

## Miscellaneous.

## Foreign Correspondence.

LONDON, 21st March, 1851.

Our noble frigate the *St. Lawrence*, arrived at Southampton on the 13th of last month,—she brought more articles for the World's Fair than was anticipated. The people of Southampton hailed her arrival with great rejoicings, and the Mayor and Magistrates received our officers (as they should) like princes. I will note some of the American articles at more length after they are on exhibition.

The building is not quite finished, but goods are unpacking and organizing at a red-hot speed. It is intended to have it open on the 6th of May, at farthest; I hope it may be all ready by that time, and from the regularity and speed with which the work has already been done, I see no good reason to doubt the complete finish of it at the time specified.

The large hydraulic press (500 tons weight) employed to raise the Britannia Tubular Bridge, has arrived, and to foreigners it will be a subject of wonder.

There have been some bickerings between the Commissioners and the French Commissioners, about the room necessary for the articles sent from that country to be exhibited. The space assigned to France is exceedingly ample, embracing in the whole about a hundred thousand square feet, and constituting little less than a tenth of the whole exhibition space of the building. Out of this one hundred thousand feet, it was most distinctly intimated by the executive committee, during their correspondence with the French commission, that 50,000 feet should be deducted for walks and passages. It would seem, however, that the French local committees dealt with their contributors as if the whole 100,000 feet were available for the display of their productions. Notice was given to persons who had obtained gold medals in their own exhibitions, that an unlimited quantity of goods would be received from them, and silver medallists were led to believe that their treatment would be little less liberal. The natural consequences of these inconsiderate proceedings was an influx of contributions, for the accommodation of which the very ample space accorded was totally inadequate. Upon the discovery of this unpalatable fact, various devices were put in requisition by the French authorities, to procure either an extension of their spaces, or a curtailment of the extent of the passages by which they are traversed. The executive committee, however, were inexorable. They pointed to the fact that the original number of British contributors was 9,000, who, by the exercise of judicious weeding and selection by our local committees, have been reduced to 6,000; and they called on the French commissioners to exercise a similar system of vigorous compression, and to reject everything not stamped with indisputable excellence of some kind.

A new adaptation of lithography to the process of printing in oil has lately been invented by Mr. Kronheim, of Paternoster Row, which is thus described in the *Times*:—"He uses six different kinds of blue, two of red, six of yellow, three of brown, five of gray, and a variety of flesh tints. Outlines are made not only of the forms but of the shading of colors in the painting which he wishes to copy. Proofs are taken from these outlines and transferred to a number of stones, corresponding to the number of colors, as just specified, which the painting contains. In this way lithographed outlines of the several parts of the painting, according to the distribution of its coloring, are obtained. Each description of red, blue, yellow, or whatever the tint may be has its stone, and the outline engraved on each stone is more or less filled in (according to the amount of shading required) with a species of chemical ink. Aquafortis is then applied to produce a raised surface, after which the oil colors are made to pass over the stone by rollers, where they are at once arrested by the ink. So delicately contrived is this part of the process, that according as the chemical

ink has been more or less closely wrought in, the utmost nicety of shading can be secured. The colors from the stones are then printed off upon paper, and the exact tints required are produced by printing one color over the other, upon the same principle as that which guides the artist in mixing his paints. In this way, when all the impressions of the different stones have been put together, they form themselves into an exact copy of the original picture; a copy true not only in the details of outline, form, and shading as is the case in steel engravings; but true also in respect of that great art of coloring skill which forms so large a part of the painter's art. We saw at Mr. Kronheim's a number of copies (produced by his process) of the "Descent from the Cross," by Rubens, in the cathedral at Antwerp. They represented with astonishing fidelity the brilliant and varied flesh tints in which that great master luxuriated, and except that they were executed on paper, and not canvass, they had the appearance of genuine copies in oil. So far is this carried that each copy may without injury be washed with soap and water.

So far as the manipulations of the art are concerned, the process is about the same as I have seen practiced in America, but the pictures are certainly superior. This is an art in which we are far excelled by European artists. I think our American Daguerreotypists are superior to all others, and will no doubt compete well with other exhibitors.

