Miscellaneous.

Foreign Correspondence.

LONDON, 14th March, 1851.

The Crystal Palace exhibits a scene, every day, of great interest and excitement. The packages of British articles, and those of other nations which have arrived in London already, are neither few nor far between. Another test of the strength of the galleries has taken place, whereby every square foot was tested with the rolling weight of 100 lbs.: There was not the least sensible vibration. The corps of sappers and miners belonging to the army, attend to the unloading and arranging of bales. They are a very expert set of soldiers, being mostly all able machinists, carpenters, &c., and are educated and ingenious.

The Commissioners of the Exhibition have appointed thirty juries—one for each section. There are to be 270 jurors—135 of them to belong to other nations than England. If any exhibitor accepts the office of juror, he then ceases to contend for a prize. The juries are to commence their duties on Monday the 12th of May. Each jury is to consist of about an equal number of foreigners and British subjects. The Commissioners are decidedly of opinion that medals should be awarded for articles of merit upon their individual merit, without the competition question, and indépendent of the degree of merit as standing in competition with other articles. The juries are empowered to take evidence and call in adventitious aid. The Royal Agricultural Society is to test the merits and decide upon the agricultural implements. When the Commissioners are not sitting, all important business is to come before Prince Albert. The gentlemen under whom the whole management is placed, are men of celebrity, and some of them of world-wide fame.

One article in the shape of a smoke damper and fire extinguisher, has come up from Liverpool, and is worthy of attention in the United States. It is intended to be built in the chimney of every house, and consists of a chimney arch, bevelled inwards and upwards, to receive a wedge-shape brick arching, thus allowing the cold air of the apartment to mingle gradually with the heated air in the chimney; a frame is attached to this, determining the size of the mouth of the chimney; from this frame spring two supporters of the frame of the damper, which can be put in and taken out at pleasure; and, as these supporters guide the brick-setter, they secure those gradual contractions in forming the throat so essential to a good going chimney. The second modification is contrived to obtain those gradual contractions which may have been neglected at first. A frame-work is prepared as above, for fixing in, determining the size of the mouth, and carrying the supporters for the damper, which are to be built up behind, and rendered as effectual as if done at first. A small rod at the back of the grate, connected with a chain passing over a pulley, and moved two inches, regulates the damper to the full size of the chimney, or renders it perfectly tight, thus effectually stopping all back smoke when no fires are used, and, by shutting it, in case of the chimney being on fire, will speedily extinguish it. Everything is important that adds to domestic comfort; and surely it is no little relief to get quit of a smoky chimney.

The Crystal Palace viewed by moonlight is a most imposing structure. The glitter of the moons pale beams on the glass sides of the building, set off by the graceful and ornamented shadows of the arched iron work, impresses the mind with feelings which carry the imagination to some vast oriental palace far away in a sunny clime. EXCELSIOR.

A Barn of Glass.

An English farmer intends to cover a large barn, 110 feet long, 28 feet wide, at his farm, at Heavitree, with a glass roof, after the model of the palace of glass. The expense will not be over two-thirds of the cost of slate, and he anticipates several advantages from the novel roof: among others, it may be applied to the drying of corn during a wet harvest.

Human Life at the East vs. Human Life at the West.

The Economist published at Cannelton, Indiana, has a very excellent article upon the subject set forth in the above caption. It speaks of the feelings of the people at the East in reference to the supposed fate of the Atlantic, and the joy that was manifested at her safety, and then it says:—

"On the morning of January 27th, or one month after the sailing of the Atlantic, an inland steamer was ascending the Mississippi river, bearing on board more than two hundred souls. The darkness of night had not yet been interrupted by the breaking of day. Onward the steamer kept its way, steaming with giant power the rolling of the "Father of Waters." Not a note of danger was breathed—no one saw the angel of death flapping his dismal and shadowy wings over the ill-fated vessel. But the unseen hand of destruction at last gave the blow, and in an instant more then one hhndred and thirty unfortunate human beings were launched into the great hereafter. The muddy waters of the inrushing stream drowned even the death-shrieks of those who awoke only to enter upon the sleep "that knows no waking." That boat was the John Adams.

