

' . . . . The dear old house at Claygate is not let and the pretty garden a mass of weeds. I feel rather as if we had behaved unkindly to them. We were very happy there, but now that it is over I am conscious of the weight of anxiety as to money which I bore all the time. With you in the garden, with Austin in the coach-house, with pretty songs in the little, low white room, with the moonlight in the dear room up-stairs, ah, it was perfect; but the long walk, wondering, pondering, fearing, scheming, and the dusty jolting railway, and the horrid fusty office with its endless disappointments, they are well gone. It is well enough to fight and scheme and bustle about in the eager crowd here [in London] for a while now and then, but not for a lifetime. What I have now is just perfect. Study for winter, action for summer, lovely country for recreation, a pleasant town for talk . . . '

#### CHAPTER V. - NOTES OF TELEGRAPH VOYAGES, 1858 TO 1873.

BUT it is now time to see Jenkin at his life's work. I have before me certain imperfect series of letters written, as he says, 'at hazard, for one does not know at the time what is important and what is not': the earlier addressed to Miss Austin, after the betrothal; the later to Mrs. Jenkin the young wife. I should premise that I have allowed myself certain editorial freedoms,

leaving out and splicing together much as he himself did with the Bona cable: thus edited the letters speak for themselves, and will fail to interest none who love adventure or activity. Addressed as they were to her whom he called his 'dear engineering pupil,' they give a picture of his work so clear that a child may understand, and so attractive that I am half afraid their publication may prove harmful, and still further crowd the ranks of a profession already overcrowded. But their most engaging quality is the picture of the writer; with his indomitable self-confidence and courage, his readiness in every pinch of circumstance or change of plan, and his ever fresh enjoyment of the whole web of human experience, nature, adventure, science, toil and rest, society and solitude. It should be borne in mind that the writer of these buoyant pages was, even while he wrote, harassed by responsibility, stunted in sleep and often struggling with the prostration of sea-sickness. To this last enemy, which he never overcame, I have omitted, in my search after condensation, a good many references; if they were all left, such was the man's temper, they would not represent one hundredth part of what he suffered, for he was never given to complaint. But indeed he had met this ugly trifle, as he met every thwart circumstance of life, with a certain pleasure of pugnacity; and suffered it not to check him, whether in the exercise of his profession or the pursuit of amusement.

I.

'Birkenhead: April 18, 1858.

'Well, you should know, Mr. - having a contract to lay down a submarine telegraph from Sardinia to Africa failed three times in the attempt. The distance from land to land is about 140 miles. On the first occasion, after proceeding some 70 miles, he had to cut the cable - the cause I forget; he tried again, same result; then picked up about 20 miles of the lost cable, spliced on a new piece, and very nearly got across that time, but ran short of cable, and when but a few miles off Galita in very deep water, had to telegraph to London for more cable to be manufactured and sent out whilst he tried to stick to the end: for five days, I think, he lay there sending and receiving messages, but heavy weather coming on the cable parted and Mr. - went home in despair - at least I should think so.

'He then applied to those eminent engineers, R. S. Newall & Co., who made and laid down a cable for him last autumn - Fleeming Jenkin (at the time in considerable mental agitation) having the honour of fitting out the ELBA for that purpose.' [On this occasion, the ELBA has no cable to lay; but] 'is going out in the beginning of May to endeavour to fish up the cables Mr. - lost. There are two ends at or near the shore: the third will probably not be found within 20 miles from land. One of these ends will be

passed over a very big pulley or sheave at the bows, passed six times round a big barrel or drum; which will be turned round by a steam engine on deck, and thus wind up the cable, while the ELBA slowly steams ahead. The cable is not wound round and round the drum as your silk is wound on its reel, but on the contrary never goes round more than six times, going off at one side as it comes on at the other, and going down into the hold of the ELBA to be coiled along in a big coil or skein.

'I went down to Gateshead to discuss with Mr. Newall the form which this tolerably simple idea should take, and have been busy since I came here drawing, ordering, and putting up the machinery - uninterfered with, thank goodness, by any one. I own I like responsibility; it flatters one and then, your father might say, I have more to gain than to lose. Moreover I do like this bloodless, painless combat with wood and iron, forcing the stubborn rascals to do my will, licking the clumsy cubs into an active shape, seeing the child of to-day's thought working to-morrow in full vigour at his appointed task.

'May 12.

'By dint of bribing, bullying, cajoling, and going day by day to see the state of things ordered, all my work is very nearly ready now; but those who have neglected these precautions are of course disappointed. Five hundred fathoms of chain [were] ordered by -

some three weeks since, to be ready by the 10th without fail; he sends for it to-day - 150 fathoms all they can let us have by the 15th - and how the rest is to be got, who knows? He ordered a boat a month since and yesterday we could see nothing of her but the keel and about two planks. I could multiply instances without end. At first one goes nearly mad with vexation at these things; but one finds so soon that they are the rule, that then it becomes necessary to feign a rage one does not feel. I look upon it as the natural order of things, that if I order a thing, it will not be done - if by accident it gets done, it will certainly be done wrong: the only remedy being to watch the performance at every stage.

'To-day was a grand field-day. I had steam up and tried the engine against pressure or resistance. One part of the machinery is driven by a belt or strap of leather. I always had my doubts this might slip; and so it did, wildly. I had made provision for doubling it, putting on two belts instead of one. No use - off they went, slipping round and off the pulleys instead of driving the machinery. Tighten them - no use. More strength there - down with the lever - smash something, tear the belts, but get them tight - now then, stand clear, on with the steam; - and the belts slip away as if nothing held them. Men begin to look queer; the circle of quidnuncs make sage remarks. Once more - no use. I begin to know I ought to feel sheepish and beat, but somehow I feel cocky instead. I laugh and say, "Well, I am bound to break

something down" - and suddenly see. "Oho, there's the place; get weight on there, and the belt won't slip." With much labour, on go the belts again. "Now then, a spar thro' there and six men's weight on; mind you're not carried away." - "Ay, ay, sir." But evidently no one believes in the plan. "Hurrah, round she goes - stick to your spar. All right, shut off steam." And the difficulty is vanquished.

'This or such as this (not always quite so bad) occurs hour after hour, while five hundred tons of coal are rattling down into the holds and bunkers, riveters are making their infernal row all round, and riggers bend the sails and fit the rigging:- a sort of Pandemonium, it appeared to young Mrs. Newall, who was here on Monday and half-choked with guano; but it suits the likes o' me.

'S. S. ELBA, River Mersey: May 17.

'We are delayed in the river by some of the ship's papers not being ready. Such a scene at the dock gates. Not a sailor will join till the last moment; and then, just as the ship forges ahead through the narrow pass, beds and baggage fly on board, the men half tipsy clutch at the rigging, the captain swears, the women scream and sob, the crowd cheer and laugh, while one or two pretty little girls stand still and cry outright, regardless of all eyes.

'These two days of comparative peace have quite set me on my legs

again. I was getting worn and weary with anxiety and work. As usual I have been delighted with my shipwrights. I gave them some beer on Saturday, making a short oration. To-day when they went ashore and I came on board, they gave three cheers, whether for me or the ship I hardly know, but I had just bid them good-bye, and the ship was out of hail; but I was startled and hardly liked to claim the compliment by acknowledging it.

'S. S. ELBA: May 25.

'My first intentions of a long journal have been fairly frustrated by sea-sickness. On Tuesday last about noon we started from the Mersey in very dirty weather, and were hardly out of the river when we met a gale from the south-west and a heavy sea, both right in our teeth; and the poor ELBA had a sad shaking. Had I not been very sea-sick, the sight would have been exciting enough, as I sat wrapped in my oilskins on the bridge; [but] in spite of all my efforts to talk, to eat, and to grin, I soon collapsed into imbecility; and I was heartily thankful towards evening to find myself in bed.

'Next morning, I fancied it grew quieter and, as I listened, heard, "Let go the anchor," whereon I concluded we had run into Holyhead Harbour, as was indeed the case. All that day we lay in Holyhead, but I could neither read nor write nor draw. The captain of another steamer which had put in came on board, and we all went for

a walk on the hill; and in the evening there was an exchange of presents. We gave some tobacco I think, and received a cat, two pounds of fresh butter, a Cumberland ham, WESTWARD HO! and Thackeray's ENGLISH HUMOURISTS. I was astonished at receiving two such fair books from the captain of a little coasting screw. Our captain said he [the captain of the screw] had plenty of money, five or six hundred a year at least. - "What in the world makes him go rolling about in such a craft, then?" - "Why, I fancy he's reckless; he's desperate in love with that girl I mentioned, and she won't look at him." Our honest, fat, old captain says this very grimly in his thick, broad voice.