The report of a most dreadful colliery explosion in Scotland, has just reached this city. It took place at the Nitshill, about five miles from the City of Glasgow. The pit was 175 fathoms deep (1,050 feet—what a depth for man to work), and was named the Victoria. The explosion was caused by fire damp. There were 63 persons at work in it at the time; only two have yet been received alive. So destructive was the explosion that the machinery at the top of the pit was shattered to atoms, and houses for five miles around shook with its force, as if an earthquake's voice had thundered from below.

The place where this accident occurred is celebrated for the manufacture of alum—the ore for that purpose being found in the pits. The accident is supposed to have occurred from some of the walls falling and obstructing the ventilation, which was good. No explosion of a steamboat on the western waters of America, was so dreadful as this one. The coal mines of Pennsylvania are of no depth at all in comparison with some of those in England and Scotland. In the coal basins of Britain there are generally four or five seams of coal, separated by other strata, and from the first to the lowest, the distance is often some hundred feet. The upper seams are soft and bituminous; the lowest seam is the hardest and best, burning clean and beautiful. Limestone, iron ore, and coal seams are found interlayered in the British Coal Basins, and this affords the iron manufactures of England every advantage. EXCELSIOR.

## The Mystery of the Electric Circuit.

MESSRS. EDITORS—In describing the American Electro-Magnetic Telegraph, on page 211, you assert that "the fact is beyond all question—the ground forms part of the circuit." Although I do not profess to be much versed in such matters, I affirm that it is not a fact, unless in a most far-fetched and strained meaning. I hope some knowing-one will give us a peep into this—as I call it—great fabulous millstone.

I here venture my opinion:—the earth operates as an absorbent of the electricity, and not as the connecting circuit conveying the same electricity to the negative end of the battery. The large surface which the sheet of copper presents to the moist earth, enables the earth instantly to extract the electricity. Who believes the same electric fluid passes directly from New York to Philadelphia, using the earth for its conductor?

I imagine that if a large quantity of moist earth were insulated by being put into a vessel made of a non-conducting material, and a sheet of copper, connected with a battery-wire, were placed in this earth, a current of electricity could be discharged into this vessel, for a

brief period; but as soon as this earth should become highly charged the current would cease.

As well may we say that the same drop of water put in at one side of a large pond can be made to pass to the other side, is evaporated in the open air, and returned directly back recondensed, as that "the earth performs the circuit" one half mile, to a one-wire telegraph. The earth merely absorbs the electricity.

CLARK RICH.

Shoreham, Vt.

[It will be very easy for friend Rich to prove his own theory. Let him get two large tubs filled with water, and place them at a considerable distance from one another, on a dry carpet. Then let him put the wire of one pole of the battery into one tub, and the other wire into the opposite tub. If his theory be correct, he will receive a shock if he puts his hand into either one of the tubs. Now, friend Rich, look out for your own theory proving a "fabulous millstone."

To us it has always appeared irrational to suppose the earth formed part of the circuit, and that the fluid, in an instant, fled through the earth from one distant place to another. To explain the idea to those who have not fully investigated this matter, let us say, that a galvanic battery will not exhibit any electric force, unless its two poles be joined together by what is termed an "electric circuit." An electric circuit may be formed of the metals, and the moist earth but not with glass or resin. An electric circuit means the connection of the two poles of the battery by a road for the electric fluid, such as a metal wire, and unless such a road is found, no electricity will be developed. The telegraphs use only one wire, and by connecting the wire of one pole of a battery at Baltimore, with a metal plate, inserting that plate in the ground and doing the same with the wire at the other pole of the battery, at New York, an electric circuit is formed and electricity is developed. The subject is mysterious, but electricians only use the language we have used, as quoted by Mr. Rich, until a better theory, based upon incontrovertible facts, is put forth, and we say it is the best we can use to explain the workings of the Electric Telegraph.

Friend Rich says he has no doubt but a tub of earth would attract electricity until it was highly charged, when the current would cease. He should be able to tell them how a copper wire, connected with a battery, after becoming highly charged, does not stop the current—but right on it goes. The philosophic explanation given of the electric circuit, is that "no electricity leaves the battery until a road is formed for the fluid to travel freely from one pole to the other."

## Magnetism of the Atmosphere.

MESSRS. EDITORS—I have learned since the publication of my letter on page 144 of your journal, that Mr. Faraday's discovery of the magnetic properties of oxygen was made or communicated three years ago; this fact, however, does not affect my priority claim, my experiments and communications being made in January, 1845.