Yet where have been heard the expressions of sympathy, anxiety, and regret, such as were called forth by the circumstances connected with the Atlantic? Where that intense excitement which indicates the deepest feelings of our nature? Alas, with the waves that closed the dying, almost subsided every thought or care for those who perished. Death snatches his victims by scores and hundreds upon our Western waters, and yet his bloody fingers alarm not those who can stay his ravages

Ye men of the West, how many hecatombs of hnman beings will ye offer up to appease the appetite of the Destroyer?

But is not human life not as valuable at the West as at the East? Are not the affections and the social qualities of persons here, of the same kind and value with those at the East? Are not parents and children, brothers and sisters, bound together here by the same cords of love that unite them there? Why then this difference between regret for calamities here, and calamities there?"

Novel Ice Explosion on Lake Champlain.

An extraordinary disruption of ice, according to a well authenticated account lately published in the Burlington Free Press, occurred in the solid and before unbroken field of ice in Champlain, near Alburgh, during the night of the 16th of February, 1851.

On that morning a hole or break in the ice of five or six rods in extent each way, was discovered by M. F. Mott, an intelligent gentleman residing on the shore, who, proceeding to the spot, found the broken space filled wiih pieces of ice; while at distances of seven and ten rods, out on the unbroken field, lay two large solid floes or blocks of ice, seventeen inches in thickness, and measuring from two to three rods in width, the largest being estimated to weigh more than twenty tons.

The explosive force which thus threw these immense floes of solid ice from their beds to distances varying from one to nearly two hundred feet, must have been tremendous, equaling that of many barrels of gunpowder.

It seems there had been a voilent wind on the night in which the event is supposed to have transpired, which, after blowing from the South during the evening before, suddenly veered and blew in a fierce squall from the West. And we can think of no other more satisfactory solution of the mystery, than that it was occasioned by the confined air which was driven by the force of the wind in under the ice at some more or less distant crack or open glade, and forced forward by the first impulse and the undulations of the main body of the ice, till reaching this spot near the shore that prevented its expansion, it became compressed to such a degree as to occasion the explosion in question.

Be that is it may, however, the incident constitutes an interesting phenomenon connected with the ice in that lake, and is well worthy of scientific investigation. Will the editor of the Scientific American give us his opinion of the remarkable occurrence?—[Greene Mountain Freeman.

[Our contemporary offers the only reasonable solution of this phenomenon. It is well known that confined air frequently splits up the ice on our nothern lakes in cracks a number of feet wide and miles in length. The sound of the rending of the ice is like that of the rolling of distant chariots and is heard at the distance of many miles.

Bad Water, and the Western Fever.

A correspondent writing to us from the western part of this State, says he has lately been devoting some time to the study of the causes of fever in the western parts of our country. The first inquiry he made was, "what substances are contained in the waters at the West that render them so unhealthy?" And what substances would purify it? He believes that the prevailing substance is ammonia, which is produced by the decomposition of vegetable and animal substances, and is a gas that water will absorb in considerable quantities. He believes that filtering the water through substances for which the gas has an affinity, would be the means of purifying it and making it healthy.

There can be no doubt of the fact that bad water is the fruitful cause of many diseases. It has generally been remarked that the people who inhabit districts, where the water is pure, enjoy good health, and exhibit the same in their countenances. There can be no doubt that water containing ammonia is injurious to health. In the East Indies it is customary to boil the water intended for drinking, and then expose it to the atmosphere until it cools. The ammonia, being very volatile, is expelled by boiling. Lime is an absorbent of ammonia, and so is plaster of paris and charcoal. It is wonderful how small a quantity of any deleterious matter, in food or water, causes disease; but the atmosphere is as often, if not oftener, the elerr ent whereby disease is communicated to the frame. Were we living in the West, and suspected that the water we used contained deleterious substances, we would filter it through sand and clay, and perhaps some charcoal. The charcoal, unless employed as the upper layer, carries down some of its particles and discolors the water, but this can easily be prevented, and the water will appear like crystal. Filtered water should always be dropped from some height and exposed to the air before it is drank; this is to absorb air, for, without air, it has a rain-watery taste. We believe that too little attention is paid to the purifying of the water that is used for cooking and drinking; and were more attention paid to the purifying of it, some places that are now famous for some diseases, would soon know nothing about them but as things that were.

