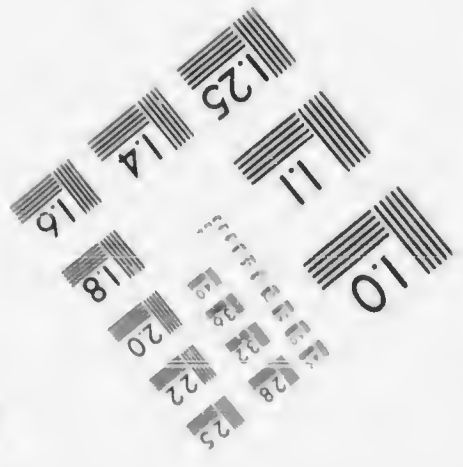
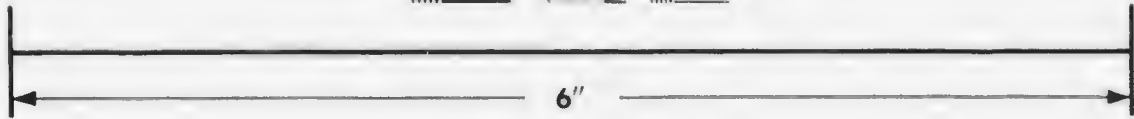
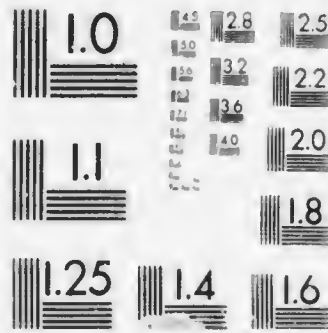


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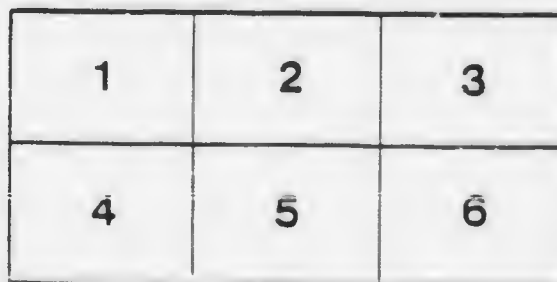
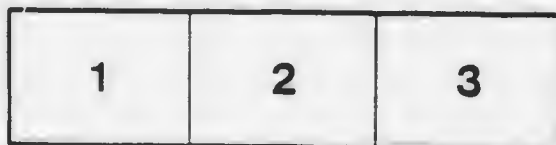
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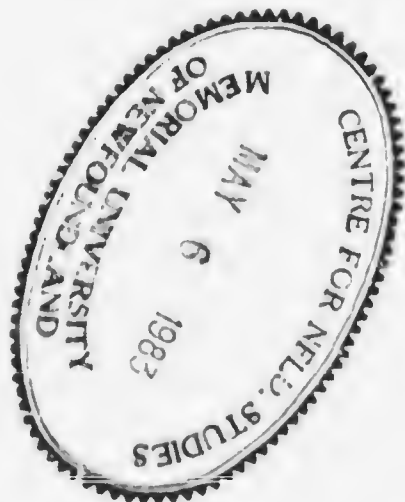
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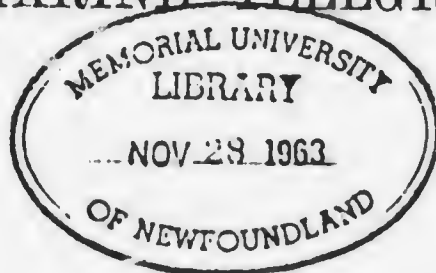
OF

M Y L I F E.



BY THE

SUBMARINE TELEGRAPH.



London:

C. WEST,

11, CANNON ROW, WESTMINSTER.

1859.

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THE STORY OF MY LIFE.

BY THE SUBMARINE TELEGRAPH.

CHAPTER I.

MINE has been a short but most eventful career. I am but in my childhood yet, although I am several years older than the world has been led to believe my age to be. Young as I am, however, few have undergone more suffering, and been subjected to greater cruelties during a long life, than I have in my short career. My severed and scattered limbs, now lying at the bottom of the ocean, in various parts of the globe, bear ample testimony to my ill usage. I do not mean to accuse any of the individuals by whom I have been subjected to this torture, of any wilful or intended cruelty; it is the result, rather, of their not properly understanding me, and the peculiar requirements to fit me for my ocean bed, and of their want of sufficient nautical knowledge to deposit me safely and securely on it. This is a source of great disquietude to me, for I am fearful, lest I, who, I trust, am yet destined to play an important and useful part in the world, should be compromised in these repeated failures, and my prestige be for ever destroyed in the supposition that the incapacity is mine, and not theirs. In no case have I felt this so much as in the recent ordeal I have been compelled to undergo in the Atlantic, with the exception of the ludicrous, but most painful one, between Dover and Calais, in 1850. No better course could have been adopted to bring me into disrepute, or so well calculated to throw a doubt on the really wonderful power I possess, than that

pursued by those who had the management of this important undertaking. But any further comments on this subject would be premature, and out of place here, as I shall have occasion to advert to the Atlantic Cable, at some length, in the due course of my narrative, which I am induced to publish, not for the purpose of being hypercritical upon the acts of others, but solely with the view of placing myself in my right position with the public, and of inspiring them with the same conviction that I have myself, of my being able, under judicious and proper treatment, to bring, by my extraordinary power, distant countries, separated from each other by the ocean, into close and immediate intercommunication.

I have stated, that although still in my infancy I am much older than the world are led to suppose me. From this it may be inferred that I repudiate the paternity that certain individuals seem desirous of conferring upon me. Such, indeed, is the case; for however flattered I may be in the anxiety evinced by these gentlemen severally to claim me as their offspring, as a proof of my wonderful precocity and great eminence—for none would claim the lowly and obscure—I cannot accept a paternity to which I am not entitled.

Among those who have been most anxious to appropriate me as their own, are Messrs. John and Jacob Brett. The first-named gentleman has recently published a book, in which he positively states that I owe my origin to them, and puts forth a variety of data and documents in support of their claim. Now I am equally as anxious to disclaim the paternity they would foist upon me. I do this, not from any disrespect or personal feeling towards either of those gentlemen, but because it is not the fact, and such being the case, it is essential to my own well being, and indeed to my very existence, that the public should not be allowed to continue longer under any delusion, upon this, to me, most important point. For what confidence can they have in my future success, if they are allowed to continue under the erroneous belief that all those disastrous failures in the attempts to establish me have occurred, notwithstanding they were carried on under the careful superintendence of those, who, as they allege, had formed me and who, of course, would naturally be

expected thoroughly to understand me and my nature, and to be perfectly cognizant of all the requirements necessary for my present successful submersion, as well as of those permanently to adapt me for my future ocean home? And yet, despite of all this knowledge, care, and attention on their part, so much difficulty has been evinced on mine, that hitherto they have been in so many instances unable to submerge me, thus throwing the onus of their failures entirely upon me. Now this is adding insult to injury; for the fact is, that my numerous fatal mishaps have arisen solely, as I shall presently show, from these gentlemen being innocent even of any ordinary acquaintance with me, still more so of the relationship they would claim. Nay, more; even the very projects of connecting England and France, and France and Algeria, they have taken from the gentleman whom I, with reason, acknowledge as my father. This I shall at once prove upon the most conclusive and irrefutable evidence.

The plea or pleas, for there are two which the Messrs. Brett advance in support of their claim to me, are, first, that in the year 1845 they registered a Company, under the Joint Stock Companies' Act, with the title of the "General Oceanic Telegraph Company;" and, secondly, that they had secured the Roman type electric printing instrument of Mr. House, an American, which, under their improvements, was to be "superior in every respect to any telegraph hitherto executed."

Now the year 1845 was a most extraordinary one, an epoch from which philosophers may date the demonstration of a fact hitherto unknown to them—that the earth hath its bubbles as well as the water; a period when schemes sprung up daily like so many mushrooms, and which were worth about as much. I do not mean for one moment to place Messrs. Brett's Oceanic scheme in this category, my only object being to show that the mere registering such a Company did not give them any claim to me, while, at the same time, they were totally unprepared with any plan to carry out the project, which, of all others, requires the most particular organisation, the greatest skill, and a thorough, perfect, and intimate knowledge of all that appertains to me. That they were not so prepared is a matter

of notoriety, which they have themselves proclaimed to the world; for five years after, in the year 1850, when they were compelled to carry out their agreement to lay me down across the channel, from Dover to Calais, or forfeit their concession, they made such a ridiculous exhibition of me, that but too clearly demonstrated that they knew little or nothing about me.

As for their second plea, with regard to their Printing Instrument, which was to be so superior to all others, I do not see how it has any particular application to me, even if it had been successful, beyond recording, like all other instruments now in use, all messages that might be carried through the water by any means, without in the least assisting me in their transmission. However, it did not succeed; and even if it ever had any vitality at all, it is now defunct; and acting upon the principle, "*De mortuis nil nisi bonum,*" I will merely repeat the epitaph that Mr. John Brett has himself written on it, when he states that unfortunately his brother had devoted many years to improve it, "without any valuable result for general purposes, all such instruments hitherto having been too complicated to compete with the simple and now universal marking instrument of Professor Morse." And yet it was this useless and too complicated instrument that formed the basis of all Messrs. Brett's plans, and induced them to make offers of the most extravagant character, and hold out advantages which the sequel has shown never would have been realized. For instance, the following are among a few of the benefits they professed to confer:—

"The immediate communication of Government orders and despatches to all parts of the empire, and the instant return of answers to the same from the seats of local government, &c., *all delivered in an unerring and printed form.*"

"A general telegraphic post-office system, uniting the chief and branch offices in London in connection with all the offices throughout the kingdom, for transmitting messages of business, &c., from merchants, brokers, tradesmen, and private persons, at a fixed rate of charge. These communications being printed on paper, may be enclosed in sealed envelopes, and addressed by confidential clerks, to be issued by special messengers, or the usual Post-office delivery."

"The advantages of this plan applied to police arrangements throughout

the United Kingdom, to the army and navy departments, must be at once obvious to the Government. By its instructions might be conveyed instantaneously, and the movements of the forces so regulated, that any available number of them may be brought together, at any given point, in the shortest possible time necessary for their conveyance."

If they had relied upon this scheme, the Government would have had their despatches, which were to be "delivered in an unerring and printed form," still remaining in the respective offices from which they were to be sent—the merchants and others would have looked in vain for their printed communications on paper in sealed envelopes, whether to be issued by special messengers, or the usual post office delivery—the police arrangements would have been brought to a stand-still, and the army quietly encamped in the quarters, and the ships of the navy still moored in the several ports in which they were respectively placed at that period. But, fortunately for the interests of all, there was an admirably-arranged Post-office to meet all ordinary purposes, and for special ones a well organized and simple and efficacious system of telegraphic communication already established by the Electric Telegraph Company.

There is a trifling circumstance which the Messrs. Brett, in their anxiety to adopt me, have entirely overlooked, and yet it most materially affects their claim, and, indeed, completely ignores it. This is, that in the year 1815, while they had merely registered a scheme, the details of which they were unable to carry out upon a much smaller scale in 1850, there was a *bona fide* negotiation, which I shall presently more fully explain, entered into between other parties, to establish a Submarine Telegraph across the Channel from Dover to Calais—that the sanction of the Governments of England and France had been given to them to carry it out nearly two years before Messrs. Brett obtained an exclusive concession for a similar purpose—and what is of still more importance, that the very cable itself, which was then commenced, was constructed upon a principle, and with materials which time has shown to be correct, and which now are recommended to be adopted in the construction of any

future Atlantic or other Oceanic cables. But before I enter further on this subject, I will first dispose of Messrs. Brett's claim.

The commencement of their negotiation with the French Government is indicated by a letter to them from the private secretary of the Minister of Finance, dated March 13, 1847, of which the following is an extract:—

"Your drawing of the telegraph is by this time in the hands of his Majesty, Louis Philippe; I gave it this morning with the despatches sent by your telegraph to the Under Secretary of State, who promised to show them to the king."

By this it appears that the defunct printing instrument was selected as the "dainty dish to set before the king," and which, it will be found, forms the great feature in their subsequent correspondence. The two following letters show that their application to the Government departments here was made to the Treasury on the 1st of June, and to the Admiralty on the 27th July, 1847.

"Treasury Chambers, 21st June, 1847.

"Sir,—

"In reply to your letter, dated the 1st instant, upon the subject of the establishment of Brett's Electric Telegraph between Dover and Calais, I am commanded by the Lords Commissioners of Her Majesty's Treasury to convey to you their sanction to the undertaking of Mr. Brett; but my Lords will reserve to themselves the right of stopping the operation, if at any time it should seem advisable to them to pursue such a course.

"I am, Sir, your obedient Servant,

"29, Parliament Street."

"C. TREVELYAN.

"Admiralty, July 27th, 1847.

"Sir,—

"I am commanded by my Lords Commissioners of the Admiralty to acquaint you, in reply to your letter of this day's date, that there is no objection on the part of the Admiralty to the passing the proposed Telegraph from Dover to Calais; and their Lordships cannot but applaud the active and enterprising ingenuity which has advanced the project to its present state.

"I am, Sir, your obedient Servant,

"To W. BRETT, Esq."

"W. A. B. HAMILTON.

After some further negotiation, they obtained a grant from the French Government, on the 9th of December, 1847, but it conferred no exclusive privileges, and the permission was to be annulled if the line was not laid down and completed within two years from the date of the grant; the following being the conditions under which it was given:—

" Article 1^{er}.—M. M. Brett sont autorisés à établir à leurs frais, et seulement à titre d'essai, une communication télégraphique électrique sous-marine de Calais à Douvres.

" Article 2^{me}.—Le Ministre de l'Intérieur se réserve le droit d'interrompre, s'il le juge nécessaire, l'épreuve de cette communication.

" Article 3^{me}.—Les travaux seront surveillés sur la côte de France par des agents délégués par l'administration des lignes télégraphiques, et aucune épreuve de transition ne pourra avoir lieu qu' en présence de ces délégués.

" Article 4^{me}.—La présente autorisation ne concède à M. M. Brett aucun privilège exclusif, ni aucun droit d'office sur les propriétés particulières, ou même sur les propriétés de l'état dépendant d'autres départements ministériels que celui de l'Intérieur.

" Article 5^{me}.—La présente autorisation sera annulée de plein droit si les travaux de la ligne n'étaient pas terminés dans le délai de deux ans à partir de ce jour.

" A Paris, 9th Décembre, 1847."

From this period up to the 13th of May, 1848, no steps were taken in furtherance of their privilege, when they received a communication from the administrators of the telegraphic lines, under the provisional government of M. Lamartine, reminding them of their grant, and wishing to know whether it was their intention to carry out their proposition, before they decided in giving a similar concession to any other applicants; to which letter they sent the following reply:—

" London, 2 Hanover Square, May 23rd, 1848.

" SIRS,—

" We have the honour to receive your very indulgent communication respecting the establishment of our Printing Electric Telegraph, in accordance with the grants conceded to us by the Governments of France and England in 1847.

" We beg the honour to state to the Government of France, that we are

actively engaged in making two very superior and improved Printing Electric Telegraphs, expressly for the object of submitting them to the French Government. We ardently hoped to have had the honour of laying them before the French Government during this month; but we beg permission of the Government to afford us a delay of a few weeks, our only desire being that these should be superior to any telegraph hitherto executed. The object also of the Oceanic Telegraph between Calais and Dover, of which we were the original projectors, receives our earnest attention, and we anticipate its completion long before the expiration of the period granted to us by the French Government.

"With the assurance of our highest esteem

"We have the honour to be, Sirs,

"Your very obedient and obliged Servants,

"JOHN W. BRETT & JACOB BRETT.

"M. M. LEMAITRE & FLOCON."

Here we have their printing instrument again, with a request for a few weeks' further delay, upon the plea that they were constructing two of them: which were to "be superior in every respect to any telegraph hitherto executed." How far they realized this has already been shown, and I shall speedily as effectually show the fallacy of their statement of their being the original projectors of the telegraph between Calais and Dover. From this date nothing more was done, when they forwarded the following letter to the government of Louis Napoleon:—

"London, March 6th, 1840.

"Sir,—

"We have the honour to inform you, that we are now in a position to carry out and establish our Submarine Electric Telegraph between the coasts of Dover and Calais, the concession for which was accorded to us on the 9th December, 1837, by M. M. Guizot and Duchatel, under the government of Louis Philippe, and subsequently confirmed by the Republic, under M. Lamartine, on the 15th of May, 1848; the same having also received the full sanction and authority of Her Majesty's Lords Commissioners of the Treasury and Admiralty in this country.

"We have further to inform your excellency, that to effect this great international undertaking, an additional outlay of many thousand pounds will be necessary; and we are, consequently, desirous (before incurring this large additional expenditure) of receiving from the French Government a further assurance, that upon our fulfilling all the conditions of the

concession, the Government will afford us protection, for at least a term of years, against any rival attempt to take advantage of our invention and laudable enterprise.

"We have the honour to remain, Sir,

"Your most obedient and obliged servants,

"JOHN W. BRETT & JACOB BRETT.

"To the MINISTERS OF THE INTERIOR."

The result of this letter was, that His Majesty the Emperor, believing them to be as they represented, the projectors of the Submarine Telegraph between Calais and Dover, and from his known partiality to the arts and sciences, and his desire to promote any object that might prove beneficial to the community at large, granted Messrs. Brett an exclusive concession for ten years. This, however, they were very nearly forfeiting at the outset, from the bungling and inefficient manner in which they attempted to lay me down on the first occasion, when I was destroyed and broken to pieces within a few hours after my submersion.

CHAPTER II.

WHILE I disclaim Messrs. Brett's paternity, I readily cede it to the person who is really entitled to it—Mr. West. That gentleman devoted his time, care, and attention to my formation, and had brought me to a perfect state some years before they had even registered their Oceanic scheme. In the year 1838 he was appointed by the Government of the day, on the outbreak of the Canadian rebellion, to a position which involved, among other duties, the transmission of the earliest intelligence from the seat of insurrection. It was then, in turning his attention to every possible means by which he could most effectually perform this duty, that he first thought of fashioning me, and so adapting me, that I should become the instrument to carry out his views. The disturbances in Canada, however, were happily short-lived; but from that period I may date my origin; for although, the necessity no longer existing, he very prudently abandoned until a more seasonable opportunity, his embryo project of making me the medium of instantaneous communication between this country and Canada, knowing well, that when even land telegraphy had only just been mooted but not developed, a project of such a gigantic nature would have been deemed impracticable, he resolved at once to commence my formation, for the purpose of trying, in the first place, whether I could not be made successfully to connect countries more immediately adjacent to each other, and separated only by narrow seas. Dover and Calais, naturally, were considered by him as the most appropriate places for my first essay, and he forthwith began my construction. Being a sailor, and at the same time conversant with electricity, he knew well upon what principle I ought to be constructed to meet, in the first instance, all electrical difficulties.

and at the same time to fit me for the element which was to become my future destination.

I shall not enter into the details of the earliest years of my infancy—my years of probation—although they are far from being uninteresting, especially to the scientific world; I shall merely content myself by saying, that I was watched and tended with the most unremitting attention and untiring patience, and all my wants studied and anticipated. Sometimes I was clothed in bituminous, sometimes in resinous, and at other times in oleaginous substances. These, again, were applied sometimes singly, and at other times in combination, but all to no purpose; for as they hardened and dried upon me, they cracked upon bending me, and thus destroyed my insulation. This was fatal, for sinuosity was as necessary to my existence as even insulation itself. Eventually, however, a material was selected which satisfactorily met both these essentials—India rubber. It must be borne in mind, that at this early period of my life, 1841, gutta percha was unknown, and was not introduced into this country, and applied to the purposes of insulation, for several years after this date, although, if it had been extant at the time, my originator would have still used India rubber instead, considering it even now a much better material for insulation, for reasons which I shall explain when I treat upon this subject, and advert more fully to the comparative merits of the two substances for this particular purpose.

