Miscellaneous.

[Special Correspondence of the Scientific American.

London, June 5th 1851.

The price for admission to the great Exhibition being now reduced to one shilling sterling (22 cents) the number of visitors has greatly increased. No less than fifty thousand five hundred visited it yesterday, yet for all this there was no crowd.

Among the American inventions are some of the patent chairs of Mr. Warren, of Troy, N. Y., engravings of which appeared in the Scientific American. The London Patent Journal publishes a very neat engraving of the chair, and speaks in very flattering terms—and justly so—of its merits. An engraving of Heald's American Harness Machine has appeared in the columns of the London Illustrated News, but it is a miserable representation.

The Morning Chronicle speaks well of the American show of raw materials. It says:—"Under the general classification of raw material, the contributors from the States exhibit many very excellent specimens. There are among these a large variety of articles, such as indian corn, ground, hulled, and in the ear; rye, oats, barley, wheat, tobacco, minerals, chemicals, woods, brooms, beef, pork, lard, hams, and almost everything else identified with the productions of that country. Next in order are to be seen daguerreotypes, paintings, herbaria, and prints, with some samples of stained glass suspended from the galleries, and cottons, carpetings, wrought quills, calicoes and needle work, tastefully displayed around. Considering the distance from which these had to be conveyed, **not only across 3,000 miles of ocean,** but often from little short of that distance inland—and considering, too, that it is not in her manufactures that America makes her chief impression upon the world—we regard this portion of her exhibition with great interest."

I quote this to show our countrymen that those things which have been sent here are appreciated.

It is the duty of our commissioner to make out a catalogue of prices for the American contributions. Mr. Riddle has met with unexpected difficulties in doing this. This catalogue of prices is important to jurors, who are directed to take the cost of production into view as one element on which to base their decision. Every contributor should have sent the price along with his contribution. The following is the list of American jurors:

Horace Greeley, Chair'n,	Class	22,	New York.
Ashbel Smith,	do.	3,	Texas.
Judge Duncan,	do.	4,	Virginia.
Robert McCarthy,	do.	5,	New York.
O. Macdaniel,	do.	5,	N. Jersey.
Samuel Webber,	do.	6,	Mass.
Dr. J. V. C. Smith,	do.	7,	do.
Asa Whitney,	do.	8,	New York.
B. P. Johnson,	do.	9,	do.
C. M. Lampson,	do.	9,	Mass.
E. R. Leslie, R. A.,	do.	10,	do.
Dr. Geo. B. Loring,	do.	10,	do.
Dr. Chadbourne,	do.	10,	N. H.
Col. R. E. Coxe,	do.	11,	Alabama.
Chas. Kingsbury,	do.	12,	Conn.
John H. Swift,	do.	15,	New York.
J. S. Cunningham,	do.	16,	Virginia.
Henry Stevens,	do.	17,	Penn.
Elliot Cresson,	do.	20,	do.
L. C. Duncan,	do.	24,	Louisiana.
Rev. Gorham D. Abbott,	do.	28,	New York.
B. R. Smith,	do.	1,	Virginia.

You may have seen a letter in the London Times from an American, explaining why there were not more exhibitors from the United States. The views presented were those which appeared in the editorial columns of the Scientific American. The letter in question has done good, and I should like to see it published by you.

(We hear present the important parts of said letter.)

The fact is, that in no one branch is the United States fairly or adequately represented; and in this I shall be fully borne out by all Englishmen who have visited America.

The North, or New England States, are not represented, either as to the extent, the progress, or the variety of their manufactures. The middle States, that have long been famous for the invention and construction of some of the finest machinery in the world—in which branch they are second to none—have here but three or four machines, which, excellent as they are, give but the faintest idea of the gigantic progress of the country in this particular. The Southern States, which are principally agricultural, are most certainly not represented. As an illustration of the many kinds of cotton cultivated, we find here but samples of seven, while the different varieties of sugar in the State of Louisiana, are represented by one specimen from a single plantation.

Now, to the causes. First, the want of sufficient information through the length and breadth of the States in reference to the character and extent of the exhibition. This at present lies at the door of the Central Committee at Washington. Secondly, Congress has unfortunately appropriated no fund, as in other countries, to assist exhibitors. And this has operated to strengthen the third cause—the remoteness of the scene of action, an obstacle increased by the great extent of the country, which rendered the internal transmission of our contributions expensive and inconvenient, and even, in some instances impracticable—and which, added to the distance itself, made this a very onerous part of our outlay. The time for preparation, too, was short, considering the nature of the enterprise and the distance of the country.