'My head won't stand much writing yet, so I will run up and take a look at the blue night sky off the coast of Portugal.

'May 26.

'A nice lad of some two and twenty, A- by name, goes out in a nondescript capacity as part purser, part telegraph clerk, part generally useful person. A- was a great comfort during the miseries [of the gale]; for when with a dead head wind and a heavy sea, plates, books, papers, stomachs were being rolled about in sad confusion, we generally managed to lie on our backs, and grin, and try discordant staves of the FLOWERS OF THE FOREST and the LOW-BACKED CAR. We could sing and laugh, when we could do nothing else; though A- was ready to swear after each fit was past, that

that was the first time he had felt anything, and at this moment would declare in broad Scotch that he'd never been sick at all, qualifying the oath with "except for a minute now and then." He brought a cornet-a-piston to practice on, having had three weeks' instructions on that melodious instrument; and if you could hear the horrid sounds that come! especially at heavy rolls. When I hint he is not improving, there comes a confession: "I don't feel quite right yet, you see!" But he blows away manfully, and in self-defence I try to roar the tune louder.

'11:30 P.M.

'Long past Cape St. Vincent now. We went within about 400 yards of the cliffs and light-house in a calm moonlight, with porpoises springing from the sea, the men crooning long ballads as they lay idle on the forecastle and the sails flapping uncertain on the yards. As we passed, there came a sudden breeze from land, hot and heavy scented; and now as I write its warm rich flavour contrasts strongly with the salt air we have been breathing.

'I paced the deck with H-, the second mate, and in the quiet night drew a confession that he was engaged to be married, and gave him a world of good advice. He is a very nice, active, little fellow, with a broad Scotch tongue and "dirty, little rascal" appearance. He had a sad disappointment at starting. Having been second mate on the last voyage, when the first mate was discharged, he took

charge of the ELBA all the time she was in port, and of course looked forward to being chief mate this trip. Liddell promised him the post. He had not authority to do this; and when Newall heard of it, he appointed another man. Fancy poor H-having told all the men and most of all, his sweetheart. But more remains behind; for when it came to signing articles, it turned out that O-, the new first mate, had not a certificate which allowed him to have a second mate. Then came rather an affecting scene. For H- proposed to sign as chief (he having the necessary higher certificate) but to act as second for the lower wages. At first O- would not give in, but offered to go as second. But our brave little H- said, no: "The owners wished Mr. O- to be chief mate, and chief mate he should be." So he carried the day, signed as chief and acts as second. Shakespeare and Byron are his favourite books. I walked into Byron a little, but can well understand his stirring up a rough, young sailor's romance. I lent him WESTWARD HO from the cabin; but to my astonishment he did not care much for it; he said it smelt of the shilling railway library; perhaps I had praised it too highly. Scott is his standard for novels. I am very happy to find good taste by no means confined to gentlemen, H- having no pretensions to that title. He is a man after my own heart.

'Then I came down to the cabin and heard young A-'s schemes for the future. His highest picture is a commission in the Prince of Vizianagram's irregular horse. His eldest brother is tutor to his Highness's children, and grand vizier, and magistrate, and on his

Highness's household staff, and seems to be one of those Scotch adventurers one meets with and hears of in queer berths - raising cavalry, building palaces, and using some petty Eastern king's long purse with their long Scotch heads.

'Off Bona; June 4.

'I read your letter carefully, leaning back in a Maltese boat to present the smallest surface of my body to a grilling sun, and sailing from the ELBA to Cape Hamrah about three miles distant. How we fried and sighed! At last, we reached land under Fort Genova, and I was carried ashore pick-a-back, and plucked the first flower I saw for Annie. It was a strange scene, far more novel than I had imagined: the high, steep banks covered with rich, spicy vegetation of which I hardly knew one plant. The dwarf palm with fan-like leaves, growing about two feet high, formed the staple of the verdure. As we brushed through them, the gummy leaves of a cistus stuck to the clothes; and with its small white flower and yellow heart, stood for our English dog-rose. In place of heather, we had myrtle and lentisque with leaves somewhat similar. That large bulb with long flat leaves? Do not touch it if your hands are cut; the Arabs use it as blisters for their horses. Is that the same sort? No, take that one up; it is the bulb of a dwarf palm, each layer of the onion peels off, brown and netted, like the outside of a cocoa-nut. It is a clever plant that; from the leaves we get a vegetable horsehair; - and eat the

bottom of the centre spike. All the leaves you pull have the same aromatic scent. But here a little patch of cleared ground shows old friends, who seem to cling by abused civilisation:-fine, hardy thistles, one of them bright yellow, though; - honest, Scotch-looking, large daisies or gowans; - potatoes here and there, looking but sickly; and dark sturdy fig-trees looking cool and at their ease in the burning sun.

'Here we are at Fort Genova, crowning the little point, a small old building, due to my old Genoese acquaintance who fought and traded bravely once upon a time. A broken cannon of theirs forms the threshold; and through a dark, low arch, we enter upon broad terraces sloping to the centre, from which rain water may collect and run into that well. Large-breeched French troopers lounge about and are most civil; and the whole party sit down to breakfast in a little white-washed room, from the door of which the long, mountain coastline and the sparkling sea show of an impossible blue through the openings of a white-washed rampart. I try a sea-egg, one of those prickly fellows - sea-urchins, they are called sometimes; the shell is of a lovely purple, and when opened, there are rays of yellow adhering to the inside; these I eat, but they are very fishy.

'We are silent and shy of one another, and soon go out to watch while turbaned, blue-breeched, barelegged Arabs dig holes for the land telegraph posts on the following principle: one man takes a

pick and bangs lazily at the hard earth; when a little is loosened, his mate with a small spade lifts it on one side; and DA CAPO. They have regular features and look quite in place among the palms. Our English workmen screw the earthenware insulators on the posts, strain the wire, and order Arabs about by the generic term of Johnny. I find W- has nothing for me to do; and that in fact no one has anything to do. Some instruments for testing have stuck at Lyons, some at Cagliari; and nothing can be done - or at any rate, is done. I wander about, thinking of you and staring at big, green grasshoppers - locusts, some people call them - and smelling the rich brushwood. There was nothing for a pencil to sketch, and I soon got tired of this work, though I have paid willingly much money for far less strange and lovely sights.

'Off Cape Spartivento: June 8.

'At two this morning, we left Cagliari; at five cast anchor here. I got up and began preparing for the final trial; and shortly afterwards everyone else of note on board went ashore to make experiments on the state of the cable, leaving me with the prospect of beginning to lift at 12 o'clock. I was not ready by that time; but the experiments were not concluded and moreover the cable was found to be imbedded some four or five feet in sand, so that the boat could not bring off the end. At three, Messrs. Liddell, &c., came on board in good spirits, having found two wires good or in such a state as permitted messages to be transmitted freely. The

boat now went to grapple for the cable some way from shore while the ELBA towed a small lateen craft which was to take back the consul to Cagliari some distance on its way. On our return we found the boat had been unsuccessful; she was allowed to drop astern, while we grappled for the cable in the ELBA [without more success]. The coast is a low mountain range covered with brushwood or heather - pools of water and a sandy beach at their feet. I have not yet been ashore, my hands having been very full all day.

'June 9.

'Grappling for the cable outside the bank had been voted too uncertain; [and the day was spent in] efforts to pull the cable off through the sand which has accumulated over it. By getting the cable tight on to the boat, and letting the swell pitch her about till it got slack, and then tightening again with blocks and pulleys, we managed to get out from the beach towards the ship at the rate of about twenty yards an hour. When they had got about 100 yards from shore, we ran round in the ELBA to try and help them, letting go the anchor in the shallowest possible water, this was about sunset. Suddenly someone calls out he sees the cable at the bottom: there it was sure enough, apparently wriggling about as the waves rippled. Great excitement; still greater when we find our own anchor is foul of it and has been the means of bringing it to light. We let go a grapnel, get the cable clear of the anchor on to the grapnel - the captain in an agony lest we should drift

ashore meanwhile - hand the grappling line into the big boat, steam out far enough, and anchor again. A little more work and one end of the cable is up over the bows round my drum. I go to my engine and we start hauling in. All goes pretty well, but it is quite dark. Lamps are got at last, and men arranged. We go on for a quarter of a mile or so from shore and then stop at about half-past nine with orders to be up at three. Grand work at last! A number of the SATURDAY REVIEW here; it reads so hot and feverish, so tomblike and unhealthy, in the midst of dear Nature's hills and sea, with good wholesome work to do. Pray that all go well tomorrow.

