THE OCEAN TELEGRAPH CABLE: ITS CONSTRUCTION, THE REGULATION OF ITS SPECIFIC GRAVITY, AND SUBMERSION EXPLAINED

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The Ocean Telegraph Cable: Its Construction, the Regulation of Its Specific Gravity, and Submersion Explained by W. Rowett

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PREFACE.

The following pages are intended as a contribution to the development of the science of making and laying Telegraph Cables across deep seas, and are respectfully dedicated to the public, as a tribute of sincere regard for the great and benevolent work of the Royal National Life Boat Institution.

Whatever profits may arise from the sale of the book will be cheerfully devoted to the encouragement of the brave fellows who are ever ready to man its boats.

THE AUTHOR.

ERRATUM.

Page 81, third line from bottom, for *stitching* read *stretching*.

OCEAN TELEGRAPHY.

THE lowest expectations cannot be satisfied with what has been done in the cause of Ocean Telegraphy; it may be for want of knowing the defects or idleness in supplying them. As, therefore, some practical explanations appear to be wanting for the perusal of common readers, and as I may claim to myself some years' acquaintance with the practical philosophy of this complex, but important subject, I venture to offer to the public a chapter or two, which at this juncture may be interesting, and will I trust contribute in some degree to lead the public mind into useful and timely reflection before vast sums are again irrecoverably consigned to the bed of the Ocean in the form of Telegraph Cables, which, by their construction, violate the golden rules of science, and thereby cause delay as well as incalculable damage to the economical solution of the great problem itself.

The following paper was long ago prepared to be read before the Royal Geographical Society, partly as an answer to the Blue Book Report of 1861, on Ocean Telegraphy—but having been called away to the continent, my opportunity of reading it passed—but now that the public mind seems to be again drawn away into important practical errors in this matter, it is the more desirable I should put into the form of

a pamphlet, the delayed address along with sundry other papers, also long since written, and which would not now have been offered to public notice if the subject of Ocean Telegraphy had been fully and fairly ventilated by others.

ANSWER TO THE BLUE BOOK REPORT ON THE CONSTRUCTION OF SUB-MARINE TELEGRAPH CABLES.

Sub-marine Telegraphy may be considered under three departments, namely: the electrical, mechanical, and nautical. It may, therefore, be asked what can the Geographical Society have to do with either of them? for by their terms they seem to be as wide as the poles apart. And so they are, if we leave out the Geographical department of what is nautical, and overlook the bed of the Ocean, with its dark recesses and boundless treasures, that unhappily have been so constantly drawn there since the day of creation to the present, which are entitled to a passing geological glance, a microscopic peep into the organizations brought up by the sounding line, or to inspire a passing wonder, whether in such vast depths the *supposed* superincumbent weight of water will admit of any use, whatever, being made of the ground on which such mighty waters rest.

But if it should be made clear that one, at least, and that one the most important, use can be made of the bed of the Ocean—that neither its most boisterous surface, its most extreme depth, its most rugged and

precipitate undulations, or the utter darkness in which it is shrouded, present any insuperable difficulty in laying the electric wire from shore to shore, however distant from each other—we may then fairly conclude that geographical inquiry is of the utmost importance to, and intimately connected with, Ocean Telegraphy; and I submit your society treads one of the most important paths of duty when this subject is discussed by it.

It is not, however, my purpose to lay before you debatable points of electrical theories, nor even to offer any remarks upon the numberless methods devised for insulating the electric conductor; these we may presume are far advanced towards perfection, and only wait the geographical and nautical solution of the problem of Ocean Telegraphy to give full scope to their manufacture.

Neither is it my purpose to discuss at large the notion of superincumbent, or column weight of water at increased depths; that part of the problem it was my privilege to publish several years ago, and the reasoning employed has not since been controverted, but in fact confirmed by the practical tests officially reported by Captain Dayman, in his government survey of the Atlantic. His lead, sent down in a depth of over 2,000 fathoms, conclusively proves the fallacy of the received notion on this point. The lead having reached the bottom, the line *by its own weight alone* continued to run down directly upon the lead, for in hauling it up it was found to be fouled by one