

I am most happy to inform you that, as a crowning result of a long series of experimental investigation and inductive reasoning upon this subject, the experiments under the direction of Dr. Whitehouse and Mr. Bright, which I witnessed this morning,—in which the induction coils and receiving magnets, as modified by these gentlemen, were made to actuate one of my recording instruments,—have most satisfactorily resolved all doubts of the practicability as well as practicality of operating the telegraph from Newfoundland to Ireland.

Although we telegraphed signals at the rate of 210, 241, and, according to the count at one time, even of 270 per minute upon my telegraphic register, (which speed, you will perceive, is at a rate commercially advantageous,) these results were accomplished notwithstanding many disadvantages in our arrangements of a temporary and local character—disadvantages which will not occur in the use of our submarine cable.

Having passed the whole night with my active and agreeable collaborators, Dr. Whitehouse and Mr. Bright, without sleep, you will excuse the hurried and brief character of this note, which I could not refrain from sending you, since our experiments this morning settle the scientific and commercial points of our enterprise satisfactorily.

With respect and esteem, your obedient servant,  
SAMUEL F. B. MORSE.

To CYRUS W. FIELD, Esq., Vice President of the New York, Newfoundland, and London Telegraph Company, 37 Jernyn street, St. James's street.

LONDON, October 10, 1856.

MY DEAR SIR: After having given the deepest consideration to the subject of our successful experiments the other night, when we signalled clearly and rapidly through an unbroken circuit of subterranean conducting wire, over two thousand miles in length, I sit down to give you the result of my reflections and calculations.

There can be no question but that, with a cable containing a single conducting wire, of a size not exceeding that through which we worked, and with equal insulation, it would be easy to telegraph from Ireland to Newfoundland at a speed of at least from eight to ten words per minute; nay, more: the varying rates of speed at which we worked, depending as they did upon differences in the arrangement of the apparatus employed, do of themselves prove that even a higher rate than this is attainable. Take it, however, at ten words in the minute, and allowing ten words for name and address, we can safely calculate upon the transmission of a twenty-word message in three minutes;

Twenty such messages in the hour;

Four hundred and eighty in the twenty-four hours, or fourteen thousand four hundred words per day.

Such are the capabilities of a single wire cable fairly and moderately computed.

It is, however, evident to me, that by improvements in the arrangement of the signals

themselves, aided by the adoption of a code or system constructed upon the principles of the best nautical code, as suggested by Dr. Whitehouse, we may at least double the speed in the transmission of our messages.

As to the structure of the cable itself, the last specimen which I examined with you seemed to combine so admirably the necessary qualities of strength, flexibility, and lightness, with perfect insulation, that I can no longer have any misgivings about the ease and safety with which it will be submerged.

In one word, the doubts are resolved, the difficulties overcome, success is within our reach, and the great feat of the century must shortly be accomplished.

I would urge you, if the manufacture can be completed within the time, (and all things are possible now,) to press forward the good work, and not to lose the chance of laying it during the ensuing summer.

Before the close of the present month, I hope to be again landed safely on the other side of the water, and I full well know, that on all hands the inquiries of most interest with which I shall be met, will be about the Ocean Telegraph.

Much as I have enjoyed my European trip this year, it would enhance the gratification which I have derived from it more than I can describe to you, if on my return to America I could be the first bearer to my friends of the welcome intelligence that the great work had been begun, by the commencement of the manufacture of the cable to connect Ireland with the line of the New York, Newfoundland, and London Telegraph Company, now so successfully completed to St. John's.

Respectfully, your obedient servant,

SAMUEL F. B. MORSE.

To CYRUS W. FIELD, Esq., Vice President of the New York, Newfoundland, and London Telegraph Company.

January 27, 1857. The following dispatch was received here this morning. When it is considered that the difference in time between St. John's, Newfoundland, and this city is little over one hour, and that the message was, owing to the use of different instruments, and the working of separate electric circuits, rewritten no less than six times, the fact that it was received just one hour before it was sent, may be understood; and show the wonderful expedition in the transmission of intelligence from this to Europe when the Atlantic line is completed:

ST. JOHN'S, (N. F.), TUESDAY, 11 a. m., January 27.

CYRUS W. FIELD, National Hotel, Washington:

I think you will approve of the reasons in favor of Trinity Bay for the landing of the Atlantic cable.

A. SHEA.

P. S. This message was received at the House Printing Telegraph office, Washington, D. C., at ten o'clock a. m.

J. L. ELLIOTT, Operator.

The distance from St. John's to Washington is nineteen hundred and sixty miles by the route of the telegraph.