SUBMARINE TELEPHONY.

Nikola Tesla Thinks It Impracticable for Great Distances.

To the Editor of The New York Times:

"Field for free capital returns!" May I suggest that we need but more rapid and improved methods of communication with Europe to open up wider fields of outlet for our manufactures? A telephone cable of twelve independent, non-induction, and unlimited distance service wires will bring about a more active and prosperous condition, and no doubts as to the absolutely correct reproduction of conversation, both clear and distinct need exist, since ample evidence of service on 500 miles of adjusted wire, in part submarine, in the United States and 110 miles English Government service exists. Already have patents been allowed and protection secured to make value assured, and we may hope before another year to have London, Paris, and Berlin in easy talking communication with Washington, New York, and our larger cities.

GORHAM GRAY.

Boston, Jan. 20, 1899.

Nikola Tesla, talking yesterday of submarine telephoning, said: "The difficulties which are in the way of telephoning through submarine cables for such distances as 2,000 to 3,000 miles are well known to scientific men, and the scientific records are full of treatments, mostly mathematical, of the conditions involved in the scheme. There is a popular error, however, existing in this regard. It is believed that the so-called static capacity of the cable is the chief difficulty to be overcome.

"To explain it to a layman one may liken the cable to a big reservoir through which small disturbances must be transmitted. The reservoir, of course, will take up small disturbances produced at one end so that at a distant end very little of the original disturbance will be felt. The chief difficulty lying in the way of telephoning through such cables rather lies in the fact that electrical vibrations sent through it are distorted, each wave being differently distorted, according to its pitch and pressure. A speech transmitted through such a cable will reach the distant end, as a rule, but only in the form of a confused noise, entirely undistinguishable as to its meaning.

"A great number of scientific men have been endeavoring to overcome this difficulty by a suitable construction of the cable, and I have myself proposed a plan to overcome the disturbing influences by static screening. More recently Prof. Sylvanus P. Thompson, a very prolific writer on electrical subjects, has also proposed a somewhat modified scheme, but up to the present none of the suggested schemes has been practically carried out, and their efficiency remains to be proved.

"Meanwhile a number of electricians have suggested the employment of relay stations as a means of establishing communication between America and Europe. If I recollect rightly Lieut. J. Patton described in technical journals some time ago a scheme of that kind which was taken up by a number of other workers. This plan might eventually come to a practical result, although I am a little skeptical as to the maintenance in good order of relay stations under such trying conditions and with such delicate contrivances aboard.

"Having worked myself on this problem for some time, the recognition of these difficulties has compelled me to abandon the beaten track, and I am bending my energies on establishing communication without wires, which, at least so far as telegraphy is concerned, is very near at hand and over great distances. The telephone without wires is a much more difficult problem, but it must be mastered sooner or later."

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