Now although I was perfectly ready for immediate construction in 1841, with the plan of my formation and all its details, well considered and digested, it was not until 1845 that any definite negotiation to connect England and France by my means was entertained and entered into. Previous to this latter period, and indeed, subsequently, there was great scepticism, even among scientific men, as to the practicability of transmitting a current of electricity through the water by my means, although the distance then contemplated was, comparatively, so short. Time has, however, dispelled all these doubts, and shown my capabilities even under adverse circumstances.

Before I proceed further, it may here be advisable that I should give a description of myself, as published in the "*Times*" only a few days ago; for, singularly enough, in that journal of November 19, 1858, there is an article in which I am there most accurately delineated, although the writer has been inadvertently led into error upon two most essential points. In the first place, I am not a "new Submarine Telegraph," being the first and oldest one extant; and secondly, the two individuals to whom this novelty is ascribed, have had nothing whatever to do with me, the production alluded to being part and parcel of my veritable self, as manufactured by my projector in 1852, on the premises of these individuals in their predecessors' time, for the purpose of being laid down between Holyhead and Dublin by a company which, unfortunately for him, were unable to carry out their engagements. With this explanation I will extract from the article I have adverted to the description given of me:—

"Most of our readers will recollect the objections which have been urged, on mechanical grounds, over and over again, against the principle of having submarine cables covered with wire in spiral strands. The inconvenience and risks of such a method have been generally admitted—the greatest being the liability of the wire either to become untwisted or form 'kinks.' A simple arrangement to obviate all these difficulties has now been brought forward in a patent rope, which so adds to the lightness and strength of the cable, and so admirably facilitates the work of submerging, that it appears astonishing why it was never thought of before, especially as its principle of construction has been known for five or six years at least. The improvement simply consists of plaiting the outer covering of wires in a braiding machine, precisely in the same manner with wire as wash-line or picture-cord is made with cotton. A plaited submarine cable made on this plan, and closely woven, has its outer covering wound round it with the firmness and almost the closeness of a gun-barrel, while by regulating the size of the wires used, an ample degree of flexibility is secured, especially as a rope so made cannot possibly form in kinks, as is the case with those enclosed in the spiral strands. The specimen which has been made consists of 12 plaits, each plait being composed of six galvanized iron wires of No. 18 gauge. The diameter of the whole wire is an inch; its weight is as slight as that of the Atlantic cable, while its cost is very little more, though by the plan of plaiting the wires its breaking strain is increased to no less than 7½ tons. One of the strongest

objections which was urged against the Atlantic cable by every engineer of note was the certainty of the outside spiral wires stretching under tension, while the gutta percha could not. It was contended, therefore, that the effect of any severe strain must break the insulation in minute places, and, of course, expose the conductor to all those electrical derangements which, from some cause or other, we have recently seen the Atlantic cable undergo. None ever attempted to deny that this mechanical defect in the principle of the spiral wires was really of the most serious kind, and it was only met by saying that a cable so covered should not be exposed to severe strain of any kind. In a plaited wire, however, the only effect of the strain would be, to compress to the very utmost the inner core and conductor without the least possibility of elongating them.

"In the specimen of which we speak, an inch in diameter, the outer wires are plaited so completely round, that the section shows them resting as one piece, and thus in the centre, instead of one conductor, ample room is left for four. These are insulated not by gutta percha, as has hitherto always been the case, but with India-rubber. This, though electrically speaking a worse insulator, possesses many peculiar and important advantages, the greatest being that it is totally impermeable to water under any pressure. Of course it would be impossible to coil a submarine cable made with a plaited outer covering, and it would have to be stowed in a vessel in straight lines, running fore and aft. This, however, would be no disadvantage; on the contrary, in many cases it would be decidedly preferable, and the only reason which up to the present time has made it absolutely necessary to coil all submarine cables is their extreme liability to "kinks" in any other mode of stowage--a liability which even the coiling often fails to overcome. All risk from a foul wire breaking and stripping the cable would be equally done away with on the new principle. In every point of view, therefore, as regards strength, lightness, durability, capacity for carrying several conductors, and freedom from almost all the accidents to which past submarine cables have been exposed--the plaited wire covering is the greatest improvement which has yet been made. Of course, according to the size and strength of the wire required, the number of plaits may be varied from six to twelve, while the size of the wires themselves regulates the amount of flexibility of the whole."

As I am here represented to be in 1848, such I was previous to 1845; but whatever confidence my projector might have had in my capability, he was unable to instil the same confidence in me to others, until towards the close of that year, when he, in conjunction with Capt. Taylor, with whom he was associated on this occasion, made an arrangement with Mr. Charles Dickens, Mr., now Sir, Joseph Faxon, and other gentlemen, to lay me down across the Channel,

between Dover and Calais, for them. The preliminary negotiations were completed, subject to the sanction of the British and French Governments being obtained to the project. It was agreed between them that Mr. West should apply for the permission of the English, while Capt. Taylor should do the same with respect to the French authorities. His part of the contract was a very easy one, and soon accomplished, for he wrote to Sir Robert Peel on the 6th of January, and received a reply on the following day to the effect that the Admiralty Board was the proper department to apply to, to whom the application had been forwarded. He wrote to the Lords of the Admiralty on the 9th, and received their reply equally as promptly, as the following correspondence on the subject will show:—

" January 9th, 1846.

" My Lords,—

" We beg to solicit your Lordships' attention to our letter of the 6th instant, addressed to Sir Robert Peel, and transmitted by the Right Honourable Baronet to your Lordships, wherein we asked permission of Her Majesty's Government to establish an Electric Telegraph between the English and French coasts, and another between Holyhead and Dublin.

" We remain your Lordships' obedient Servants,

" CHARLES WEST & W. J. TAYLOR.

" THE LORDS COMMISSIONERS OF THE ADMIRALTY."

" Admiralty, 10th January, 1846.

" GENTLEMEN,—

" Your letters of the 6th instant having been referred to this department by Sir Robert Peel, I am commanded by my Lords Commissioners of the Admiralty, to acquaint you that my Lords have no objection to the proposed undertaking for establishing Electric Telegraphs.

" I am, Gentlemen, your most obedient Servant,

" W. A. B. HAMILTON.

" MESSRS. WEST & TAYLOR."

In the mean time Captain Taylor proceeded to Paris, to procure a similar sanction from the French Government. He was furnished with letters of introduction, procured by Mr. Charles Dickens and Sir Joseph Paxton to persons of influence in Paris, among others from Count D'Ormy to Admiral De la Suze, both of whom took consi-

derable interest in the negotiation, and used every exertion to bring it to a successful issue.

On the 21st of January, 1846, Captain Taylor wrote to the Minister of Marine, and submitted the project to that functionary, requesting the assent of the Government of France to it, to which he received the following reply, stating that the application should have been made to the Minister of the Interior, to whose department it had been forwarded :—

“ Paris, le 29 Janvier, 1846.

“ MONSIEUR,—

“ Par la lettre que vous m'avez fait l'honneur de m'écrire le 21 de ce mois vous m'informez que desirant établir une voie rapide de communication entre la mer Méditerranée et Londres, au moyen d'un Télégraphe Electrique, vous avez obtenu des Lords de l'Amirauté à Londres, l'autorisation de faire l'essai de votre procédé à travers le Canal de la Manche, vous m'adressez à cet égard la même demande.

Tout ce qui se rapporte aux Télégraphes est du ressort de M. le Ministre de l'Intérieur et j'ai l'honneur de vous informer que je transmets votre demande à M. le Ministre de ce département.

“ Recevez, Monsieur, l'assurance de ma parfaite considération,

“ Le Ministre Secrétaire d'Etat

“ de la Marine et des Colonies,

“ A. M. TAYLOR, Hotel Mirabeau.”

“ DE MACKAU.

It was not, however, until the beginning of April that Captain Taylor had any communication from the Minister of the Interior, when he received the following letter :—

“ Cabinet du Ministre de l'Intérieur,

“ Paris, le 4 Avril, 1846.

“ MONSIEUR,—

“ J'ai reçu la lettre par la quelle vous demandez au Gouvernement l'autorisation d'établir une ligne électrique de Calais à Douvres à travers la Manche, dans le but de mettre en communication la Méditerranée avec Londres, sous la réserve d'obtenir, en cas de réussite, une part dans les avantages qui devraient en résulter.

“ Avant de prendre une décision, j'ai cru devoir invité le conseil d'Administration du Ligne Télégraphique à examiner cette proposition.

“ Aux termes de la loi du 2 Mai 1837, le Gouvernement s'est exclusive-

ment réservé l'établissement du Communication Télégraphique. D'après ce principe, la question tendant à établir une ligne particulière entre la Méditerranée et Calais a dû être écartée. Quant à l'établissement d'une communication entre Calais et Douvre, je ne puis que vous inviter au préalable à justifier, par pièces officielles, de l'adhésion que vous auriez obtenue de l'Amirauté, et à me faire connaître les moyens d'exécution du projet que vous désirez me soumettre, et les conditions aux quelles cette exécution pourrait avoir lieu. Je me réserverais d'en faire ultérieurement l'examen.

" Recevez, Monsieur, l'assurance de ma considération distinguée,

" Le Ministre de l'Intérieur.

" Monsieur W. H. TAYLOR,

" DUCHATEL.

" Hotel Mirabeau, Rue de la Paix."

On the 9th of April a communication from the Minister of the Interior was forwarded by Admiral de la Suse to Count D'Orsey for Captain Taylor, who had left Paris, in which the sanction of the French Government was given to the project, subject to the following conditions previous to its commencement:—

" Que vous justifiez de l'autorisation de l'amirauté board.

" Que vous justifiez avoir les fonds nécessaires pour amener à bien cette affaire.

" Que votre voie s'arrêtera à Calais et ne traversera pas la France."

Such was the position of affairs at the above date: the negotiation with the English authorities was concluded in three days, while that with the Minister of the Interior had occupied as many months.

The contemplated project of making no the medium so far back as 1815-46, by which France and England would be brought into immediate inter-communication, was looked upon with considerable interest, as it became known through the "Times," and the other journals of the day, from which, among the many accounts then published, I extract the following:—

" TELEGRAPHIC COMMUNICATION BETWEEN FRANCE AND ENGLAND.—Amidst the many wonderful inventions of modern days wherein the faculties of man have overcome difficulties apparently insurmountable, and made the very elements themselves subservient to his power and use, there are none more

wonderful than that now about to be carried out by the establishment of submarine telegraphs, by which an instantaneous communication will be effected between the coasts of England and France. The British Government, by the Lords Commissioners of the Admiralty, and the French Government, by the Minister of the Interior, have granted permission to two gentlemen, the projectors of the submarine telegraph, to lay it down from coast to coast. The site selected is from Cape Gresnez, or from Cape Blancnez, on the French side, to the South Foreland on the English coast. The soundings between these headlands are gradual, varying from seven fathoms near the shore on either side, to a maximum of thirty-seven fathoms in mid-channel. The Lords of the Admiralty have also granted permission to the same gentlemen to lay down a submarine telegraph between Dublin and Holyhead, which is to be carried on from the latter place to Liverpool and London. The submarine telegraph across the English channel will, however, be the one first laid down; the materials for this are already undergoing the process of insulation, and are in that state of forwardness which will enable the projectors to have them completed and placed in position, so that a telegraphic communication can be transmitted across the Channel about the first week in June. When this is completed, an electric telegraph will be established from the coast to Paris, and thence to Marseilles. This telegraph throughout France will be immediately under the direction of the French Government, as, according to the law of 1837, all telegraphic communications through that country are under the absolute control and superintendence of the Minister of the Interior. Upon the completion of the submarine telegraph across the English Channel, it is stated that a similar one, on a most gigantic scale, will be attempted to be formed, under the immediate sanction and patronage of the French administration; this is no less than that of connecting the shores of Africa with those of Europe, by the same instrumentality, thus opening a direct and lightning-like communication between Marseilles and Algiers. It has been doubted by several scientific men whether this is practicable, and, indeed, whether even the project between the coasts of France and England can be accomplished; but it has been proved by experiments, the most satisfactory in their results, that not only can it be effected, but effected without any considerable difficulty."

Can any fact be more clearly demonstrated than this, that the project of connecting the French and English coasts, and those of France and Algiers, by my instrumentality, was not only contemplated, but the initiative taken to carry it out by Mr. West, long before the Messrs. Brett even applied for the concession to the French Government.

CHAPTER III.

During this period my construction had been commenced, and I was being fitted for the important position it was intended I should fulfil, and of which I felt proud. I knew the great responsibility that would be conferred on me, but at the same time I also knew my own capability, for, from my cradle—the washing tub—to the present time, I had been so carefully tended and nurtured, to qualify me especially for it, that I felt every confidence in myself. My constructor, as soon as he had completed a sufficient portion of me, resolved to give a practical demonstration of my capacity, and with the sanction of the Lords of the Admiralty, I made my first public *début* between Her Majesty's ships *Pique* and *Blake*, and my second across Portsmouth harbour, which were thus noticed in the journals of that period:—

"SUBMARINE TELEGRAPH.—Some very interesting experiments have recently been made in the dockyard and on board Her Majesty's ships *Pique* and *Blake*, with a portion of the Submarine Telegraph intended to be laid across this harbour, under the sanction of the Lords of the Admiralty Commissioners. The quantity of the telegraphic wire already perfected, with which these experiments were made, is about half of the entire length that will be required to reach from the victualling-yard at Gosport, where the present line of telegraphic communication terminates, to the Admiral's official residence on this side. The experiments were made under the superintendance of Mr. Hay, the chemical referee and lecturer to the dockyard. The galvanic batteries used on the occasion consisted merely of five single jars, one inch and a half by four, on Smee's principle. The first experiment tried was to test the gravity of the wire, in order to ascertain whether, with the substances used to secure insulation, and those for the outside covering, it might still prove too buoyant. This, however, was satisfactorily proved not to be the case, for upon its being paid out from the stern of Her Majesty's ship, *Blake*, its gravity was found quite sufficient for the deepest water. The index used most satisfactorily tested the capabilities of the invention, being one which had been constructed for the conveyance of signals for short distances, a mere model made by Mr. Hay, for the inspection of the Admiralty, by which communications might be made from

the bridge of steam-vessels to the engine-room below. The electric fluid was made to traverse the whole length of the submarine telegraph, which having been carried out in a bight from the *Blair*, by the boats in attendance, was allowed to sink to the bottom. The signals were as promptly shown by the index as though merely transmitted from the deck to the engine-room, thus proving, beyond doubt, the practical success of this mode of conveying intelligence, even across the sea. Several other experiments were tried with other wires, differently insulated, but neither as regards gravitation nor as regards giving a perfect communication, were these modes of insulation equal to that decided upon by the inventors. In establishing the electric telegraph across a harbour so crowded with shipping as this generally is, the practical difficulty arising from the possible disturbance of the telegraph is the only one which the projectors have to contend with: for it is now proved, beyond doubt, that the electric fluid can be transmitted through the water with the same facility as it is along the lines in operation on land. The importance of these experiments is obvious; for if the communication can be carried across Portsmouth Harbour, it follows, as a matter of course, that it may with at least equal facility, be carried from headland to headland, where it cannot be interfered with by the anchorage of numerous vessels. Thus between Great Britain and France, or any other country separated only by the sea, distance is annihilated; in fact, this new mode of telegraphic communication appears to be one of those wonders which, however strange now, will be looked upon hereafter as a thing of course, and it is scarcely too much to expect that in less than half a century a merchant may communicate with his agents in Calcutta in the morning, and receive his reply before sitting down to his supper in the evening."

"THE SUBMARINE TELEGRAPH AT PORTSMOUTH.—We are enabled to supply the following additional particulars respecting the Submarine Telegraph laid down across our harbour. It is now about three years since the telegraph from the Nine Elms terminus to the terminus at Gosport was first established. Subsequently, from the inconvenience experienced at the Admiralty Office here, because of the distance of the telegraph station, the wires were continued from that place to the Royal Clarence Yard, with this addition, however, although the inconvenience was lessened, it was far from being removed, the harbour intervening leaving a distance of upwards of a mile to the Admiral's house unconnected, and notwithstanding the wish of the authorities, both here and in London, that the telegraph should be carried to the Dock Yard, no attempt has hitherto been made to do so, because it has been considered almost impossible to convey it under water. Whatever difficulties may have hitherto interfered to prevent the establishment of Submarine Telegraphs appear now to have been entirely overcome, for the time occupied from the commencement of carrying the telegraph from shore to shore and transmitting signals did not occupy a quarter of an hour. The telegraph, which has the appearance of an ordinary

rope, was coiled into one of the dock-yard boats, one end of it being made fast on shore, and as the boat was pulled across the harbour the telegraph rope was gradually paid out over the stern, its superior gravity causing it to sink to the bottom immediately. The telegraph consisted of but this line, and, unlike those along the various railways, required no return wire to complete the circuit. The electric fluid was transmitted from the batteries in the dock-yard through the submersed insulated wire to the opposite shore, the fluid returning to the negative pole through the water, without the aid of any metallic conductor, except a short piece of wire thrown across the dock-yard parapet into the water, and connecting it with the batteries. The fact of the water as a ready return conductor was established beyond question; for, to test this most thoroughly, repeated experiments were made in the presence of some of the principal dock-yard authorities, including the heads of the engineering departments. There can be no longer any doubts that, without reference to distance, the water will act as a return conductor in completing the circuit. It will be recollected, that in 1812, Mr. Snow Harris, when proving the efficiency of his lightning conductors in his experiments from this dock yard to the Crostes, exemplified that water served to complete the electric circuit. On that occasion, however, the distance traversed by the return current through the water was but trifling compared with the space accomplished in the present instance. The batteries used here were Smee's; and a very delicate and accurate galvanic elector, invented by Mr. Hay, the chymical lecturer of the dock-yard, who was present throughout the whole proceedings, was also brought into requisition.

"The success of the trial here has, we understand, determined the inventors to lay down their contemplated line across the channel from England to France, under the sanction of the respective Governments."

Unfortunately, the intention of establishing me between Dover and Calais was not carried out, in consequence of the delay in obtaining the sanction of the French Government having rendered it necessary for Messrs. Charles Dickens and Paxton, and the other gentlemen associated with them in the project, to make other arrangements to meet the object which they contemplated to accomplish more effectually through me.

The successful issue, however, of the trials which had been made, and I have just described, confirmed all the expectations which my projector had formed of me, and while he had commenced negotiations with the Electric Telegraph Company to lay me down between France and England, he at the same time was so satisfied that I

could, without much difficulty, be the medium of communication between this country and India, that he applied, even at that early period, to Sir James Weir Hogg, the Chairman of the East India Board, to effect this for them, and in the interview he had with the Directors on the subject, he explained his plan of operation. He stated that he should select the Lizard, or some other suitable point on the coast of Cornwall, where he would commence my submersion, and carry me across the entrance of the Channel and the Bay of Biscay, hugging the shores, as it is termed in nautical parlance, of France, Spain, and Portugal, at such convenient distance, that I should be safely deposited on my ocean bed, in soundings of sufficient depth to place me where I should be secure from ships' anchors or other surface interference, and yet, at the same time, in the event of any stress of weather, where I might be attached to the anchor of a buoy, and let go until the storm had abated, when I could be readily recovered, and the operation of submerging me be resumed. I was to be taken to Gibraltar, or, if preferred, first to Lisbon, and then to Gibraltar, thence in the same manner to Malta and Alexandria, thence across the desert to Suez, and, finally, to Aden and India. He was received and listened to with that courtesy which ever characterises a body of English gentlemen; but Submarine Telegraphy being then known only to the extent I have related, no doubt they thought his scheme was attended with so much difficulty as to be nearly, if not quite, impracticable; at all events, be this as it may, they did not entertain the proposition, though they told him he might at any future period again address them, when the subject was more fully understood.

Although I am anticipating, I may as well dispose of this part of my story at once, by stating that some years after he resumed his application, with the following result:—

“ March 15th, 1852.

