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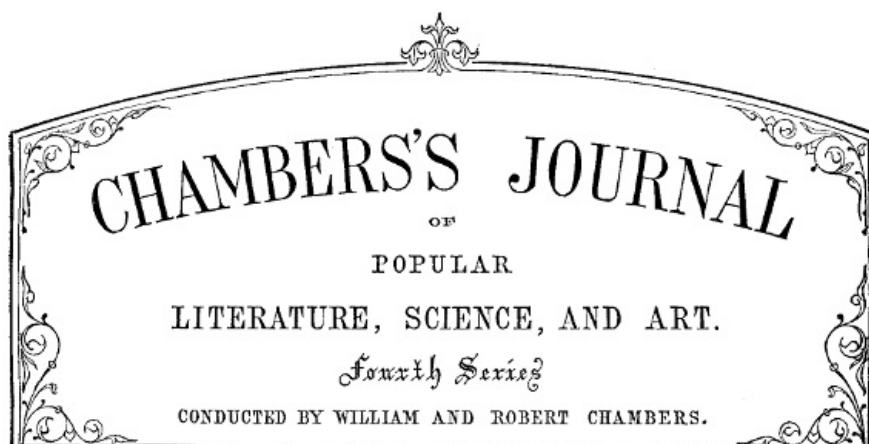
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**CHAMBERS'S JOURNAL
OF
POPULAR
LITERATURE, SCIENCE, AND ART.**

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'LIVES O' MEN.'

THE stranger who sails for the first time up the Firth of Forth must be struck with the numerous villages that stud its picturesque shores. These for the most part are fishing-villages, inhabited by a race of hardy men, who at times run fearful risks at sea. Though the morning may look settled, and the prospects of a good 'take' induce the boats to venture forth far out to sea, the afternoon may prove so boisterous that all hands are glad to beat a retreat, and leaving lines or nets to look after themselves, make for some harbour of refuge. Sometimes, as was prominently the case last year, the weather may come on so suddenly violent that the best appointed boats, handled by experienced men, run dreadful risks, and reach the sheltering haven only by a hair's-breadth. At times no skill can avail, and wives and mothers—and as we had occasion to shew in a recent article on the Hebrides, sweethearts—are left lamenting. It is unfortunate that many of the harbours on the Firth of Forth are dry or nearly so at low-water, so that a boat at sea *must* wait outside before the crew can venture in; for thus are doubtless lost many boats and their hapless crews that otherwise might 'make the run' and be out of danger. Unable to make harbour from want of water, there is no alternative but to lie off under close-reefed sail till the tide makes, or be dashed to splinters on a lee-shore. This will assist the reader of the following story in understanding the anxiety felt by those on shore for the boats at sea, even when the boats appeared in sight. Having braved the open sea in all its fury, the attempt to take the harbour at the ebb might have been disastrous to all.

With this preface we offer to our readers a description of such a scene as witnessed by one who has kindly placed it at our disposal. His story runs as follows:

'It's a sair, sair nicht, sir. God help them out on the sea!' With these words was I greeted as, through the darkness of that awful night of the 3d of August last, I groped my way to the harbour of the small fishing-village on the east coast of Scotland where I was then staying, being interested in the herring-fishing there.

On the evening of the night above mentioned a number of the boats had gone to sea, even though the weather (to say the least of it) looked threatening. The fishing up to this date had been a comparative failure; but signs of herring on the coast had been met with on the previous night; and with time wearing on, little doing, and a number of mouths to fill, the hardy weather-beaten fishermen were loath to lose a chance; so to sea they went, some few boats being providentially kept on shore.

The night, from being threatening, grew bad, with gathering clouds and rain, and gusts of wind from the sea. Wives kept up good fires against their husbands' return, as all expected the boats back. The *last* boat that went out *did* return, but no others; and the fishermen on shore were of opinion that with the wind they had had, the boats would be 'weel at sea an' sweer' (unwilling) 'to turn!'

Eleven o'clock comes, and the weather not much worse. Opinions are hazarded that it will 'maybe tak aff wi' the tide;' and I turn in and am soon asleep. Not to sleep long, however. One o'clock, and I am awakened with the howling wind, blast after blast, battering the rain against the windows, and rattling and banging windows and doors; and the noise of that dread continuous, seething, inexpressible *hus-sh* from the now storm-tossed angry sea. Out of bed at once, and into clothes and oilskins, then out into the night. Dark? Yes; black! Wind like to tear you off your legs, and rain blinding; but worst of all, that raging sea outside.