'June 10.

'Thank heaven for a most fortunate day. At three o'clock this morning in a damp, chill mist all hands were roused to work. With a small delay, for one or two improvements I had seen to be necessary last night, the engine started and since that time I do not think there has been half an hour's stoppage. A rope to splice, a block to change, a wheel to oil, an old rusted anchor to disengage from the cable which brought it up, these have been our only obstructions. Sixty, seventy, eighty, a hundred, a hundred and twenty revolutions at last, my little engine tears away. The even black rope comes straight out of the blue heaving water: passes slowly round an open-hearted, good-tempered looking pulley, five feet diameter; aft past a vicious nipper, to bring all up

should anything go wrong; through a gentle guide; on to a huge bluff drum, who wraps him round his body and says "Come you must," as plain as drum can speak: the chattering pauls say "I've got him, I've got him, he can't get back:" whilst black cable, much slacker and easier in mind and body, is taken by a slim V-pulley and passed down into the huge hold, where half a dozen men put him comfortably to bed after his exertion in rising from his long bath. In good sooth, it is one of the strangest sights I know to see that black fellow rising up so steadily in the midst of the blue sea. We are more than half way to the place where we expect the fault; and already the one wire, supposed previously to be quite bad near the African coast, can be spoken through. I am very glad I am here, for my machines are my own children and I look on their little failings with a parent's eye and lead them into the path of duty with gentleness and firmness. I am naturally in good spirits, but keep very quiet, for misfortunes may arise at any instant; moreover to-morrow my paying-out apparatus will be wanted should all go well, and that will be another nervous operation. Fifteen miles are safely in; but no one knows better than I do that nothing is done till all is done.

'June 11.

'9 A.M. - We have reached the splice supposed to be faulty, and no fault has been found. The two men learned in electricity, L- and W-, squabble where the fault is.

'EVENING. - A weary day in a hot broiling sun; no air. After the experiments, L- said the fault might be ten miles ahead: by that time, we should be according to a chart in about a thousand fathoms of water - rather more than a mile. It was most difficult to decide whether to go on or not. I made preparations for a heavy pull, set small things to rights and went to sleep. About four in the afternoon, Mr. Liddell decided to proceed, and we are now (at seven) grinding it in at the rate of a mile and three-quarters per hour, which appears a grand speed to us. If the paying-out only works well! I have just thought of a great improvement in it; I can't apply it this time, however. - The sea is of an oily calm, and a perfect fleet of brigs and ships surrounds us, their sails hardly filling in the lazy breeze. The sun sets behind the dim coast of the Isola San Pietro, the coast of Sardinia high and rugged becomes softer and softer in the distance, while to the westward still the isolated rock of Toro springs from the horizon. - It would amuse you to see how cool (in head) and jolly everybody is. A testy word now and then shows the wires are strained a little, but everyone laughs and makes his little jokes as if it were all in fun: yet we are all as much in earnest as the most earnest of the earnest bastard German school or demonstrative of Frenchmen. I enjoy it very much.

'June 12.

'5.30 A.M. - Out of sight of land: about thirty nautical miles in the hold; the wind rising a little; experiments being made for a fault, while the engine slowly revolves to keep us hanging at the same spot: depth supposed about a mile. The machinery has behaved admirably. Oh! that the paying-out were over! The new machinery there is but rough, meant for an experiment in shallow water, and here we are in a mile of water.

'6.30. - I have made my calculations and find the new paying-out gear cannot possibly answer at this depth, some portion would give way. Luckily, I have brought the old things with me and am getting them rigged up as fast as may be. Bad news from the cable. Number four has given in some portion of the last ten miles: the fault in number three is still at the bottom of the sea: number two is now the only good wire and the hold is getting in such a mess, through keeping bad bits out and cutting for splicing and testing, that there will be great risk in paying out. The cable is somewhat strained in its ascent from one mile below us; what it will be when we get to two miles is a problem we may have to determine.

'9 P.M. - A most provoking unsatisfactory day. We have done nothing. The wind and sea have both risen. Too little notice has been given to the telegraphists who accompany this expedition; they had to leave all their instruments at Lyons in order to arrive at Bona in time; our tests are therefore of the roughest, and no one really knows where the faults are. Mr. L- in the morning lost much

time; then he told us, after we had been inactive for about eight hours, that the fault in number three was within six miles; and at six o'clock in the evening, when all was ready for a start to pick up these six miles, he comes and says there must be a fault about thirty miles from Bona! By this time it was too late to begin paying out today, and we must lie here moored in a thousand fathoms till light to-morrow morning. The ship pitches a good deal, but the wind is going down.

'June 13, Sunday.

'The wind has not gone down, however. It now (at 10.30) blows a pretty stiff gale, the sea has also risen; and the ELBA'S bows rise and fall about 9 feet. We make twelve pitches to the minute, and the poor cable must feel very sea-sick by this time. We are quite unable to do anything, and continue riding at anchor in one thousand fathoms, the engines going constantly so as to keep the ship's bows up to the cable, which by this means hangs nearly vertical and sustains no strain but that caused by its own weight and the pitching of the vessel. We were all up at four, but the weather entirely forbade work for to-day, so some went to bed and most lay down, making up our leeway as we nautically term our loss of sleep. I must say Liddell is a fine fellow and keeps his patience and temper wonderfully; and yet how he does fret and fume about trifles at home! This wind has blown now for 36 hours, and yet we have telegrams from Bona to say the sea there is as calm as

a mirror. It makes one laugh to remember one is still tied to the shore. Click, click, click, the pecker is at work: I wonder what Herr P- says to Herr L-, - tests, tests, tests, nothing more. This will be a very anxious day.

'June 14.

'Another day of fatal inaction.

'June 15.

'9.30. - The wind has gone down a deal; but even now there are doubts whether we shall start to-day. When shall I get back to you?

'9 P.M. - Four miles from land. Our run has been successful and eventless. Now the work is nearly over I feel a little out of spirits - why, I should be puzzled to say - mere wantonness, or reaction perhaps after suspense.

'June 16.

'Up this morning at three, coupled my self-acting gear to the brake and had the satisfaction of seeing it pay out the last four miles in very good style. With one or two little improvements, I hope to make it a capital thing. The end has just gone ashore in two

boats, three out of four wires good. Thus ends our first expedition. By some odd chance a TIMES of June the 7th has found its way on board through the agency of a wretched old peasant who watches the end of the line here. A long account of breakages in the Atlantic trial trip. To-night we grapple for the heavy cable, eight tons to the mile. I long to have a tug at him; he may puzzle me, and though misfortunes or rather difficulties are a bore at the time, life when working with cables is tame without them.

'2 P.M. - Hurrah, he is hooked, the big fellow, almost at the first cast. He hangs under our bows looking so huge and imposing that I could find it in my heart to be afraid of him.

'June 17.

'We went to a little bay called Chia, where a fresh-water stream falls into the sea, and took in water. This is rather a long operation, so I went a walk up the valley with Mr. Liddell. The coast here consists of rocky mountains 800 to 1,000 feet high covered with shrubs of a brilliant green. On landing our first amusement was watching the hundreds of large fish who lazily swam in shoals about the river; the big canes on the further side hold numberless tortoises, we are told, but see none, for just now they prefer taking a siesta. A little further on, and what is this with large pink flowers in such abundance? - the oleander in full flower. At first I fear to pluck them, thinking they must be

cultivated and valuable; but soon the banks show a long line of thick tall shrubs, one mass of glorious pink and green. Set these in a little valley, framed by mountains whose rocks gleam out blue and purple colours such as pre-Raphaelites only dare attempt, shining out hard and weird-like amongst the clumps of castor-oil plants, oistus, arbor vitae and many other evergreens, whose names, alas! I know not; the cistus is brown now, the rest all deep or brilliant green. Large herds of cattle browse on the baked deposit at the foot of these large crags. One or two half-savage herdsmen in sheepskin kilts, &c., ask for cigars; partridges whirr up on either side of us; pigeons coo and nightingales sing amongst the blooming oleander. We get six sheep and many fowls, too, from the priest of the small village; and then run back to Spartivento and make preparations for the morning.

'June 18.