“ GENTLEMEN,—

“ In the year 1846 I submitted a proposition to your Honorable Board to connect this country with the East Indies by an Electric Telegraph, so that messages could be transmitted from one country to the other, and a reply received in the course of a few minutes.

"An undertaking of such an extraordinary nature and magnitude, in all probability, was at that time looked upon by you as utopian and chimerical, or at least, as attended with such difficulties that it would be almost impossible to accomplish it. You were, however, kind enough to promise me, that at some future period, when time should have more fully developed the practicability of the undertaking, you would give it your serious consideration. At that time I had only tried experimentally a Submarine Telegraph across Portsmouth Harbour; since then, my project of connecting the shores of England and France by the same means has been carried out, though not by me.

"While I do not pretend to say that there will be no difficulties to contend with in carrying out a project of such vast magnitude as the establishment of the means of telegraphic communication between this country and the East Indies, yet these difficulties are not insurmountable, and I have no hesitation in saying, that I can readily overcome them, and successfully carry out this important undertaking. A few years ago a proposition to effect an almost instantaneous communication between London and Edinburgh would have been considered chimerical, and its propounder looked upon as a fit candidate for some lunatic asylum, and yet this has been accomplished, and ceased even to be a wonder to the former sceptic.

"As time has therefore developed that schemes hitherto considered impracticable or utopian have been carried into successful operation, permit me to hope that your Honorable Board may take my proposal into consideration, and, as a first step, allow me the opportunity of waiting upon you, when I trust I can offer such explanations and details as will remove any doubts you may entertain of the feasibility of the proposed undertaking.

"I have the honor to be, Gentlemen,

"Your obedient Servant,

"CHARLES WEST.

"To the Honorable the CHAIRMAN and
DIRECTORS of the EAST INDIA COMPANY,"

"East India House, 20th April, 1852.

"Sir,—

"Having laid before the Court of Directors of the East India Company your letter, submitting for their consideration a proposal to establish a telegraph between this country and India, I am commanded, in reply, to inform you, that the Court do not feel themselves competent, at present, to enter upon a consideration of the scheme to which your letter has reference.

"I am, Sir,

"Your most obedient, humble Servant,

"JAMES MELVILL.

"CHARLES WEST, Esq."

I have stated that negotiations were entered into with the Electric Telegraph Company to lay me down across the English Channel; I may add, that they were concluded, the terms and all the details settled, and the drafts of the agreement drawn, as will be seen from the subjoined two letters on the subject; but here again the final completion of the arrangements were delayed from time to time, from, I believe, a misunderstanding between the Electric Telegraph Company and the South Eastern Railway Company, as to the powers of the former to use the line of telegraph from London to Dover. Be that as it may, the delay, from whatever cause, was fatal; for, in the meanwhile, the Messrs. Brett obtained a concession from the French Government, which thus prevented me from being laid down, and in active and useful operation, three years earlier than I was under their auspices.

"GENTLEMEN,—

"October 4, 1847.

"In accordance with my promise at my interview with you on Thursday, I now beg to submit for your consideration the details of the terms which I think should form the basis of the agreement to be entered into for the lease of the proposed Submarine Telegraph, between the English and French coasts.

"In the first place I would lay down a four insulated wire rope between the two coasts, the distance not to exceed 22 miles, for the terms already agreed upon, namely, fifteen per cent. per annum upon six thousand pounds, without reference to the actual cost of the undertaking, be it more or less than that amount. The fifteen per cent. per annum to be paid only so long as the wire shall remain sufficiently perfect to transmit the electric fluid from shore to shore. Should the Company deem it advisable to have the line carried from the English to the French coast, at any point where the distance may exceed 22 miles, three hundred pounds for every additional mile to be added to the £6,000, and fifteen per cent. per annum to be paid upon the additional amount. The term of the lease to be for twenty-one years. The annual amount of interest at 15 per cent. upon the £6,000, or such additional sum as may be required upon the above terms should the distance exceed 22 miles, to be paid in quarterly instalments, commencing from the date of the completion of the undertaking.

"In the event of any damage occurring to the line so that the electric circuit be not correctly performed, payment to be made up to the date of the injury, and to be resumed as soon as the defect is remedied; should, however, the injury be repaired at any time within three days, then no deduction whatever is to be made, but the instalment for the current quarter

to be paid as though there had been no suspension of the telegraphic communication.

"Three hundred pounds per annum to be paid me for my personal superintendence of the line, while held by the Company.

"The Company to work the line subject to any conditions the French Government may impose.

"I will feel obliged if you will let me know as early as possible if the foregoing conditions meet with your approval. If so, perhaps you will instruct your solicitor to prepare a draft of agreement, and send it to my solicitors, St. Swithin's Lane, or I will instruct them to prepare the draft, and transmit it to your solicitor.

"Waiting your reply,

"I am, Gentlemen,

"Your obedient Servant,

"CHARLES WEST.

"To the CHAIRMAN and DIRECTORS
of the ELECTRIC TELEGRAPH COMPANY."

"February 9th, 1846.

"DEAR SIR,—

"Permit me to call your attention to the subject of the Sulmarino Telegraph between France and England. I am perfectly prepared to carry out the undertaking as soon as the agreements your solicitor has forwarded to the office some time since are signed. I understand that at present the most important portal for the transmission of telegraphic news from the Continent is closed to you, and that you have no means of sending up messages from Dover or Folkestone. Should such be the case, I beg to offer to lay down two of my wires along the ordinary turnpike road, either to Dover or Folkestone, at a very trifling charge, viz., £60 per mile for the two wires, including all expenses of laying down, &c. I will also lay down for you two wires to Woolwich Dockyard, and two to Chatham Dockyard, at the same rate.

I shall be in London on Saturday, when I shall hope to have the pleasure of meeting you at Moorgate Street.

"I am your obedient Servant,

"CHARLES WEST.

"W. P. COOKE, Esq."

CHAPTER IV.

DOVER AND CALAIS, 1850.

HAVING thus given an outline of my earliest infancy, up to the close of 1847, during which time I was brought, by the untiring care and assiduity of him whom I have shown has a just right to my paternity, to that state of perfection that the *Times*, now, in 1858, in the supposition that I am a new submarine cable, has pronounced me to be superior to all others, I will merely repeat, especially as this part of my life has most unaccountably been suppressed in any mention of early Submarine Telegraph, that it is to Mr. West, and not to the Messrs. Brett, that I owe my origin.

Mr. West first entertained the idea of making me the means of carrying out his purpose of obtaining rapid information from Canada so far back as the year 1838. But the mere entertaining the idea without taking any steps to carry it out did not give him any claim to me at that period. It is true he had arranged his plan for connecting me with that country, which certainly is different from that recently selected by the Atlantic Telegraph Company. He proposed to take a Northern route, by which, instead of my being laid in one continuous length, I should have been laid in several, having termini at the Orkneys, Shetlands, Iceland, Cape Farewell, Wolf's Island, Belleisle, Anticosti, and thence up the St. Lawrence to Quebec, &c. By this arrangement one important advantage would have been secured, without any reference to those of an electrical nature, I should not have been subjected to total destruction in the event of any accident happening to me; for, by being laid in sections, the worst that could have befallen me would have been the loss of that section only which might be injured; whereas, as in the recent

instance, one flaw would have been fatal to my entirety, and the large sums of money expended in the cost of my construction and submersion would have been irrevocably lost to those who furnished them with expectations of a different result, had I been laid in one continuous length.

However, the mere conception of this scheme, without any attempt being made to bring it to fruition, would not give any one the slightest pretension to my paternity. And yet it is from this period, 1838, that I may date my origin; for, although that gigantic project was at that time abandoned—not from any doubt in the projector's mind of its being practicable, although surrounded by difficulties, but from the conviction, that in the then undeveloped state of Submarine Telegraphy, the scheme would be looked upon as utopian and chimerical by the public, and consequently would be unsupported—he, therefore, as I have already stated, determined first to test my capabilities upon a shorter and more facile distance, and selected the channel between Dover and Calais as the arena for my trial, and then at once commenced my formation.

Now, the chief essentials of my vitality for oceanic purposes are insulation and flexibility: without the first, I, as a conducting medium, should be entirely useless; and the second is absolutely as necessary. for, in its absence, it would be utterly impossible to lay me in my ocean bed. It is, therefore, imperative that the wire of which I am formed should be covered with a non-electric substance, of such a nature as to secure perfect insulation, and possessing the least possible inductive capacity. This material should also be elastic and flexible, free from porosity and able to withstand the action of the water. After I am thus insulated, it is necessary for my protection that I should be incased in an outer covering of adequate strength, flexibility, and specific gravity.

These are the requirements which he was aware are indispensable for my construction as a Submarine Telegraph. There may be others of a minor consideration, but perfect insulation and flexibility in my conducting medium, and adequate strength and specific gravity in my outer covering, are absolutely necessary. The strength and

specific gravity of my protective covering should be regulated in proportion to the depths in which I am to be submerged. In a fair-way and shallow soundings, the protective covering should be of great strength, and proportionate ponderosity, in order to secure me from injury from ship's anchors and other surface interference, but in deep water it only requires to be sufficiently strong to protect me in the process of my submersion, and of a specific gravity just heavy enough to sink me.

With the full knowledge, then, of what is absolutely requisite for my perfect formation, he, in 1838, commenced the attempt to fashion me, in which, after much care and attention, he was eventually successful. This, however, was not the work of a day or a year, but occupied nearly three years, during which time, as I have already explained, he tried almost every description of bituminous, resinous, and other substances, without arriving at any satisfactory result, for the reasons I have already given, until at length he adopted an India rubber covering. This he found to be not only the most eligible material, but in every way to answer the purpose, both with respect to insulation and flexibility; so much so that even now, in 1859, he would not change it for Gutta Percha, which was not known until several years after, and which has since been most extensively used, in the hasty conclusion that it met all the requirements necessary for me, but which time has shown to be most fallacious.

Thus, in 1841, I was complete in every detail, being in the principle of my construction exactly the same now, in 1859, as I was at that early period, without any alteration whatever, save and except some certain improvements in the preparation and application of the India rubber, which time may have shown to be expedient.

The scepticism which I have described as existing even among scientific men, as to the practicability of rendering me available as the medium of submarine communication, kept me for some time in abeyance; but in 1845 I was commenced for the purpose of being laid down between Dover and Calais, and, had the permission of the French Government been accorded as promptly as that of the English, there is no question that the arrangement with Messrs. Charles

Dickens, Paxton, and others, would have been at once carried out, and I should have been established across the channel early in 1846. The delay, however, from the cause already assigned, precluded the accomplishment of this desired object at that period.

Whatever disappointment my projector might have felt in the frustration of his hopes upon that occasion, he resolved at all events, that the opportunity should not be lost of placing me in the most advantageous position that the circumstances would admit of; and having every confidence himself in me, he was desirous that I should be held in equal estimation by others. He therefore determined that my capabilities should go through the ordeal of a public test. For this purpose he took a part of that portion of me, in the course of construction for the channel, and submerged me between Her Majesty's ships *Pique* and *Blake*, and afterwards across Portsmouth Harbour. These trials took place under the superintendence of Mr. Hay, the chemical referee of Her Majesty's Dockyard at Portsmouth, and were highly satisfactory in their results.

So difficult, however, was it at this time to eradicate the doubts of some, even men of science, of the possibility of sending a current of electricity through the water without some portion of it dispersing in its transmission, that I had afterwards to undergo another trial. This was for the satisfaction of a gentleman, an electrician, who, being one of the doubters, was desirous of having an autoptical examination of my capability, and of subjecting me to such tests as he might consider requisite. Upon this occasion I was submerged across the mouth of the Medina, between East and West Cowes, where I was put through an ordeal of the severest description, which I bore so admirably, that the previous sceptic became henceforth one of my firmest converts.

Shortly after this, my projector entered into a negotiation with the Electric Telegraph Company, which, though procrastinated for some time, was on the eve of being brought to a satisfactory conclusion, by which I should have been laid down between France and England in a few weeks, and at an expense, as will be seen from the foregoing correspondence, of less than one fifth of the subsequent cost; but

here, again, I was a second time doomed to disappointment, by the concession having, in the interim, been granted to Messrs. Brett.

It will be observed, notwithstanding the time and trouble, and the untiring care and attention devoted by my projector to my practical development, and the expense incurred by him in his multitudinous experiments and subsequent trials, that in the negotiations entered into by him there was no attempt to make me the plea for obtaining any exclusive concession or monopoly. He neither asked nor wished to debar others from entering into the field of Submarine Telegraphy; and had the subsequent negotiations of other persons been left as free and as open to honourable competition, I, instead of having cause to mourn so many unfortunate failures, should, I have no doubt, have had to rejoice in being the medium of electric intercommunication between nations and colonies now debarred from it; and instead of having a doubtful prestige, I should now have been looked upon as an established fact, beneficial to the community at large.

From 1846 until 1850, I was destined to remain in an inglorious state of inactivity, and, indeed, it would have been better for me if I had been allowed to continue so for some time longer, instead of being subjected to the ordeal I was unfortunately compelled to undergo that year, in the futile attempt made to establish me between Dover and Calais, which I shall now proceed to describe, although I approach that subject with great reluctance, for its reminiscence is any thing but pleasing.

But while I confess that I feel highly indignant at the treatment to which I was then exposed, and which, but for the consideration of His Majesty, the Emperor, might have been fatal to my prestige for ever, in order to avoid the imputation, that my feelings have led me to give a description of that occurrence which the facts do not justify, I will refrain from giving my own version of it, but will describe it in the words of Mr. John Brett himself. That gentleman, at a meeting of the Royal Institution, on the evening of March 20th, 1857, in adverting to this subject, made the following statement. He said:—

“ In 1847 I succeeded in obtaining permission from Louis Phillippe

to unite England with France by a submarine line, but failed to obtain the attention of the public, it being considered too hazardous for their support.

"When the course of events placed Louis Napoleon at the head of the French nation, I brought the subject under his notice, soliciting such protection as I thought would induce the public to support the undertaking. Nevertheless, £2,000 only was subscribed towards it.

"The first attempt to connect England and France by a Submarine Telegraph was made in 1850, with a copper wire enclosed in gutta serena, a material which opportunely came to our aid about that time. About 27 miles of this wire were conveyed on board the Goliath steam-tug, and wound round a large iron cylinder or drum, to facilitate the paying it out, and the vessel started from Dover, exciting little or no curiosity at the time. The end of the wire attached to land was carried into a horse-box at the South Eastern Railway Terminus, and we commenced paying out the wire, pieces of lead being fastened to it at intervals, to facilitate the sinking. Electric communication was kept up hourly during its progress; the only drawback was a fear lest this frail experimental thread should snap, and involve the undertaking in ridicule. The trial was, however, successful, and the *Times* of the day justly remarked, 'the jest of yesterday has become the fact of to-day.'

"The place chosen on the French coast for landing the wire was Cape Grisnez, under a cliff among the rocks, this spot being purposely selected because it afforded no anchorage for vessels, and it was difficult to approach. But to return to the English shore. It was a glorious day to cheer our hopes as onward sped the vessel, disappearing in the distance, first the hull, then the funnel, till the smoke only could be seen against the white cliffs of Grisnez.

"The Pilot Tower at the Dover Railway afforded an elevated position from whence, by the aid of a glass, I was able to distinguish the light-house and cliff at Cape Grisnez. A declining sun enabled me to discern the moving shadow of the steamer's smoke on the white cliffs, thus indicating her progress. At length the shadow ceased to move. The vessel had evidently come to an anchor. We

gave them half-an-hour to convey the end of the wire to shore, and attach the printing instrument, and then I sent the first electric message across the Channel: this was reserved for Louis Napoleon. I was afterwards informed that some French soldiers who saw the slip of printed paper running from the little telegraph instrument, bearing a message from England, inquired how it could possibly have crossed the Channel, and when it was explained that it was the electricity which passed along the wire and performed the printing operation, they were still incredulous. After several other communications, the words 'All well' and 'Good night' were printed (in Roman type), and closed the evening.

"In attempting to resume communication early the next morning, no response could be obtained, and it soon became evident that the insulation was destroyed, either by a leakage of the electric current, or by its having been snapped asunder.

"It was conjectured by the indications of the galvanometer that it had parted near the French coast, which fact was ascertained on the return of our steamer, which we again despatched and fished up the end. Knowing the incredulity expressed as to the success of the enterprise, and that it was important to establish the fact that telegraphic communication had taken place, I that night sent a trustworthy person to Cape Grisez, to procure the attestation of all who had witnessed the receipt of the messages there, and the document was signed by some ten persons, including an engineer of the French Government, who was present to watch the proceedings; this was forwarded to the Emperor of the French, and a year of grace for another trial was granted."

CHAPTER V.

DOVER AND CALAIS, 1850.

Such is the description given by Mr. John Brett himself of the attempt he made in 1850 to lay me down between Dover and Calais. Surely I have great reason to complain! It appears from this statement that from 1817 till 1850, although he and his brother Jacob had obtained the concession, nothing whatever was done in furtherance of the object for which it was granted; and that, when applied to by the government of France in 1818 on the subject, they begged for a further delay of a few weeks, in order to complete two of their Printing Electric Telegraphs, upon which they were then engaged, which were to be "superior in every respect to any telegraph hitherto executed." They further added that "the object also of the Oceanic Telegraph between Calais and Dover, of which we were the original projectors, receives our earnest attention, and we anticipate the completion long before the expiration of the period granted to us by the French Government."

I have already shown, and I here again most unequivocally declare, that so far from being, as they allege, the original projectors of Submarine Telegraphy, it was brought into practical development some time before they even registered their oceanic scheme, and that the project of connecting England and France by my means was on the eve of being brought to a successful issue in 1846, and would unquestionably have been subsequently carried out, had not the exclusive privilege accorded to them rendered nugatory the previous arrangements entered into between Mr. West and the Electric Telegraph Company.

But now let me advert to my condition after having received the "earnest attention" of my so-called projectors to fit me for my

destination between Calais and Dover. It might have been expected, that under the united sapience of these gentlemen I should have been brought forward as a perfect prodigy—an extraordinary production at which the world might gaze with wonder, or at least as a complete specimen of what a Submarine Telegraph should be. In the expectation, however, of either of these results I was doomed to worse than disappointment. Instead of having even the semblance of a respectable Submarine Telegraph, I was a miserable abortion—a non-descript! Science laughed at me, and I do the same now, although at that period I was too much grieved at the ridiculous exhibition made of me; but time and repeated mishaps have somewhat blunted my feelings, and inured me to my hard fate, and I can now laugh at that which was then a source of sorrow and vexation to me. I do not give the description myself of how I was fashioned to make me the means of permanent telegraphic communication between two of the greatest nations in the universe, whose political, commercial, and social intercourse render such a medium absolutely necessary. Mr. John Brett himself says—"The first attempt to connect England and France by a Submarine Telegraph was made in 1850, with a copper wire enclosed in gutta percha, a material which opportunely came to our aid about that time."

Behold me, then, a small fragile wire, insulated with gutta percha, a non-elastic substance, without any other covering to protect or strengthen me, or to give me the requisite specific gravity; and judge, reader, for yourself, how far I was possessed of the essentials to constitute me a Submarine Telegraph.

Parturiunt montes—no, I will not continue the quotation, it is not an apt one; for, although the mountain in labour brought forth only the little mouse, yet still, though minute, it is a beautiful and perfect specimen of one of nature's productions, while I, the offspring of the Brett's mountain, was a non-descript, neither "fish, flesh, fowl, nor good red herring"—a thing of no utility or perfection.

But where was the development of the "constant attention," and the united researches of these gentlemen, when they admit in 1850 that they were obliged to have recourse to a material which opportunely came to their aid about that period. Said I not correctly, that

although they registered a scheme in 1845, they were totally unprepared at that time with any plan to carry out the project which of all others requires the most particular organization, the greatest skill, and a thorough, perfect, and intimate knowledge of all that appertains to me? That they were not so prepared is fully shown in the admission, that when they were compelled to carry out their agreement to lay me down across the channel, or forfeit their concession, they were necessitated to adopt a material hitherto unknown, but which "opportunately came to their aid about that time."