The enumeration of these causes, offered in the spirit of candor and in a firm conviction of their literal truth, will, it is believed, mainly account for the incompleteness of the American department of the exhibition.

Excelsior.

Custom House Scrutiny in Liverpool.

Persons going to the World's Fair should be careful about taking tobacco and books. An American editor who went to see the sights states that the Custom House officials in Liverpool are a prying set of fellows, and are down especially strong on any over-allowance of tobacco which a passenger may chance to have, and for American reprints of English publications there is no mercy but the flames. All these reprints, and every passenger's trunk contained several of them—were not allowed to pass on any condition, but as fast as they were found, were thrown in a pile for the purpose of burning. The search for the Virginia weed was most penetrating, and all who had more than half a pound were compelled to pay duty at the rate of nine shillings sterling per pound. The editor's stock of cigars weighed a pound and a half, on which he paid a duty of $3,75. On American books, of which he had eight pounds, he paid a duty of four and a half pence sterling. The bound volumes of the several newspapers in the State, designed for the Worlds Fair, after much difficulty were allowed to pass on the payment of a duty of twenty dollars. This is enforcing the revenue laws strictly.

[The above is from the Philadelphia Ledger and to those who are still designing to go to the World's Fair, we say, pay strict attention to the lesson therein taught. Every word is true. The officials of the Liverpool Custom House are rude and ungentlemanly; indeed, the whole of the officials under the British Government are generally gruff and uncivil. The officers under the American Government are gentlemanly and civil—the contrast is very great. What we have said has not been uttered for any other purpose than to tell the truth, and, we hope for a good effect. It would be much to the credit of the ministers of the British Government, if they enjoined the same civility upon their Custom House officials as is enjoined by the magistrates of London upon their police.

The everlasting perseverance of the Yankee is admirably illustrated in a case that lately occurred at Lynn, away down east. A cute chap indentured himself to a boot-maker for two weeks, to learn to fit boots. At the end of three days he bought out his time, and set up for himself.

Electro-Magnetism as a Moving Power.

In last week's number of the Scientific American, Prof. Page, of Washington, criticises the views expressed on page 285. He says:

"The writer takes unnecessary pains to show that electro-magnetism is far inferior to steam as a motive power—a fact never doubted by any one conversant with the subject."

Here he admits the conclusions of the writer he speaks of, to be correct and sound, and had he said no more he would have administered a rebuke to him for his "*unnecessary pains*," but his long article is an evidence that there was and still is a necessity for saying something about the comparative merits of steam and magnetism as motive powers. Mr. Page says he "has never met with an investigator of electro-magnetism who did not evince an acquaintance with steam power;" this may be true, but others cannot say as much, and he has a very singular way of estimating the power of locomotives himself, as set forth on page 277 of the Scientific American, and also what is said about the strong horse in Washington. And, as it respects the economy of Electro-Magnetic Power, he has also peculiar ideas. He says:—"The truth is, that the cost of electro-magnetic power, or any other power, is circumstantial, and the attempt to predicate the whole economy of magnetic power upon the cost of coal and cost of zinc, and the fact that coal is found native and zinc not, is in effect, to make nature's laws and operations amenable to market prices and other contingencies."

That's it exactly, Sir, just as all engineers (the best judges) in the market of the world understand it. The whole economy of any motive power is amenable to market prices, and so are nature's laws and operations, not forgetting the contingencies, when connected with engineering and manufacturing operations. If Mr. Page leaves Electro-Magnetic Power out of the market—beyond the claims of market prices, then there is an end to the whole matter, and it is to be regretted that Congress expended so much money on his experiments. But then the whole article referred to is written in a tone to present electro-magnetism, as a prime motor, in the most favorable light as compared with steam, he therefore depresses the claims of steam engineering in order to elevate electro-magnetic engineering. The very facts, however, which he brings forward, destroy his own barricades. He says—

"The proper appreciation of magnetic power is to be had by comparing it with steam in an equal stage of its developement, when it will be seen that the magnetic power rather carries the palm. Steam power has not yet reached its climax, but it seems as if it were approaching its culmination, as its march seems to be comparatively slow; while magnetic power, evidently in its inception, is progressing rapidly."