A Patent Claim.

MESSRS. EDITORS—In your notice of my disclaimer, in your paper of the 22nd inst., you state that it is one of the most extensive that has come within your notice, and that the papers were originally surely made out with a great disregard to correctness, &c. A word of explanation would seem to be due to the solicitor who drew the papers, as well as to myself.

Attached to my specifications are two drawings, the one being a colored drawing representing the machine and several parts arranged for operation, upon this drawing are represented, or partially represented, the several things disclaimed. The wheel, figure 8, the *invention* of which is disclaimed, is a modified form of the machine, which may be used instead of the present arrangement mentioned in the specifications, you will observe that I do not disclaim the arrangement when thus used, but simply the invention of the wheel. The collar, with sliding tooth, cord pulley, and treddle, are partially represented on this colored drawing, but they are not referred to in any manner in the specifications of my patent, nor do they, as I believe, form any part of it.

The other drawing, and the one to which the specifications mainly refer, is a lineal drawing, and neither of the things disclaimed are represented thereon, but only so much of the machine as is my invention; it is proper also to add that there is not a single word in the claim of my patent referring in any manner to the several things disclaimed, nor do I think such an inference could be drawn from the claim or specifications, and I do not think that a disclaimer was at all necessary, but as it was supposed by some that such a construction might possibly be put upon them, I was induced, for greater caution, and to guard against misconstruction and mistake, to disclaim the matters, although I thought it wholly unnecessary. Please set the matter right in your valuable journal, and oblige,

A. J. WILLIAMS.

Utica, March 24th, 1851.

[Friend Williams would see that our comments were made in no unfriendly spirit. We are glad to see such an explanation of the matter, and we believe that Mr. Williams will now consider that we have done a good act in drawing it out.

Geological Discovery.

The following interesting geological discovery has just been made by General Cullen at Cochin:—A question having been raised as to the relative positions of that most mysterious of rocks, laterite, and the shell limestone on which in this quarter it was said to rest, General Cullen caused a well to be dug from the top of the cliff, about 40 feet above the level of the sea, downwards to this depth; it was about 80 feet inland At the depth of 37½ feet he came to shell limestone—a well sunk near the sea 84 miles to the south-west gives precisely the same results. The limestone is one of the most modern of our formations. The shells contained in it seem all recent—the lignite and fossil remains are close by. The supposition that the laterite is nothing else than decomposed granite, or trap *in situ*, is thus completely and at once disposed of; by knowing what it is not, we may by-and-bye be led to infer what it is. It is not every one who is in a position to dig a well 40 feet deep through a solid rock to ascertain the relation of two sets of strata.

The Dry Dock at Pensacola.

The floating Dry Dock, constructed by Gilbert & Secor, on the Balance plan, at the Pensacola Navy Yard, was launched on the 19th March, without the slightest accident. This dock is capable of receiving a steamship of 6,400 tons or double the tonnage of the Collins' ships. Its dimensions are, length 350 width 105 feet.

A very ancient ship was found, a month ago, in the old port of Jaffa, in Syria. It is calculated that this wreck, which is, nevertheless, in a very excellent condition, is one of the ancient galleys of the country when it was governed by the Romans. A Dr. Johnson, who was present when this curiosity was discovered, obtained from the government consent to have it taken to London. Perhaps it will be seen at the exhibition.

