

Scientific Memoranda.

ELECTRICITY AND THE ATMOSPHERE.

As connecting itself with a subject which is now attracting the attention of most meteorological observers, the following communication of M. Matteucci is of considerable value. This electrician states that his researches upon the loss of electricity in the air, more or less humid, have led him to the following proposition: In air taken at a constant pressure and temperature, the loss of electricity increases with the quantity of the vapor of water that it contains. But this increased loss does not vary according to the simple law which Coulomb believed he had deduced from a small number of experiments, viz., that this loss was proportional to the cube of the weight of the water contained in the air.

DISCOVERY OF A CURIOUS CAVE IN WALES.

Recently some miners at Llando, in Wales, broke in the course of their labors, into what appeared to be an extensive cavern, the roof of which, being one mass of stalactite, reflected back their lights with dazzling splendor. On examination, the cavern turned out to be an old work probably Roman; the benches, stone-hammers, &c., used by that ancient people having been found entire, together with many bones of mutton, which had been consumed by these primitive miners. The bones are, to all appearance, as fresh, though impregnated with copper, as they were when denuded of their fleshy covering, after remaining, as they must have done, nearly 2,000 years in the bowels of the earth. The cavern is about forty yards long, and must be a subject of great interest to those fond of investigating the remains of bygone ages.

MAGNETIC ACTION ON RAILWAYS.

It is well known that an opinion has prevailed among scientific men for a few years, that railway axles, after having been used for some time, become crystallized by galvanic action, and were then very easy of fracture. The subject was brought before the late meeting of the British Association by Mr. Greener, who, without questioning the fact, stated that the axles were affected with electricity generated by the bearings and the journal while in rapid motion. He said that by subjecting inferior iron to currents of electricity, it soon was changed into a crystalline state, and lost its tenacity. Mr. Stephenson said that it was dangerous to assume facts and reasoning from the assumptions of Mr. Greener.

With respect to the influence of vibration on the structure of iron, he considered there was good room to doubt that the bearing force or pressure upon metals caused crystallization. It was by no means proved that railway axles were subject to the passage of currents of electricity, and therefore granting the assumption that the passage of the electric current changed the character of the iron, there was a link wanting in the chain of reasoning, inasmuch as it was not proved that axles were subject to this electrical influence. Moreover he was inclined to doubt whether if a piece of iron was at first perfectly fibrous, vibration would ever change the structure of the metal. The beams of Cornish engines, for example, were subject to vast pressure, they never become crystallized, the connecting-rod of a locomotive was subject to great vibration, strain, and pressure, vibrating eight times a second when the velocity is 40 miles an hour: he had watched the wear of a rod for three years, and no change was perceptible in the structure of the iron.

TELEGRAPHIC FEAT.

On the 1st inst., the train of cars on the Utica and Albany line, N. Y., ran off the track at Fonda, when Mr. Porter, of the Telegraph at Utica, being one of the passengers, sprang from the car and cut one of the wires, and sent an account of the accident to Utica. This was done by grasping the cut wires with some non-conducting substance between the fingers, and bringing the two wires in contact to complete and break the circuit, and thus actuate the pen lever at Utica, making it write the message.

By the latest news from Europe, Kossuth was expected in England, and great preparations were made to receive him.

For the Scientific American.

Important Discovery that may Lead to Improvements of Great Value.

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Before we gave the subject a careful examination, it seemed strange to our mind that circular motion should present such a phenomenon as centrifugal force, and stranger still that it should so rapidly increase, as to tear asunder the most solid body at a rate of motion not otherwise surprising.

To show that in other minds also there was some mystery or want of clearness connected with this subject, we will quote from the article on centrifugal force in Nicholson's Encyclopedia:—"All moving bodies endeavor after a rectilinear motion, because it is the easiest, shortest and most simple; whenever, therefore, they move in any curve, there must be something that draws them from their rectilinear motion, and detains them in their orbits; and were that force to cease, the moving body would go straight off in a tangent to the curve in that very point, and so would get still further and further from the focus or centre of its curvilinear motion. It may be that in a curve where the force of gravity in the describing body is continually variable, the centrifugal force may also continually vary in the same manner, and so that one may also supply the defect, or abate from the excess of the other, and consequently the effect be every where equal to the absolute gravity of the revolving body."