But to proceed. Mr. John Brett, in continuation, says—"The end of the wire attached to land was carried into a horse-box at the South Eastern Railway Terminus, and we commenced paying out the wire, pieces of lead being fastened to it at intervals, to facilitate the sinking." Major Dalgetty could not be more astonished at the bows and arrows of the "Children of the Mist" than I was at this primitive mode of giving me the necessary ponderosity to submerge me. The provident old major, however, ultimately found that these bows and arrows of the untutored sons of the mountains could be turned to good account; but I was fully aware that in the absence of other causes the pieces of lead attached to me must alone inevitably prove my destruction. If I were not possessed of adequate continuous specific gravity in my entirety to sink me, the application of weights at intervening distances would have the effect of sinking and anchoring me at the particular points to which the lead might be attached, while the buoyancy of the other portions, not so weighted, would create considerable oscillation and friction, by which, eventually, they would be separated from their primitive anchors.

He then proceeds to say, "Electric communication from the vessel to the shore being kept up hourly. During its progress, the only drawback was a fear lest this frail, experimental thread should snap, and involve the undertaking in ridicule." Was it not involved in ridicule? Was it because "this frail, experimental thread" did not snap during its progress, that the absurdity and folly of employing such a means to carry out so important an undertaking ceased to be longer apparent? No; the whole affair became ridiculous from the fact, that the emanation of Messrs. Brett's united ingenuity and

"constant attention" was nothing better than what he admits to be a "frail, experimental thread," and that in using this, no other result could have been expected than the one he himself describes:—"In attempting to resume communication early next morning, no response could be obtained, and it soon became evident that the insulation was destroyed, either by a leakage of the electric current, or by its having snapped asunder!"

And yet, notwithstanding the account he has given of the undertaking, he says—"The trial, *was, however, successful.*" Indeed! I confess I cannot arrive at the same conclusion; but that may be from the obtuseness of my intellect, which cannot reconcile the assertion of success with the fact of failure. At least, it is somewhat paradoxical, and may puzzle far more intelligent minds than mine. No wonder that Mr. Brett and his colleagues in the Atlantic affair have announced that also as being a successful trial. They can do so with equal reason. In the latter case, however, I am left at the bottom of the Atlantic in my entirety—"alone in my glory;" while the shareholders, like Lord Ullin, are "left lamenting." Here, again, I cannot be said to be lost, for everybody knows where I am, being, like the Irishman's kettle, at the bottom of the sea; and when Paddy recovers his culinary treasure, and is able to use it for boiling the water to brew his tumbler of Kinahan, or, having taken the pledge, to infuse his Bohea, Souchong, Hyson huds, or other descriptions of the oriental herb, to produce "the cop that cheers, but not inebriates," then may I as reasonably expect to be recovered, and made to transmit the mysterious fluid which science has rendered subservient to the use of man, and the medium of inter-communication between nations separated from each other by expansive oceans.

But with regard to my position across the English Channel I never had even this remote chance of ultimate recovery. From the first day of my submersion I was, in the true and literal acceptation of the term, totally lost. No one knew where I was, or what had become of me; my buoyant limbs were severed and scattered and parted for ever, drifted in various directions in ocean's vast expanse. All that remained of me were the portions only attached to the pieces of lead already adverted to. Oh! how I wished that they, too, could

have been released from their thralldom, and carried away with their buoyant brethren! But it was not to be; and here, like a martyr, tied to the stake, I was compelled to undergo, in my ludicrous and pitiable state, all sorts of indignities. In this position, even the very fishes laughed and jeered at me, and some of them, more learned than the rest, would, when they passed and repassed me, satirically remark—"Si monumentum quaris circumspice." These, I suspect, were some knowing fellows, of the piscatorial tribe, who once were denizens of the Thames, where, having disported in happier and purer times in the neighbourhood of St. Paul's, became cognisant of the inscription with reference to its constructor, and who had, like sensible fishes, emigrated to their present locality, preferring the limpid and wholesome briny to the muddy and pestilential water, mis-called fresh.

In addition to the statement that "the trial was, however, successful," Mr. Brett further adds, "And the *Times* of the day justly remarked—'The jest of yesterday has become the fact of to-day.'" Only a few hours after, however, on the following morning, the *Times* could again, with more aptitude, have repeated the self-same words, with a slight transposition, and said—"The fact of yesterday has become the jest of to-day."

In bringing this painful portion of my story to a conclusion, I have only to add, that if this had been a mere experimental trial, it would have been a most ridiculous and absurd one; but when it was a serious attempt to establish me as a permanent medium of communication between the English and French coasts, in accordance with the conditions of the concession, which stipulated that the cable should be laid down in efficient working order in 1850 (a year longer than the time originally specified, which was 1849), or, failing in this, that the concession should be altogether annulled, I cannot refrain from expressing my indignation at the ludicrous exhibition made of me, and which was nearly proving fatal to my prestige for ever. All Mr. Brett's exertions went only to show, that instead of my being a sound, healthy, and perfect specimen of a Submarine Telegraph, I was not altogether still-born, yet, at the best, only a poor pining infant, with just sufficient vitality to squeak out, "All

well," and "Good night;" and then departing at once to that well-known individual so familiar to all sailors, 'ycleped Davy Jones. I must have been the infant Thomas Hood had in his "mind's eye" when he wrote the following epitaph:—

"Since I was so soon to be done for,

"I wonder what I was begun for."

Of course I can have no recollection, in my pitiable and expiring state, of having given utterance to the words imputed to me—"All well," and "Good night," and alleged to have been recorded in Roman type! I should rather have supposed they might possibly have struck upon Mr. Brett's tympanum in hearing others, or himself, cantating the old well-known duet of "All's well" in the course of the evening's festivity and jollity, consequent on his imaginary success; but after the attestation of this fact, so carefully collected by his trustworthy emesary, and forwarded to the Emperor, signed by some ten persons, it is very evident that this could not have been the case. It must not, however, be for one moment supposed that the Emperor, with his acute intellect, was in the least deceived in the matter. It was not in consequence of the document, to which he could not attach any value, as it was the record of failure and not of success, but solely to His Majesty's own kindness and consideration, that the penalty was not exacted in the forfeiture of the concession, and that "a year of grace for another trial was granted."

It will scarcely be credited, yet, nevertheless, it is true, that, notwithstanding this ridiculous attempt and failure, the Messrs. Brett should, within a few hours after, actually apply to the Government, and coolly ask to be allowed to monopolize the British shores, and that they alone should have the privilege of laying down Submarine Cables. They had previously asked for a grant of £20,000, which was properly refused them, but, nothing daunted, they sent upon this occasion the following letter:—

"August 30th, 1850.

"MY LORDS,—

"I have the honour to acquaint your Lordships, that on Wednesday, the 28th inst., we succeeded in proving the fact of a Submarine Telegraph

between England and France, and that I printed by it the first communication ever sent by electricity across the Channel.

" Having, as early as July, 1815, had the honour to lay before Sir Robert Peel and Admiral Sir Robert Cockburn, and, more recently, the late Lord Auckland, and other members of Her Majesty's Government, an original proposition (of my brother and self, as the inventors and patentees of the Submarine and Electric Printing Telegraph), and having then proposed the connecting England and Ireland, and placing Dublin Castle in instantaneous communication with Downing Street, and having now, after years of arduous labour and great expense, proved the fact, in opposition both to public opinion and that of our most eminent practical men, we have only to request that your Lord's Commissioners will concede to us (as the original inventors) the privilege to unite England and Ireland, and that they will accord the protection for exclusive privilege, such as is already granted to us by the French Government, for the Coast of France, without which its value might be rendered nugatory.

" I have the honour to be,

" My Lords Commissioners,

" Your Lordships' very humble and obedient Servant,

" JOHN WATKINS BREIT

" For J. W. BREIT & JACOB BREIT.

" To the Right Hon. the LORDS COMMISSIONERS

" of HER MAJESTY'S WOODS AND FORESTS."

To this particularly modest request there could, of course, be only one answer, which was, " *that it is not in their Lordships' power to grant you or any other party such privileges or protection as you demand.*"

Now, had they been as successful as they were the reverse—had they displayed that knowledge of me which, as my *soi-disant* inventors, they ought to have had, instead of showing that they actually knew nothing whatever of me, and that they were obliged to adopt a material which " *opportunately came to their aid about that time*"—had they, after " *years of arduous labour and expense,*" proved any fact, " *in opposition to public opinion, and that of our most eminent practical men,*" instead of making such an absurd demonstration, it would still have been a most presumptuous request: but when it was preferred under the circumstances described, it would be flattery even to designate it by that term.

CHAPTER VI.

HAVING given the history of my unfortunate *début* across the English Channel in 1850, under the auspices of my pseudo parents, John W. and Jacob Brett, which certainly does not contrast favourably with the one I made four years previously, in 1846, between Her Majesty's ships *Pique* and *Blake*, under the fostering care and attention of my true one, I will now proceed to narrate the other occurrences of my life. In doing this I shall not enter into a lengthened description of the various incidents which befell me during the interval of this my first failure, and my subsequent one across the Atlantic, but shall, with one or two exceptions, confine myself to a brief statement of the facts, and merely give a short summary of this part of my history.

DOVER AND CALAIS, 1851.

In the following year Messrs. Brett were more successful in submerging me. Upon this occasion I was differently constructed, being composed of four wires, insulated by gutta serena, and twisted together, forming a four-strand rope, and surrounded with an outer covering of galvanised iron wires wound spirally round me. This certainly was an improvement upon my previous construction, and although not altogether upon the principle I could have wished, has been found to answer the purpose. There is one point, however, I cannot pass over in silence, which is, that, notwithstanding the comparatively short distance from shore to shore, the opposite coasts being able to be seen on clear days, such was the want of the forethought in calculations, that the length of cable actually fell short of its requirements; and an extra piece had to be manufactured, and joined on after the submersion of the original portion.

PORTPATRICK AND DONAGHADEE, 1852-53.

In 1852 two attempts were made to establish me between the Scottish and Irish coasts, but unsuccessfully. Since then, however, two separate Companies, one in 1853, the other in 1854, have succeeded in laying me down. My construction is similar to the heavy class cables.

HOLYHEAD AND DUBLIN, 1852-1854.

The importance of the connection between England and the Irish capital necessarily led to an early attempt for that purpose, and in 1852 I was laid with one conductor. The principles of my construction was not perfect, however, and my projectors failed.

In 1854 the attempt was renewed by others—the Electric and International Telegraph Company—with success, and shortly after an additional cable was laid down; these have each a single conducting wire.

Now it is here worthy of observation, that the Messieurs Brett having been properly refused both a grant of money and a monopoly of the English and Irish coasts, the result has been the establishment of several, instead of one means of electric intercommunication between Great Britain and Ireland.

DOVER AND OSTEND, 1853.

There is nothing to call for any remark in my submersion between these parts. My construction was upon a similar principle to that of the Calais line, and I was successfully laid in 1853.

THE HAGUE, 1853-54.

I was laid down between Orfordness and the Hague, with success, but from the nature of the ocean, in whose bed I repose, I have been subjected to more than ordinary annoyance from ships' anchors and other surface interference, especially from the numerous fishing

smacks, coasters, &c. In order to provide as far as possible against these chances of disaster, I, in this case, have been laid in four separate cables, with one conductor in each, so that in the event of injury to me the others could be still in operation. Two of these were laid down in 1853, and the others in 1854. In no instance, either before or since, have I been paid out with so little loss, in what is technically termed slack. Recently, an addition has been made by a cable with four conductors, but my working has been unsatisfactory, owing to some mishap in submerging me.

THE SOLENT, 1853.

In this little line, which extends from Keyhaven to Hurst Castle, and from the Castle to Yarmouth, in the Isle of Wight, and thence to Cowes and Osborn, for the convenience of the Sovereign and the residents of the island, I am composed of two structures. From Hurst Castle to Yarmouth, I am formed in the usual manner of gutta percha insulation, and with iron wire wound spirally round me. From Keyhaven to Hurst Castle, however, I am constructed upon a perfectly different principle, both as to my insulation and my outer covering; in this case, instead of gutta percha, I am insulated with India rubber, and instead of the wires being wound spirally round me, they are closely plaited upon me. This is part and parcel of the portion of me constructed by my projector, and intended for submersion between Holyhead and Dublin, but which was not carried out in consequence of the failure of the Company, and which has been so much lauded by the *Times* in November last. I was laid down in 1853, and am still in active operation.

DENMARK, 1855-56.

In 1855, I was successfully laid across the Great Belt, a distance of fifteen miles and a-half; across the Little Belt, five miles; and in the year following across the Sound, ten miles.

FORTH AND TAY, 1855.

Here I form a short line of only six miles, and have four conducting wires, surrounded by iron ones.

VARNA AND BALAKLAVA, 1855.

As I was merely laid down to meet an emergency, there were so many circumstances to prevent my perfection, that I may pass over that episode in my career in silence. I can, however say, that for some time I was of considerable utility, notwithstanding I was merely submerged as a temporary expedient, and consequently was not constructed upon principles that I should have been, had I been intended for a permanency.

HANOVER, 1858.

The Submarine Telegraph Company, who have the monopoly of the English shores with respect to France and Belgium, being desirous of extending it, have obtained a concession from the King of Hanover, and in 1858 have laid me down across the North Sea to that kingdom. In this case I have two conducting wires insulated with gutta percha, with an outer covering of iron wires wound spirally round me.

THE CHANNEL ISLANDS, 1858.

The desirability of a communication with Jersey and Guernsey was so apparent, that the inhabitants of those islands bestirred themselves, and formed an independent company, by whom, in the Autumn of 1858, I was quickly laid, starting from Weymouth, being eighty miles in length, and having one conductor. Arrangements have been made by which I am working in connection with the Electric and International Company and their system.

THE MEDITERRANEAN CABLES.

I have not taken these in their chronological order with the foregoing, considering it better to class them by themselves. I was in great hopes that by this time the gentleman who had claimed me as his own, would have become more intimately acquainted with my nature, and have fashioned me in accordance with the position I was required to fill, as it must be self-evident that my construction for shallow waters was totally unsuitable for oceanic depths.

Here again I shall not attempt to describe the occurrences attending the efforts to submerge me, but will leave Mr. Brett himself to do it, in the papers which he has read to the Institute of Civil Engineers, and other scientific societies. He says—

SPEZZIA AND CORSICA, 1854.

“The two cables he had laid down in the Mediterranean weighed 8 tons the statute mile, or nearly 9 tons the nautical mile. The length laid between Spezzia and Corsica was 90 miles. At the time he started upon that undertaking he was not aware of the depths to be traversed. The Sardinian Government placed their finest vessels at his disposal, and the ministers accompanied him from Genoa to Spezzia, to inaugurate the undertaking. The question was put to him by an able government engineer at Genoa, whether he intended to take the straight line from Spezzia. He replied that that was his intention. He was then told that in places depths of 400 or 500 fathoms would be encountered, and to a certainty the cable would be lost: whereas, if he made a circuit of 10 or 12 miles, the depths would not be more than 100 or 150 fathoms, and the cable would be safe. He replied that their reasoning would be most judicious if his work ended there, but as it was intended to carry on the line to Bona in Algiers, far greater depths were expected between the Island of Sardinia and Africa than those mentioned. The officer who had made these predictions consented to accompany the expedition, and rendered valuable service. A government vessel preceded that from

which the cable was delivered to take soundings, but the great depths were not made known until after they were passed, for fear, as it was said, the workmen should be nervous. An accident occurred after they had passed upwards of 400 fathoms. When they were paying out 230 fathoms, the cable ran out with great violence, and by the extraordinary means used to arrest it, the strain upon the taffrail was so great, that the cable was bent nearly flat. The insulation was, of course, destroyed at this point, and also at some distance back. After several efforts and some delay the cable was drawn in inch by inch from the water, until the injured parts were recovered. These were then cut out, fresh splices made, and means adopted to prevent similar accidents occurring in future. This occupied about 30 hours, and during the whole of this time the vessel was anchored by the sea end of the cable.

"The captain, Marquis Ricci, who had hitherto considered it impossible to lay such a cable in great depths, then said there appeared to be such elements of strength in that form of cable, that he now believed it would be possible to unite England and America, as Mr. Brett proposed.

CORSICA AND SARDINIA, 1854.

"Four days afterwards the cable between Corsica and Sardinia was laid in a brisk gale. That was the most successful run he had ever experienced, when this heavy cable was laid at about six miles per hour.

SARDINIA AND AFRICA, (FIRST ATTEMPT) 1855.

"The submarine cable for connecting Sardinia with Algeria, was made in 1854. It was 150 miles in length, and weighed 1,200 tons, and allowing for coals required a steamer of 2,000 tons to carry it. Being unable to procure a steamer of that size in this country, in consequence of the war with Russia, I applied to the Emperor of the French for one, and at the same time expressed a wish that the

portion of the Mediterranean I was about to cross, should be sounded. I was directed to call upon the Minister of Marine, the Emperor adding that he would speak to him on the subject. On seeing the Minister, and naming the size of the steamer required, I was informed that the Government had not a vessel of this size at their disposal. But the soundings were made, and the results proved depths of 3,000 metres, or nearly two miles, being from fifty to sixty times the depth of the English channel.

"The time of the concession, under which I had undertaken at my own expense to complete the fifth link for uniting Africa, was on the point of expiring, so that I was obliged, much against my convictions, to charter a sailing vessel, and the result was, that after laying down safely sixty miles of cable, our progress by towing the vessel had not been such as would give us any hope of reaching land. I determined, therefore, to cut it, and save the eighty-four miles remaining on board, and wait an opportunity to renew the trial with the steamer, and to raise the sunken cable.

SARDINIA AND AFRICA, (SECOND ATTEMPT) 1856.

"In the cable laid down in 1856, another accident took place by a sudden run of the cable, caused, he believed, from there not being sufficient turns (only three coils) round the drum. The cable having parted, it was decided to return to land, drag for the cable, and under run it, which they did for eighteen miles. The end was then spliced to the cable on board, and five turns having been taken round the drum, the laying was proceeded with perfectly, even in depths of 1,600 fathoms, until the cable fell short some miles from land. He must say, he went to sea so unwisely, that parts of the machinery were received on board in sections (in the river, from delay, and from a wish to avoid the heavy expense incurred by the hire of vessels), and were not put together till they arrived at the spot for commencing operations. This second cable weighed about four tons the statute mile. One of the principal difficulties he had encountered in laying cables of great length, was the delivering of the cable in

accordance with the progress of the vessel. It was of the utmost importance that the way and speed of the ship should be ascertained by the most accurate means, as currents running 2 or 3 knots per hour might be encountered, which would materially influence the ship's course.

"From constant endeavours to pay the cable out in accordance with the log, he determined to increase the strain in order to economise the length, but though this had been done for the last 60 miles, and though many on board were of opinion that there would be 10 or 12 miles to spare, yet, within a short distance of the shore, the cable fell short. An order was instantly telegraphed through the cable to Greenwich to manufacture the additional length of cable required, while the best means were adopted of holding on by the end until some aid could be obtained. A vessel was despatched to Algiers for that purpose, but on the fifth morning, almost the instant after receiving a telegraphic message on board from London, saying that the cable ordered five days previously would rapidly follow to the Mediterranean, the cable parted in a storm, after having remained intact for five days in a depth of five hundred fathoms. Mr. Brett found it necessary to remain with the men at the breaks and keep them to their post night and day, as when they became accustomed to handling the breaks it was impossible to change them. The remarks in the second paper, as to the necessity for an efficient and practical staff in operations of this nature, could not be too strongly enforced."