I struggle down to the harbour; and there, under the lee of an old boat, I find two or three fishermen, and am greeted with the words I commenced with. I could merely make out the indistinct forms of the men, but I knew the voice of the one who spoke. He was an old man now, past going to sea; but out there, somewhere in the darkness, were two sturdy young men, his sons, for whom he had worked in their childhood, and who now worked for him in his old age. Well might he pray: 'God help them out on the sea!' A month or two later than this, last year, his youngest, bonnie son was one of a crew of five drowned in that very sea, before his old father's eyes.

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During temporary lulls, we could hear that there were others about; and often a sad pent-up wail, choked with a sob, told of 'wives and mithers maist despairin'" wandering past through the darkness and rain.

The cold gray dawn comes at last, only to shew us a widespread army of fighting waves dashing wildly on to the shore, and making a clean breach over the protection breakwater of the little harbour; plainly shewing the impossibility of any of the boats taking *that* harbour, even should they make shoreward. The safety of the boats inside the very harbour even has to be looked after, for when the tide makes, the run will be likely to snap everything.

As the morning advances and no boats heave in sight, the question arises, Where will they be? Some say they will make this or that harbour farther north; while others say they will be riding out the storm at sea, 'hanging by'^[1] their nets. Already, by break of day, between twenty and thirty dripping half-clad women have started to walk along the coast to the next fishing-ports. They cannot wait here till the telegraph opens; and when it does open it finds plenty of work without them.

Some men have taken the road also, promising to telegraph back, should they find any tidings of friends or neighbours. Those of us left here gather together at sheltered corners and peer out to sea and hazard an opinion now and then. The old man before spoken of tells how he was at sea

the night of the great loss twenty-nine years ago, but doubts if it was as bad a night as this has been. Another—even older-looking—tells how that night is as fresh in his memory as yesterday, for, as he said, he had then thought his last night on land or sea had come. He too is sure this has been a wilder night; but then he hopefully adds: 'Look at the boats they've got to work wi' noo!' Then with a sigh: 'But a' will no tell their tale o' this nicht.'

Morning grows into noon, and the rain has now settled down into a dark drizzle, occasionally clearing a little and allowing at times a better look-out to sea.

During one of these breaks a boat heaves in sight, evidently making straight for the harbour, under a small patch of sail, and labouring heavily in the trough of the sea. Instantly the village is in a commotion, for well do all know what will be the fate of that boat and crew should they get too far in-shore. The cries of the poor women are heart-rending as they rush hither and thither through cold and wet clasping their bewildered little bairnies to their breasts. Away there goes a stalwart young fellow with a tar-barrel on his shoulder, followed by others carrying wood and shavings; and in a few minutes a warning flame bursts from the hillside; up goes a white flag on the end of the pier, a signal of too much sea on for taking the harbour; and there also from a schooner inside the harbour waves the Union-jack half-mast high, with ensign reversed—a world-wide understood signal of danger. Soon also another fire blazes from another point higher up, from where it is considered it will be better seen by those in the boat; and the old boat-builder (from whose yard the barrel, chips, and shavings have been got) stands by with a flagon of oil, from which, from time to time, he pours a little over the fire, making it shoot forth a flashing, brighter flame.

Now all has been done that can at the moment be thought of, and it only remains to wait. The boat still seems to be making for the shore; and from that it is surmised that those on board of her are strange to this part of the coast. 'He's keepin' her awa.' 'Na; he's only jibing her end-on to the seas.' 'She's gaun aboot.' 'Na, na; the Lord hae mercy on them; he's gaun to try the harbour!' Such are a few of the exclamations from the anxious group round, or rather behind that danger-fire; and there also from the lips of a bonnie fisher lass about fifteen or sixteen I hear the earnest muttered prayer: 'The Lord be at the helm. O Lord, be at the helm!' Her father and three of her brothers went to sea last night in the same boat, and strange to say—though not known to her or any on shore at the time—that boat for whose guidance she prayed *was* her father's. Still the boat holds on—until again, and this time almost with a shout, it is announced that 'she's gaun aboot' (shifting her course). Yes, and this time it is right. She *is* about. There is a sigh of relief from all, and many a hearty 'Thank God.' Tongues seem loosened now, and criticisms are passed on how 'she's behavin',' and how 'he' (the steersman) 'works her.' All agree that those in the boat will make for a port about fifteen miles farther north, which it is thought will be possible to be entered with safety. At least all are relieved that for the present the boat seems out of danger.

