

## Scientific Museum.

### Electro Magnetism Triumphant Over Steam.

We have received a copy of the Brandon Post, Vt., with an article marked for our notice, with the above caption. It is from the pen of Thomas Davenport, of Salisbury, of that State, the man who constructed the first Electro Magnetic Engine in the world. He first quotes the article which appeared in our columns about Prof. Page's experiments, and then goes on to say—

"As I am confident that the results of the experiments of this enterprising and scientific gentleman will open the eyes of the people, and the purses of capitalists sufficiently to soon place upon our rivers, lakes, and railroads, a safer, more convenient and cheaper power than steam, I hope I may not regret so much in future as I have for ten years past, that the paralyzing hand of poverty has forbidden any attempt in myself to prove to the world, what, as early as 1833, I believed could be done in the space of five years. At that time galvanism appeared to me to have the same relation to the power of an electro-magnet that water does to the power of a steam engine, and I had no doubt but I could convince the whole sensible world of the fact, by fairly applying the power of a small electro-magnet to moving the lightest machinery. But I was disappointed. I found the power more controllable than the minds of men, and compliments more plenty than money."

He then states that he spent 17 years in applying electro magnetism to useful purposes and in 1838 ascertained that a bolt of iron could be drawn with great force into a helix of wire whenever the battery current was suffered to pass through the coil, and he then made an engine on this principle with two cylinders, very much like steam cylinders; for this invention he filed a caveat in our Patent Office, and sent several models to Europe, and obtained a patent in England, and a number of other European kingdoms.

We would state here, that Mr. Davenport's claims have been honorably mentioned in the Glasgow Mechanic and Engineers' Magazine.

In 1839 he experimented on a large scale with a magnetic helix two feet in length, and a bolt of iron two feet long and 2½ inches in diameter was forced into the helix with a power equal to 6 lbs. on the square inch. In January, 1840, he made an engine with two magnetic cylinders, weighing 50 lbs. each. The engine had a one foot stroke; his battery weighed 200 lbs. In that month he commenced publishing a newspaper which was printed on a press propelled by his engine: it made 120 strokes per minute, but worked off 10 papers in that time, or 600 in one hour: it was about one horse power. The price of zinc and acid did not, he says, exceed twenty-five cents per day—a very low estimate, we think. He has constructed more than a hundred electro magnetic engines of different dimensions, and his experiments with helices, using long and short, large and small, hollow and solid bars of iron, were very numerous. He concludes as follows:

"My press was first moved by a horizontal helix engine. next by a rotary, and lastly by a perpendicular double helix engine. Now, as Prof. Page's experiment with his 160 pounds of iron 'dancing like a feather in the air,' seems to be precisely like the experiment I made in 1839, when the 28 pounds of iron jumped through a helix two feet in length, by magnetic action, and, as the Professor's engine is constructed on the same plan and principle with my own, above described, I presume the scientific gentleman lays no claim to having presented any new route in his application of the power, or to have made any important improvement whatever in my invention. If Prof. Page by the completion of his engine, has finally come to the point at which I arrived ten years ago, in testing electro-magnetism as a prime mover in the arts, and has expended as much money in a series of experiments which he, of course, would be obliged to make, I think I could have saved him the needless expenditure of several thousand dollars, by

giving him the results of some of my experiments in 1838-9-40, which I should have been happy to do, if I had been consulted in due time."

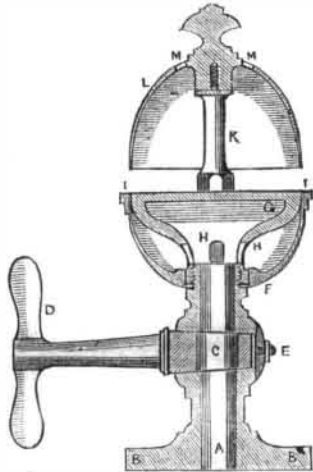
It seems that Mr. Davenport is not aware of the fact that \$20,000 was appropriated to Prof. Page for his experiments—that they did not cost him one cent—and after all, here is a poor man who attained as great results ten years ago.

Will Mr. Davenport give us a sketch of his probable expenditure in his experiments? It is nothing more than just that the original inventor should have his rights acknowledged publicly. "Honor to whom honor is due," and the laborer is worthy of his reward.