'The big cable is stubborn and will not behave like his smaller brother. The gear employed to take him off the drum is not strong enough; he gets slack on the drum and plays the mischief. Luckily for my own conscience, the gear I had wanted was negatived by Mr. Newall. Mr. Liddell does not exactly blame me, but he says we might have had a silver pulley cheaper than the cost of this delay. He has telegraphed for more men to Cagliari, to try to pull the cable off the drum into the hold, by hand. I look as comfortable as I can, but feel as if people were blaming me. I am trying my

best to get something rigged which may help us; I wanted a little difficulty, and feel much better. - The short length we have picked up was covered at places with beautiful sprays of coral, twisted and twined with shells of those small, fairy animals we saw in the aquarium at home; poor little things, they died at once, with their little bells and delicate bright tints.

'12 O'CLOCK. - Hurrah, victory! for the present anyhow. Whilst in our first dejection, I thought I saw a place where a flat roller would remedy the whole misfortune; but a flat roller at Cape Spartivento, hard, easily unshipped, running freely! There was a grooved pulley used for the paying-out machinery with a spindle wheel, which might suit me. I filled him up with tarry spunyarn, nailed sheet copper round him, bent some parts in the fire; and we are paying-in without more trouble now. You would think some one would praise me; no, no more praise than blame before; perhaps now they think better of me, though.

'10 P.M. - We have gone on very comfortably for nearly six miles. An hour and a half was spent washing down; for along with many coloured polypi, from corals, shells and insects, the big cable brings up much mud and rust, and makes a fishy smell by no means pleasant: the bottom seems to teem with life. - But now we are startled by a most unpleasant, grinding noise; which appeared at first to come from the large low pulley, but when the engines stopped, the noise continued; and we now imagine it is something

slipping down the cable, and the pulley but acts as sounding-board to the big fiddle. Whether it is only an anchor or one of the two other cables, we know not. We hope it is not the cable just laid down.

'June 19.

'10 A.M. - All our alarm groundless, it would appear: the odd noise ceased after a time, and there was no mark sufficiently strong on the large cable to warrant the suspicion that we had cut another line through. I stopped up on the look-out till three in the morning, which made 23 hours between sleep and sleep. One goes dozing about, though, most of the day, for it is only when something goes wrong that one has to look alive. Hour after hour, I stand on the forecastle-head, picking off little specimens of polypi and coral, or lie on the saloon deck reading back numbers of the TIMES - till something hitches, and then all is hurly-burly once more. There are awnings all along the ship, and a most ancient, fish-like smell beneath.

'1 O'CLOCK. - Suddenly a great strain in only 95 fathoms of water - belts surging and general dismay; grapnels being thrown out in the hope of finding what holds the cable. - Should it prove the young cable! We are apparently crossing its path - not the working one, but the lost child; Mr. Liddell WOULD start the big one first though it was laid first: he wanted to see the job done, and meant

to leave us to the small one unaided by his presence.

'3.30. - Grapnel caught something, lost it again; it left its marks on the prongs. Started lifting gear again; and after hauling in some 50 fathoms - grunt, grunt, grunt - we hear the other cable slipping down our big one, playing the selfsame tune we heard last night - louder, however.

'10 P.M. - The pull on the deck engines became harder and harder. I got steam up in a boiler on deck, and another little engine starts hauling at the grapnel. I wonder if there ever was such a scene of confusion: Mr. Liddell and W- and the captain all giving orders contradictory, &c., on the forecastle; D-, the foreman of our men, the mates, &c., following the example of our superiors; the ship's engine and boilers below, a 50-horse engine on deck, a boiler 14 feet long on deck beside it, a little steam winch tearing round; a dozen Italians (20 have come to relieve our hands, the men we telegraphed for to Cagliari) hauling at the rope; wiremen, sailors, in the crevices left by ropes and machinery; everything that could swear swearing - I found myself swearing like a trooper at last. We got the unknown difficulty within ten fathoms of the surface; but then the forecastle got frightened that, if it was the small cable which we had got hold of, we should certainly break it by continuing the tremendous and increasing strain. So at last Mr. Liddell decided to stop; cut the big cable, buoying its end; go back to our pleasant watering-place at Chia, take more water and

start lifting the small cable. The end of the large one has even now regained its sandy bed; and three buoys - one to grapnel foul of the supposed small cable, two to the big cable - are dipping about on the surface. One more - a flag-buoy - will soon follow, and then straight for shore.

'June 20.

'It is an ill-wind, &c. I have an unexpected opportunity of forwarding this engineering letter; for the craft which brought out our Italian sailors must return to Cagliari to-night, as the little cable will take us nearly to Galita, and the Italian skipper could hardly find his way from thence. To-day - Sunday - not much rest. Mr. Liddell is at Spartivento telegraphing. We are at Chia, and shall shortly go to help our boat's crew in getting the small cable on board. We dropped them some time since in order that they might dig it out of the sand as far as possible.

'June 21.

'Yesterday - Sunday as it was - all hands were kept at work all day, coaling, watering, and making a futile attempt to pull the cable from the shore on board through the sand. This attempt was rather silly after the experience we had gained at Cape Spartivento. This morning we grappled, hooked the cable at once, and have made an excellent start. Though I have called this the

small cable, it is much larger than the Bona one. - Here comes a break down and a bad one.

'June 22.

'We got over it, however; but it is a warning to me that my future difficulties will arise from parts wearing out. Yesterday the cable was often a lovely sight, coming out of the water one large incrustation of delicate, net-like corals and long, white curling shells. No portion of the dirty black wires was visible; instead we had a garland of soft pink with little scarlet sprays and white enamel intermixed. All was fragile, however, and could hardly be secured in safety; and inexorable iron crushed the tender leaves to atoms. - This morning at the end of my watch, about 4 o'clock, we came to the buoys, proving our anticipations right concerning the crossing of the cables. I went to bed for four hours, and on getting up, found a sad mess. A tangle of the six-wire cable hung to the grapnel which had been left buoyed, and the small cable had parted and is lost for the present. Our hauling of the other day must have done the mischief.

'June 23.

'We contrived to get the two ends of the large cable and to pick the short end up. The long end, leading us seaward, was next put round the drum and a mile of it picked up; but then, fearing

another tangle, the end was cut and buoyed, and we returned to grapple for the three-wire cable. All this is very tiresome for me. The buoying and dredging are managed entirely by W-, who has had much experience in this sort of thing; so I have not enough to do and get very homesick. At noon the wind freshened and the sea rose so high that we had to run for land and are once more this evening anchored at Chia.

'June 24.

'The whole day spent in dredging without success. This operation consists in allowing the ship to drift slowly across the line where you expect the cable to be, while at the end of a long rope, fast either to the bow or stern, a grapnel drags along the ground. This grapnel is a small anchor, made like four pot-hooks tied back to back. When the rope gets taut, the ship is stopped and the grapnel hauled up to the surface in the hopes of finding the cable on its prongs. - I am much discontented with myself for idly lounging about and reading WESTWARD HO! for the second time, instead of taking to electricity or picking up nautical information. I am uncommonly idle. The sea is not quite so rough, but the weather is squally and the rain comes in frequent gusts.

'June 25.

'To-day about 1 o'clock we hooked the three-wire cable, buoyed the

long sea end, and picked up the short [or shore] end. Now it is dark and we must wait for morning before lifting the buoy we lowered to-day and proceeding seawards. - The depth of water here is about 600 feet, the height of a respectable English hill; our fishing line was about a quarter of a mile long. It blows pretty fresh, and there is a great deal of sea.

'26th.

'This morning it came on to blow so heavily that it was impossible to take up our buoy. The ELBA recommenced rolling in true Baltic style and towards noon we ran for land.

'27th, Sunday.

'This morning was a beautiful calm. We reached the buoys at about 4.30 and commenced picking up at 6.30. Shortly a new cause of anxiety arose. Kinks came up in great quantities, about thirty in the hour. To have a true conception of a kink, you must see one: it is a loop drawn tight, all the wires get twisted and the gutta-percha inside pushed out. These much diminish the value of the cable, as they must all be cut out, the gutta-percha made good, and the cable spliced. They arise from the cable having been badly laid down so that it forms folds and tails at the bottom of the sea. These kinks have another disadvantage: they weaken the cable very much. - At about six o'clock [P.M.] we had some twelve miles

lifted, when I went to the bows; the kinks were exceedingly tight and were giving way in a most alarming manner. I got a cage rigged up to prevent the end (if it broke) from hurting anyone, and sat down on the bowsprit, thinking I should describe kinks to Annie:- suddenly I saw a great many coils and kinks altogether at the surface. I jumped to the gutta-percha pipe, by blowing through which the signal is given to stop the engine. I blow, but the engine does not stop; again - no answer: the coils and kinks jam in the bows and I rush aft shouting stop. Too late: the cable had parted and must lie in peace at the bottom. Someone had pulled the gutta-percha tube across a bare part of the steam pipe and melted it. It had been used hundreds of times in the last few days and gave no symptoms of failing. I believe the cable must have gone at any rate; however, since it went in my watch and since I might have secured the tubing more strongly, I feel rather sad. . . .