The Telegraph Office immediately on its being opened, and ever since, has been completely besieged. What a picture, and how impossible to picture it! A little wayside railway office crushed full of dripping, crying women, with a sad-faced man here and there. Not a sound, except occasionally a smothered sob or whisper, and the tic-tic-tic of the instrument, meaning joy or grief perhaps to some of these poor women, all eagerly watching that lad, or rather boy, the only one there who understands that tic-tic-tic.

Then when news *does* come of this or that boat's safety, watch the brightening faces of those to whom it is good news; their long-drawn thankful sigh of relief, and their again saddening look as they think of others around them who have got no news yet. Quietly they pull their shawls over their heads and slip out, only to make room for others who have been standing outside in the rain waiting their turn.

But hollo! There goes the fire on the hill again. What does it mean? Another boat? No; but the same one is about. Again all is consternation and wonder, until the old boat-builder says quietly: 'He's weel acquaint. It's ane o' oor ain folk, an' he's gaun to dodge aboot expeck'n the wind to tak aff.' And he is right too; for the boat only comes near enough not to be *too* near, then 'bout ship and out again. After a time another boat heaves in sight, then another, until, by about five o'clock in the evening, there are eleven boats tossing about out there on that wild sea, in sight of home, waiting for the storm to abate and the sea go down. News has also come to hand of the safety of other six of the thirty boats that went out from here last night, so that there is still about half of them to be heard of yet, should those in the offing turn out to belong to the place.

Well, it did 'tak aff;' and by nine o'clock that night fourteen boats managed to get safely into the harbour, though with great difficulty and danger.

What a sight was that also! A well-manned salmon coble kept afloat in the fairway ready for an emergency, and at the same time giving confidence to those in the boats taking the harbour. The pier crowded with men, women, and children, anxiously, silently, watching each boat through the peril. Then the greetings and questionings of the tired, starving fishermen, whom the sea seems to have given up.

Still lots of the boats have yet to be heard of, and many a one wanders the whole night through, unable to rest in his anxiety for the missing ones. Next day, however, all are accounted for. All safe, except one boat with a crew of five, swamped out at sea, in that dreadful August storm, and all hands drowned; and it has proved a 'sair, sair nicht' for the poor old fisherman with whose words I began this sketch, for one of his stalwart sons was one of that crew of five, who leave four widows and thirteen 'faitherless bairns;' proving how appropriate it is in regard to the pursuit of the 'caller herrin' that

FOOTNOTES:

- [1] Herring boats frequently ride out a gale at sea by being made fast by stout ropes to the nets, which answer the purpose of an anchor. In this position the boat is said to be 'hanging by' the net.

A MORNING IN A LONDON HOSPITAL.

'If you will meet me at — Hospital at half-past ten on Monday morning, I shall be happy to shew you anything in my power.' So ran a note I received some little time since from a privileged visitor at one of the largest London hospitals. An hour's ride brought me to the gates of the institution, which is in the very heart of busy London, and yet, as far as noise goes, might be miles away from all its life and bustle. A little world by itself it stands, having its own laws and customs, its chiefs and subordinates, and certainly its own joys and sorrows. Crossing a stone yard and up a flight of steps, the first obstacle presented itself in the shape of an ever-watchful porter; but the name of my correspondent had a magical effect in quieting his fears. Friends of the patients are allowed to visit them on three days in the week at stated hours; but beyond this, without private interest, it is by no means easy to obtain admission to any hospital.

Passing through the porter's gate, I found myself in a stone hall, where my friend joined me; and opening a door at one end, she led me into the accident ward. Down each side of the long room were arranged beds at short intervals, each with its coverlet of blue check and curtains to match. Yet there was little monotony in the appearance of the whole, each bed taking different shapes according to the nature of its inmate's accident. Skilled hands know how to place sufferers in the position that causes least pain; and light frames are fixed over injured limbs to prevent contact with the bed-clothes. Each bed too has a chain suspended from the top, with a handle attached; by which simple contrivance patients are enabled to raise and in some measure help themselves much sooner than would otherwise be possible. Some of the worst 'cases' are too ill to notice us as we go round; but from the greater number we get something of a smile.

