

perintendent of the observatory at Washington, who deservedly occupies a high place among scientific men, in reporting on this survey, expresses no doubt of the ultimate success of the undertaking. "There is at the bottom of this sea between Cape Race in Newfoundland and Cape Clear in Ireland, a remarkable steppe, which is already known as the telegraphic plateau," and extends for some 1300 miles in water so deep as to be beneath the effect of any tempest which may agitate the surface, for it has been ascertained "that the currents do not reach down to the bottom of the deep sea, and that there are no abrading agents there, save alone the gnawing tooth of time."

The principal difficulty anticipated was the size of the cable supposed to be necessary, not to resist the action of the sea, but to transmit messages at a speed sufficient to ensure commercial success. On this subject a paper was read in August last before the British Association for the advancement of Science, by Mr. E. O. W. Whitehouse, in which he discussed the question whether the law of the squares was applicable or not to the transmission of signals in submarine circuits; and as the result of experiments on the limit to the rapidity and distinctness of utterance attainable—his experiments reaching over wires to the length of 1020 miles—he states his conviction that "nature knows no such application of that law," and that we may shortly expect to see a cable not much exceeding in weight a ton per mile, containing three, four, or five conductors, connecting Europe with America at an expense of less than one-fourth of such a one as would be necessary if the law of the squares were held to be good in its application to submarine currents, and if the deductions as to the necessary size of that wire, based upon that law, could be proved valid. Although his positions were combated, yet the result of his views as to the necessary size of the wire seems to have been adopted, for in an extract from Lt. Maury's report it is said: "It may now be considered as a settled principle in submarine telegraphy, that the true character of a cable for the deep sea is not that of an iron rope as large as a man's arm, but a single copper wire, or a fascicle of wires coated with gutta percha, pliant and supple, and not larger than a lady's finger," or, at any rate, than an alderman's thumb!

I have seen it stated that the manufacture of this cable is already commenced, and you are all well aware of the support to the financial part of the undertaking, promised by the British Government. It is difficult to estimate the importance of its success to the North