptly attended to. JAMES P. HAMAKER, Lewistown, April 15, 1858.

The Collectors of 1857

ARE hereby notified that the Commissioners will attend at their office in Lewistown on FRIDAY, April 30, and proceed to allow exonerations and make final settlement with said collectors. By order, apl5 R. D. SMITH, Clerk.

State & County Taxes for 1857

NOTICE is hereby given to the taxpayers of the Borough of Lewistown who have not paid their State and County taxes on the duplicate of the above year, that the undersigned has transferred his collection to JOHN L. POITTEB, with instructions to collect the same previous to the FIRST DAY OF MAY next, and after that date by distress and sale of property. This course is absolutely rendered necessary, as can be seen by referring to the notice of the Commissioners to Collectors.

The School Tax for the year ending June 1858, has also been placed in the hands of Mr. Poitreb, with instructions to enforce its collection within sixty days. DANIEL FICHTORN, Lewistown, April 15, 1858—3t

WEST'S Patent Galvanic Cement

FOR ROOFING.

TIME undersigned having purchased the right for this Cement in Mifflin and Centre counties, are now prepared to furnish put it on roofing wherever desired—the not being sheeted by the owner. Scientific men under the direction of government, and architects and builders in various parts of the country, for years have been studying and experimenting to discover some superior article for roofing, which would resist the changes of our climate, and would unite its qualities of Imperviousness to Water, Incombustibility, Durability and Cheapness. No article now in use possesses these qualities. Shingles are not fire proof, and cannot be used upon flat roofs. Slate can only be used upon steep roofs. The contraction, expansion and rusting of metallic roofs are so great in this changeable climate that they soon become worthless, or the repairs will cost more than a new roof. The various cements and compositions which have been introduced, can be supplied only to very flat roofs, and they are all so affected by the action of the weather that they will melt and run in summer and crack in winter, and in a short time become crumbly and worthless. The inventor of the Galvanic Cement has labored twenty years to obviate these difficulties, and it is believed by those who have had opportunities to test the matter, that he has entirely succeeded. As now applied, First—It is completely impervious to water. Water may continually stand upon the roof without affecting it in the least. Second—It is fire-proof. It is so incombustible that it will afford ample and perfect protection against fire, sparks and burning shingles from another building immediately adjoining. Third—It is durable. It is not injured by atmospheric changes, having been tested for several years by the Patentee, at Syracuse, New York. Fourth—It is cheap. Roofs will be put on for about half the cost of tin, and will last much longer. Fifth—Repairs are easily and cheaply made. Sixth—It is sufficiently elastic to entirely resist the expansion and contraction by heat and cold, and will remain perfect and solid in the warmest and coldest weather. Seventh—It is adapted to all kinds of roofs, either flat or steep. Eighth—It is valuable for repairing old roofs. Old shingle roofs may be covered without removing the shingles. Old metallic roofs can be made perfectly tight and secure. Ninth—It is especially adapted to all kinds of seaming around battlements, skylights and chimneys, and for the lining of eave troughs and gutters. Roofs which have given trouble for years, and which have continued to leak in spite of all efforts, can be made perfectly secure by this cement. Tenth—It has been proved to be the best article ever used for covering car tops and steamboat decks. Eleventh—This cement applied to new tin roofs preserves them from rusting, by forming a single coating, put on in December last, which kept the buildings perfectly dry through the winter. E. E. LOCKE & CO., apl5 Locke's Mills, Mifflin co., Pa.

most conspicuous actors in the political scenes that have characterized the Senate, Mr. Benton was successful, while in 1852, and in 1852 he was elected to the national House galloped him not far, and was elected. He was brought to the administration of was on his feet, but that having become added—the not abandoned it. The consequent pretty the administration made heard—such and his friends in Missouri, thundering in again for Congress, in an hundred defeated. Governor, in opposition Democratic candidate, a third (American) being in the field, gale—jangling was that he was defeated, ride, half the regular Democratic candidate, you elected.

Communications.

THE MANUFACTURE OF IRON.