### The Steam Whistle.

As we have had not a few enquiries about the steam whistle used on locomotives—how it was constructed, &c., by those who have only heard the thrilling noise, we take this opportunity of illustrating and describing it.

The Steam Whistle is an apparatus attached to the boiler of a locomotive engine for the purpose of giving warning of its approach when running. The construction of the whistle is shown to one-quarter size in the annexed engraving. It is made of brass, and the



foot, A, is cast hollow, with a flange, B, at the bottom, to bolt it on the fire-box: it has a cock, C, placed in it, with the handle, D, and screw, E, to keep it tight; the handle projects out to allow firm hold to be taken of it. The cup, F, is fixed upon the foot, A, by screwing the piece, G, upon it, and both are turned truly at their outer edges, leaving a very narrow passage, I I, four inches diameter, between them all round. The piece, G, is hollow, having holes, H, in its sides; and a pillar, K, stands upon its centre, on which is screwed the bell, L L, the thin edge of which is brought just over the opening, I, and half an inch above it.

When the cock is opened, the steam enters the cup, F, through the holes, H, and rushes out at the narrow slit, I, striking the thin edge of the bell, in a manner similar to the action in organ-pipes, and producing an exceedingly shrill and piercing sound. Some holes, M, are made in the top of the bell, to allow the steam to pass through, which improves the sound considerably. The size of the eccentric part where the steam escapes, and the depth of the bell part, and their distance asunder, regulate the tones of the whistle, from a shrill treble to a deep bass. The cock should be steadily opened, to adjust the quantity of steam, so as to produce the clearest sound. The steam-whistle is very effective, and its sound can be heard at a great distance.

### Self-acting Hydraulic Syphon Ram.

We have had, says the Providence, R. I., Post, an opportunity of witnessing the operation of this wonderful machine for raising water from wells, cisterns, or rivers, by self-acting power. It is the invention of Dr. William Fields, of this city, on which he has secured a patent. Something of the kind has been in use in England for many years, but Dr. Fields has made many improvements on all other Self-acting Hydraulic Rams that have ever been invented.

[One of Mr. Field's Rams is on exhibition at the Fair, and it appears to be a most excellent improvement.

### Improvements in Gas Manufacture.

The following is the article to which we referred last week, in relation to "White's Light." We are indebted to a recent number of the "Liverpool Mercury" for it.

"The subject of pure and cheap gas has of late been often brought under the notice of our readers, together with the means of improving and cheapening so important an accessory to domestic and social comfort. Perhaps there is no town in the kingdom more highly favored than Liverpool is with excellent gas, made from the best cannel coal, and which, we believe, continues to give general satisfaction. Until very recently, gas from any other material than coal was scarcely ever contemplated. The question was now and then mooted by timid philosophers, how long our black diamond mines would last with the extraordinary demand now made upon them by steam navigation, railways, &c., and predictions were freely hazarded that, within a few generations, this grand source of Britain's greatness would be found passing away for ever. With these fears and apprehensions we had no sympathy, being satisfied that there is a storehouse of coal in these islands sufficient for our wants, even for thousands of years. But it is delightful to find that science is ever on the alert to widen the field of supply for every necessary, as well as for every luxury of life; and, on this very article of gas, our own immediate neighborhood furnishes an illustration of the truth of this remark, as gratifying as it is important. We refer to the town of Southport, one of the most delightful watering places in the kingdom, having been now for nine months past splendidly lighted up, through the whole of its extent, by Mr. White's patent hydro-carbon gas, made from resin or tar, and water, no coal being used except to heat the retorts. We had recently an opportunity of fully examining into the whole process of manufacturing it as at Southport, and of carefully observing it in the streets and shops of the town, and confess both the surprise and the pleasure it afforded us to find a gas of surpassing brilliancy and purity, and so entirely free from smoke that the ceilings of the shops and houses were untarnished by it, produced so easily and rapidly under this system. It is additionally pleasing to find, that while the brilliancy and purity of the gas is decidedly superior to that from coal, it is produced at a much less price—perhaps at about one-half; and, there being a large meter on the gas house, we had ocular demonstration that the rapidity of production is about thrice as fast as from coal retorts of a similar size, while the labor of attending to the whole is not one-half. Statements so much at variance with past experience may scarcely obtain credence; but an hour's ride from our Exchange will enable any one to see and judge for himself. That a vast improvement has been achieved in gas manufacture—the precursor, it may be, of still greater—is unquestionable; and for this Mr. Stephen White has amply merited the rich reward he is sure to obtain. Our spirited neighbor Mr. Coulborn, has had this gas in full operation at Egremont Ferry, as well as at the large hotel and adjacent buildings there, for more than two months past, and expresses himself in the highest terms regarding it. His apparatus is in daily operation at Egremont. We learn that its adoption is spreading rapidly around Manchester, where it is exciting the greatest interest, and that several large continental cities are now in treaty for it. Its future progress deserves to be watched with much interest.