'June 28.

'Since I could not go to Annie I took down Shakespeare, and by the time I had finished ANTONY AND CLEOPATRA, read the second half of TROILUS and got some way in CORIOLANUS, I felt it was childish to regret the accident had happened in my watch, and moreover I felt myself not much to blame in the tubing matter - it had been torn down, it had not fallen down; so I went to bed, and slept without fretting, and woke this morning in the same good mood - for which thank you and our friend Shakespeare. I am happy to say Mr.

Liddell said the loss of the cable did not much matter; though this would have been no consolation had I felt myself to blame. - This morning we have grappled for and found another length of small cable which Mr. - dropped in 100 fathoms of water. If this also gets full of kinks, we shall probably have to cut it after 10 miles or so, or more probably still it will part of its own free will or weight.

'10 P.M. - This second length of three-wire cable soon got into the same condition as its fellow - i.e. came up twenty kinks an hour - and after seven miles were in, parted on the pulley over the bows at one of the said kinks; during my watch again, but this time no earthly power could have saved it. I had taken all manner of precautions to prevent the end doing any damage when the smash came, for come I knew it must. We now return to the six-wire cable. As I sat watching the cable to-night, large phosphorescent globes kept rolling from it and fading in the black water.

'29th.

'To-day we returned to the buoy we had left at the end of the six-wire cable, and after much trouble from a series of tangles, got a fair start at noon. You will easily believe a tangle of iron rope inch and a half diameter is not easy to unravel, especially with a ton or so hanging to the ends. It is now eight o'clock and we have about six and a half miles safe: it becomes very exciting,

however, for the kinks are coming fast and furious.

'July 2.

'Twenty-eight miles safe in the hold. The ship is now so deep, that the men are to be turned out of their aft hold, and the remainder coiled there; so the good ELBA'S nose need not burrow too far into the waves. There can only be about 10 or 12 miles more, but these weigh 80 or 100 tons.

'July 5.

'Our first mate was much hurt in securing a buoy on the evening of the 2nd. As interpreter [with the Italians] I am useful in all these cases; but for no fortune would I be a doctor to witness these scenes continually. Pain is a terrible thing. - Our work is done: the whole of the six-wire cable has been recovered; only a small part of the three-wire, but that wire was bad and, owing to its twisted state, the value small. We may therefore be said to have been very successful.'

II.

I have given this cruise nearly in full. From the notes, unhappily imperfect, of two others, I will take only specimens; for in all there are features of similarity and it is possible to have too much even of submarine telegraphy and the romance of engineering. And first from the cruise of 1859 in the Greek Islands and to Alexandria, take a few traits, incidents and pictures.

'May 10, 1859.

'We had a fair wind and we did very well, seeing a little bit of Cerig or Cythera, and lots of turtle-doves wandering about over the sea and perching, tired and timid, in the rigging of our little craft. Then Falconera, Antimilo, and Milo, topped with huge white clouds, barren, deserted, rising bold and mysterious from the blue, chafing sea; - Argentiera, Siphano, Scapho, Paros, Antiparos, and late at night Syra itself. ADAM BEDE in one hand, a sketch-book in the other, lying on rugs under an awning, I enjoyed a very pleasant day.

'May 14.

'Syra is semi-eastern. The pavement, huge shapeless blocks sloping to a central gutter; from this bare two-storied houses, sometimes

plaster many coloured, sometimes rough-hewn marble, rise, dirty and ill-finished to straight, plain, flat roofs; shops guiltless of windows, with signs in Greek letters; dogs, Greeks in blue, baggy, Zouave breeches and a fez, a few narghilehs and a sprinkling of the ordinary continental shopboys. - In the evening I tried one more walk in Syra with A-, but in vain endeavoured to amuse myself or to spend money; the first effort resulting in singing DOODAH to a passing Greek or two, the second in spending, no, in making A-spend, threepence on coffee for three.

'May 16.

'On coming on deck, I found we were at anchor in Canea bay, and saw one of the most lovely sights man could witness. Far on either hand stretch bold mountain capes, Spada and Maleka, tender in colour, bold in outline; rich sunny levels lie beneath them, framed by the azure sea. Right in front, a dark brown fortress girdles white mosques and minarets. Rich and green, our mountain capes here join to form a setting for the town, in whose dark walls - still darker - open a dozen high-arched caves in which the huge Venetian galleys used to lie in wait. High above all, higher and higher yet, up into the firmament, range after range of blue and snow-capped mountains. I was bewildered and amazed, having heard nothing of this great beauty. The town when entered is quite eastern. The streets are formed of open stalls under the first story, in which squat tailors, cooks, sherbet vendors and the like,

busy at their work or smoking narghilehs. Cloths stretched from house to house keep out the sun. Mules rattle through the crowd; curs yelp between your legs; negroes are as hideous and bright clothed as usual; grave Turks with long chibouques continue to march solemnly without breaking them; a little Arab in one dirty rag pokes fun at two splendid little Turks with brilliant fezzes; wiry mountaineers in dirty, full, white kilts, shouldering long guns and one hand on their pistols, stalk untamed past a dozen Turkish soldiers, who look sheepish and brutal in worn cloth jacket and cotton trousers. A headless, wingless lion of St. Mark still stands upon a gate, and has left the mark of his strong clutch. Of ancient times when Crete was Crete, not a trace remains; save perhaps in the full, well-cut nostril and firm tread of that mountaineer, and I suspect that even his sires were Albanians, mere outer barbarians.

'May 17.

I spent the day at the little station where the cable was landed, which has apparently been first a Venetian monastery and then a Turkish mosque. At any rate the big dome is very cool, and the little ones hold [our electric] batteries capitally. A handsome young Bashibazouk guards it, and a still handsomer mountaineer is the servant; so I draw them and the monastery and the hill, till I'm black in the face with heat and come on board to hear the Canea cable is still bad.

'May 23.

'We arrived in the morning at the east end of Candia, and had a glorious scramble over the mountains which seem built of adamant. Time has worn away the softer portions of the rock, only leaving sharp jagged edges of steel. Sea eagles soaring above our heads; old tanks, ruins, and desolation at our feet. The ancient Arsinoe stood here; a few blocks of marble with the cross attest the presence of Venetian Christians; but now - the desolation of desolations. Mr. Liddell and I separated from the rest, and when we had found a sure bay for the cable, had a tremendous lively scramble back to the boat. These are the bits of our life which I enjoy, which have some poetry, some grandeur in them.

'May 29 (?).

'Yesterday we ran round to the new harbour [of Alexandria], landed the shore end of the cable close to Cleopatra's bath, and made a very satisfactory start about one in the afternoon. We had scarcely gone 200 yards when I noticed that the cable ceased to run out, and I wondered why the ship had stopped. People ran aft to tell me not to put such a strain on the cable; I answered indignantly that there was no strain; and suddenly it broke on every one in the ship at once that we were aground. Here was a nice mess. A violent scirocco blew from the land; making one's

skin feel as if it belonged to some one else and didn't fit, making the horizon dim and yellow with fine sand, oppressing every sense and raising the thermometer 20 degrees in an hour, but making calm water round us which enabled the ship to lie for the time in safety. The wind might change at any moment, since the scirocco was only accidental; and at the first wave from seaward bump would go the poor ship, and there would [might] be an end of our voyage. The captain, without waiting to sound, began to make an effort to put the ship over what was supposed to be a sandbank; but by the time soundings were made, this was found to be impossible, and he had only been jamming the poor ELBA faster on a rock. Now every effort was made to get her astern, an anchor taken out, a rope brought to a winch I had for the cable, and the engines backed; but all in vain. A small Turkish Government steamer, which is to be our consort, came to our assistance, but of course very slowly, and much time was occupied before we could get a hawser to her. I could do no good after having made a chart of the soundings round the ship, and went at last on to the bridge to sketch the scene. But at that moment the strain from the winch and a jerk from the Turkish steamer got off the boat, after we had been some hours aground. The carpenter reported that she had made only two inches of water in one compartment; the cable was still uninjured astern, and our spirits rose; when, will you believe it? after going a short distance astern, the pilot ran us once more fast aground on what seemed to me nearly the same spot. The very same scene was gone through as on the first occasion, and dark came on whilst the

wind shifted, and we were still aground. Dinner was served up, but poor Mr. Liddell could eat very little; and bump, bump, grind, grind, went the ship fifteen or sixteen times as we sat at dinner. The slight sea, however, did enable us to bump off. This morning we appear not to have suffered in any way; but a sea is rolling in, which a few hours ago would have settled the poor old ELBA.