The laborer should understand the principles of his art, should be able to explain the laws of the processes which he turns to account; instead of working as a machine he should join intelligence to his toil—science has passed from speculation into life.—CRANING. The article in the Gazette of the 1st inst., has, I hope, removed all difficulties in regard to the position and quantity of the iron ore among the hills near Lewistown: I now offer some facts as to the chemical character of this ore, and some suggestions as to its treatment in a blast furnace, which may not be without interest. Professor Rogers, in his Fourth Annual Geological Report, p. 68, thus describes the ore as found in Little Cove, Franklin county, where the formation is exactly similar to the region around us. "Among the bottom layers of this slate (8) occurs a highly important bed of iron ore, used at Warren Furnace. It is a grey proto carbonate of iron, precisely identical in chemical composition with the nodular and plate ores of the shales of the coal measures." But it may be asked, how is it that the ore found at the Snyder, Banks, Wattson and Calbraith mines, and recently opened on Kline's land, is a brown peroxide of iron? I answer in the words of the distinguished geologist, Dr. Andrew Henderson, incorporated in Professor Rogers' Report, p. 95, in describing this ore in the Valley of Lewistown:—"The stratum remote from its outcrop consists of bands of ponderous bluish grey or lead colored proto-carbonate of iron, sometimes breaking into square masses, sometimes of a more slaty or laminated structure. It does not effervesce when touched with acid. It is only where the stratum has been long exposed at its outcrop to atmospheric influence, converting it into the brown peroxide of iron, by which it assumes a wholly different aspect, that it forms the deposit at present worked by the furnaces situated near it. This ore, at its outcrop, is of dark hazel brown color, has a smooth grain, and a cellular structure. That which is derived from the rectangular cleaving portion of the solid bed is in square masses, with large squarish cells, often glazed, and iridescent on their inner surface, and either entirely empty or partially filled with a pure bluish clay. Sometimes where the bed has been so protected as to escape extensive atmospheric action, this conversion to the brown peroxide is only partial, a solid nucleus of the bluish proto-carbonate forming the interior of the lump, while the peroxide occurs only on the surface in the form of a crust of greater or less thickness." Here is an exact description of the character and color of this ore, an oxide and a carbonate, which any one familiar with it will instantly recognize. I may add, that Dr. Andrew Henderson, when recently visiting his relative, Dr. Joseph Henderson of this place, verified his explorations in 1840 by examining the McGirk bank and declaring it to be the proto-carbonate of iron, pointing again to the small ridge parallel to Jack's mountain as the location of the fossil iron ore, and indicating the line of the ravine leading from Shaw's to the Creek as the ore-bearing portion of the strata, and in the south-western extension of this line Kline's bank was opened.—The chemical character of the ore admits of no dispute—the outcrop ore is the Brown Hematite, or Hydrated Oxide of Iron—the base or body of the ore is the "Bluish Grey Proto Carbonate of Iron." Many persons suppose "Hematite" to indicate a particular chemical character in the ore, and have spoken of Hematite Ore (referring to the Limestone Ores commonly so called), as used at Lewistown Furnace and other furnaces supplied from the slate formation, but in this sense none of these have run on "Hematite"; this word describes only the color of the ore, its Greek root meaning "blood"—hematite ore being "blood colored ore."