Our next step was to mount the stairs on the other side of the hall. We now came to a large male surgical ward, holding about fifty beds arranged as before described. Here the dressers or house-surgeons were beginning their duties. The first bed at which we paused was tenanted by a boy of twelve or fourteen years old, with a bright and not unhealthy looking face; but a terrible abscess had formed on the calf of the leg, so affecting the bone that a serious operation was necessary to prevent amputation. This had been performed a few days before our visit; but useful as chloroform is at the time of an operation, it by no means saves all the pain. The first dressing is much dreaded, and even in the case of which I write the poor boy's sufferings were very great; but he was a true Briton as to endurance. I did not know which to admire most, his bravery or the steady hand and eye of the surgeon, who did not shrink from inflicting necessary pain, whilst with bright words of encouragement he helped his poor patient to 'be a man.' The air of cheerfulness about the ward was surprising; round the fireplaces were groups of patients, just well enough to be up. Gaunt and ill they looked, but as ready as possible for a bit of fun. The Sister of the ward comes out of her cheery little room just as we turn to go away, so we stop for a few minutes' chat with her. She tells us that in addition to the services of Chaplain and Scripture-readers, each ward is visited once a week by ladies, who talk to the patients one by one, reading to them, and trying to shew sisterly sympathy with their sorrows. Sister says that the patients look forward to the visiting afternoon with great pleasure, and my friend remarks: 'No wonder; poor things! They must find it very dull lying here day after day and week after week.'

Sister breaks into a merry laugh, and utterly scouts the notion that her ward could be anything but bright and pleasant. 'You see,' she said, 'mine are surgical cases. It may be dull perhaps on the medical side; but here the patients are well as a rule, except in one particular thing.'

To our inexperienced minds 'one particular thing' seemed quite enough. Asking the same Sister whether she found it difficult to obtain permission from one of the authorities to do something she wished, she answered with an amused smile: 'I never have any difficulty in getting anything for anybody.' It certainly would be difficult to refuse anything to such a bonnie face and pleasant manner. One could not but be thankful that she and others like her shed their sunshine where there must of necessity be so much shadow.

In the next ward (female) we had a few words with a motherly night-nurse. She goes to bed after dinner (about 1 P.M.), and comes on duty again at nine in the evening; but turning night into day seems to agree capitally with her. Seeing several cots with tiny inmates, we ask her whether they give her much trouble: her prompt answer is: 'Not a bit; not half so much as some of the grown-ups.'

'And the medicine; have you difficulty with that?'

'Never; however nasty it is, they drink it up without a word.'

One case of a poor woman is both medical and surgical—a terrible string of maladies; but another nurse, in answer to the question, 'Can she recover?' answers heartily and with real interest: 'Indeed, we hope she will.' She certainly would not without great care and the best of nursing.

Near her is a cot, and my friend asks the four-year-old inmate what is the matter. A tiny voice pipes out in the very highest of high trebles: 'I'se here tawse I tarn't walt.' A dislocated thigh will prevent the poor baby from walking for several weeks. In the next cot is a girl of five, injured in the same way. 'Run over,' nurse tells us; and adds: 'Half of them are.'

A few more visits on the surgical side, and we come down-stairs again, and go through a door at the opposite end of the hall from the porter's lodge. The medical cases are in a block of buildings quite distinct from the surgical. The first ward we entered was chiefly occupied by consumptive patients. On opening the door, a most pitiful wail greeted us. Going up to the cot from whence it proceeded, we found a tiny child lying with its eyes fixed on the ceiling and giving utterance to the most heart-rending cries. The Sister, nurses, and patients were alike almost in despair about her. One nurse told us that little Jessie was eighteen months old, though not so big as some children of as many days. She had been brought to the hospital a week before, *starved*. Her limbs were so rigid that they could scarcely bend them. A patient told us that she nearly *bit through* the spoon when first fed. The doctor considered her much better; but she cried or rather wailed the whole night and all day, unless nursed or fed. Nurse had taken her into her own bed for three nights with little avail; and all the inmates of the ward were feeling worn out with worry and want of sleep. At a subsequent visit I found her still wailing, and tried the experiment of nursing her for some hours. She was perfectly good in my lap, and went to sleep. Flattering myself that I had done a good work in securing a quiet morning for the other patients, I put my lady down in her cot. She lay for just one minute, and then opened her eyes with a shriek that made me glad to bundle her up and quiet her at any cost. At my last visit I found that Sister had been obliged to send her away, after trying what having the mother in at night would do, and finding it of no use. One poor woman, very ill in the next bed, said to me: 'I do love little children, and I have a baby of my own, so I don't mind some crying; but it was dreadful to hear that child cry day and night, and no sleep for any of us.'