This is the account given by Mr. John J. Brett, before a meeting of scientific gentlemen. Had I given a statement of the calamities that had befallen me, I could not have given a more lamentable chapter of disasters, than this of my *soi-disant* originator, who has shown in the foregoing remarks that no other result could have been anticipated than my total destruction, from the sheer incapacity displayed throughout the whole of this attempt. At a subsequent meeting, it was attempted to lay the fault of non-success upon Monsieur Lapierre, the French officer in command of the Imperial vessel, *Le Tartare*, by stating there was an error in the computation

of the position of the ship. That gallant officer naturally feeling indignant at a charge attacking his professional reputation, wrote to the official naval journal of the French empire, giving a direct contradiction to this unwarrantable statement, and explaining where the fault really was.

The Paris correspondent of the *Times*, in adverting to the subject, states that:—

“ M. Lapierre, the lieutenant commanding the French Government Steamer *Le Tartare*, and who is the officer alluded to by Mr. Brett at a meeting of the Atlantic Telegraph Company, as having caused the loss of the cable which was being laid down between Cape Spartivento and Galita, in consequence of an error in his latitude, has written a long letter to the editor of the “*Moniteur de la Flotte*,” denying the truth of this statement, and asserting that the casualty is to be attributed to other causes.

“ The following extracts from Commander Lapierre’s letter will show the view he takes of the case:—After declaring that he distinctly gave Mr. Brett to understand, at a council held on board the *Tartaro* between him, M. Delamarche, the French Commissioner, and the Captain of the English Merchant Steamer *Dutchman*, that he would in no way be responsible for the direction, but would carry out Mr. Brett’s wishes, and leave the entire responsibility to him, M. Lapierre continues:—

“ On the 7th of August, the day when the first attempt was made, the weather was so fine and clear, that when we started at 6 a.m., the towers which crown Cape Spartivento were distinctly visible. Soundings were taken at 10 a.m., and the lead gave 119 metres, the chart showed 120 in the same place. Our bearings, moreover, showed that we were where we wished to be. All went well till the signal to stop was given. A few minutes after we turned ahead again, but we had then ceased to be connected with Cape Spartivento, the cable having been broken by the mechanism employed to stop it (*par le stoppeur employé a l’arretier*). I had predicted this result to Mr. Brett when I had previously examined this stopper. After this, although we were no longer in connexion with Spartivento, Mr. Brett

deemed it advisable we should go on again for two hours longer, and he thus lost 10 miles of his cable. It was not till 5 p.m. that the signal to stop was again given, and I was requested to go on board the Dutchman."

"Another council of the before-mentioned persons was now held, and M. Lapierre says, that despite his protests that the cable would infallibly break again, Mr. Brett's proposition to attempt to recover the cable by means of the windlass was tried. The result proved that M. Lapierre had rightly judged the diameter of the windlass to be too small to allow of this peculiar cable coiling round it, and it snapped again. The French commander's plan to return to the point of departure, and pass the Dutchman under the cable, as a ferry boat is passed under a rope, was now adopted, and he left the English steamer, returning to the point of departure, while he himself went off in the Tartare to Cagliari for some necessary articles. He then remarks, that in his first experiment only 36 miles in a direct line had been gone over, but that 60 and one-eighth miles of cable had been paid out. From this he says Mr. Brett might have calculated, that when he came to much deeper water, the proportion of cable to distance would be far greater. He resumes:—

"On the 13th August the Dutchman fished up 14 miles of the broken cable, and then, to my sorrow, Mr. Brett determined to abandon the rest, and make fast to the point of fracture in the line still in connexion with the land. There remained now 114 miles of cable out of the 160 and a seventh Mr. Brett brought with him from England; but I thought this might suffice, provided the fault of going too slowly was not committed and above all, that less cable was paid out than had been done at first; for, from the point where we were (lat. 38 deg. 12 min.; long. 6 deg. 33 min.) to Galita was 68 miles, which would require nearly 135 miles of cable. It was decided to steer S. 133 deg. W., and that the speed should be at the rate of from 2 knots to 2.5 knots, which I declared to be much too little."

"This very fault, he continues, was committed; and he enters at length into his reasons for thinking that this was the main cause of

the cable falling short, the principal of which are, 'that the Dutchman would not answer her helm properly at that rate of speed,' and that both vessels 'were carried away by the current more than they would have been at a higher rate.' He says Mr. Brett signalled no less than 16 times to diminish the speed, notwithstanding his constant warnings on the subject. The Commander of the Tartare concludes by blaming the steps finally taken to prevent the further loss of cable which eventually took place."

Surely this explanation of Commander Lapierre's requires no further comment from me.

SARDINIA AND AFRICA, (THIRD ATTEMPT) 1857.

In the year 1857 my assumed parent finding that he could not manage me, transferred to another the care of my construction and submersion. These were accomplished, and I was delivered over to the Imperial authorities as being perfect. Only a few short months, however, elapse, when something in me went wrong, and the French Government withdrew their subsidy; and I have, in consequence, been made the subject of debate in the Law Courts; the correspondence of a London morning paper from Paris states my *entrée* into the French Civil Tribunal, in October, 1856.

"Mr. Brett, *agent* of the Mediterranean Submarine Telegraph Company, represented on Saturday to the President of the Civil Tribunal, sitting in chambers, that the cable between France and Algeria, *via* Sardinia, which had been laid down by the Company, and which had been supplied by Messrs. Newall, Liddell, and Gordon, English contractors, did not work well—some of the signals transmitted arriving incorrectly, or not at all—and that, in consequence, the French Government had declined to accord the guarantee of interest which it had promised for the establishment of a telegraph to Algeria. He therefore prayed that practical men should examine the cable, and report on its defects, and that the contractors should be made to effect all necessary repairs. Messrs. Newall and Co. contended that the application ought not to be granted, inasmuch as they had delivered the cable within a given time, and it had been laid down and worked well, which was all they had contracted to do. The court declined to interfere."

The foregoing, however, does not appear to be final, for *Galignani* has announced that, I am still a matter of dispute in the French Courts, and at the same time in the English ones also:—

“The Mediterranean Submarine Telegraph Company, represented by Mr. Brett, some time ago entered into a contract with Messrs. Newall and Co., English contractors, for laying down a submarine cable destined to unite Sardinia with Algeria, and the contract stipulated that in case of any discussion arising, arbitrators should be chosen by a court of law, and that the decision should be final. When the cable was delivered the Company refused to receive it, on the ground that only one of the four wires was capable of transmitting dispatches perfectly; Newall and Co. maintained that all the four wires were perfect, and that the Company had only objected to them because the French Government, with which they had not treated, had raised unnecessary difficulties. Under these circumstances an arbitration became necessary, but whilst the Company insisted that it should take place in France, Messrs. Newall and Co. required it to be in England. On Thursday the Company applied to the Civil Tribunal to order the nomination of experts. Messrs. Newall raised the objection that the tribunal had no jurisdiction, inasmuch as the agreement was made in England between Englishmen, as the conditions indicated that the parties had intended to have recourse to English courts, and as they (Newall and Co.) had commenced legal proceedings in England, to which Brett had put in an appearance. The tribunal decided that as the Company was a French one, and had its offices at Paris, the French courts had full jurisdiction, and it ordered the case to be gone into on the merits in a fortnight.”

CAGLIARI AND MALTA, 1857.

The importance of telegraphic connection between the distant parts of this empire necessarily required a line to Malta, and the Government offered a handsome remuneration to the Company carrying out this extension. I was laid down, and for a short time had the satisfaction of knowing that I was of utility to the Government of the country and the community at large. I have not in any case been hypercritical where any thing like success has been the result, although I cannot agree that the principles upon which I have been constructed and submerged have been the correct ones. Unfortunately, here too I have been but short lived, and I believe solely from the erroneous

principle of my construction ; but as I shall have to allude more fully to this subject in adverting to my failure in the Atlantic, I will refrain from further comments here.

MALTA AND CORFU, 1857.

I shall merely observe here, that I was successfully laid down between these two islands, and have been in uninterrupted operation since that period.

CANDIA AND ALEXANDRIA, 1858.

An attempt has recently been made to lay me between Candia and Alexandria, which has proved a failure, as I was obliged to be cut after 228 miles of me had been submerged.

CHAPTER VII.

THE NEWFOUNDLAND SUBMARINE TELEGRAPH.

As this is more immediately connected with the progress of the Atlantic scheme, it may not be out of place briefly to review the history of Submarine Telegraphy in North America, and to trace the rise and progress of the companies originated for the carrying out of telegraphic communication with the eastern-most point of that country.

The Canadas, New Brunswick, and Nova Scotia, were all well supplied with telegraphic lines, and the line from Halifax had proved of great importance to the commercial world, by the transmission of European news upon the arrival there of the British steamer. The island of Newfoundland had long been desirous of a more frequent means of communication than a fortnightly Mail, and efforts had been made to make St. John's a port of call for steamers, both homeward and outward bound, and the Legislative Assembly had offered a subsidy for such mail service, and appointed Commissioners to negotiate upon the subject. At this time (1851) a gentleman of New York, Mr. Horace B. Tebbets, was endeavouring to establish a line of steamers between New York and Galway, and the Newfoundland Commissioners entrusted with the matter, applied to him. That project, however, fell through; but Mr. Tebbets proposed the establishment of a line of Telegraph to St. John's N. F., and entered into an arrangement with Mr. Frederic N. Gishorne to proceed there and procure the necessary charter. The interior of the island was but little known, and the Assembly voted a sum of money for its exploration to Cape Ray, to decide upon the practicability of a telegraphic route. Mr. Gishorne was charged with this duty; and he

then procured a charter for the line, and returned to New York, where a Company was organised under the title of "The Newfoundland Electric Telegraph Company," which had for its Managing Director Mr. Horace B. Tebbetts, Mr. Frederic N. Gisborne, Engineer, and Mr. Charles T. B. Keep, Secretary. The charter was of a favorable character: it gave the exclusive privilege of carrying telegraphic lines across the island, a sum of money for the construction of a bridle-path, and a large quantity of land as a bonus: this in itself would have been valuable, as the island contains great mineral wealth, but at that period comparatively unworked, if at all; the route intended was from St. John's to Cape Ray by land line, a branch from Trepassey to St. John's, from Cape Ray to Cape Breton by a Submarine Cable of about 70 miles, where it would connect with the Nova Scotia system of lines, which, when the property of the Government, had been under the superintendence of Mr. Gisborne. Difficulties, however, arose in securing the friendly co-operation of the Nova Scotia and New Brunswick Companies, so that it became necessary to seek independent means to reach Calais in the State of Maine, so as to connect with the lines to New York, New Orleans, &c. Foiled in procuring a charter in Nova Scotia, it was requisite that the connection should be made via Prince Edward's Island, the Act for which purpose was speedily procured, and a small sum of money and some land added; the line was built through Prince Edward's Island, and a communication effected with the mainland of New Brunswick by a Submarine Cable of nearly ten miles between Cape Tormentine and Cape Traverse, which was satisfactorily submerged by Mr. Gisborne in November, 1852. There was still a difficulty in procuring an arrangement with New Brunswick, and accordingly a charter, granted to a Mitamichi Company, was provisionally purchased; the construction of the road-way and other works in Newfoundland had been proceeding, but many difficulties had to be encountered; the project was looked upon as visionary by many, even by some who are now its warmest supporters: at length, the absence of the necessary funds caused, in the

Autumn of 1853, the suspension of the works. Various negotiations took place with a view to carry on the Company, and at last the proprietors transferred it, at considerable sacrifice, to a new Association, which procured a fresh charter from the Newfoundland authorities, incorporating the "New York, Newfoundland, and London Telegraph Company." This charter, which was granted in the spring of 1854, contained greatly enhanced privileges—25,000 dollars in cash, 6 per cent. interest for 20 years on 250,000 dollars, and one hundred square miles of land; and, in addition to these advantages, the EXCLUSIVE right of landing a Submarine Cable upon the shores of Newfoundland and its dependencies, which include the Coast of Labrador.

The design of the original promoters had been with a view of eventually carrying out an Atlantic Telegraph, but until the science of Submarine Telegraphy had become more advanced, they were content with proposing to send messages from coast to coast, by steam vessel; there would in this case, even, have been a saving of not less than from five to six days.

It may be asked how was it that the Government gave such important powers, which virtually made the Atlantic Telegraph landing at Newfoundland a monopoly? The late Company were in debt in the Island, and the people of St. John's were so elated with the prospect of their debt being paid, and the line being completed, which would materially enhance the importance of their city, that they readily bartered away their birthright, and placed that which should have been free to all, in the hands of a company, with its head quarters at New York. Not content with stopping every one upon the doorstep of North America, the Company contrived to hedge round the coast for miles and miles, with the impenetrable barrier of monopoly, by obtaining exclusive privileges of landing Submarine Cables upon the coasts of Prince Edward's Island, Nova Scotia, Cape Breton, and the State of Maine; they even attempted to procure from the State of Massachusetts similar powers, but, fortunately, without success. All Acts of Assembly have to be confirmed by the Imperial Government,

and if not vetoed within a certain time, take effect as law, without confirmation. Such approval had not been given in October of 1854, and the then Attorney-General of Newfoundland, who happened to be in England, it is believed used his personal influence at the Board of Trade to procure the necessary power; it is understood, however, that this was not done without some difficulty, as the danger of such powers as these was beginning to attract some attention: it, however, resulted in a "confidential circular" being addressed by Mr. Labouchere, then at the head of the Colonial Department, to the various Governors of the North American Provinces, requesting them to refrain from granting such exclusive privileges for the future. But the mischief had been done, and no remedial measure could be adopted. It is said, that even the small islands of St. Pierre and Miquelon, on the southern coast of Newfoundland, which belong to France, could not be preserved from the rapacious maw of the New York, Newfoundland, and London Telegraph Company.

It may still be a matter of argument, how far a Province has power to dispose of its coasts, and room for enquiry exists to know how far the rights of the Crown itself are interfered with by the assumption of such powers. To return to my story—the Company reverted to the original idea of connecting Cape Ray with Cape Breton, and a jovial party of the Directors and their friends left New York to assist at submerging the cable, the proceedings were opened with a prayer for the success of the undertaking, and "the better the day, the better the deed," the work was commenced on a Sunday, and the cable—was lost—some say as a judgment upon the Company. This loss gave rise to some litigation, the underwriters refusing to pay. The case, however, never came to trial, the loss having been compromised.

The next attempt proved more successful, the cable was of an improved character, and the Directors were content to permit the contractor to submerge it, without the attendance of a pleasure party, and the usual concomitants of "champagne and chicken fixings."

The connection of St. John's, Newfoundland, with the telegraphic systems of British North America and the United States, could not result in much profit to the Shareholders, unless European steam-

ships could be induced to call there. Not much chance appeared of such an event, and consequently the presiding genius of the New York Newfoundland, and London Telegraph Company proceeded to England for the purpose of interesting British merchants and British capital in the Atlantic project. Mr. Cyrus W. Field, with his exclusive privileges of landing on the various coasts of North America, effectually stopped all competitors,—fair and open competition was strangled,—the hideous spectacle of exclusion and monopoly was held in *terrorem* over British capitalists, and the men of Manchester, who had spent time and money in the accomplishment of Free Trade, were forced to bow their neck to the yoke of American speculators, with privileges wrested from the Legislative Assembly of Newfoundland.

To show the extent of the various and unconstitutional powers obtained by this Company, I subjoin the following list :—

NEWFOUNDLAND.

Exclusive privileges for fifty years of landing cables on Newfoundland, Labrador, and their dependencies.

The exclusive right embraces a coast line extending from the entrance of Hudson's Straits southwardly and westwardly along the coasts of Labrador, Newfoundland, Prince Edward's Island, Cape Breton, Nova Scotia, and the State of Maine, and their respective dependencies.

Grant of fifty square miles of land on completion of telegraph to Cape Breton. Similar concession of additional fifty square miles when the cable shall have been laid between Ireland and Newfoundland.

Guarantee of interest for twenty years, at £5 per cent. on £50,000.

Grant of £5,000, in money, towards building road along the line of the telegraph.

Remission of duties on importation of all wires and materials for the use of the Company.

PRINCE EDWARD'S ISLAND.

Exclusive privilege, for fifty years, of landing cables.
Free grant of one thousand acres of land.
A grant of £900 currency per annum for ten years.

CANADA.

Act authorising the building of Telegraph Lines throughout the Provinces.
Remission of duties on all wires and materials imported for the use of the Company.

NOVA SCOTIA.

Grant of exclusive privilege, for twenty-five years, of landing Telegraphic Cables from Europe on the shores of this Province.

STATE OF MAINE.

Similar grant of exclusive privilege for like period of twenty-five years, upon the formation of the Atlantic Telegraph Company: the monopolies enumerated above, which had been obtained by the New York, Newfoundland, and London Telegraph Company, are transferred to the Atlantic Company, by which Company the following additional privileges were secured, viz.: from

GREAT BRITAIN.

Annual subsidy of £14,000 sterling until the nett profits of the

Company reach 6 per cent. per annum on the whole capital of £350,000 sterling, the grant then to be reduced to £10,000 sterling per annum for a period of twenty-five years—the aid of two of the largest steamships in the English navy to lay the cable, with two subsidiary steamers.

A Government steamship to take further necessary soundings, and verify those already taken.

UNITED STATES.

Annual subsidy of 70,000 dollars until the nett profits yield 6 per cent. per annum, then to be reduced to 30,000 dollars per annum for a period of twenty-five years, subject to termination of contract by Congress after ten years, on giving one year's notice.

The United States' steamship, Arctic, to make and verify soundings.

Steamships, Niagara and Susquehanna, to assist in laying the cable.

A Government steamer to make further soundings on the Coast of Newfoundland.

CHAPTER VIII.

THE ATLANTIC, 1857-58.

LIKE little epicurean juveniles, who leave the *bon-bouche* of their feasts to be eaten 'he last, I have left this, the most racy part of my life's history, for the finish of my narration. It is the most important feature of my whole career, not excepting the one I have described in the attempt to submerge me across the Channel, in 1850, to which, indeed, in many points, it has a great similitude. There, the means adopted to fit me for my destination were inadequate to the end, and could produce nothing but failure; here, the same. There, it is alleged that I articulated a few words at night, which were duly recorded in Roman type, but on the following morning was found to be—defunct. In the present instance the same allegation has been made, with this difference, however, that here, I am represented to have lingered in a doubtful state of existence for nearly a month, and that during this period of syncope previous to death, I exhibited short intermitting throes of vitality, under which I gave utterance to whole sentences, which were recorded, but not in Roman type. The doctors and nurses were called in to examine me, some of whom reported that the seat of my disorder was only about ten or twelve miles off, I presume in my throat, while others stated that it was in a more remote part of me, about two hundred and eighty miles off. There is no doubt that they were all right, seeing that I was diseased throughout, and expired from general debility. The similitude is again apparent in other points. In both cases it has been given out that the attempts have been successful, in opposition to the facts, showing in the most unmistakable manner the very reverse; and in both instances have these alleged successes been made the plea for

soliciting the aid of Government, and modestly asking, in this, a grant of money, and in the former, a monopoly. It is to be hoped that the similitude will be equally apparent in the results of these applications. I am no advocate for monopoly of any kind, either by grants of money or exclusive privileges. Even under the most favourable circumstances it is objectionable; but in my case it is especially so. My very existence depends upon my proper adaptation to my ocean home, and I am of such an extremely fragile nature, that the slightest flaw in my construction, or error in my submersion, is fatal to it. The full and perfect knowledge of me and my requirements, the utmost care and attention to my formation, and the practical acquaintance with the element to which I am destined, and the mode of placing me therein, are absolutely necessary to my success, and these can best be obtained by leaving me open to the fair and honourable competition of skill and science; but once consign me to the exclusive power and management of incapacity, and no other result can be anticipated than failure to my consignee, and destruction to me. Such has been the case in the Channel, in the Mediterranean, and now, in the Atlantic.