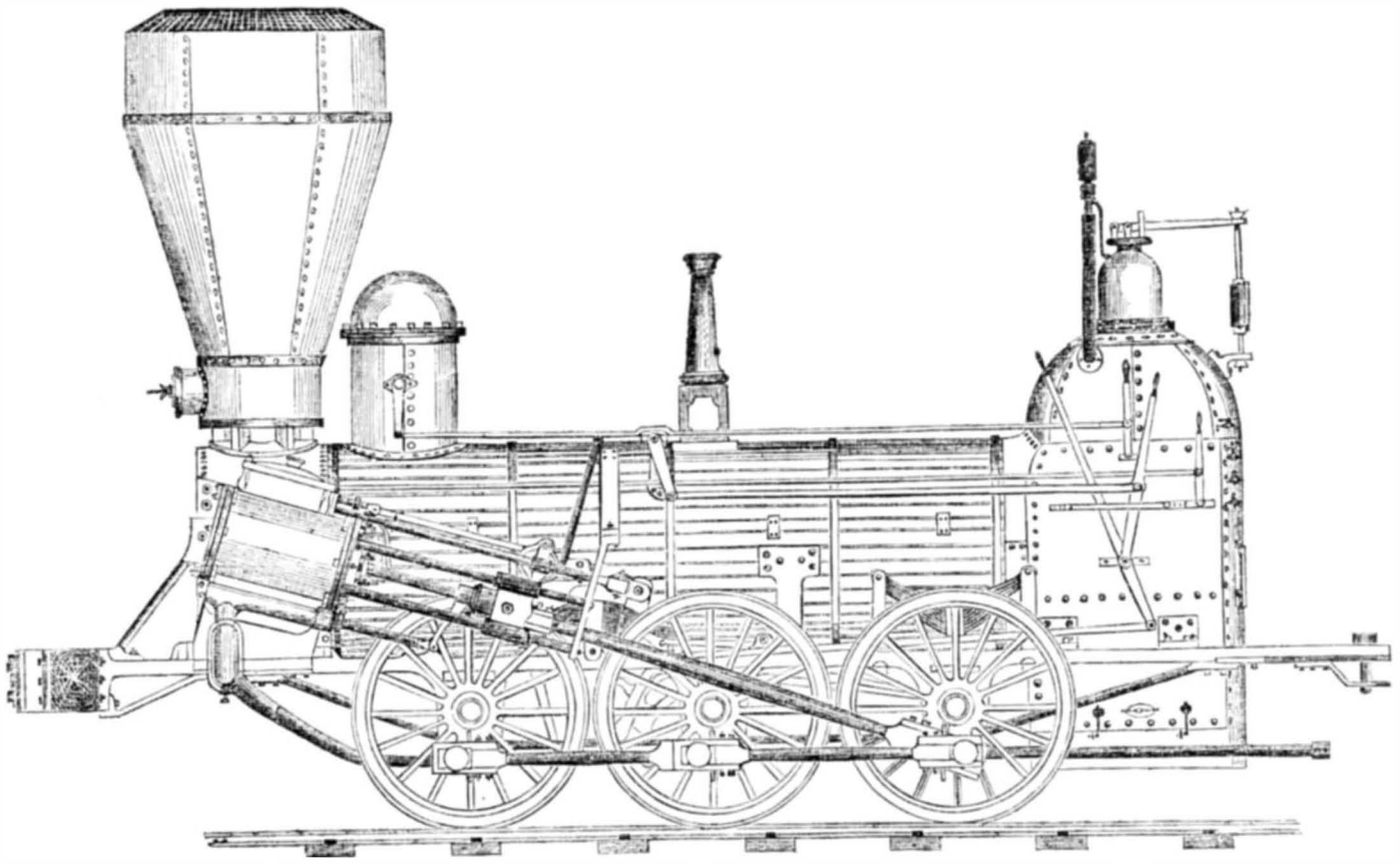
The Late Hungarian General Bem.

At a public sale held at Alleppo on the 22d of January of a portion of Bem's effects considerable anxiety to obtain *souvenirs* of the late general. An odd cotton sock, worth 4d., sold for $1; a cotton coat, worth 25s., sold for $12; a pair of fur-lined inexpressibles, worth 30s., sold for $30.

Capt. Henry Shreve, the early steam navigator of the Mississippi, died at St. Louis on the 7th inst. He commenced flat-boating in 1808, and in 1814 took charge of a steamboat, the third built on the Western waters. He was the man who broke up the Livingston and Fulton western monopoly. He was the inventor of the Steam Snag Boat.

The Morning Post says that unhappy Londoners positively live on shams and delusions. "Our milk contains everything but milk, our bread is we know not what, our water full of fighting devils of most ferocious aspect, our white pepper consists chiefly of ground rice, and our black of iron filings and the sweepings of the Custom-House floors, and the component parts of coffee are chicory, burned beans, and roasted wheat, colored with burned molasses."