There seems to be no special ward set apart for children; but cots are sprinkled about in the female wards for those under the age of seven. As a rule, the patients like this, and the little ones get a good deal of notice and petting; but I am afraid no one regretted poor Jessie excepting a deaf and dumb boy in a cot near, who could not hear her cries, and delighted in clapping his hands at her. He was a handsome child of five, with a wonderfully bright smile, and very quick at catching the meaning of the slightest sign. At this first visit, his only amusement was to fold up the bed-clothes and throw them on the rod over his crib. His little tray had no toys on it; and notwithstanding his sunny face, one could not but fancy the days must have been very long and uninteresting. The last time I saw him he was rejoicing over some bright pictures, pointing out their beauties to his kind nurse, and making all sorts of inarticulate sounds of joy. One nurse had a rather quaint idea of the use of pictures. In answer to my question, 'Would No. 7 understand these?' she said: 'O yes; he'd know how to tear them up!'

After speaking to several of the patients, our attention was drawn to a woman, who looked so much a picture of health, that it needed quite an effort of faith to believe her when she said that, two or three weeks before, she had been so dangerously ill that she scarcely expected to leave the hospital alive; but under treatment she had improved so rapidly that she was hoping to go to a Convalescent Home in a few days. Several of the patients were well enough to be about. Whenever this is the case, they take what share they can in waiting on those too ill to help themselves. One or two are so ill that they cannot put a foot to the ground, need to be lifted in and out of bed and waited on like children. The Sister of this ward is most admirably suited to her post. She has the gift of governing, and nurses, as well as patients, are completely under her control. One of her duties is to go round the ward administering medicine to each patient (the medicine is kept on a shelf over the bed); and certainly the way they took it bore out the statement of the nurse spoken of at the first: however disagreeable, it was swallowed at once without the shadow of a grimace. Sister too presides over the distribution of the smaller articles of food, kept in little movable cupboards, of which there is one to each bed. The bread is baked in small tempting loaves, and brought into the ward in what looks like a clothes-basket. Two patients carry this up the middle, whilst Sister asks each in turn how much they feel equal to. The amount they then receive lasts them till the following morning. A stated allowance of butter is given in the same way. A bill of fare hangs over each bed; eggs and all other extras being only given under the doctor's orders. In addition to this diet-card, a form is suspended from the bed's head, filled in with the name, age, address, and disease of the patient, together with the names of his or her doctor and house-surgeon, also the date of admission.

Going up another flight of stairs, we entered a ward for what a nurse called 'difficult cases;' by which she meant diseases that require special attention, and that do not shew themselves so decidedly as to leave no doubt of their nature. The ward is large, holding about fifty beds; but evidently it was not built originally for an hospital. Several rooms seem to have been thrown into one by removing the doors; but the projections of the division walls remain and serve to break the monotony of appearance. Of the same size and build was the next we entered, which was privileged in possessing the society of two cats as pets. Here we found another baby of the same age as Jessie, and like her, *starved*; but here the likeness ended. This little creature seemed the darling of the ward; nurses and patients vied with each other as to who should nurse her, and all declared 'she never cries, and gets *so fat*.' Whilst talking about her we saw one of the saddest of hospital sights. On entering, we had noticed one bed with a curtain drawn round it. 'Very ill indeed,' was the explanation given. At the other end a bed stood surrounded by a screen. Standing with my back to the door, I suddenly saw a change come over the patients' faces. Turning quickly, I was surprised and shocked to see two men bearing on their shoulders a coffin. They had to walk the whole length of the ward to take away the body of a patient who had died

the night before in the screened bed. As the bearers walked past, it was painful indeed to see the strained gaze fixed by the patients on their sad burden. Even the children seemed to feel the possibility of their being the next to be so carried. It seems strange that this practice of not *immediately* removing the dead (to be confined apart from the wards) should be continued, especially at this particular hospital, where the comfort and cheerfulness of the inmates are so constantly kept in view.