With regard to the Atlantic scheme, however, Mr. Buckstone, of the "Haymarket," has been more fortunate than the Directors, for there he has most successfully introduced me in the *Spirit of the Waters*, and having now become inured to mishap and disaster, by so many and repeated failures, I can enjoy a good joke, especially as the satire is not levelled at me, but against those under whose mismanagement I have been so cruelly treated. As to the commercial value which one of the characters in this *extravaganza* attaches to the shares of the Company, this is a question in which I am not in the least interested. He may be, and, indeed, is right, in his estimate of the worth of the shares. It cannot be expected that, in the useless state in which I now am, I can be of any marketable value. To resuscitate me is utterly out of the question; and as to the prospect of recovering me, and the costly materials of which I am composed, it is a hopeless one. Could that be accomplished, then indeed the Shareholders might realise a trifle from my wreck, in the shape of

"savage;" but I would recommend them to bear in mind the admirable recipe of that respectable old lady, Mrs. Glass, for cooking a hare,—“first catch your hare”—before they indulge in pleasing anticipations of any beneficial results from this source. The bear must be caught and killed before his skin can be divided; and as to the prospect of catching me, and dividing my skin, that has already been shown, in the attempt to recover me after the first failure, in 1857, when, although not four hundred miles of me were submerged, only between fifty and sixty miles were regained, and these at a cost almost, if not quite, equivalent to their value. But to proceed.

When I became acquainted with the fact that my services were to be put in requisition across the Atlantic, my first feeling was that of joy. I knew my power, and was pleased at the thought that I was about to be applied to a purpose so beneficial to the social and commercial interests of the denizens of the New and the Old World. But when I ascertained under whose auspices this achievement was about to be attempted, and the details of the plan hit upon to accomplish it, this feeling of joy was speedily changed to that of sorrow. I foresaw my fate, and the result has shown that I was not wrong in my anticipation. The progress of the scheme, from its first announcement to its repeated and final failures, has been marked with so much of the absurd and ridiculous, that, notwithstanding my annoyance and vexation, I have been considerably amused, and compelled to laugh in spite of myself. No members of the “Mutual Admiration Society” could have bespattered each other with more fulsome laudations than some of these gentlemen did at their public and private gatherings. Poor *Gil Blas* was easily enjoled by a designing knave into a belief that he was the eighth wonder of the world. There was no need of any cajolery here; to all appearance, instead of being the eighth wonder, they considered themselves the only one. As for me, I was totally ignored, a “mere cypher in the great account.” It has been related, that upon the death of one of the Emperors of China, without issue or kindred, the Council of the empire waited on a certain individual, to beg that he would accept the throne: he requested that they would call on the following

day, and he would then be prepared with his decision. When they again waited on him, to their surprise he declined the proffered honour. Upon being asked why he objected, he stated that he would willingly become their Emperor, but he objected to call the sun and moon his brothers. Being, however, pressed to reconsider his decision, the matter was ultimately arranged by his accepting the throne, upon the condition that the sun and moon should not be considered his brothers, but looked upon merely as poor relations.

It is in this light in which I must have been viewed by these gentlemen. One of them, indeed, would, as I have described, wish to claim me as his own; but no son, or poor relation, could have been more neglected, or more cruelly treated by any inflated kinsman, than I was by these would-be wonders. When I was landed like a half-drowned cat, to which animal I have, upon one point, at least, a great resemblance, that is, in having a multiplicity of lives, and while I was in a most pitiable condition, hovering between life and death, they were being *féted*, and receiving ovations like "conquering heroes;" there was no necessity to bid any one to "sound the trumpets," they sounded their own trumpets, and loudly, too—while they were invited to banquets, at which they were feasted to their hearts' content:

"And didn't they gobble, and didn't they stuff,
And were they not sorry they hadn't enough?"

I do not mean of the erect *parts*; they partook, no doubt, largely of these, and without being *fed*; but I speak of fare more suitable to their palates—whole dishes of adulation, plentifully garnished with praise and flattery, with which they were crammed, and longed for more. While all this rollicking and frolicking was going forward—while the engineer was *knighted*, and the shareholders *benighted*—not those who sold, but those who bought or held—I was left in a dying state, neglected and deserted—they all, with one exception, fled from me as from a pestilence; that exception is the electrician. This gentleman came to me in the hour of my affliction; and while I was deserted by others, and left to my fate, endeavoured to restore me to

a better sanitary condition. I need not say, that his exertions were unavailing. From the first moment of his attendance, after feeling my pulse, he must have known that my case was hopeless. My pulse, unlike that of human beings, is not denoted by its beatings, but by its degrees of deflection. When I am in a hale and healthy state, and perfectly insulated, with the metallic contact unbroken, I do not show the slightest deflection; but if the metallic contact continues perfect, and the insulation becomes imperfect, I am then in a diseased state, and the virulence of my disorder is in proportion to the number of degrees of deflection shown by the galvanometer. When the electrician felt my pulse and applied his tests, to ascertain my state, he found that I exhibited symptoms of the most fearful character, and that his instruments denoted my disorder was so serious as to give nearly seventy degrees of deflection. Struggling against facts, and hoping against hope, he thought it possible still to restore me, and in the belief that the seat of my complaint was only a few miles off, he attempted to reach it, with the intention of subjecting this part of me to a surgical operation, in the vain anticipation that by so doing he might ultimately restore me to health. Nothing, however, could have saved me, for as I have already stated, I was diseased in every part of me, and I died from general debility. His intentions were good, and I, at least, am grateful to him, though it appears his attention to me was not palatable to the other officials—possibly they thought it was a reflection upon them, who left me in my dying moments, to grasp at empty honours ere I died. But the worst feature in this part of my unfortunate life is the reprehensible attempt made by some injudicious friends of these gentlemen, to induce the nation to commit itself to a solemn mockery, and suggesting that a day of public holiday should be set apart for the celebration of their imaginary success.

And now, before I close the subject, let me allude to the almost insane congratulations that took place on the other side of the Atlantic, when it was announced that I had been successfully submerged. Our enthusiastic friends in America literally went mad with joy—dinners, addresses, and receptions took place, and public processions,

which seemed to be got up for the special glorification of one person, passed through the streets of New York, which were decorated with flags and devices, on which the name of Cyrus W. Field appeared in every inconceivable manner. No one else was thought of; all glory was paid to him; every body else forgotten; he was the *alpha and the omega*; fireworks were displayed, and, to crown all, the celebration terminated in a *blaze of glory*, by burning the City Hall. On this side of the water things were taken more quietly; the lakes of Killarney echoed not the bugles' sound, but the cheers in favour of the modest engineer, who from a plain "Mister" rose up a "belted knight." His work was done, it is true, as far as the submergence of several thousand tons of wire, gutta percha, and tarred rope was concerned; but the student of history, in future ages, may ask, would it not have been as well if modesty had prompted him to decline the honour, at least, until the puling child had become a stalwart man—till the experiment had proved a success, and "an accident, of an accident," had resolved itself into a fact?

CHAPTER IX.

THE ATLANTIC.

I WILL now proceed to show, from the course pursued throughout from the commencement of the undertaking, how hopeless the expectations must have been of anything else than failure.

The errors of omission and commission were so numerous, that their name is "legion." Many of them were pointed out at the time by various correspondents in the several newspapers of the day. To enumerate them all would occupy more space than I purpose devoting to the brief story of my life; I will, however, advert to a few of them. In the first place, I have to complain that at the outset the difficulties of the undertaking were not boldly stated, and fairly met, instead of being glossed over and disguised in overdrawn descriptions of too favourable and highly coloured a character. In the "History of the Experimental Proceedings," published by order of the Directors of the Company, giving a descriptive account of the "present state and prospects of the undertaking," previous to the first attempt to submerge me, in 1857, a variety of erroneous *data* is put forth, and the most inconclusive conclusions drawn from it, by which it would be made to appear that everything connected with the undertaking was so easy of accomplishment, that failure was out of the question—a result next to an impossibility.

Now, although there is an admixture of truth and imagination in this history of the "present state and prospects of the undertaking," in proportion of a grain of the former to a ton of the latter, I should have no difficulty in separating the small medicinal of the one from the undue proportion of the other, but I prefer to let this be done by

the occurrences that have taken place since this veritable history was published.

First, then, with respect to the soundings and the nature of the bed of that part of the ocean selected as the site for my future dwelling, they are thus described by order of the directors:—

“The submarine plateau is really a gently levelled plain, lying just so deep as to be inaccessible to the anchors of ships, and to other sources of surface interference, and yet not so far depressed but that it can be reached by mechanical ingenuity without any very extravagant effort.

“This steppe is scarcely 12,000 feet beneath the surface of the ocean, and, strange to say, it extends as a continuous ledge 400 miles wide all the way from Cape Race, in Newfoundland, to Cape Clear, in Ireland, between the 48th and the 55th parallel of north latitude. This submarine ledge has been very accurately examined by sounding, and it is found that it is nowhere deeper than 12,000 feet (a trifle more than two miles). It dips down slightly from either coast, reaching its greatest depression in mid-ocean; but the slope is a very gradual and easy one, and the surface is devoid of all abrupt irregularities.

“The surface of the plateau is smoothly strewn with a deposit that is as even as the sand of the sea shore, in many of the tranquil bays of the British Islands. This superficial covering of the Atlantic steppe is not, however, sand; there is no sand in its composition; nothing which seems to have been mechanically abraded and ground, as the siliceous particles have which form true and sandy deposits. When it is examined by powerful microscopes, it is found to be entirely constituted of the preserved great coats of myriads of passed away generations of living beings—the indestructible outside skeletons of little creatures, which are known to naturalists under the names of the ‘Foraminated’ and ‘Diatom’ races of organization, because the minute shells are, in one case, pierced by delicate holes, or *foramina*, through which still more delicate feelers were protruded during the continuance of life, and because, in the other case, the creatures during life are multiplied by being ‘*diatomed*,’ or cut through

into separate halves. These forms are, indeed, so to speak, the dawnings of vital existence, the one-celled elementary organisms which afford the battle-ground of learned philosophers, who are striving to settle the boundary question of the vegetable and animal domains. But whence have these interesting little microscopic creatures come, to form their sepulchres so far out of the way of the haunts of observers? Have they lived and died where their skeletons now rest? Was this submarine steppe their original dwelling place? By no means. Professor Forbes has shown that there is no life, either vegetable or animal, two miles down in the deep sea. These minute organisms originally lived in the tropical regions, where the vivifying sun makes the waters, as well as the land, teem with vital existence, and their siliceous shields have been floated there in countless multitudes day after day, year after year, and century after century, by the perpetually running gulf stream, and deposited in accumulating heaps just beyond the outer edge of the deep channel of the current, upon this strip of submarine table land, *where calm, still water only is found*. The pressure of this layer of delicate shields upon the surface of the Atlantic plateau proves, beyond all question, that the depths are there calm and undisturbed. If a telegraphic cable were once lodged upon this impalpable deposit, it would soon be entirely covered over by fresh settlements, even if it did not at once sink into it by the mere influence of weight. If art had prepared a bed for an oceanic cable, after full deliberation, it could not have devised any more complete arrangement than this profound recess of still water, paved beneath with smooth impalpable powder. It also appears, most wonderful to say, that it is the nature of these dead little monads to agglutinate themselves round masses of metal, which are buried in their layers. Iron, for instance, upon immersion in sea water, first acquires a slight coating of rust, and this coating then forms a mass of concrete out of some of the elements of the water, and these flinty shields, in consequence of the muriate, or some other salt of lime, combining with the oxidized metal. Anchors have been picked up at sea encrusted some inches thick with this

spontaneously prepared concrete. Many excellent authorities in these matters believe that if a telegraph cable were deposited in this submarine burial ground of the diatoms, it would not only be in a tranquil and undisturbed retreat, but that after a few years it would actually be built in there by a stony pavement, which no trifling exertion could manage to penetrate; that in short, it would not only be at the bottom of the ocean, but would become an integral and permanent part of the ocean bed.

"There is no need, then, for much deliberation on the part of man, as to the exact position the Atlantic Telegraph is to take. Nature has beneficently decided this question for him. Nature, indeed, has made every preparation for the work. Newfoundland is stretched forth as the hand of the New World, to meet the grasp of the British Isles which are extended as the hand of the Old World. Exactly where these hands are held towards each other, and between them, a smooth, softly-paved ledge is laid down, to receive the cord that may compensate for the shortness of their reach, and this ledge is placed exactly at the depth which is required for the security of this connecting cord, and just beyond the edge of the eddying current which troubles the centre of the wide sea. The course of the Telegraphic Cable is precisely marked out by a natural tracing across the depths of the ocean. There is one line, and only one line, in which the work can be accomplished. Providence has designed that the Old World and the New, severed at first by a great gulf, shall be reconnected by electrical sympathies and bonds, and Providence has prepared the material means for the fulfilment of the design."

Such is the description given of the bed of that part of the Atlantic selected as the site upon which I was to be laid. Among the scientific world it was considered at the time an extremely problematical one, and much too highly coloured, while among nautical individuals it was looked upon as a good "yarn," got up for the especial edification of the marines,—the shareholders, in the present instance, representing the marines. What a delectable couch am I here invited to! How favourably it contrasts with that of the sea

nymph, who, in inviting her swain to dwell with her, held out as an inducement that she would lead him to her ocean habitation,

“Where the rocks of coral grow”—

rather a hard bed for a newly married couple, these said coral rocks,—while mine is of a much more tempting character. I am to be imbedded among pretty little “*Foramina*” and “*Diatoms*” and “*Monads*,” and if I by my own weight do not sink in this soft and smooth couch, myriads of other little darlings of the same genus are to be brought by the warm gulph stream, and

“Still so gently o’er me stealing,”

are to form an oceanic eider down quilt, under which I am either to become one of these little dears myself, or to be incrustated and incorporated with them, that in this submarine burial-ground of the “*Diatoms*” I am not only to find a tranquil and undisturbed retreat, but after a few years am actually to be built in there by a stony pavement, which no trifling exertion can manage to penetrate; that, in short, I am not only to be at the bottom of the ocean, but am to become an integral and permanent part of the ocean bed!

Then, again, nature is not only represented as having furnished these desirable materials to constitute my bed, but she is also alleged to have been particularly careful as to the manner in which it was to be made. The history of the “present state and prospects of the undertaking” thus describes its formation:—“This submarine ledge has been very accurately examined by sounding, and it is found that it is nowhere deeper than twelve thousand feet, a trifle more than two miles. *It dips down slightly from either coast, reaching its greatest depression in mid ocean, but the slope is a very gradual and easy one, and the surface is devoid of all abrupt irregularities.*”

The Report, however, of the Engineer of the Company, after the first abortive attempt to lay me down in 1857, speedily developed the illusory character of the foregoing description, and proved it to be utterly at variance with the fact.

The Report states, that “at four o’clock on the morning of the

10th, *the depth of water began to increase rapidly from 550 fathoms to 1,750, in a distance of eight miles.* Up to this time 7 cwt. strain sufficed to keep the rate of the cable near enough to that of the ship, but as the water deepened the proportionate speed of the cable advanced, and it was necessary to augment the pressure, by degrees, until, in the depth of 1,700 fathoms, the indicator showed a strain of 15 cwt., while the cable and ship were running five and a-half and five knots respectively. At noon we had payed out 255 miles of cable, the vessel having made 214 miles from shore. From this period, having reached 2,000 fathoms water, it was necessary to increase the strain to a ton, by which the rate of the cable was maintained in due proportion to that of the ship. Shortly after six the speed of the cable gained considerably upon that of the ship, and up to nine o'clock, while the rate of the latter was about three knots, by the log, the cable was running out from five and a-half to five and three-quarter knots per hour. The strain was then raised to 25 cwt., but the wind and sea increasing, and a current at the same time carrying the cable at an angle from the direct line of the ship's course, it was not found sufficient to check the cable, which was at midnight making two and a half knots above the speed of the ship, and sometimes imperilling the safe uncoiling in the hold. The retarding force was therefore increased, at two o'clock, to an amount equivalent to 30 cwt., and then again, in consequence of the speed continuing to be more than it would have been prudent to permit, to 35 cwt. By this, the rate of the cable was brought to a little short of five knots, at which it continued steadily, until 3 45, when it parted; the length payed out at that time being 380 statute miles."

This statement of the engineer totally annihilates the previous one issued by order of the Directors, and gives a complete refutation to all its chimerical dogmas. The slope, instead of being "a gradual and easy one," is found "to increase rapidly from 550 fathoms to 1,750 in a distance of eight miles, and shortly after to 2,000 fathoms."

The accuracy by which this alleged submarine ledge has been "examined by sounding," is thus shown to be most inaccurate. Instead of its dipping "down slightly from either coast, reaching its

greatest depression in mid ocean," the 12,000 feet, which the accurate soundings had given as the maximum depth in mid-ocean, had been obtained when the ship was only a little more than 214 miles from the shore. Again, the engineer's Report states, that when in 2,000 fathoms water, by the strain of a ton, the rate of the cable was maintained in due proportion to that of the ship, but that shortly after the speed of the cable gained considerably upon that of the vessel, and that while the rate of the latter was only about three knots, by the log, the cable was running out from five and a-half to five and three-quarter knots per hour, which was not at all checked when the strain was raised to 25 cwt., and only to a very limited extent when the strain was increased to 35 cwt., the speed of the cable being then a little short of five knots, at which it continued until it broke. The only inference that can be drawn from the fact that, at a depth of 2,000 fathoms, or 12,000 feet, a strain of a ton was sufficient to keep the speed of the cable proportionate to that of the ship, but that subsequently, with nearly double the strain, the velocity of the former had so increased, that it was running out at nearly a twofold rate to that of the vessel, is, that a proportionate greater depth of water had been attained. But without adverting to any inferential or hypothetical matter, enough has been shown to prove the fallacy of the statements respecting the "Telegraph Plateau."

CHAPTER X.

THE ATLANTIC CONTINUED.

NEXT, with respect to the *time* selected for the completion of the undertaking, the Directors are equally unfortunate, by subsequent facts exposing the illusory character of their previous data. On this subject they say, in their publication:—

“The time for the completion of this enterprise, by the deposit of the cable in the ocean, has been determined by the same exertion of patient investigation and deliberate thought which has characterised every other part of the proceeding. Lieutenant Maury has collated observations made in the Atlantic, during 260,000 days, to ascertain the precise time of the year at which the state of the Atlantic is most favourable for the prosecution of the work of submergence. The result of the laborious investigation of the Lieutenant shows, that during summer the western part of the route of the cable is entirely exempt from gales, and that in June and July the risk of gales in the eastern part is very small, becoming almost annihilated in August, excepting just on the coast of Ireland. The western side of the route is, however, more liable to fogs than the eastern, especially in June. Ice is met on the course which will have to be followed less frequently from June to August than at any other season, the frequency diminishing from June to August. If fogs alone were the obstacles to be avoided, the winter months would be better for the work than the summer months. If ice were the chief danger, then August would be the best month. If storms were most dreaded, then the month of June. Taking ice and fogs and storms all into consideration together, Lieutenant Maury has come to the conclusion

that, between the 20th of July and the 10th of August, both sea and air are usually in the most favourable condition for the laying down of the wire. Accordingly, the vessels will be so dispatched as to reach the mid points where the opposite halves of the cable will be joined as soon after the 20th of July as can be accomplished."