Of the hydrated oxide, so called because it holds a large admixture of water, Overman, p. 212, says: "The whole class is the result of the decomposition of other iron compounds, namely, iron pyrites, carbonates, red oxides, sulphates, &c. This kind of ore in the older works is generally good, but where it is derived from more recent deposits, it contains some of the original matter from which it was decomposed. The pipe ore is decomposed sulphuret, and frequently we find a core of pyrites in the centre; then the ore furnishes a hot-short iron; but carefully roasted the sulphur of the pyrites can be mostly evaporated. The hydrates of the coal formation are mainly derived from spathic iron, and frequently contain carbonic and sulphuric acids, which impair the quality of the metal, but can be removed by a careful roasting of the ore." Here is the first step. We have seen already, that the ore near Lewistown is precisely similar in chemical character, with the ores of the coal formations. The oxidized outcrop contains some of the original carbonate from which it was decomposed, which impairs the quality of the iron, but which can be removed by careful roasting." We must begin, then, by roasting the ore carefully. On page 39, under the head of "Hydrated Oxide of Iron, Brown Oxide, Hematite, Bog Ore," Overman remarks, "This whole class ought to be roasted, not for the purpose of oxidizing it, but in order to drive off the acids and destroy sulphurets and phosphates, and all the ores of this class contain more or less injurious matter. This ore will bear a high temperature, if there is no foreign matter mixed with it; but of this it is very seldom free." The spathic ore, or laminated carbonate from which the outcrop ore is decomposed, requires roasting with great care—page 40, Overman: "Carbonates require careful treatment. In the furnace they melt before carbon has any influence on them; and if there is any admixture of foreign matter, the carbonates are very apt to produce a small quantity of white iron, with black cinder. The roasting of carbonates is difficult; the best means of roasting them are low heat, and if possible, access of watery vapors, and partly to carry to prevent a too high temperature; for the heat is too strong, the carbonate melts together with the oxide, and forms a black cinder. Under all circumstances the ore to be roasted should be broken into pieces as small as those usually put into the blast furnace, say two or three inches; if we neglect this, of course we cannot expect a good result, for it is obvious that large pieces will not receive heat and oxygen through their whole body so soon as smaller pieces; and as the main object is oxidation, no means should be neglected which will accomplish the end in view. Stone coal, properly applied, will answer; coke or anthracite is preferable. Bad or sulphurous coal should be avoided, or at least coked before used." On this point let me add a few emphatic words from the same high authority: "Whether an iron ore should be roasted, is a question which very seldom arises; at least this question seldom ought to arise. With the exception of the red impalpable oxide, the whole body of iron ores require roasting. The object of roasting the ore is to oxidize it, for when thus changed to an oxide of iron, the metal can be revived (that is, brought to its original condition of native iron) by means of carbon, more readily than when the iron exists in any other combination. It is of the utmost possible consequence to recollect this great principle in the manufacture of iron." The metals, with the exception of gold, silver, and copper, are seldom found in their native state. They are combined with other matter in their native beds, and it is the study of the metallurgist by dissolving this combination, to reduce them to their simple condition. "All matter generally found in iron ore which is considered injurious to the metal is more or less volatile, and expelled by a cherry red heat; for instance, sulphur, phosphorus, chlorine, arsenic, antimony, sulphuric acid, phosphoric acid, carbonic acid, &c. A heat sufficiently strong to oxidize ore, expels all other volatile matter and the iron retains oxygen alone." By roasting the ore carefully we not only expel the injurious volatile matters in combination with it, but we increase the oxidation of the ore, and the higher that oxidation is carried (that is, the more perfect the roasting) the more easily is the metal revived or brought to its native state. How vain then is the attempt to manufacture a large yield of good iron by burdening a furnace with raw ores! As a general rule, it is dangerous to attempt it with any ore, but with the carbonates it is impossible. The outcrop ore should be prepared by itself, for the roasting of the carbonate requires much more care, and a short experience will teach in what proportion they should be used in the burden of the furnace.

In the State, yet many are not aware that this iron is made from the carbonate ore, smelted with coke and hot blast. J. P. Lesley, Esq., (one of the highest authorities in the country,) in his Manual of Coal (p. 18) says: "The carbonate of iron is as valuable as the sulphuret is worthless. When fused alone it yields one of the best metals in the world, as is now shown at the Cambria Works in Pennsylvania." It may startle some to be told that the ore in the ridges near Lewistown is the same exactly with that used at the Cambria Iron Works, but such is the indisputable fact. They are both carbonates of iron, and must be treated precisely in the same way in a blast furnace. (See Rogers' Report 1840, p. 68-95.) Whatever has been done in the manufacture of iron at the Cambria Works can be done at Lewistown. We have the ore in exhaustless quantities; hills of limestone of the best quality, and a heavy stratum of excellent fire clay close to the town; and an admirable water power in the Kishacoquillas creek, a large and steady stream. It is true, we have not the Allegheny coke, but we have what is far superior, the pure, porous and weighty coke of the semi-anthracite of Broad Top, an unequalled fuel, destined at no distant day to revolutionize the manufacture of iron in this State. It is an admitted fact that charcoal and coke are better fuels for making iron than anthracite. Overman (p. 208) says: "Soft, open fuel and heated air form carbonic oxide, the agent in the reduction of the ore, more readily than hard coal; and we may conclude that charcoal and coke are more useful than anthracite coal in the manufacture of iron." The great end to be sought is pure and weighty coke, and this never can be made from light and sulphurous coal—never. No mode of burning can thoroughly expel from such coal that deadly enemy of iron, sulphur, or give to the coke weight and body sufficient to bear the blast necessary to produce a heavy yield. We must find a coal free from sulphur, of an anthracite character, and yet with bitumen enough to yield an open coke. What then is the relative character of the anthracite coal of Broad Top and the bituminous coals of the Allegheny coal field? The weight of bituminous coal is about 2400 lbs. to the cubic yard, while Broad Top weighs 2868 lbs. to the cubic yard; within one pound of Broad Mountain, the heaviest anthracite in Pennsylvania! (Taylor's Statistics of Coal, p. 58, Introduction.) Mr. Henry King, of Pittsburgh, who has had great experience in the iron trade, has recently manufactured pig metal from most admirable quality with Broad Top coke, at Lemnos Furnace, on Yellow creek, Bedford county, in a small charcoal stack; the ore being the hematite of formation 6 and the fossil of formation 5. To this noble fuel we must come. It contains every required condition for the reviving of iron in the most successful manner—in quality so pure as to leave scarce a trace of sulphur, open and weighty—in price, cheap—in quantity, inexhaustible.