There are pretty fern-stands scattered about in different parts of the building; suitable texts in neat frames hang over the beds; and the fireplaces give a specially pleasant look to the wards. Some of them are really handsome. Coloured tiles of nice design extend a foot or more beyond, and above the fire itself, so that even in summer-time the fireplace is a pretty spot, and in winter the reflection of flame in the china is most cheery. Then each ward has its couches and chairs. In one we noticed a comfortable crimson sofa, looking most tempting with its white crochet antimacassars. 'Sent just as it is, by a lady,' we are told. Near it were several American chairs with holland covers bound with crimson. The effect was really good; and in this respect the hospital contrasts well with those where no effort is made to enliven the inevitable gloom of so much suffering and sorrow. The Sisters dress in black, with white lace or muslin caps; and the amount of taste exhibited in their arrangement shews no indifference to personal appearance. The nurses are suitably dressed in uniform of print dress and plain cap. Both Sisters and nurses are, as a rule, sunny and kind, and nothing could exceed the courtesy with which I was received, nor the pleasant way in which information was volunteered. The house-doctor, who was spoken of most affectionately by the patients, gave me kind permission to come again and see what I had that day missed—the early morning work.

We were about leaving the hospital, when my friend exclaimed: 'You must see this ward.' So saying, she led me to a small building by itself in the garden, where the patients take exercise when convalescent. Certainly it was a pleasant spot. The sun shining in, made it seem the brightest of the wards. It is divided into two rooms, one for male, the other for female patients. The cases are chiefly bronchitis and similar acute diseases. It is presided over by a sweet-looking Sister. She has her little establishment all to herself including a separate room for any desperate case. She is an enthusiast at her vocation, and tells us she gets all the best cases. Asking for an explanation of 'best,' she says: 'My gentlemen' (students) 'are the most advanced, and so they pick out all the most interesting, I mean dangerous cases.'

On our way out, my friend shewed me the block of buildings set apart for the use of out-patients. Pointing to one room, she said: 'That is where they do any *little* thing—such as taking out a tooth.' I am afraid most of us are in the habit of looking upon that operation as anything but little; and to tell the truth, the patients we encountered coming up the steps seemed to share the popular notion, and did not look particularly joyful in their anticipations. So we left the hospital, feeling thankful that, though suffering and poverty must always be, so much is done to alleviate the sorrows of the suffering poor.

THE LAST OF THE HADDONS.

CHAPTER XVI.—MARIAN'S RISE IN LIFE.

IN the garden I found Mr Wentworth pacing one of the side-walks.

'How does she bear it?' he asked, advancing towards me.

'I do not fear for her—eventually. But it is very terrible.' Striking my hand upon the arm of a garden-seat, I angrily added: 'And he dares to call it love! Thank God, the more she sees of it the less she will believe in it!'

'He is trying to persuade her not to act upon that paper. I saw that was his intention.'

'But you were not so blind as to suppose he would succeed?' I retorted.

'No; I was not so blind as that.'

'He will only succeed in making her suffer more; though there may be some use in that. Her eyes may be opened to his selfishness and—and utter worthlessness, at last. Indeed, I am proud to say I never called that man my friend.'

'Sit down, Miss Haddon; you will want all your nerve presently,' he said gently. 'What should we do without you?'

I sat down, and gave way to a few tears.

'There; that's all right: done you good; hasn't it?'—in a relieved sort of tone; but looking as though he were not a little puzzled at my getting relief in that fashion. I could not help feeling that he regarded my tears indulgently—as less to be dreaded than fainting, but as curious, decidedly curious, *man* that he was!

The Fates were certainly against my impressing Robert Wentworth with the notion that I was above feminine weakness; he so naturally, and I now believe quite unconsciously, shewed a vein of satire upon such occasions. Yet I do not think that he intended to be satirical, when he appeared most so; it simply arose from contrast—his inability to comprehend certain forms of weakness, and his ludicrous gentleness towards it. But be the cause what it might, his gentleness

had now the good effect of putting me upon my mettle.

Seeing that I was beginning to recover my dignity, he went on more securely: 'She needs all the help you can give her. Poor Lilian! it is terribly hard for her to lose her lover as well as her name and fortune, Mary' (from this time I was never again 'Miss Haddon' to him). 'But if she can keep her faith in friendship, she will in time get over the loss of the rest.'

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Yes; she would lose her lover as well as her name and fortune. Robert Wentworth saw as clearly as I did that sooner or later what had happened would separate them. We saw them step from the window; and hastily bidding me good-bye, my companion was turning away.