THE AMERICAN WOOD-BURNING LOCOMOTIVE.



The locomotive is the most perfect of machines. It approaches nearer to the spiritual and physical combination of the human machine, than any other. In it we behold what the steam-engine is when "unchained to the rock, and unfettered to the soil.

The accompanying engraving is a side elevation of an American wood-burning locomotive, the kind which is in general use in our country, with the levers represented by the engraver at the left hand side. The locomotive may be said to be two high pressure engines, with a boiler mounted on a carriage, the driving wheels of which are yoked, by crank-pins, to the connecting rods of the pistons in the cylinders, which receive a reciprocating motion by the steam being let in and out alternately by valves at both ends of the cylinders under the covers, and thus communicating a rotary motion to the wheels, impelling itself and its huge train forward on the railroad with a velocity surpassing that of the eagle in his aerial flight. Both sides of the locomotive are nearly alike. The side represented in the engraving exhibits all the parts on the other side; nothing is left out, as this side shows the shifting levers, which are not upon the other. A description of one side will answer for both. The locomotive consists of three very distinctive parts, viz.:—the boiler, the cylinders and their ajuncts, and the wheels. The boiler may be said to be the most important part of a locomotive; for the usefnl effect of the machine depends on the quantity of steam which the boiler is capable of generating in a given time; and the production of steam depends upon the amount of caloric or heat, which the water in the boiler absorbs to raise it to that point of temperature at which it assumes the vapory form, and expands to more than seventeen hundred times its original bulk. The utility of the boiler depends upon the amount of heating surface; and the greatest amount of heating surface embraced in the smallest amount of space, is the grand desideratum. To obtain this, all locomotive boilers are built with a great number of lap-welded iron, or brass tubes, extending through the body of the boiler, from the fire box into the chimmney. Their ends are properly secured in plates; the heat from the fire rushes through them, and as they are surrounded with water, they present a great amount of heating surface in a small space. In a large boiler, like the one in the engraving, the tubes are each one inch and three-quarters in diameter inside; there are one hundred and thirty-six in the boiler, and they are 15 feet long. The fire-box is surrounded with water in the side chambers, and a little above the furnace door, inside, there is a plate, firmly supported by stays, which is called the "crown plate." The water-line in the boiler is a little above this plate, and the large dome behind, on which is placed the whistle, is just above the crown-plate of the fire-box, and answers the purpose of a steam reservoir. The waist of the boiler is cylindrical, the best form for strength, and the shell, or outside, is formed of plates of the best boiler iron, well riveted together. There are two safety valves; the one in the enclosed chamber, on the middle of the boiler, is out of the reach of being tampered with, and the other is on the back large dome, under the command of the engineer. There is a small door in front of the chimney, for access to clean and repair the tubes. The chimney has a spark-arrester in it. This is a peculiarity of wood-burning locomotives; none are employed on coal-burning engines. It is very uncomfortable to travel by railroad sometimes, on account of the sparks—no arrester being perfect in its construction. A pipe inside of the shell of the boiler leads from the large back dome into the secondary dome behind the smoke-pipe. From this dome it is let out, by a valve, into a pipe leading into the valve-chest of the cylinder. This second dome and its peculiar throttle valve inside, prevents what is termed *priming*. This priming is a violent agitation of the water in the boiler, by which some of it passes over into the cylinders, injuring their useful effect. Safety valves are placed on the cylinders, to deliver them from this spray, and engineers are often seen trying their cylinders before they start.

The steam employed is about one hundred pounds working pressure on the square inch. One of Salter's spring balances is used on every boiler to indicate the power of the steam. There is a pressure of 7 tons 200 pounds weight on every square foot of the boiler shell.