From the foregoing I think we may conclude, 1st. That the ore of the long range of ridges traversing Lewistown valley is a true carbonate of iron, its outcrop being the peroxide of iron. 2d. That it is a stratified ore, and is present in great force and truth. 3d. That "it is precisely identical in chemical character with the nodular and plate ores of the shales of the coal formation." 4th. That it yields one of the finest metals in the world. 5th. That it must be roasted with care and broken in small pieces before it is charged. 6th. That the temperature of the hot blast must not be very high, and 7th. That coke, and that alone, is the true fuel to produce a heavy yield of excellent metal, and that this unrivalled fuel is within easy distance of us by canal and railroad.

I close this article with an extract from Lesley, who is more thoroughly conversant with the coal formation of Broad Top than any living geologist, and whose spotless reputation and exalted attainments give great force to his opinions. Speaking of the supposed discoveries of the black band ore, he says: "We may therefore convert our repeated disappointments at its published discoveries in this country into hearty congratulations that it scarcely exists in our coal measures; for while it has created enormous personal fortunes, and stimulated for a time the local iron trade of Scotland and England, it has deteriorated iron on both sides of the Atlantic; whereas the time has fully come for the successful and profitable treatment of the common carbonate at innumerable points, either pure or mixed with the bog oxide, or with the hematites, or with the fossil ore, fused with the raw semi-anthracite of Staunton, Broad Top and Cumberland, or the coked bituminous coals of the great west." (Manual of Coal, p. 20.) Such testimony from such a source is conclusive. But if the raw semi-anthracite will produce good iron, how much the more successful must the mineral charcoal or coke prepared from it be—when every impurity has been expelled by careful preparation, and its treatment in the furnace is regulated by the light of experience and practical scientific knowledge?

I submit the foregoing to your readers that such facts, so important and so fully established, may turn their reflections and inquiries to the only true source of permanent prosperity to this community—the development of the vast, the incalculable mineral deposits which lie among the hills traversing the valley of Lewistown. Respectfully yours, W. H. IRWIN.

To cure a cough, buy a bottle of the Balsam of Wild Cherry. We have more faith in this combination of Dr. Wistar, than in any other remedy known, having witnessed its entire success in many cases of protracted cough.

Senator Bigler recently wished Kansas might come into the Union as a slave State. Congress ought to gratify his wish with the condition that he black his face a little and become one of the slaves.

Liquor merchants who pretend to sell "pure liquors" now-a-days, are a good deal like the fellow who thought he was drinking pure water out of a puddle in which swine had been wallowing.

Some cases of small pox have prevailed at Patterson, one of which, a girl named Heller, got on to the hay mow of a stable where she remained two days before she was discovered.

The President has issued his proclamation authorizing sales of public lands in Nebraska, to commence on Monday, the 6th day of September next. The quantity of lands to be offered at these sales amounts in the aggregate to 2,253,976 acres.

Never marry a stranger, or one whose character is not known or tested. Some females jump right into the fire with their eyes wide open.

most conspicuous actors in the political scenes that have characterized the Senate, Mr. Benton was successful, while in 1852, and in 1852 he was elected to the national House galloped him not far, and was elected. He was brought to the administration of was on his feet, but that having become added—the not abandoned it. The consequent pretty the administration made heard—such and his friends in Missouri, thundering in again for Congress, in an hundred defeated. Governor, in opposition Democratic candidate, a third (American) being in the field, gale—jangling was that he was defeated, ride, half the regular Democratic candidate, you elected.