In the foregoing we are told that moving bodies endeavor after, or select a straight line, because it is the shortest, easiest and most simple. It seems then, that moving bodies have an intuitive knowledge of the easiest way of accomplishing their journey. But we might enquire where the motion is perpetual, why the shortest route is easier than any other and why more simple; and how inanimate nature comes to know anything about it, for to speak of moving bodies endeavoring after a rectilinear motion, because it is the easiest, shortest and most simple, seems almost to imply intelligence in the moving body. But inanimate nature don't always follow that rule. If for instance the wire from one pole of a battery should approach within a few inches of the other pole and then pass round the State of Pennsylvania, or even wind from bottom to top of every tree in the State before it returned to the negative pole, the electricity, instead of taking that short and simple route of two or three inches, would rather climb every tree in the State by a thousand coils on each one, thus going a vast and interminable distance, for some other reason, surely, than the simplicity of the route.

And again we are told that if the central force should cease, the moving body would go straight off in a tangent to the curve in that very point, &c. Why say that very point, as though it were something surprising and different from what we might have expected?

And again we are told—it may be that in a curve where the force of gravity in the describing body is continually variable, the centrifugal force may also continually vary in the same manner, and so that one may also supply the defect or abate for the excess of the other.

Now if all this does not show that the subject was not clearly understood, then we do not comprehend the meaning of such language—and if they did understand it clearly, why did they not give us a rule for shaping vessels, and then the world would have been far in advance, in some important respects, beyond its present position?

Another proof that it was not understood, is found in the fact that we were told, in the common school philosophy, that Barker's reacting water-wheel is in theory one of the most powerful and, in practice, one of the weakest. Whereas if this subject had been properly understood, the theory and practice would have agreed, as our proposition or inertia rule will make most plain on applying it to that wheel.

And again:—It certainly is not generally understood that the power which breaks the bow line of a canal boat when made too suddenly fast on entering a lock, and the power that burst the cylinder of a threshing machine, or grind stone when in too rapid motion, are

one and the same—perfectly identical one with the other. Neither is it generally understood that the power which impels the woodman's axe into the tree, and carries the ball from the rifle towards the clouds, in spite of air and attraction, is perfectly identical with that which forms the fulcrum to the steamboat's wheels.

We were once told by a man who has stood no lower than a Governor of a State, that the principle we speak of, so far from possessing power, was the very absence of all power. And yet so erroneous are the examples of its power continually within the reach of our sight, that the whole physical force of mankind, since the world began, would not be as a drop in the ocean, compared with the power exerted by inertia in a single second of time, for it not only continually balances the enormous weight of our globe, but uncounted millions of other orbs, and countless clouds of worlds.

(To be Continued.)

Sarsaparilla.

Dr. Dixon, in the last number of his keen-edged "Scalpel," favors his readers with a pungent and scorching review of the present Sarsaparilla system—so popular among that class whose knowledge of the ingredients of which much of it is made, extends only to the flaring advertisements heralding its existence. The Doctor makes the following bold announcement, that "there is not a particle of Sarsaparilla in these compounds! Indeed, all the article imported into this country, would not make a tithe of what is sold under the name in this city." He says, "It would be comparatively of little consequence to the wealthy, who are paying the wages of misfortune or sin, if they were the only victims of these heartless wretches, but we confess our indignation has been excited to hear our professional friends engaged in general dispensary practice, relate instances where a wretched washerwoman, or the wife of a poor mechanic, has daily, for months together, taken one or two shillings from the hard earned wages of her husband or herself, or what is worse, from the mouths of her suffering children, to buy the precious life-giving compound. We will give her the recipe for an honest and true sarsaparilla syrup, in all sincerity, conscious of the rectitude of our intentions. The recipe we give is taken directly from the United States Pharmacopoeia: the received and acknowledged guide of all our doctors and druggists. By making it as here directed, she will possess a perfectly pure syrup of sarsaparilla, for one half the price of the article that has not a particle in it. Physicians add mercury according to the effect which they wish it to produce. As to the conditions of the system, or diseases for which it is given, it would be absurd for us to say a single word, for we have given our opinion already, that as a medical agent it is utterly inert. One thing is certain, it can do no harm. RECIPE:—Purchase of a druggist of known honesty, fifteen ounces of Para sarsaparilla; split the stalks in two, lengthwise, and cut it in short pieces. Soak it in a gallon of pure water for twenty-four hours, then boil it down to two quarts: strain, and add whilst boiling, fifteen ounces of white sugar: thicken all by a little additional boiling, precisely as you make the syrup for preserves. Here you have two quarts of pure syrup for eighty cents. The dose is from a teaspoonful to a wine-glass full, according to age, three times; but it would do no harm if taken by the tumblerfull; it is not hurtful in any dose."