Now, there is a portion of this statement which I must confess I cannot comprehend. I cannot understand from what source Lieutenant Maury, as alleged, "has collated observations made in the Atlantic during 260,000 days, to ascertain the precise time of the year at which the state of the Atlantic is most favourable for the prosecution of the work of submergence." *Two hundred and sixty thousand days* are equivalent to seven hundred and twelve years and four months, which, deducted from 1857, would bring us back to the year 1145. Now, I am at a loss to imagine who were the navigators at this early period, from whose observations this veritable data, after so much "patient investigation and deliberate thought" has been collated, seeing that Christopher Columbus did not, until upwards of three centuries after this date, discover America, which until then was a *terra incognita*. In history, of an unquestionable character, we find the first navigator to be Noah—but he never was in the Atlantic; he was merely drifted in the ark, to and fro, for a limited number of days, on the surface of those waters which preserved him and those with him, while they destroyed the world; and which formed a new and temporary ocean, having for its bed what was recently earth's surface, on which he floated in safety o'er cities, and towns, and districts, but a few days previously teeming with living beings, until the deluge ceased, and the waters subsided, when the ark was deposited upon the summit of Mount Ararat, in the East. I have gone back to the days of Noah, for I wish to begin at the beginning, and have in vain endeavoured to ascertain if any navigator since his time to the period when Christopher Columbus discovered America, ever crossed the Atlantic. I find, however, there is no record of any one having done so. Sceptics have taken this fact as one of the points upon which they rely for doubting the truth of the sacred writings; and ask how it is possible for the Western Hemisphere to

have become populated in the absence of such communication. This is a question that is very easily answered; and the fact of there not having been any early intercourse with America by means of the broad Atlantic, tends rather to confirm than to throw a doubt on the truth of sacred history. It will be borne in mind that all its earliest scenes are laid in Asia. There the ark was deposited on Mount Ararat after the flood, from which Noah, and his wife, and his sons, and his sons' wives, were bid to go forth and repopulate the world. Now the North Eastern part of this very quarter of the globe almost joins the North Western part of the vast American Continent. They are separated from each other by a very narrow strait only, and there is no difficulty in getting from the one to the other. By this natural and facile channel of intercommunication have some of the descendants of Noah emigrated from Asia to America, and populated that country; so that, in after ages, when it was discovered by Columbus, he found it inhabited by people of primitive habits and customs. Since the comparatively short period its existence has become known to the European world, fresh settlers from this quarter of the globe have occupied its most fertile spots, under whom its resources have been developed: cities and towns have been built, and large tracts of land and whole districts, formerly wild prairies, and primeval forests, have been brought into cultivation; and, in fact, the whole character of the country changed and civilized, so that now it has become a powerful nation, with its trade and commerce extending to every part of the known world.

But to resume my story, from which I have been digressing. Having looked in vain in every accredited history for the navigators from whose voyages "observations made in the Atlantic during two hundred and sixty thousand days, to ascertain the precise time of the year at which the state of the Atlantic is most favourable for the prosecution of the work of submergence," have been collated, I have had recourse to history of a more apocryphal character; but here, also, I have been equally unsuccessful. I had heard of the wonderful voyages of "Sinbad the Sailor," but this *veritable* mariner tells such "tough yarns," and adverts to scenes and places which I cannot

find laid down on any chart, that I have derived no benefit in overhauling his log. One thing, however, is certain, which is, that he never was in the Atlantic. Next I bethought me of the "Flying Dutchman," but he has left no log to overhaul, for, as the story goes, any information he might give was sure to prove fatal to the recipient, and besides which, the cruising ground where this said Dutch skipper Vanderdecken is alleged to have displayed his extraordinary vagaries and exploits, was confined to the vicinity of the Cape of Good Hope, though the *hopes* of the individuals who had the ill-luck to fall in with this notable mariner off this so designated cape, were the very reverse of good. The cruises of the Flying Dutchman being limited, however, to the southern latitudes off the Cape, he, of course, knew nothing of the north Atlantic, and could not, therefore, even under more favourable circumstances, have afforded any information on this particular point. In the absence, then, of any clue to guide me as to who were the navigators who furnished the data from which these observations were collated, I must leave this subject entirely for the consideration of my readers, whose researches may possibly enable them to arrive at a more satisfactory conclusion than, I candidly confess, I can obtain, and will proceed at once to advert to the alleged results of these observations, without further comment as to the source from which they may have been derived. It will be recollected, that in 1857 neither the preparations for my submergence were complete until a late period of the summer; and it would almost appear that the statement then made was put forth rather to meet the occasion than as being the result of "patient investigation and deliberate thought," leading to the conclusion that, "taking ice, and fogs, and storms, all into consideration together, between the 20th of July and the 10th of August, both sea and air are usually in the most favourable condition for the laying down of the wire; accordingly the vessels will be so dispatched as soon after the 20th of July as possible." It was not, however, until nearly the expiration of this specified time that they were ready for the undertaking. They put to sea on the 5th of August; but at a short distance from Valentia an accident happened to the shore end of the cable, which occasioned some delay. On the 7th of August, however,

the squadron fairly bore away to the west; but on the breaking of the cable, on the 11th, it immediately returned, and put into Plymouth. The directors forthwith held a meeting, and after a careful consideration of the whole circumstances, came to a decision, that any further attempt to lay the cable so late in the season that year would be attended with hazard. They also were of opinion—

“That the construction of the cable is suited for the object in view, and that no alteration therein is expedient.”

“That the cause of the accident arose from an application of the brake, at a time when the ship was stern down in the sea.”

“That considerable change and modification will be required in portions of the paying-out machinery, before making another attempt to lay the cable.”

“That although on the present occasion the commencement of operations at the coast has been attended with some advantage, it will in future be desirable to begin paying out the cable in mid-ocean.”

“That the shore ends should be laid by separate vessels, irrespective of those containing the main cable.”

The preparations were made, in conformity with these resolutions, for my submergence in the following year, 1858, and being complete at a much earlier period of the season, the squadron did not wait for what was alleged the previous year to be the most favourable time, between the 20th of July and the 10th of August, but put to sea in June, thus giving a practical illustration of the reliance the directors themselves placed on this part, at least, of their own published statement in 1857. Perhaps, however, they depended on another portion of this statement, so carefully collated from observations extending over so many centuries, which describes the month of June as the best for the undertaking, if storms are to be avoided. This must have been the case, for when the *Agamemnon* put to sea that month, she was in such a trim—much to the annoyance of the captain and officers, who, however, had no voice in the matter,—that she was ill prepared to meet anything like foul weather; but that of course, from the report published by order of the directors, was not at all to be expected; and yet, despite of the delusive hopes it held out that a storm was next to an impossibility, the *Agamemnon* had scarcely left

the port three days, when she had to encounter as severe a gale as ever was known in the Atlantic, and which continued for a whole week, during which a series of disasters occurred from the violence of the storm, and the bad stowage of the cable, that would inevitably have proved fatal to the safety of the ship, but for the indomitable courage and untiring energy displayed by its gallant captain, officers, and crew. The correspondent of the *Times*, who was on board the *Agamemnon*, has given a most beautiful and graphic description of the storm. That gentleman, in adverting to the trim of the vessel when she started from Plymouth, states, that "she had 2,840 tons of dead weight in her, a monstrous load for any ship of her tonnage, but made still more dangerous and overbearing by the manner in which it was stowed. In her hold was the main coil, a compact mass of 1,100 miles in length, and therefore 1,100 tons in weight; on her orlop deck, right forward between the eyes, as the sailors say, was another coil of 100 tons; while on her upper deck, and also right forward, was a coil of 230 tons. The latter was of sufficient size to interfere seriously with the proper working of the vessel from the deck, and the united weights of all, of course, brought the *Agamemnon* down by the head to an almost unsafe extent. The two small coils, it was said, counteracted the weight of the ponderous mass in the bottom of the ship, and, certainly, if they did not tend to check the vessel's rolling, they made it easier and less dangerous to the masts. When the ship did roll, however, there was a constant struggle between the weights at the bottom and the weights at the top, and the ship's sides, as the levers along which the force of both was exerted and resisted, suffered in proportion. This, however, was not the evil of the upper deck coil, nor the reason which, after the bad weather had set in, made it an object of constant anxiety, and almost of dread, to all on board. It was bad enough to cruise with a dead weight forward of some 250 tons, a weight under which her deck planks gaped an inch apart, and her beams threatened daily to give way, but when to these evils was added the fear, in bad weather, that in some of her heavy rolls the whole mass would slip, and take the vessel's side out, it will be seen, that in the whole the precious coil was esteemed the *bête noire* of

the entire affair—the millstone about the necks of all.” In alluding to the expectations held out, of having only fine weather, he says,—“Your readers are already aware, that both the ‘wire’ ships quitted England in the most unfavourable trim possible for bad weather. According to appearances at starting, however, bad weather accrued, of all others, the risk least likely to be encountered; so everything had been foreseen, prognosticated, and provided for, but a gale; that, of course, was out of the question. That traditional veteran, Brown, of the transatlantic line, who had weathered so many storms in the Atlantic, showed how in June one never had occurred, while Jones proved how it wouldn’t, and Robinson made all ‘serene,’ by demonstrating clearly how it couldn’t happen. We might meet light winds, and encounter some delay from calms and sultry weather, but a gale—a regular Atlantic storm—the very idea was food for laughter. So the wire squadron went to sea with the two chief vessels laden almost to the water’s edge, and in all other respects so little fitted for rough weather, that had a title of the tremendous weather they experienced been foreseen at home, not a ship would have moved from Plymouth Sound.”

Whatever might have been the opinion of those who had the management of my submersion, as to the non-probability of storms in the month of June, it certainly was most reprehensible on their part to proceed to sea in such a trim as though storms never had occurred, and it was almost a matter of impossibility they could occur in that month.

Before I close this part of the subject, with regard to the *time* and *site* selected for the undertaking, I must briefly advert to the statement, in reference to it, “published by order of the Directors,” which says, “Newfoundland is stretched forth as the hand of the New World, to meet the grasp of the British Isles, which are extended as the hand of the Old World. Exactly where these hands are held towards each other, and between them, a smooth, softly-paved ledge is laid down to receive the cord that may compensate for the shortness of their reach, and this ledge is placed exactly at the depth which is required for the security of this connecting cord, and just beyond the edge of the eddying current which troubles the centre

of the wide sea. The course of the telegraph cable is precisely marked out by a natural tracing across the depths of the ocean. *There is one line, and only one line, in which the work can be accomplished.*"

Now this is all very pretty and very poetic, no doubt, this shaking hands, through my instrumentality, of the New with the Old World. If Old Ireland and Newfoundland wish to shake hands, and require a cord that may compensate for the shortness of their reach, their wishes are gratified, and they are likely to grasp each other in friendly grip for a considerable time. But how the Directors can arrive at the conclusion, and give their sanction to the publication that "there is one line, and only one line, in which the work can be accomplished," is a matter of surprise to all in the least conversant with the subject. Perhaps, having visions of monopoly, from certain grants and exclusive privileges, obtained from some of the Colonial Governments, their wishes were "father to the thought;" but from whatever source they obtained the information for their guidance, the assertion is boldly made, and written in plain and unmistakable language: it has, however, one trifling drawback—it is not true. There are at this moment other projects afloat, in which widely different and better courses are selected for my submergence, some to the Northward, and others to the Southward of the line so boldly asserted to be the only one in which the undertaking can be carried out. Among the latter is a project, for which a company has been formed, and registered under the title of the "South Atlantic Telegraph Company," which proposes to lay me down from the Land's End to Gibraltar, thence to the Canaries, the Cape de Verd, St. Paul, and Fernando de Noronha Islands, and thence to Pernambuco, the West India Islands, and so on to New Orleans. A member of the Institution of Civil Engineers has recently published a pamphlet on this project, in which he says, "The greatest length upon the 'South Atlantic Telegraph' line is but 890 miles. A cable for this length could be carried on board a single vessel, if required, would be laid in a comparatively short time, and, as has been shown above, may be so designed, that when laid down it could be easily worked through with currents not exceeding in intensity the limits of safety.

"It is believed that, *with a suitable conductor*, a speed of from six to ten words per minute may be attained. The loss, moreover, of this or any other of the lengths, would involve the loss of only a small proportion of the capital of the company instead of the whole.

"The depths encountered by the *Atlantic Telegraph* ranged from two miles to two miles and a half, extending over about 1,500 miles in a single length; the remainder of the course was in easy soundings. The greatest depth lay in the middle of the stretch, the easy portions were those adjoining either shore.

"The SOUTH ATLANTIC TELEGRAPH route (according to Maury's chart) is *everywhere in easy soundings, except for about 800 miles near the Island of St. Paul*. A portion of this deep part is between St. Paul Island and Cape de Verd Islands, and the remainder between St. Paul Island and the Island of Fernando de Noronha. The Island of St. Paul is about the middle of the deepest part, and the soundings in its immediate vicinity are given by the same authority as something over three miles. These are the only difficult depths to be encountered during the whole route.

"The *stormy climate* of the North Atlantic, in the latitude where the *Atlantic Cable* is laid, is well known; while at Paul Island, on the contrary, which is within one degree of the equator, the sea is most propitious to such undertakings; all the other stretches will be laid in depths where the effects of wind and tide are of little consequence."

This at first sight appears to be a gigantic undertaking, but is in reality far more easily to be accomplished than the recent one from Ireland to Newfoundland, notwithstanding the highly coloured description I have adverted to, of the site selected for that occasion, and the alleged facilities it affords. Here there are considerably less difficulties, both nautical and electrical, to be encountered than under any circumstances have to be met in the North Atlantic; while, in the event of any mishap, a section only of the cable would be lost; whereas, as in the recent instance, any accident befalling a cable laid in one length, would entail the loss of the whole capital of the Shareholders.

CHAPTER XI.

GUTTA PERCHA AND INDIA RUBBER.

I HAVE now to approach a subject which, of all others, is the most important one of the whole, and upon which my very existence is dependent; it is, in fact, the *sine qua non* of my success. Whether I may be laid down in the North Atlantic, or in the more facile route of the South Atlantic ocean, unless I am adequately provided for on this particular and especial point, failure must be the inevitable result—I allude to my *insulation*. Without this is perfect, I may be successfully submerged, I may be carried from shore to shore, despite of storms and difficulties, I may be the means of enabling Ireland and Newfoundland to shake hands with each other, but for all practical purposes I should be utterly useless. It is, in fact, the very essence of my vitality. Without it I could no more exist, than man without the very air which he breathes. Yet, strange and incredible as it may appear, even this most essential requirement was not only not provided for, but absolutely disregarded, notwithstanding the especial attention of the Directors was directed to this all-imperative point by their electrician, Mr. Whitehouse. They cannot be ignorant of this fact, for in their own report, or rather, in the descriptive history published by their order, they, upon that gentleman's authority, make the following statement:—

“A coil of the completed cable, which gave only three degrees of deflection in the needle of the galvanometer, as the measure of imperfection when the thermometer stood at 42 degrees, gave 61 degrees of deflection as the measure of imperfection when the temperature of the air rose to 59 degrees of Fahrenheit. Mr. Whitehouse remarks, that the excellence of the insulation even varies accordingly as the sky is clear or covered with clouds. Sunshine makes the tell-tale needle start out divergently, almost in an instant, and clouds

as immediately bring it back towards the neutral line. It is anticipated and greatly desired that the bottom of the Atlantic, along the line of Lieutenant Maury's plateau, will be found to possess steadily and unvarying about the favourable temperature of 42 degrees. It will be at once obvious how favourably this proof of the desirability of a steady, low temperature around the coated wire bears upon the question of Marine Telegraphy at large. It is highly probable that the sea will ultimately prove to be by far the best medium in which greatly lengthened wires can be laid."

Now, here, from the experiments made by their electrician, they are shown that the variation of temperature has a most decided effect upon the insulating medium they adopted; so much so, that in a difference of only 17 degrees, and that at the very low *maximum* of only 59 degrees of temperature, the galvanometer gave out as the measure of imperfection 61 degrees—viz., three degrees at 42 degrees Fahrenheit, and sixty-four at 59 degrees.

With this fact before them, and submitted to their notice by their own officer, whose special duty was directed to this particular and important point, surely common prudence ought to have dictated to them the necessity of ascertaining what was the temperature of the ocean at the depths which were to form my bed. They ought not to have assumed that it was only 42 degrees. It may be that temperature, or even lower, or it may be considerably higher, but this is a point they should have made themselves fully acquainted with before they submerged me at a hazard involving the total loss of a sum of money to the extent of nearly half a million. In the previous part of the Report, published by their order, and to which I have already alluded, they speak of the materials which were to form my oceanic bed, and state that they were engendered under the vivifying influence of the heat in the tropical regions, where the sun makes the waters, as well as the land, teem with vital existence, and the siliceous shields of these little dear Diatoms and Monads have been floated thence in countless multitudes, day after day, year after year, and century after century, by the perpetually running gulf stream, and deposited in accumulating heaps just beyond the outer edge of the deep channel of the current, upon the strip of submarine table-land which had been

selected for my future resting-place. Now here, when it was wished to show the comfortable nature of the bed upon which I was to repose, they "blow hot," but when it was necessary to get over the difficulty of imperfect insulation, which would be fatal to my vitality, and which it has been shown would naturally accrue by submerging me in water of even by no means a high temperature, they "blow cold," and assume that the bottom of the Atlantic, along the various depths of the line where I was to be placed "will be found to possess steadily and unvaryingly about the favourable temperature of 42 degrees." This may or may not be the case, but surely it would have been advisable to have ascertained the fact before they submerged me, and not have placed the success of the undertaking in jeopardy for want of correct information on such an important point.

But were there not other circumstances with reference to the insulating medium they adopted, in addition to its being so easily affected by temperature, as reported by their electrician, which should have induced them to have used the utmost caution, and to have applied every test for their guidance, before they finally selected it as the sheath in which I was to be incased? Since the period when gutta percha so opportunely came to the aid of the Messrs. Brett, in 1850, had there been nothing to throw a doubt on its efficacy to meet all the requirements essential to its becoming a perfect and durable insulator? Had not immense sums of money been expended and lost, in using it for subterranean purposes? Did not the Prussian Government at the outset adopt it as the means for carrying out their system of telegraphy, and after it had been buried in the earth but a very short time, were they not obliged to take the whole of it up again, from its having become decomposed and useless? Had not similar results occurred in other parts of Europe, and also in the East Indies? And even here, at home, had not numerous instances taken place daily of gutta percha covered wires being taken up in the streets of London, having been found faulty, after having been laid down only a comparatively short time? Had not the same results occurred in the provinces, in the similarly covered subterranean wires of all the telegraph companies, and more especially, had not the whole of the wires of the Submarine

Telegraph Company, of which Mr. John Brett is a director, as well as of the Atlantic Telegraph Company, between London and Dover been found so utterly useless and decomposed, that it became absolutely necessary to exhume them, and replace them with others, after a service of little more than two years duration? With these facts before them, in addition to the one submitted to their attention by their electrician, with reference to the gutta percha insulation of the cable being so readily affected by temperature, it might have been expected that the gentlemen to whom the task of preparing me for the important duty I had to fulfil, had been intrusted, would have exercised a prudential caution, and seen that I was in every way fitted for my destined position, and that with so many causes for throwing a doubt on the efficacy of the insulating medium employed, they would have applied every known test to have ascertained how far it was efficacious in this instance, at least. And yet this essential and all imperative point was entirely neglected. Incredible as it may appear, yet "'tis true 'tis pity; and pity 'tis, 'tis true."

I never was tested in my entirety in the element for which I was destined, and in which, in the perfection of my entirety alone, could any expectation be formed of my being able, successfully, to carry out the important duty assigned to me.

It was most unwise to proceed to sea, in the first instance, without having subjected me to this necessary test under water; but, after the failure in the attempt to lay me down in 1857, when I had been for so many months exposed to the heat in the holds of the Niagara and Agamemnon, to repeat the attempt in the following year without having adopted this precaution was not only most unwise, but reprehensible. Ample time was afforded to accomplish this during the eight or nine months I was stored at Keyham Docks, yet, strange to say, this favourable opportunity was neglected, and the ships were allowed to proceed to sea for the second trial without the test, so palpably requisite, having been made. And what was the consequence? When the task of submerging me was resumed, the gutta percha insulation was discovered to be so defective, that numerous lengths, some of them to the extent of many miles, were obliged to be cut

out, even as I lay coiled upon the decks, while the remaining portion which was laid down was in that diseased state, that no other result could have been anticipated than that which has been attained—total failure, in the utter inability to transmit the electric fluid through so faulty a medium.