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THE MANUFACTURE OF IRON.

The laborer should understand the principles of his art, should be able to explain the laws of the processes which he turns to account; instead of working as a machine he should join intelligence to his toil—science has passed from speculation into life.—CRANING. The article in the Gazette of the 1st inst., has, I hope, removed all difficulties in regard to the position and quantity of the iron ore among the hills near Lewistown: I now offer some facts as to the chemical character of this ore, and some suggestions as to its treatment in a blast furnace, which may not be without interest. Professor Rogers, in his Fourth Annual Geological Report, p. 68, thus describes the ore as found in Little Cove, Franklin county, where the formation is exactly similar to the region around us. "Among the bottom layers of this slate (8) occurs a highly important bed of iron ore, used at Warren Furnace. It is a grey proto carbonate of iron, precisely identical in chemical composition with the nodular and plate ores of the shales of the coal measures." But it may be asked, how is it that the ore found at the Snyder, Banks, Wattson and Calbraith mines, and recently opened on Kline's land, is a brown peroxide of iron? I answer in the words of the distinguished geologist, Dr. Andrew Henderson, incorporated in Professor Rogers' Report, p. 95, in describing this ore in the Valley of Lewistown:—"The stratum remote from its outcrop consists of bands of ponderous bluish grey or lead colored proto-carbonate of iron, sometimes breaking into square masses, sometimes of a more slaty or laminated structure. It does not effervesce when touched with acid. It is only where the stratum has been long exposed at its outcrop to atmospheric influence, converting it into the brown peroxide of iron, by which it assumes a wholly different aspect, that it forms the deposit at present worked by the furnaces situated near it. This ore, at its outcrop, is of dark hazel brown color, has a smooth grain, and a cellular structure. That which is derived from the rectangular cleaving portion of the solid bed is in square masses, with large squarish cells, often glazed, and iridescent on their inner surface, and either entirely empty or partially filled with a pure bluish clay. Sometimes where the bed has been so protected as to escape extensive atmospheric action, this conversion to the brown peroxide is only partial, a solid nucleus of the bluish proto-carbonate forming the interior of the lump, while the peroxide occurs only on the surface in the form of a crust of greater or less thickness." Here is an exact description of the character and color of this ore, an oxide and a carbonate, which any one familiar with it will instantly recognize. I may add, that Dr. Andrew Henderson, when recently visiting his relative, Dr. Joseph Henderson of this place, verified his explorations in 1840 by examining the McGirk bank and declaring it to be the proto-carbonate of iron, pointing again to the small ridge parallel to Jack's mountain as the location of the fossil iron ore, and indicating the line of the ravine leading from Shaw's to the Creek as the ore-bearing portion of the strata, and in the south-western extension of this line Kline's bank was opened.—The chemical character of the ore admits of no dispute—the outcrop ore is the Brown Hematite, or Hydrated Oxide of Iron—the base or body of the ore is the "Bluish Grey Proto Carbonate of Iron." Many persons suppose "Hematite" to indicate a particular chemical character in the ore, and have spoken of Hematite Ore (referring to the Limestone Ores commonly so called), as used at Lewistown Furnace and other furnaces supplied from the slate formation, but in this sense none of these have run on "Hematite"; this word describes only the color of the ore, its Greek root meaning "blood"—hematite ore being "blood colored ore."