I believe, with Lieut. Maury, that the discovery is the "key-stone for some of the most grand among the sublime and beautiful structures which philosophy is erecting for monuments to the genius of the age," and it is this importance—this scientific value, that determines me to at least make the attempt to establish a just claim as its author. The discovery has a very important bearing on the successful action of my experiment in the transformation of water into the gaseous state, and without the knowledge that oxygen was magnetic, I could not have taken a single step in the prosecution of my experiments. I would here remark, that if the scientific bodies who have seen fit to make my experiments the subject of their merriment and ridicule, were as well posted on the subject of atmospheric phenomena, as they are dogmatic in old school philosophy, a great display of ink, pomposity, and ignorance, would have been saved.

The following experiment may be interesting to Lieut. Maury and your readers who are interested in such matters:—About the mid-

dle of June, 1849, my apparatus was located over the rocky top of a hill; towards the last of the month I noticed a diminution of effect, and was obliged to add extra weight to the apparatus. At my house, situated about a quarter of a mile in a due east direction from the hill, another apparatus, and precisely the same in its construction with the one on the hill, was observed to *increase* in effect, and the weight had to be lessened in order to secure safe action. This difference in the working of the two machines led me to suspect that electrical currents were passing in vertical strata. In order to test this supposition, the hill apparatus was carried a distance of half a mile in a direct line E. S. E. from the hill, and worked at every few rods on the line. The result was, that the same velocity of the helices gave continuously changing results—at some stations hardly producing any result, and at others a great excess over the required action. The wind, a light summer breeze, was in from the S. W., during the experiments.

During the prevalence of cholera, in Paris, an eminent chemist there stated, that in those districts where the epidemic was the most fatal, he invariably found atmospheric electricity to be very feeble. During the same season a chemist, in Edinburgh, made some experiments, and found the electricity to be in excess: the consequence was, that the two chemists came to very different conclusions with the same course of experiments—the first attributing the mortality to the want of electricity, and the latter to its excess. Now the experiments I made, as mentioned above, prove conclusively that both of them, as well as many others, were in error in attributing the epidemic to electrical action.

I perceive that a writer has commenced an article on illuminating gas, in your last, and after indulging himself in a fling at what he calls "False Lights," he proceeds to *assume* that carbon is necessary in certain atomic quantities for the production of luminiferous flame. I know the object which prompts the writer, at *this present time*, to pen his article, and I assure him that he will not succeed. I deny that the combination of one atom of carbon and two atoms of hydrogen is the requisite combination for the production of good light, and I propose to prove, in your next number, that this proposition, the base of his whole article, is an assumed one, and entirely wrong. Yours, HENRY M. PAINE.

[So far as relates to the discovery of oxygen being magnetic, we have no evidence to disprove what we have said about Faraday being the original discoverer. Will Mr. Paine refer us to any printed publication respecting his discovery being made in 1845? We always wish to do justice to every man—"honor to whom honor is due." Faraday's discovery was published as early as 1847, in the *Philosophical Magazine*.

## Bahama Sponges.

The rapid strides made in sponging within the Bahamas, since the year 1847, appear almost incredible. Vast quantities of sponge may be seen covering fences, yards, and housetops, where it is left to dry, after having been previously buried (in order to kill the zoophyte which inhabits it) and washed. It is afterwards divested of the fragments of rocks which adhere to it, pressed and packed in bales, averaging 300 lbs. weight, each, for the London market, where it is manufactured into cloth hats, &c., and converted to many useful purposes. We are informed that it has recently become the medium for poultices to wounds instead of cloth. "From the 1st January to June 30th, of the year 1849, there were exported nearly 1,000 bales of sponge, of the value of at least 25 dollars each—\$25,000. On the 1st of January, a very small stock of sponge was on hand, while on the 30th June every dealer in this article had a large stock; therefore, as it is a cash article, there must have been paid to the crews employed in this trade at least 40,000 dollars.

The Mediterranean at one time furnished all the sponges used in Europe, and the very finest are yet fished up around the Isles of Greece. Our finest sponges sell at a very high price. Could not sponge-fishing be carried on along the coast of Florida?