But in addition to the known deficiencies of gutta percha as an insulator, which alone should have induced those who had the management of my construction to have paused before they inclosed me in so faulty a material, there is another defect, of so serious a character, that must necessarily preclude the use of gutta percha in cables of great length. The defect I allude to in the material is, that it is unable to withstand powerful currents of electricity, which have the effect of working through it, and destroying the insulation. Mr. Window, in adverting to this subject in his pamphlet, says that there is an obstruction which "arises from the resistance offered by the conducting wire to the passage of the electrical current, and by the creation of an induced charge on the outside of the insulating medium, to overcome which, it is necessary to use powerful currents of electricity, which speedily burst the gutta percha coating, and destroy all insulation. It may be lessened by increasing the size of the conducting wire, and the thickness of the covering of gutta percha; but these augmentations must be limited, as is evident by the extra cost they entail. It is not at all probable that a cable, costing even £500 a mile, could be made to conduct electricity upon a 2,000 mile length with greater facility than the wires first laid from England to Holland, a distance of 114 miles, yet the insulation of these wires was frequently destroyed—in fact, several times every year, by the current bursting through the gutta percha, owing to the conductor and insulating coat being both too small. These wires, be it observed, were laid in shallow water, and were, consequently, repaired with ease; but a fault upon the Atlantic cable, as has been demonstrated, involves the total loss of the Company's capital."

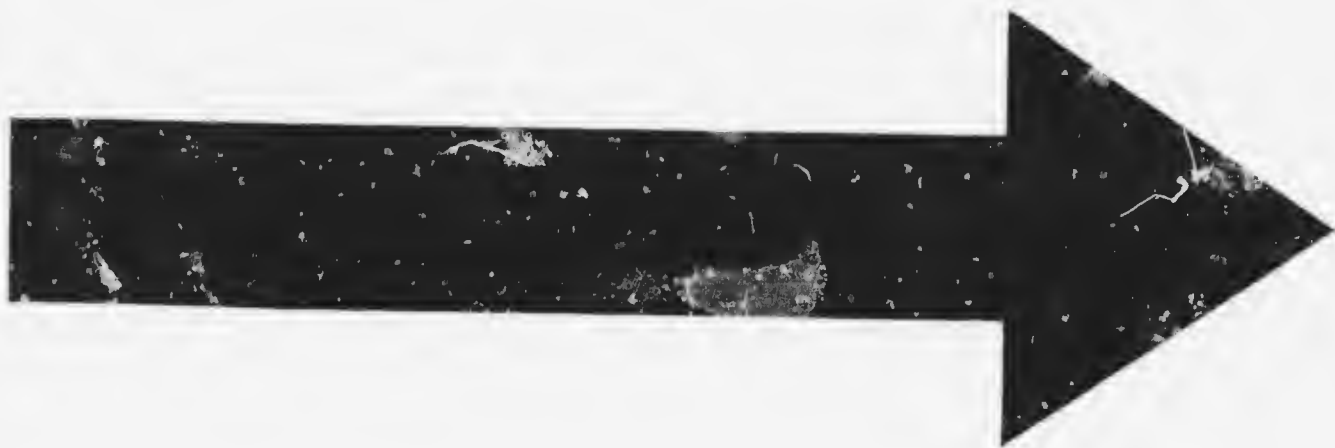
The repeated failures of gutta percha as an insulating medium, attended by so much loss and inconvenience, have at length convinced the telegraphic world that it is not to be depended on, and that it does not possess all the requirements necessary for their purposes, and

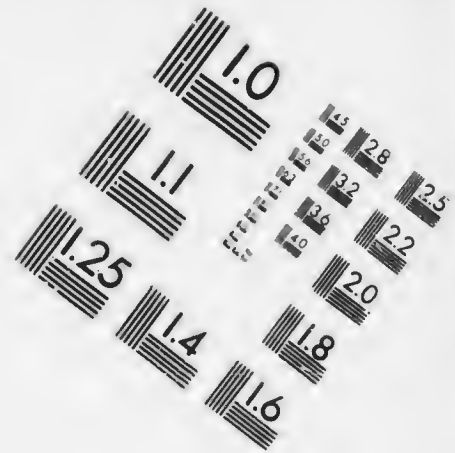
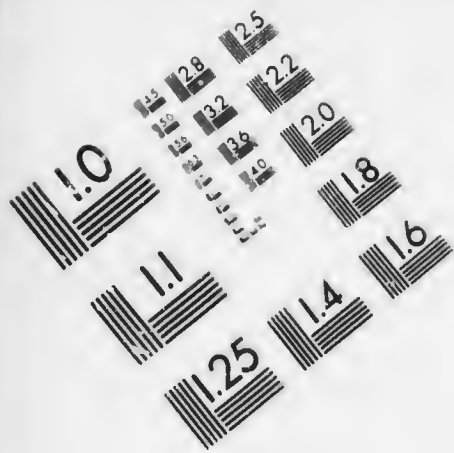
have induced them to seek for some more suitable material. I have already stated that Mr. West, many years before gutta percha was known in this country, constructed me with India rubber, and even after it had been introduced here, and so hastily adopted and extensively used by other constructors, he still gave the preference to India rubber. Recent events have shown that he was not wrong in his estimate of the comparative merits of the two gums for the purposes of insulation. The attention of scientific men has been directed to the endeavour to find a substitute for gutta percha. Among others the Messrs. Silver, extensive manufacturers of India rubber, have been making some important experiments with this view; and the results, as reported in the daily and other journals, are so pertinent, and so fully justify Mr. West in his predilection for India rubber, that I am induced to give the following extract. *The Times*, of April 16, 1859, says:—

“Some interesting and valuable experiments have recently been made at Silvertown, the manufactory of Messrs. Silver and Co., the outfitters, with a view of displaying the advantages gained by substituting India rubber for gutta percha as an insulator for submarine wires. The tests were principally conducted to prove that, in an electrical point of view, India rubber was as good a non-conducting medium as gutta percha, while, in all the requisites of withstanding great heat and the most dense pressure, it was incomparably superior. When the first submarine cables were commenced, in 1841, gutta percha was unknown in England, and India rubber only was employed as a means of insulating the conductor. The great variety of purposes, however, for which India rubber was then used made the demand for it so great, as to render not only its cost high, but the amount of its production uncertain. The properties of gutta percha soon afterwards became known, and on its first introduction to this country, at a comparatively low price, it was found to be a cheaper medium of insulation, and one apparently equally efficacious with India rubber. Its adoption as a covering for submarine cables, therefore, soon became general, and has continued with little interruption down to the present day. But during the time that has intervened since India rubber was first given up for the new material, the condi-

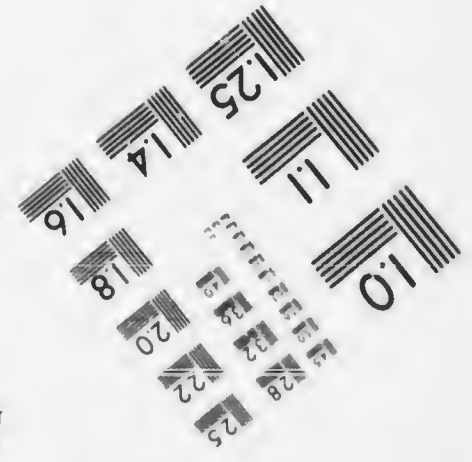
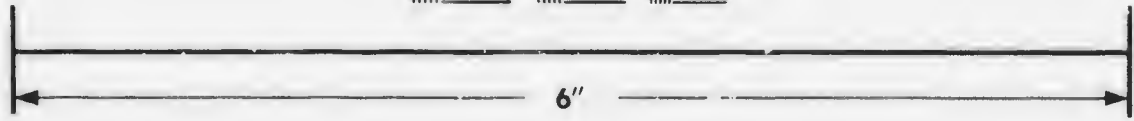
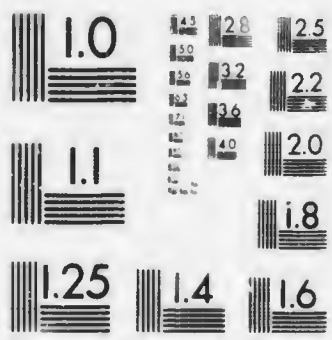
tions of cost between gutta percha and India rubber have been entirely reversed, while immense progress has been made in the knowledge of all matters relating to submarine telegraphy. The result of this increased experience has been, to place beyond a doubt that many better insulating mediums than gutta percha can be found, which, at less than half the cost, will work twice as well. No doubt, scientific research upon this matter has been keenly stimulated, by observing how injuriously the Gutta Percha Company's virtual monopoly has acted upon the interests of all submarine telegraphs. To this company alone belongs the right of making and selling gutta percha in any way or form whatsoever. They raise or lower the price of the material at will, and from their charges there is no appeal. If any enterprising member of the House of Commons wishes for the strongest illustration to be found in this country of the evils which result to enterprise from these patent monopolies, he has only to enquire into the privileges enjoyed by the Gutta Percha Company, and then see how these have acted upon the cause of telegraphy throughout the kingdom. The present price of gutta percha is 2s. 6d. per lb., and this immense cost, coupled with its now well-known deficiencies as an insulator, has roused the chymical world into efforts to discover some substitute which, while possessing all non-electrical and mechanical essentials, will at the same time relieve telegraph companies from the monstrous outlay now required for coating their wires with gutta percha. Several experiments have been made with this object, and some of them have resulted in the most triumphant success, as regards elasticity, cost, lightness, and rapidity of production, of the new materials. Messrs. Silver and Co. have been foremost among the experimentalists, but, instead of devising a new substance, have resolved to trust the well-known properties of India rubber, and, with this view, have coated several miles of wire with a double layer of that material laid on in spiral folds or bands, with their edges closely joined, so as to be perfectly impervious to water at any pressure. Even at the present high price of India rubber, wires can be thus coated at very little more than half the price charged for gutta percha. The cost, however, is one of the least advantages of the material. Every one knows how elastic India rubber is, but

every one does not know that it is almost as incompressible as water, and compared with gutta percha requires a very high degree of heat to melt it, boiling water having no effect upon it whatever. Some lengths of the wire thus coated at Messrs. Silver's works have been subjected in a hydraulic machine, for a considerable time, to a pressure of $7\frac{1}{2}$ tons on the circular inch, and when tested, while still exposed to this pressure, the most sensitive of Mr. Henley's galvanometers showed the insulation perfect. An attempt to apply a higher rate of pressure than this terminated, as might have been expected, in the bursting of the hydraulic cylinder under the tremendous strain. When it is recollected that 5 tons pressure to the square inch crushes granite, it will be seen that a more complete test of the value of India rubber as an insulator to resist pressure could hardly have been devised. The importance of its possessing this quality is far greater than would at first sight be supposed. A pressure of $7\frac{1}{2}$ tons to the inch is equal to the pressure caused by the weight of water at a depth of eight miles. The greatest depth at which the Atlantic cable was submerged was three miles, and the weight of this mass of water upon the rope at the bottom of the sea was about $2\frac{1}{2}$ tons. Gutta percha at such a pressure is reduced to less than half its bulk. To this apparently insignificant fact is it doubtless owing that the cable is now useless, for it follows, as a matter of course, that when the core of the rope shrank to half its original diameter, the outside wires stretched in proportion, while the gutta percha could not but tear under the strain, and leave the conductor exposed in many places. The advantage, therefore, of India rubber over gutta percha in this respect is at once apparent, since it exactly reverses the unfavourable conditions of the latter, being incompressible and highly elastic. With regard to withstanding heat, its superiority is equally great. During the course of the experiments a considerable length of wire, insulated with two coats of India rubber, was immersed in a large boiler of boiling water. Though the external part of the covering was boiled almost white, the insulation remained perfect. A similar length of wire, coated with gutta percha, of the same thickness as the India rubber, was, of course, destroyed, as a non-conductor, immediately on its immersion, as gutta





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percha melts easily at 100 degrees. It is, of course, very true, that submarine cables when laid are not required to encounter a heat of 212 degrees, but it is well known that while in process of manufacture, and especially when packed in ships' holds for the purpose of being submerged, they are often exposed to an amount of heat to which gutta percha yields. This melting at a low temperature, together with the wire being badly centred at the Gutta Percha Company's Works, was a source of incessant anxiety to those on board the *Agamemnon* and *Niagara*, during the expedition of last summer. The deck coils, from being exposed to the sun, were more liable than others to this danger, and some portions of them had to be cut out, in consequence of the copper wire having pushed through the soft gutta percha. On both these important points, therefore, the introduction of India rubber would be of immense benefit, and we believe if it was once clearly shown that the supply of material might be depended on, and the rate at which wires could be covered would be equal to the demand, it would soon entirely supersede gutta percha as a means of insulation. Experiments are also being carried out by another firm for the purpose of devising an insulator from a combination of India rubber and shellac. These tests, however, are not sufficiently advanced to be made public, though the results up to the present give promise of the most complete success. When such efforts are making on all sides, it seems improbable that the use of a faulty and expensive insulator like gutta percha will be much longer continued."

I may add, that in addition to the foregoing firms already adverted to in the *Times*, there are others connected with the manufacture of India rubber, who are engaged in the attempt, by their own several peculiar processes, to adapt this material to the purposes of future insulation. Whether any of them will be able to produce results equal to those achieved by the Messrs. Silver, time alone will show. One thing, however, it has already proven—that now, in the year 1859, it has been admitted that the insulating medium selected by my projector, eighteen years ago, far surpasses that for which it has been so long and so inconsiderately rejected.

CHAPTER XII.

CONCLUSION.

HAVING shown the doubtful character of that which in itself comprises the very essence of my vitality—the insulation—it would be a work of supererogation to continue further the exposition of the errors and faults committed in my construction, involving the application of complicated and ponderous machinery for my submergence, I will not, therefore, longer dwell upon this subject. That there were errors, and very grave errors committed, from first to last, by those who had the management of my construction, is universally admitted by all conversant with the subject of submarine telegraphy. Even the present Chairman of the Atlantic Telegraph Company, the Right Honourable James Stuart Wortley, candidly admits this fact, and at the last meeting of the shareholders of the Company, in the honest and honourable expression of his own opinion, said, “With regard to the past, without wishing to implicate any parties, he had no hesitation in saying, that he thought some errors had been committed, and an endeavour would be made to guard against them in future. For instance, he believed the cable employed was not well adapted for the purposes for which it was intended; but that was only his opinion; and much could be said on both sides of the question. There were other matters in connection with the past history of the company upon which he had formed an opinion, but he had no intention of introducing them on the present occasion.”

There are two points in this statement highly satisfactory to me. First, in the candid acknowledgment that errors had been committed in my construction, and secondly, that an endeavour would be made to guard against them in the future. The directors and shareholders

of the Atlantic Telegraph Company are a body of highly respectable and honourable men, and are entitled to the thanks of the community. When they subscribed large sums each to carry out the important project of uniting the Old and New Worlds by my means, they did it with the view to assist in promoting the commercial and social interests of the two countries. The anticipation of pecuniary benefit to themselves was not the governing principle by which they were actuated, though no doubt they treated this as they would any other mercantile speculation, and would, of course, rather have had a profitable return than the loss they have sustained; and had the affair been successful, there is no question that in a mercantile point of view the speculation would have proved most remunerative. But with all their excellent and praiseworthy intentions, the directors themselves committed an error—an error of the head rather than of the heart, but one most fatal in its results—in abnegating their own power, and trusting the management of the undertaking to three or four individuals, who, unfortunately, have proved unequal to the task.

I have stated in the commencement of my narrative, that I do not publish it for the purpose of being hypercritical upon the acts of others, but under the fear lest I, who, I trust, am yet destined to play an important and useful part in the world, should be compromised in these repeated failures, and my prestige be for ever destroyed, in the supposition that the incapacity is mine, and not theirs who have had the management of me, and also with the desire of placing myself in my right position with the public, and of inspiring others with the same conviction that I have myself, of my being able, under *judicious and proper treatment*, to bring, by my extraordinary power, distant countries, separated from each other by the ocean, into close and immediate intercommunication. It is, therefore, a source of great satisfaction to me to find, that the right honourable the chairman, while fully and completely exonerating me by admitting the errors of the past, declare that an endeavour would be made to guard against them in the future. With regard to the prospects of the undertaking being resumed, he stated that "application had been made to

the government for assistance, but in consequence of the numerous applications made by other parties for unconditional guarantees, the government, at a cabinet council, came to a determination never again to give an unconditional guarantee. The company had a Bill in parliament, which he had no reasonable doubt would be carried, giving them power to raise new capital to the extent of £600,000; upon which, however, he had reason to believe the government were willing to give a guarantee of eight per cent. for twenty-five years, subject to certain conditions, which, while they did not appear to the directors to offer any insurmountable obstacles, yet nevertheless required the most careful consideration at their hands." Such is the description given by the chairman of the pecuniary prospects of the company. It is understood that the chief conditions to which he refers as being desired by the government are, that the company should give up the monopolies, which I have already described it possesses, and that the payment of the guarantee of eight per cent. shall not commence until after the cable is successfully laid down, and shall continue only so long as it remains in working order. These conditions are fair and reasonable, and do not, as the chairman justly observes, offer any insurmountable obstacles.

The various and unconstitutional powers obtained by the company, to the exclusion of all others, and, indeed, interfering with the rights of the crown itself, are extremely unpopular, and the cancelling them would not be at all detrimental to the interests of the company; for there is ample room for a dozen cables, which, if they were all in successful operation, would still be inadequate to meet the demand that would be made upon them.

The second condition imposed by the government, that the eight per cent. shall not be paid except during the successful working of the cable, is also most equitable, and ought not to present the slightest obstacle. The capital upon which the per centage is to be paid is a very large one, and the per centage itself extremely liberal. Surely, with this encouragement, there will be little or no difficulty in raising the requisite amount. It is true the recent failures may have shaken

public confidence in me, and that is the reason why I have been compelled to publish the story of my life, in which it will be perceived, that throughout my whole career all my mishaps have arisen, not from any fault of mine, but from the incapacity of others. The errors of the past have been perceived and frankly admitted by the chairman, and with the determination expressed by the right honourable gentleman, to use every endeavour to guard against them in future, the shareholders may look to a more prosperous result in their next undertaking. I myself have no hesitation in predicting, that if the errors of omission and commission of the past be avoided in the future—if, instead of constructing me in secret, and trusting to the overweening confidence of self-sufficiency, and launching me when completed under such superintendence, "with all my imperfections on my head," without even subjecting me to the necessary tests—if, instead of doing this, the directors will invite the co-operation of the scientific world, will call to their assistance men acquainted with the indispensable requirements for my construction, and seek the aid and advice of those possessing a practical knowledge of the element to which I am destined, and of the mode of placing me there—if they will do this, and collect, collate, and cull from such sources all that may be deemed valuable, and reject all that is problematical—if they will conduct this search in a spirit of humility, and not of self-sufficiency, and place their reliance upon an All-wise Providence for their guidance—if this be done, I repeat that I have no hesitation in predicting, that their next attempt to establish me across the Atlantic will be as successful as their recent ones have been disastrous.

But it is not in the Atlantic alone where my services are at present to be placed in immediate requisition. The scheme, which I have already mentioned in the earlier part of my history, my projector proposed so far back as thirteen years ago, to the Directors of the East India Company, is now being carried out—that of connecting this country with the East Indies. That portion of me intended for the Red Sea is now actually being deposited there, between Aden and Suez; and although the European route selected is not in accordance with the one my projector then propounded, there is very

little doubt, for obvious reasons, that I shall eventually be laid between this country and Gibraltar, and thence to Malta.

Having brought my narrative to the present period, May, 1859, there remains little to be said of the past. The first chapter of my life is in its last lines; the second is about to open; and who can say what period of the world's history will witness the end? The years of infancy and boyhood are behind me; and though they have been attended with adversity and disappointment, with occasional intervals of success, I trust that happier and brighter days are dawning upon me, and that when I resume my history, which I purpose doing, and this at no distant period, I shall have it in my power to record, from time to time, that I have been prosperous in the unprecedented career before me. I trust ere long, through the instrumentality of man, he himself being but the humble instrument in carrying out the behests of HIM whose Divine will alone is law, that I shall be the medium of electric intercommunication, not only with the New World, and with the East Indies, but also with other nations and colonies, however remote, and that I shall soon become an established fact, beneficial to the world at large.

FINIS.