Of the hydrated oxide, so called because it holds a large admixture of water, Overman, p. 212, says: "The whole class is the result of the decomposition of other iron compounds, namely, iron pyrites, carbonates, red oxides, sulphates, &c. This kind of ore in the older works is generally good, but where it is derived from more recent deposits, it contains some of the original matter from which it was decomposed. The pipe ore is decomposed sulphuret, and frequently we find a core of pyrites in the centre; then the ore furnishes a hot-short iron; but carefully roasted the sulphur of the pyrites can be mostly evaporated. The hydrates of the coal formation are mainly derived from spathic iron, and frequently contain carbonic and sulphuric acids, which impair the quality of the metal, but can be removed by a careful roasting of the ore." Here is the first step. We have seen already, that the ore near Lewistown is precisely similar in chemical character, with the ores of the coal formations. The oxidized outcrop contains some of the original carbonate from which it was decomposed, which impairs the quality of the iron, but which can be removed by careful roasting." We must begin, then, by roasting the ore carefully. On page 39, under the head of "Hydrated Oxide of Iron, Brown Oxide, Hematite, Bog Ore," Overman remarks, "This whole class ought to be roasted, not for the purpose of oxidizing it, but in order to drive off the acids and destroy sulphurets and phosphates, and all the ores of this class contain more or less injurious matter. This ore will bear a high temperature, if there is no foreign matter mixed with it; but of this it is very seldom free." The spathic ore, or laminated carbonate from which the outcrop ore is decomposed, requires roasting with great care—page 40, Overman: "Carbonates require careful treatment. In the furnace they melt before carbon has any influence on them; and if there is any admixture of foreign matter, the carbonates are very apt to produce a small quantity of white iron, with black cinder. The roasting of carbonates is difficult; the best means of roasting them are low heat, and if possible, access of watery vapors, and partly to carry to prevent a too high temperature; for the heat is too strong, the carbonate melts together with the oxide, and forms a black cinder. Under all circumstances the ore to be roasted should be broken into pieces as small as those usually put into the blast furnace, say two or three inches; if we neglect this, of course we cannot expect a good result, for it is obvious that large pieces will not receive heat and oxygen through their whole body so soon as smaller pieces; and as the main object is oxidation, no means should be neglected which will accomplish the end in view. Stone coal, properly applied, will answer; coke or anthracite is preferable. Bad or sulphurous coal should be avoided, or at least coked before used." On this point let me add a few emphatic words from the same high authority: "Whether an iron ore should be roasted, is a question which very seldom arises; at least this question seldom ought to arise. With the exception of the red impalpable oxide, the whole body of iron ores require roasting. The object of roasting the ore is to oxidize it, for when thus changed to an oxide of iron, the metal can be revived (that is, brought to its original condition of native iron) by means of carbon, more readily than when the iron exists in any other combination. It is of the utmost possible consequence to recollect this great principle in the manufacture of iron." The metals, with the exception of gold, silver, and copper, are seldom found in their native state. They are combined with other matter in their native beds, and it is the study of the metallurgist by dissolving this combination, to reduce them to their simple condition. "All matter generally found in iron ore which is considered injurious to the metal is more or less volatile, and expelled by a cherry red heat; for instance, sulphur, phosphorus, chlorine, arsenic, antimony, sulphuric acid, phosphoric acid, carbonic acid, &c. A heat sufficiently strong to oxidize ore, expels all other volatile matter and the iron retains oxygen alone." By roasting the ore carefully we not only expel the injurious volatile matters in combination with it, but we increase the oxidation of the ore, and the higher that oxidation is carried (that is, the more perfect the roasting) the more easily is the metal revived or brought to its native state. How vain then is the attempt to manufacture a large yield of good iron by burdening a furnace with raw ores! As a general rule, it is dangerous to attempt it with any ore, but with the carbonates it is impossible. The outcrop ore should be prepared by itself, for the roasting of the carbonate requires much more care, and a short experience will teach in what proportion they should be used in the burden of the furnace.

I close this article with an extract from Lesley, who is more thoroughly conversant with the coal formation of Broad Top than any living geologist, and whose spotless reputation and exalted attainments give great force to his opinions. Speaking of the supposed discoveries of the black band ore, he says: "We may therefore convert our repeated disappointments at its published discoveries in this country into hearty congratulations that it scarcely exists in our coal measures; for while it has created enormous personal fortunes, and stimulated for a time the local iron trade of Scotland and England, it has deteriorated iron on both sides of the Atlantic; whereas the time has fully come for the successful and profitable treatment of the common carbonate at innumerable points, either pure or mixed with the bog oxide, or with the hematites, or with the fossil ore, fused with the raw semi-anthracite of Staunton, Broad Top and Cumberland, or the coked bituminous coals of the great west." (Manual of Coal, p. 20.) Such testimony from such a source is conclusive. But if the raw semi-anthracite will produce good iron, how much the more successful must the mineral charcoal or coke prepared from it be—when every impurity has been expelled by careful preparation, and its treatment in the furnace is regulated by the light of experience and practical scientific knowledge?