'June -.

'The Alexandria cable has again failed; after paying out two-thirds of the distance successfully, an unlucky touch in deep water snapped the line. Luckily the accident occurred in Mr. Liddell's watch. Though personally it may not really concern me, the accident weighs like a personal misfortune. Still I am glad I was present: a failure is probably more instructive than a success; and this experience may enable us to avoid misfortune in still greater undertakings.

'June -.

'We left Syra the morning after our arrival on Saturday the 4th. This we did (first) because we were in a hurry to do something and (second) because, coming from Alexandria, we had four days' quarantine to perform. We were all mustered along the side while the doctor counted us; the letters were popped into a little tin box and taken away to be smoked; the guardians put on board to see

that we held no communication with the shore - without them we should still have had four more days' quarantine; and with twelve Greek sailors besides, we started merrily enough picking up the Canea cable. . . . To our utter dismay, the yarn covering began to come up quite decayed, and the cable, which when laid should have borne half a ton, was now in danger of snapping with a tenth part of that strain. We went as slow as possible in fear of a break at every instant. My watch was from eight to twelve in the morning, and during that time we had barely secured three miles of cable. Once it broke inside the ship, but I seized hold of it in time - the weight being hardly anything - and the line for the nonce was saved. Regular nooses were then planted inboard with men to draw them taut, should the cable break inboard. A-, who should have relieved me, was unwell, so I had to continue my look-out; and about one o'clock the line again parted, but was again caught in the last noose, with about four inches to spare. Five minutes afterwards it again parted and was yet once more caught. Mr. Liddell (whom I had called) could stand this no longer; so we buoyed the line and ran into a bay in Siphano, waiting for calm weather, though I was by no means of opinion that the slight sea and wind had been the cause of our failures. - All next day (Monday) we lay off Siphano, amusing ourselves on shore with fowling pieces and navy revolvers. I need not say we killed nothing; and luckily we did not wound any of ourselves. A guardiano accompanied us, his functions being limited to preventing actual contact with the natives, for they might come as near and

talk as much as they pleased. These isles of Greece are sad, interesting places. They are not really barren all over, but they are quite destitute of verdure; and tufts of thyme, wild mastic or mint, though they sound well, are not nearly so pretty as grass. Many little churches, glittering white, dot the islands; most of them, I believe, abandoned during the whole year with the exception of one day sacred to their patron saint. The villages are mean, but the inhabitants do not look wretched and the men are good sailors. There is something in this Greek race yet; they will become a powerful Levantine nation in the course of time. - What a lovely moonlight evening that was! the barren island cutting the clear sky with fantastic outline, marble cliffs on either hand fairly gleaming over the calm sea. Next day, the wind still continuing, I proposed a boating excursion and decoyed A-, L-, and S- into accompanying me. We took the little gig, and sailed away merrily enough round a point to a beautiful white bay, flanked with two glistening little churches, fronted by beautiful distant islands; when suddenly, to my horror, I discovered the ELBA steaming full speed out from the island. Of course we steered after her; but the wind that instant ceased, and we were left in a dead calm. There was nothing for it but to unship the mast, get out the oars and pull. The ship was nearly certain to stop at the buoy; and I wanted to learn how to take an oar, so here was a chance with a vengeance! L- steered, and we three pulled - a broiling pull it was about half way across to Palikandro - still we did come in, pulling an uncommon good stroke, and I had learned to

hang on my oar. L- had pressed me to let him take my place; but though I was very tired at the end of the first quarter of an hour, and then every successive half hour, I would not give in. I nearly paid dear for my obstinacy, however; for in the evening I had alternate fits of shivering and burning.'

### III.

The next extracts, and I am sorry to say the last, are from Fleeming's letters of 1860, when he was back at Bona and Spartivento and for the first time at the head of an expedition. Unhappily these letters are not only the last, but the series is quite imperfect; and this is the more to be lamented as he had now begun to use a pen more skilfully, and in the following notes there is at times a touch of real distinction in the manner.

'Cagliari: October 5, 1860.

'All Tuesday I spent examining what was on board the ELBA, and trying to start the repairs of the Spartivento land line, which has been entirely neglected, and no wonder, for no one has been paid for three months, no, not even the poor guards who have to keep themselves, their horses and their families, on their pay.

Wednesday morning, I started for Spartivento and got there in time to try a good many experiments. Spartivento looks more wild and savage than ever, but is not without a strange deadly beauty: the hills covered with bushes of a metallic green with coppery patches of soil in between; the valleys filled with dry salt mud and a little stagnant water; where that very morning the deer had drunk, where herons, curlews, and other fowl abound, and where, alas! malaria is breeding with this rain. (No fear for those who do not

sleep on shore.) A little iron hut had been placed there since 1858; but the windows had been carried off, the door broken down, the roof pierced all over. In it, we sat to make experiments; and how it recalled Birkenhead! There was Thomson, there was my testing board, the strings of gutta-percha; Harry P- even, battering with the batteries; but where was my darling Annie? Whilst I sat feet in sand, with Harry alone inside the hut -mats, coats, and wood to darken the window - the others visited the murderous old friar, who is of the order of Scaloppi, and for whom I brought a letter from his superior, ordering him to pay us attention; but he was away from home, gone to Cagliari in a boat with the produce of the farm belonging to his convent. Then they visited the tower of Chia, but could not get in because the door is thirty feet off the ground; so they came back and pitched a magnificent tent which I brought from the BAHIANA a long time ago - and where they will live (if I mistake not) in preference to the friar's, or the owl- and bat-haunted tower. MM. T- and S- will be left there: T-, an intelligent, hard-working Frenchman, with whom I am well pleased; he can speak English and Italian well, and has been two years at Genoa. S- is a French German with a face like an ancient Gaul, who has been sergeant-major in the French line and who is, I see, a great, big, muscular FAINEANT. We left the tent pitched and some stores in charge of a guide, and ran back to Cagliari.

'Certainly, being at the head of things is pleasanter than being

subordinate. We all agree very well; and I have made the testing office into a kind of private room where I can come and write to you undisturbed, surrounded by my dear, bright brass things which all of them remind me of our nights at Birkenhead. Then I can work here, too, and try lots of experiments; you know how I like that! and now and then I read - Shakespeare principally. Thank you so much for making me bring him: I think I must get a pocket edition of Hamlet and Henry the Fifth, so as never to be without them.

'Cagliari: October 7.

'[The town was full?] . . . of red-shirted English Garibaldini. A very fine looking set of fellows they are, too: the officers rather raffish, but with medals Crimean and Indian; the men a very sturdy set, with many lads of good birth I should say. They still wait their consort the Emperor and will, I fear, be too late to do anything. I meant to have called on them, but they are all gone into barracks some way from the town, and I have been much too busy to go far.

'The view from the ramparts was very strange and beautiful. Cagliari rises on a very steep rock, at the mouth of a wide plain circled by large hills and three-quarters filled with lagoons; it looks, therefore, like an old island citadel. Large heaps of salt mark the border between the sea and the lagoons; thousands of flamingoes whiten the centre of the huge shallow marsh; hawks hover

and scream among the trees under the high mouldering battlements. -  
A little lower down, the band played. Men and ladies bowed and  
pranced, the costumes posed, church bells tinkled, processions  
processed, the sun set behind thick clouds capping the hills; I  
pondered on you and enjoyed it all.

'Decidedly I prefer being master to being man: boats at all hours,  
stewards flying for marmalade, captain enquiring when ship is to  
sail, clerks to copy my writing, the boat to steer when we go out -  
I have run her nose on several times; decidedly, I begin to feel  
quite a little king. Confound the cable, though! I shall never be  
able to repair it.

'Bona: October 14.