[We are of the opinion that pure sarsaparilla is not an inert medical agent, although we are not prepared from observation to question the point strongly. It would appear to us as a reasonable conclusion, that in case a person should obey rigidly the laws of health, and this blessing should be the consequence, a syrup made from pure sarsaparilla would produce a change in the physical organism, would not the functions become deranged to a certain extent, when used by a healthy person? If a dose of sarsaparilla syrup would not produce an evil effect, and at the same time was capable of producing an effect—would it not be salutary? Has not experience established it as a remedial agent? We make these observa-

tions not for the purpose of attempting to contradict the opinions of so learned a man as Dr. Dixon. The ideas are such as suggested themselves to us after reading his statement that it was an inert medical agent.

Original Inventors.

We have received a communication from Mr. Wm. Henson, No. 30 Commerce street, Newark, N. J., about an invention which he claims, and for which a patent was lately secured by another (no fault of the Patent office.) We, of course, express no opinion, because we cannot give one. The letter is endorsed by Mr. Henson himself, who has stated that he is willing to make affidavit to it. Here is all that we can publish of the article, and would state that a rough drawing of the invention claimed is in our possession, brought with the article by the author.

"Seeing among the list of re-issued patents, one granted to Erastus B. Bigelow, September, 18, 1849, for weaving Brussels Carpets, (attached to his patent granted March 20, 1849,) I beg to state that what he claims in that patent is entirely my own invention, that after many months' hard study and close application I matured; and I exhibited the machine with Brussels carpet on it at Newark, N. J., and afterwards at New York, July 20, 1848, by the advice and in the presence of George Gifford, Esq., Solicitor and Counsellor to Mr. Parkhurst, the patentee of a wool combing machine, and several other persons, who highly approved of it. Mr. Parkhurst pronounced it as far excelling any thing of the kind out. He engaged to find parties to treat with me for the invention. To enable him to act more effectually in the business, I allowed him to take one of the main and principal parts of the invention to Lowell. Shortly after I received a letter from him stating that he had had an interview with one of the manufacturers, and found him very anxious to learn more about the invention; that he, Mr. Parkhurst, could manage the affair, as he had to see them again on the business. I was anxiously waiting to hear the result, but neither saw nor heard from him until I met him accidentally in New York in December, when he told me he could not attend to my business, if I was to give him five hundred dollars a day. I asked him to return me the part of the invention above named, which he afterwards left, with a note, at Mr. Gifford's office, for me. This principal part of the invention is a wire tube, which is fixed in front of the sley, so that the figuring warps that form the pile, may rise up between them, about the tube; the wire that forms the pile is then shot from out of its carrying tube or barrel into the wire tube, under the figuring warps that form the pile. It will now be seen that when the figuring warps descend, they will press down the wire, which will spring open the tube and let it drop into the open shed, ready to be beat up by the sley. This is my own invention, which I claim, together with the application of rollers, for drawing out the figuring wires from under the pile, and delivering them into a small tube, the length of the wires, like a pencil case, which tube conveys them to the front of the sley, and then discharges them into the wire tube named above. These are my inventions, which I exhibited at New York, as stated above, which my machine will prove, and the persons who saw it can bear witness to, and which Mr. Bigelow has claimed in his re-issued patent, under the terms equivalent, &c. W. HENSON. Newark, Nov. 13, 1849."

[We have got a question to ask of the Patent Office, here. Does it grant patents on re-issues for things not in the model of the original patent? We have heard it asserted in a public lecture by a conspicuous patent attorney, that it did. We should like to know the truth of it. What Mr. Bigelow claims is, no doubt, his own invention, too.—Ed.]

Young Mechanics in California.

A company in this city have just purchased of Mr. Wilson, of Philadelphia, the right of the Woodworth Planing Machine for the Territories of California and Oregon. They intend to start an establishment in San Francisco at the earliest possible period.