[As many of our new subscribers have not seen the former accounts that we gave of this method of making gas, which has been patented in America, we would state that it is made from water decomposed in one retort, and resin gas in another, and the two gases proceed to, and are mixed in, a chamber or reservoir. As gas is a very important subject, we like to present all the information we can about it, on both sides. It is our opinion that gas can be made from coal, resin and asphalt, cheaper than from any other substances. The employment of any of these hydro-carbons for cheapness, depends on their local value: it is cheaper to employ coal in New York, but it

would be cheaper to use resin in North Carolina; and in New Brunswick, Cuba and Trinidad, it would be cheaper to use asphalt.

### LITERARY NOTICES.

DENTAL RECORDER—September number, Edited by Dr. C. C. Allen, 23 Warren street, N. Y. Published monthly at \$2 per annum. It contains eight papers of superior merit, on Dental science, and should be read by every member of the profession. The doctor understands how to adjust the incisors and bicuspids with a strict regard to the science of mastication, and is no less fertile in thought and clear in elucidation.

MARINE AND NAVAL ARCHITECTURE.—Number 10 of this incomparable work, by John W. Griffiths, Marine and Naval Architect, has just been issued from the press. In this number Mr. Griffiths takes up the subject of River and Steam Boats: we have read all that he has said upon the subject, and have been delighted with his views. Every American should own this book. There are but two more numbers to be published.

ICONOGRAPHIC ENCYCLOPEDIA.—Part 12 of this unrivalled work on Science, Literature and Art, is just published, by Rudolph Garrigue of No. 2 Barclay st., this city; it contains no less than 20 different steel plate engravings, with 57 different scenes, a number of which exhibit the religious ceremonies and customs of the Hindoos, and others those of the Turks and other Orientals. There are also scenes of Spanish life, Russian life, &c. Each plate does not cost six-pence, and not one could be purchased singly for double that amount. The work is now about half completed, and when finished it will form the most beautiful and entertaining work ever published in America.

DICTIONARY OF MECHANICS AND ENGINE WORK.—Number 17 of this work, published by D. Appleton & Co., Edited by Oliver Byrne, treats of gearing in all its details. This branch is treated of very fully.

TYPOGRAPHICAL MISCELLANY.—No. 7 of this excellent periodical, by Joel Munsell, Albany, contains a continuation of Printers and Printing in America, and sketches of the newspaper press. It is a good number.

DICTIONARY OF WEIGHTS.—We have received from Messrs. Wm. Minifie & Co., of Baltimore, a Universal Dictionary of Weights and Measures, ancient and modern, reduced to the standards of the United States, by J. H. Alexander. This book is got up in the superb style of printing for which Messrs. Minifie & Co. are famous. As a standard work of reference, this book should be in every library; it is one which we have long wanted, and it will save us much trouble and research. It is for sale by Messrs. Appleton & Co., this city. The price is \$1.50.

## NEW PROSPECTUS (OF THE)

### SCIENTIFIC AMERICAN.

#### TO MECHANICS, INVENTORS, AND MANUFACTURERS.

The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the SIXTH VOLUME of this valuable journal, commenced on the 21st of September, offering a favorable opportunity for all to subscribe who take an interest in the progress and development of the Mechanics' Arts and Manufactures of our country. The character of the SCIENTIFIC AMERICAN is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

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#### PREMIUM.

Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—now in press, to be ready about the 1st of October. It will be one of the most complete works upon the subject ever issued, and will contain about ninety engravings.