'We left Cagliari at 4.30 on the 9th and soon got to Spartivento.  
I repeated some of my experiments, but found Thomson, who was to  
have been my grand stand-by, would not work on that day in the  
wretched little hut. Even if the windows and door had been put in,  
the wind which was very high made the lamp flicker about and blew  
it out; so I sent on board and got old sails, and fairly wrapped  
the hut up in them; and then we were as snug as could be, and I  
left the hut in glorious condition with a nice little stove in it.  
The tent which should have been forthcoming from the cure's for the  
guards, had gone to Cagliari; but I found another, [a] green,  
Turkish tent, in the ELBA and soon had him up. The square tent

left on the last occasion was standing all right and tight in spite of wind and rain. We landed provisions, two beds, plates, knives, forks, candles, cooking utensils, and were ready for a start at 6 P.M.; but the wind meanwhile had come on to blow at such a rate that I thought better of it, and we stopped. T- and S- slept ashore, however, to see how they liked it, at least they tried to sleep, for S- the ancient sergeant-major had a toothache, and T- thought the tent was coming down every minute. Next morning they could only complain of sand and a leaky coffee-pot, so I leave them with a good conscience. The little encampment looked quite picturesque: the green round tent, the square white tent and the hut all wrapped up in sails, on a sand hill, looking on the sea and masking those confounded marshes at the back. One would have thought the Cagliarians were in a conspiracy to frighten the two poor fellows, who (I believe) will be safe enough if they do not go into the marshes after nightfall. S- brought a little dog to amuse them, such a jolly, ugly little cur without a tail, but full of fun; he will be better than quinine.

'The wind drove a barque, which had anchored near us for shelter, out to sea. We started, however, at 2 P.M., and had a quick passage but a very rough one, getting to Bona by daylight [on the 11th]. Such a place as this is for getting anything done! The health boat went away from us at 7.30 with W- on board; and we heard nothing of them till 9.30, when W- came back with two fat Frenchmen who are to look on on the part of the Government. They

are exactly alike: only one has four bands and the other three round his cap, and so I know them. Then I sent a boat round to Fort Genois [Fort Genova of 1858], where the cable is landed, with all sorts of things and directions, whilst I went ashore to see about coals and a room at the fort. We hunted people in the little square in their shops and offices, but only found them in cafes. One amiable gentleman wasn't up at 9.30, was out at 10, and as soon as he came back the servant said he would go to bed and not get up till 3: he came, however, to find us at a cafe, and said that, on the contrary, two days in the week he did not do so! Then my two fat friends must have their breakfast after their "something" at a cafe; and all the shops shut from 10 to 2; and the post does not open till 12; and there was a road to Fort Genois, only a bridge had been carried away, &c. At last I got off, and we rowed round to Fort Genois, where my men had put up a capital gipsy tent with sails, and there was my big board and Thomson's number 5 in great glory. I soon came to the conclusion there was a break. Two of my faithful Cagliarians slept all night in the little tent, to guard it and my precious instruments; and the sea, which was rather rough, silenced my Frenchmen.

'Next day I went on with my experiments, whilst a boat grappled for the cable a little way from shore and buoyed it where the ELBA could get hold. I brought all back to the ELBA, tried my machinery and was all ready for a start next morning. But the wretched coal had not come yet; Government permission from Algiers to be got;

lighters, men, baskets, and I know not what forms to be got or got through - and everybody asleep! Coals or no coals, I was determined to start next morning; and start we did at four in the morning, picked up the buoy with our deck engine, popped the cable across a boat, tested the wires to make sure the fault was not behind us, and started picking up at 11. Everything worked admirably, and about 2 P.M., in came the fault. There is no doubt the cable was broken by coral fishers; twice they have had it up to their own knowledge.

'Many men have been ashore to-day and have come back tipsy, and the whole ship is in a state of quarrel from top to bottom, and they will gossip just within my hearing. And we have had, moreover, three French gentlemen and a French lady to dinner, and I had to act host and try to manage the mixtures to their taste. The good-natured little Frenchwoman was most amusing; when I asked her if she would have some apple tart - "MON DIEU," with heroic resignation, "JE VEUX BIEN"; or a little PLOMBODDING - "MAIS CE QUE VOUS VOUDREZ, MONSIEUR!"

'S. S. ELBA, somewhere not far from Bona: Oct. 19.

'Yesterday [after three previous days of useless grappling] was destined to be very eventful. We began dredging at daybreak and hooked at once every time in rocks; but by capital luck, just as we were deciding it was no use to continue in that place, we hooked

the cable: up it came, was tested, and lo! another complete break, a quarter of a mile off. I was amazed at my own tranquillity under these disappointments, but I was not really half so fussy as about getting a cab. Well, there was nothing for it but grappling again, and, as you may imagine, we were getting about six miles from shore. But the water did not deepen rapidly; we seemed to be on the crest of a kind of submarine mountain in prolongation of Cape de Gonde, and pretty havoc we must have made with the crags. What rocks we did hook! No sooner was the grapnel down than the ship was anchored; and then came such a business: ship's engines going, deck engine thundering, belt slipping, fear of breaking ropes: actually breaking grapnels. It was always an hour or more before we could get the grapnel down again. At last we had to give up the place, though we knew we were close to the cable, and go further to sea in much deeper water; to my great fear, as I knew the cable was much eaten away and would stand but little strain. Well, we hooked the cable first dredge this time, and pulled it slowly and gently to the top, with much trepidation. Was it the cable? was there any weight on? it was evidently too small. Imagine my dismay when the cable did come up, but hanging loosely, thus instead of taut, thus showing certain signs of a break close by. For a moment I felt provoked, as I thought, "Here we are in deep water, and the cable will not stand lifting!" I tested at once, and by the very first wire found it had broken towards shore and was good towards sea. This was of course very pleasant; but from that time to this, though the wires test very well, not a signal has come from

Spartivento. I got the cable into a boat, and a gutta-percha line from the ship to the boat, and we signalled away at a great rate - but no signs of life. The tests, however, make me pretty sure one wire at least is good; so I determined to lay down cable from where we were to the shore, and go to Spartivento to see what had happened there. I fear my men are ill. The night was lovely, perfectly calm; so we lay close to the boat and signals were continually sent, but with no result. This morning I laid the cable down to Fort Genois in style; and now we are picking up odds and ends of cable between the different breaks, and getting our buoys on board, &c. To-morrow I expect to leave for Spartivento.'

#### IV.

And now I am quite at an end of journal keeping; diaries and diary letters being things of youth which Fleeming had at length outgrown. But one or two more fragments from his correspondence may be taken, and first this brief sketch of the laying of the Norderney cable; mainly interesting as showing under what defects of strength and in what extremities of pain, this cheerful man must at times continue to go about his work.

'I slept on board 29th September having arranged everything to start by daybreak from where we lay in the roads: but at daybreak a heavy mist hung over us so that nothing of land or water could be seen. At midday it lifted suddenly and away we went with perfect weather, but could not find the buoys Forde left, that evening. I saw the captain was not strong in navigation, and took matters next day much more into my own hands and before nine o'clock found the buoys; (the weather had been so fine we had anchored in the open sea near Texel). It took us till the evening to reach the buoys, get the cable on board, test the first half, speak to Lowestoft, make the splice, and start. H- had not finished his work at Norderney, so I was alone on board for Reuter. Moreover the buoys to guide us in our course were not placed, and the captain had very vague ideas about keeping his course; so I had to do a good deal, and only lay down as I was for two hours in the night. I managed

to run the course perfectly. Everything went well, and we found Norderney just where we wanted it next afternoon, and if the shore end had been laid, could have finished there and then, October 1st. But when we got to Norderney, we found the CAROLINE with shore end lying apparently aground, and could not understand her signals; so we had to anchor suddenly and I went off in a small boat with the captain to the CAROLINE. It was cold by this time, and my arm was rather stiff and I was tired; I hauled myself up on board the CAROLINE by a rope and found H- and two men on board. All the rest were trying to get the shore end on shore, but had failed and apparently had stuck on shore, and the waves were getting up. We had anchored in the right place and next morning we hoped the shore end would be laid, so we had only to go back. It was of course still colder and quite night. I went to bed and hoped to sleep, but, alas, the rheumatism got into the joints and caused me terrible pain so that I could not sleep. I bore it as long as I could in order to disturb no one, for all were tired; but at last I could bear it no longer and managed to wake the steward and got a mustard poultice which took the pain from the shoulder; but then the elbow got very bad, and I had to call the second steward and get a second poultice, and then it was daylight, and I felt very ill and feverish. The sea was now rather rough - too rough rather for small boats, but luckily a sort of thing called a scoot came out, and we got on board her with some trouble, and got on shore after a good tossing about which made us all sea-sick. The cable sent from the CAROLINE was just 60 yards too short and did not

reach the shore, so although the CAROLINE did make the splice late that night, we could neither test nor speak. Reuter was at Norderney, and I had to do the best I could, which was not much, and went to bed early; I thought I should never sleep again, but in sheer desperation got up in the middle of the night and gulped a lot of raw whiskey and slept at last. But not long. A Mr. F-washed my face and hands and dressed me: and we hauled the cable out of the sea, and got it joined to the telegraph station, and on October 3rd telegraphed to Lowestoft first and then to London. Miss Clara Volkman, a niece of Mr. Reuter's, sent the first message to Mrs. Reuter, who was waiting (Varley used Miss Clara's hand as a kind of key), and I sent one of the first messages to Odden. I thought a message addressed to him would not frighten you, and that he would enjoy a message through Papa's cable. I hope he did. They were all very merry, but I had been so lowered by pain that I could not enjoy myself in spite of the success.'

