

then in its infancy, but which has since grown till it has stretched out its fingers tipped with fire into all the waters of the globe.

Who can measure the effect of this swift intelligence passing to and fro? Already it regulates the markets of the world.

One thing only remains which I still hope to be spared to see, and in which to take a part, the laying of a cable from San Francisco to the Sandwich Islands—for which I have received this very day a concession from King Kalakaua, by his Minister, who is here to night—and from thence to Japan, by which the island groups of the Pacific may be brought into communication with the continents on either side—Asia and America—thus completing the circuit of the globe.

But life is passing, and perhaps that is to be left to other hands. Many of our old companions have fallen, and we must soon give place to our successors.

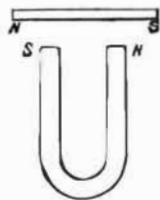
Correspondence.

The Gary Motor.

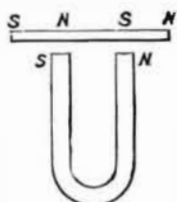
To the Editor of the Scientific American:

In your article on the "Gary Motor," issue of March 8, page 144, you say: "There is no neutral line in the sense that polarity changes when Mr. Gary moves his piece of sheet iron with its attached shingle nail across the pole or near the pole of a magnet."

The change of polarity is easily explained. If a bar of soft iron, whose length is two or three times the distance between the poles of the horseshoe magnet, be placed in front of the latter as in the sketch, and at some distance, poles will be induced, as shown by the letters N S.



the bar having four poles, as in the second sketch. The bar of soft iron must have certain dimensions depending on the size and power of the horseshoe magnet.



WM. A. ANTHONY. Cornell University, Ithaca, N. Y., March 2, 1879.

Gary's Neutral Line.

To the Editor of the Scientific American:

I have just read the article in the issue of March 8, on the Gary Motor, and cannot refrain from offering a suggestion on the subject. When I read the article referred to in Harper's, I formed the same opinion of the so-called invention that the writer in the SCIENTIFIC AMERICAN has expressed, and, in the main, such is my opinion still.

wire under it. This was before seeing the article in the SCIENTIFIC AMERICAN. My experiment is well illustrated by the writer's diagram, except that the nail should be at the end of the iron wire, where its polarity is of course most strongly marked.

For, as the wire is brought up toward the magnet, the nail drops off before the wire touches the magnet. When the sheet iron is used, the point at which the nail drops off is farther from the magnet than in the case of the wire, and when it is brought nearer it will again pick up the nail, which then continues to cling until the iron touches the magnet and afterwards.

Thus the existence of a line in which the soft iron, or induced magnet, does not attract the nail, and above and below which it does attract it, is demonstrated.

That the polarity of the induced magnet is reversed when it crosses this line may be demonstrated as follows: When it is held beyond (or below) this line (Fig. 1), the negative pole of the permanent magnet, the positive being kept at a distance, may be made to approach the iron and touch it, without causing the nail to drop.

These experiments should be performed with the soft iron under both poles of the magnet, and the ends of the former should extend somewhat beyond the poles of the latter, or the nail is liable to jump to the magnet as the "neutral" line is crossed.

The position of the letters in Fig. 1, of the previous article, represents the polarity of the induced magnet to be the same as that of the permanent, which is true only within (or above) the line described; and this, together with his statement that no such line can be discovered, appears to indicate that the writer relied upon his knowledge of the laws of magnetism to state what would be the result, without testing it experimentally.

It is probable that this reversal of polarity is susceptible of explanation by the known laws of magnetic currents, but if it has hitherto escaped observation, its discovery is certainly deserving of notice, and may lead to valuable results.

G. H. FELTON, M.D.

Haverhill, Mass., February 28, 1879.

Pneumatic Clocks.

To the Editor of the Scientific American:

In the description of the pneumatic clock, copied from La Nature, and published in your journal of date 1st of March, the invention is credited to me. Such is not the case. By an arrangement between Mr. Wenzel, Mr. Brandon of Paris, and myself, patents have been obtained in France, England, etc., for the clock, and issued in my name; but the honor of the invention belongs exclusively to Hermann J. Wenzel, of San Francisco.

Yours faithfully, E. J. MUYBRIDGE.

San Francisco, Cal., February 27, 1879.

The Ice Cave of Decorah, Iowa.

To the Editor of the Scientific American:

Some years ago I visited the "Ice Cave" of Decorah, Winneshiek county, Iowa, and having since been unable to receive any explanation of the wonderful phenomenon exhibited by it, I write, hoping that you or some correspondent may explain the paradox.

The thriving town of Decorah lies in a romantic valley of the Upper Iowa River, and the cave is almost within its corporate limits. Following the left bank of the stream, one soon reaches the vicinity, and with a hard scramble through a loose shale, up the side of a precipitous hill, forming the immediate bank of the river, the entrance is gained—an opening 5 feet wide and 8 feet high.

tally in the rock at the height of one's eyes. Close examination discovers the water oozing from this crevice, and as it finds its way down the side it freezes in the low temperature of the chamber. Singularly this one crevice, and that no wider than a knife edge, furnishes this, nature's ice house, with the necessary water.

The most remarkable fact in connection with this wonder is that the water only freezes in the summer. As the cold of actual winter comes on the ice of the cave gradually melts, and when the river below is frozen by the fierce cold of Northern Iowa, the ice has disappeared and a muddy slush has taken the place of the frigid floor.

Why should the temperature of the ice chamber be such as to freeze the water trickling into it? And above all, why should the ice disappear with the cold of winter? Mansfield, O. H. M. W.

THE WRITING TELEGRAPH.

On the evening of February 26, 1879, the writing telegraph of Mr. E. A. Cowper, of London, was exhibited in operation before the Society of Telegraph Engineers, in that city.

It is a curious and remarkable invention. By its use the handwriting of the operator may be transmitted, but a double circuit, that is, two telegraph wires, are used. The operator moves with his hand an upright pointer or stylus, with which he writes the message on paper. The stylus has two arms connected with it, one of which arms, when the stylus makes an upward movement, causes a current to be sent over one wire, while the other arm causes a current to pass over the other wire when the stylus is moved laterally.

Specimen of the writing telegraph of Mr. E. A. Cowper

A Rare Geological Specimen.

Rev. R. M. Luther, while absent in attendance upon the Missionary Convention, held in Addison, Vt., obtained through the kindness of the Rev. Mr. Nott a rare and curious geological specimen from the shores of Lake Champlain. It is a slab of limestone, about eleven inches long by six inches wide, which seems to be composed almost entirely of fossils.

It is probably from the Trenton epoch of that age. If geologists can be trusted, at the time the little animals, whose remains are thus preserved, were living, the only part of this continent which had appeared above the primeval ocean was a strip of land along the present St. Lawrence River and the northern shores of the great lakes, with a promontory reaching out toward the Adirondacks, and a few islands along what is now the Atlantic coast line.—Benton (Vt.) Banner.