Let us test the two powers by his own touchstone:—In 1804, he says, the first steam locomotive made 5 miles an hour, and drew 15 tons on a level plane, and after 25 years of experience (1829) Mr. Stephenson constructed the "Rocket," which drew 17 tons at the rate of 15 miles an hour. Well, now, let us see what progress the Electro-Magnetic Engine has made. He says—

"As to Davidson's engine, it was fully tested by myself on a large scale in Boston, in 1837, and it was invented and tried in Baltimore by Dr. Edmonson, in 1834." Now here is 17 years' experience, and how much has he improved it? He tells his own story thus: "With my magnetic locomotive just as it is, I would willingly have entered the *list* with the Rocket in point of power, speed, and expense of working. I feel confident, however, that the magnetic locomotive is capable of carrying two loaded passenger cars to Baltimore at the rate of 20 miles an hour, as soon as some of the very great and obvious defects are remedied."

Here, then, after 17 years' experience, he has caught up with the "Rocket" of 1829, and will be enabled to go to Baltimore at the rate of 20 miles per hour, after some *very great defects* are remedied. Now, if the steam engine progresses so slowly as he states, and the magnetic is progressing so fast, how is it that he states in another place that "the expense of a horse-power, in the Cornish steam engines, has been reduced, within a few years, from 10d to 2d per diem?" And how has the locomotive progressed since 1829? Why, some can run at the rate of 60 miles per hour; and we know of one locomotive which, last year, drew 40 cars loaded with 200 tons of coal the distance of 58 miles, and consumed only one ton and a half of anthracite coal. Has electro-magnetism as a prime mover, advanced as rapidly as this? Certainly not: it is not yet up to the "Rocket." Had he entered the lists with the "Rocket" he would certainly have been defeated, for *it* did not break down on its first trip, all went on snug, safe, and sure; the little engine of 4 tons 5 cwt. drew three times its own weight for 70 miles, at the average rate of 15 miles per hour. Without a load it went at the rate of 30 miles per hour. There was another engine tried along with the "Rocket," the merits of which should be mentioned, viz., the "Novelty;" this locomotive did not weigh quite 2 tons, yet it drew 11 tons 5 cwt. the distance of 21 miles in one hour—when some of its tubes gave way and the competition was given up. The Electro Magnetic locomotive is immeasurably behind the "Novelty" yet. And here let it be understood that the improvements which were made in the locomotive in the 25 years spoken of, were all ready made to the electro-magnetic engine, and have been appropriated without as much as saying "I thank ye."

The first locomotive of Trevethick, patented in 1804, had only a single cylinder, and ran on a tram road with plain wheels. The cog wheels, the rack rail, the leg locomotive, the plain wheels, and the tram rails, had all to be surmounted by the steam engineers; the flange wheels and heavy rails—those great improvements in steam engineering,—were all ready for the magnetic engineers when they commenced operations in 1834, and yet, with their 17 years' improvements, there is not a solitary electro magnetic locomotive in practical operation throughout the wide expanse of Christendom; in fact, Prof. Page himself has only arrived at the point of doubtful vacillation in choosing between a reciprocating and rotary electro-magnetic locomotive.

Respecting the remarks which he makes about Liebig, he has neither made just comparisons, nor presented Liebig's views correctly. Electricity developes both heat and attractive force—chemical and mechanical effects—the one is as much electricity as the other is, but different means are employed to develope them, and the one is just as powerful as the other, in performing its functions; the means to develope both, however, may not be equally perfect. The experiment at Baltimore proves nothing; it is only 30 years since electro-magnetic power was discovered; before that chemical electricity had resolved the hard diamond into gas in a much shorter space of time than mechanical electricity could now grind it into the same state, but it would be erroneous to make a comparison of the two powers. Prof. Page knows full well the difference between electrical intensity and quantity. No engineer, comparatively, estimates the power of his engine by the heat of the steam, but the quantity of it. In 1843 the eminent Liebig said, "the employment of the galvanic pile, as a motory power, must, like every other contrivance, depend upon the question of its relative economy; some time hence it may so far succeed as to be adopted in certain favorable localities." Could anything be less absurd than this? Could anything be more reasonable? Well, old German Philosopher, nearly eight years has passed away since, and not one of the improvers of electro-magnetic engines has been so fortunate as to get it adopted in the most favored or unfavored locality in the world, and to all appearances it will be a long time before they will

A great number of practical facts respecting the superior economy of steam power might be adduced but there is no necessity for doing so at present. The difference between the steam and magnetic locomotive, at present, is that the former is cheap, practical, and in universal use; the latter is not yet practical. *