V.

Of the 1869 cruise in the GREAT EASTERN, I give what I am able; only sorry it is no more, for the sake of the ship itself, already almost a legend even to the generation that saw it launched.

'JUNE 17, 1869. - Here are the names of our staff in whom I expect you to be interested, as future GREAT EASTERN stories may be full of them: Theophilus Smith, a man of Latimer Clark's; Leslie C. Hill, my prizeman at University College; Lord Sackville Cecil; King, one of the Thomsonian Kings; Laws, goes for Willoughby Smith, who will also be on board; Varley, Clark, and Sir James Anderson make up the sum of all you know anything of. A Captain Halpin commands the big ship. There are four smaller vessels. The WM. CORY, which laid the Norderney cable, has already gone to St. Pierre to lay the shore ends. The HAWK and CHILTERN have gone to Brest to lay shore ends. The HAWK and SCANDERIA go with us across the Atlantic and we shall at St. Pierre be transhipped into one or the other.

'JUNE 18. SOMEWHERE IN LONDON. - The shore end is laid, as you may have seen, and we are all under pressing orders to march, so we start from London to-night at 5.10.

'June 20. OFF USHANT. - I am getting quite fond of the big ship.

Yesterday morning in the quiet sunlight, she turned so slowly and lazily in the great harbour at Portland, and bye and bye slipped out past the long pier with so little stir, that I could hardly believe we were really off. No men drunk, no women crying, no singing or swearing, no confusion or bustle on deck - nobody apparently aware that they had anything to do. The look of the thing was that the ship had been spoken to civilly and had kindly undertaken to do everything that was necessary without any further interference. I have a nice cabin with plenty of room for my legs in my berth and have slept two nights like a top. Then we have the ladies' cabin set apart as an engineer's office, and I think this decidedly the nicest place in the ship: 35 ft. x 20 ft. broad - four tables, three great mirrors, plenty of air and no heat from the funnels which spoil the great dining-room. I saw a whole library of books on the walls when here last, and this made me less anxious to provide light literature; but alas, to-day I find that they are every one bibles or prayer-books. Now one cannot read many hundred bibles. . . . As for the motion of the ship it is not very much, but 'twill suffice. Thomson shook hands and wished me well. I DO like Thomson. . . . Tell Austin that the GREAT EASTERN has six masts and four funnels. When I get back I will make a little model of her for all the chicks and pay out cotton reels. . . . Here we are at 4.20 at Brest. We leave probably to-morrow morning.

'JULY 12. GREAT EASTERN. - Here as I write we run our last course

for the buoy at the St. Pierre shore end. It blows and lightens, and our good ship rolls, and buoys are hard to find; but we must soon now finish our work, and then this letter will start for home. . . . Yesterday we were mournfully groping our way through the wet grey fog, not at all sure where we were, with one consort lost and the other faintly answering the roar of our great whistle through the mist. As to the ship which was to meet us, and pioneer us up the deep channel, we did not know if we should come within twenty miles of her; when suddenly up went the fog, out came the sun, and there, straight ahead, was the WM. CORY, our pioneer, and a little dancing boat, the GULNARE, sending signals of welcome with many-coloured flags. Since then we have been steaming in a grand procession; but now at 2 A.M. the fog has fallen, and the great roaring whistle calls up the distant answering notes all around us. Shall we, or shall we not find the buoy?

'JULY 13. - All yesterday we lay in the damp dripping fog, with whistles all round and guns firing so that we might not bump up against one another. This little delay has let us get our reports into tolerable order. We are now at 7 o'clock getting the cable end again, with the main cable buoy close to us.'

A TELEGRAM OF JULY 20: 'I have received your four welcome letters. The Americans are charming people.'

## VI.

And here to make an end are a few random bits about the cruise to Pernambuco:-

'PLYMOUTH, JUNE 21, 1873. - I have been down to the sea-shore and smelt the salt sea and like it; and I have seen the HOOPER pointing her great bow sea-ward, while light smoke rises from her funnels telling that the fires are being lighted; and sorry as I am to be without you, something inside me answers to the call to be off and doing.

'LALLA ROOKH. PLYMOUTH, JUNE 22. - We have been a little cruise in the yacht over to the Eddystone lighthouse, and my sea-legs seem very well on. Strange how alike all these starts are - first on shore, steaming hot days with a smell of bone-dust and tar and salt water; then the little puffing, panting steam-launch that bustles out across a port with green woody sides, little yachts sliding about, men-of-war training-ships, and then a great big black hulk of a thing with a mass of smaller vessels sticking to it like parasites; and that is one's home being coaled. Then comes the Champagne lunch where everyone says all that is polite to everyone else, and then the uncertainty when to start. So far as we know NOW, we are to start to-morrow morning at daybreak; letters that come later are to be sent to Pernambuco by first mail. . . . My

father has sent me the heartiest sort of Jack Tar's cheer.

'S. S. HOOPER. OFF FUNCHAL, JUNE 29. - Here we are off Madeira at seven o'clock in the morning. Thomson has been sounding with his special toy ever since half-past three (1087 fathoms of water). I have been watching the day break, and long jagged islands start into being out of the dull night. We are still some miles from land; but the sea is calmer than Loch Eil often was, and the big HOOPER rests very contentedly after a pleasant voyage and favourable breezes. I have not been able to do any real work except the testing [of the cable], for though not sea-sick, I get a little giddy when I try to think on board. . . . The ducks have just had their daily souse and are quacking and gabbling in a mighty way outside the door of the captain's deck cabin where I write. The cocks are crowing, and new-laid eggs are said to be found in the coops. Four mild oxen have been untethered and allowed to walk along the broad iron decks - a whole drove of sheep seem quite content while licking big lumps of bay salt. Two exceedingly impertinent goats lead the cook a perfect life of misery. They steal round the galley and WILL nibble the carrots or turnips if his back is turned for one minute; and then he throws something at them and misses them; and they scuttle off laughing impudently, and flick one ear at him from a safe distance. This is the most impudent gesture I ever saw. Winking is nothing to it. The ear normally hangs down behind; the goat turns sideways to her enemy - by a little knowing cock of the head flicks one ear over

one eye, and squints from behind it for half a minute - tosses her head back, skips a pace or two further off, and repeats the manoeuvre. The cook is very fat and cannot run after that goat much.

'PERNAMBUCO, AUG. 1. - We landed here yesterday, all well and cable sound, after a good passage. . . . I am on familiar terms with cocoa-nuts, mangoes, and bread-fruit trees, but I think I like the negresses best of anything I have seen. In turbans and loose sea-green robes, with beautiful black-brown complexions and a stately carriage, they really are a satisfaction to my eye. The weather has been windy and rainy; the HOOPER has to lie about a mile from the town, in an open roadstead, with the whole swell of the Atlantic driving straight on shore. The little steam launch gives all who go in her a good ducking, as she bobs about on the big rollers; and my old gymnastic practice stands me in good stead on boarding and leaving her. We clamber down a rope ladder hanging from the high stern, and then taking a rope in one hand, swing into the launch at the moment when she can contrive to steam up under us - bobbing about like an apple thrown into a tub all the while. The President of the province and his suite tried to come off to a State luncheon on board on Sunday; but the launch being rather heavily laden, behaved worse than usual, and some green seas stove in the President's hat and made him wetter than he had probably ever been in his life; so after one or two rollers, he turned back; and indeed he was wise to do so, for I don't see how he could have

got on board. . . . Being fully convinced that the world will not continue to go round unless I pay it personal attention, I must run away to my work.'