By opening the throttle valve by one of the lever handles, the engineer lets the steam from the boiler into the valve steam-chest, and then by operating another handle, he lets the steam into the cylinder, under one end of the piston, and the piston moves in one direction, operating, by its connecting rod, the driving wheel, on the main axle of which is an eccentric inside of the wheel, which is connected by a rod and rocking shaft with the slide of the valve, which valve is moved, and as the piston attains near to the end of its stroke in one direction, it shuts off the steam from the passage it first went in at, and lets the steam in by the other passage under the other end of the piston, while, at the same time, communication is opened by another passage of the valve, which lets (exhausts) the steam out from before the piston, and then the piston moves back again; and thus, by letting the steam exhaust from one end, and push against the other alternately, a reciprocating motion is given to the piston rods of each cylinder, which by the crank-pins on the driving-wheels, give them a rotary progressive motion. There are two slides for every cylinder, so that the engineer can let on the steam to the piston, either to run forwards or backwards. The valve rods are worked by two eccentrics on the main shaft for each cylinder. The exhausted steam from the cylinders is let out by a pipe into the chimney. This creates a great draught, and it is upon the efficacy of this great draught, that the whole efficiency of the engine depends. The ash-pan opens forward at the bottom of the fire-box, opposite to the engineer, and as the engine runs forward, and the steam rushes up the chimney, the air rushes between the grate-bars up through the fire, causing a rapid combustion of the fuel. The long pipe noticed at the side, is to convey water from the tender behind, to supply the boiler. Two pumps, one on each side, force the requisite supply of water, at every stroke, into the boiler. There are try-cocks in the back of the boiler, for the engineer to open frequently, to see that the water is at the proper water-line in the boilers. The engineer can cut off his steam at will, regulate the exhaust of steam into the chimney, and cut it off and let it into the cylinder in any direction, by the handles shown, which are fixed on the right side of his engine. The accompanying engraving represents an engine of 162 horse power, and is capable of drawing 225 tons at the rate of about thirty miles per hour. If we imagine two giants of men in strength, but not in stature, each of 81 horse power, and seated (one on each side of the boiler) grasping the cranks on the main driving wheels, which are six feet in diameter, and then if they push their arms backwards and forwards, so as to make the wheels spin round 3,334 times in one hour, they would be able to move 675 tons, in that period, a distance of twelve miles. There is a certain velocity, however, past which neither the human arm can go, nor the animal horse run. In this respect, the iron horse has a great advantage; no exact limitation has yet been set to his real speed, at least as a point of comparison between the animal and the iron. The axles of the wheels are hung in boxes attached to springs, a great number to which are now made of India rubber, to prevent severe concussions from inequalities of the rails. Every locomotive should have its separate parts put together as well and carefully as those of a watch.

One of the grandest sights in the world is a locomotive with its huge train dashing along in full flight. To stand by night at the side of a railroad, when a large train is rushing along at the rate of 30 miles per hour, affords a sight both sublime and terrific. No wonder the simple backwoodsman declared that the first locomotive he ever saw was "pandemonium in harness." It is extremely exhilirating to witness the iron steed saddled and bridled, issuing with a scream from his dusky stable to run his race. What are all the feats of the turf in comparison with his? Fashion, Bostona, or Voltigeur, would make but sorry competitors with him for a single half hour. And what are all the feats of jockeyism, in comparison with the skill, the intrepidity, and the resources of that man with the swarthy brow, who stands on the platform before the fire-box, with his hand upon the handle, to rein in his iron steed at will.

The first real successful issue of the locomotive, was the performance of the "Rocket," at the opening of the Manchester and Liverpool Railroad, in 1829. This engine was built by the famous engineer, Robert Stephenson, and was the result of a great many experiments. It had a tubular boiler, and used the exhaust steam to create a draught. Without these, the locomotive would not have been successful. Colonel John Stevens, of Hoboken, invented the tubular boiler in 1805. He was a very ingenious gentleman, and advocated the construction of a railroad through the interior part of this State, long before there was a single canal or railroad in America.

It is now only 22 years since the first passenger railroad was opened, and since that time, no less than 20,500 miles of them have been constructed in different parts of the world.

We are indebted to Messrs. Fowlers & Wells for the above engraving which appeared in the Phrenological Journal. The engraving represents a locomotive built by Mr. Mulholland, M. M., of the Reading Railroad, Pa. It was first given to the public in a work termed "American Locomotive," by Emil Reuter. After four numbers of this work were published it ceased. We hope it will be resumed again, for it was a most excellent one. We hope friend Reuter will be enabled to finish the work he so ably began.

There is no good work in existence on American Locomotives.