'Please do not leave me just yet,' I pleaded.

'It is better I should go—for you all. The fewer witnesses of the humiliation the better. By-and-by—in a day or two;' and laying his hand for a moment on mine, as it rested passively on the seat, he walked quickly on down the path to go out by the door leading from the lower grounds.

As Lilian drew nearer, followed by Arthur Trafford, his lowering brows and angry eyes told me that the beginning of the end had already taken place. But she was not drooping now. She placed her hand in mine, and held it with a firm hold, which I thought intimated that she had not succumbed under pressure. Nay, she was growing stronger rather than weaker under it. But she left him to explain; and if I had hoped anything from Arthur Trafford, the way in which he spoke would have destroyed my hope.

'Miss—Farrar' (there was a sufficiently long pause between the words to bring the colour rushing to her cheeks) 'seems determined to take your advice, Miss Haddon. She means to recognise that marriage, cost what it may.'

There was something peculiarly offensive, and I saw that he meant it to be so, in imputing the 'advice,' as he termed it, to me. But this was not a time for me to retort, so I merely replied: 'You are angry, Mr Trafford.'

'Angry! Is it to be expected that I could stand quietly by and make no protest, while such a sacrifice was being made? I suppose you have persuaded Lilian to believe that the consequences to her are nothing to me; you have tried to make her believe that I do not love her.'

'I believe that you *do* love her, Mr Trafford,' I replied. It was not his love, but its quality, which I doubted. Looking steadily at him, I added: 'And now is the time to prove the worth of your love.'

'I can best do that by protecting her interests, Miss Haddon.' Turning pleadingly towards Lilian again, he added: 'If you would only promise me to delay making it known for a few days—for a day—while we talk it over, and—and take further advice. For Heaven's sake, do not do such a rash thing on the impulse of the moment, Lilian! Say you will think it over?'

'It needs no thinking,' she murmured.

'And my wishes are nothing to you?'

'I hoped—I believed—that you would help me to do what I am doing, Arthur,' she replied in a low broken voice.

'Is it possible that you can think that I should help you to sacrifice your mother's good name, and disobey your father's wishes, to gratify a sentimental and very doubtful feeling, such as this? It will not even be of any real benefit to the girl herself, who is already much better off than she had any right to expect, and happy enough as she is. I say nothing of the entire disregard of *my* wishes—the cruel injustice to me—after being so long led on to believe in your love for me.'

'Spare me!'

'How have you spared me?'

'I *cannot* act differently—I dare not!' she ejaculated, wringing her hands.

'Not though you cast away my love in doing it?'

She was silent; her clasped hands tightening painfully over each other, as she bowed her head in an agony of suffering, which his own nature was too shallow to understand.

I think that he once more imagined that he had found the way to influence her, and he impetuously went on: 'You cannot mean to cast me off. Dearest Lilian, I know that your love for me is true, and'—

'I *must* do what is right. O Arthur, it is so hard to bear, and I need help so much: for our love's sake, help me!' putting out her hands towards him with a last appeal.

'You call it right to bring shame upon your dead mother and to be untrue to me?'

'You are pitiless, Mr Trafford!' I put in, losing all patience. 'And you do not know Lilian, or you would see that you are adding to her suffering to no purpose; for you will not alter her determination: she will act according to her perception of what is right in the matter, suffer what she may.'

'Then let her take the consequences!' he exclaimed, losing all self-command, and without another word turning away and walking off in a towering passion; as I afterwards found, going through the house and straight down to the railway station.

Lilian clung sobbing to me a few moments: 'God help me! Pray for me, Mary!'

'You are helped, dear Lilian. Strength *has* been given to you, and the rest will come easier.'

'Yes; nothing can be very painful now'—wearily.

A servant came to tell us that tea was taken in, and that Mrs Tipper and Miss Reed were waiting for us.

'Have you quite decided to make it known at once, dear?'

'Yes; the sooner it is over the better.'

'Perhaps it is. Would you like to go to your room, and leave me to prepare them a little, dear Lilian?'

'Yes; I should be very glad—if you do not mind—if you think it is best, Mary.'

'I think it best for you to be present,' I replied, reflecting that it would at least be better for her than brooding over the miserable scene which had just been enacted. 'But if you do not feel equal to it, and would like me to act for you, I will of course do so.'

'I will come with you,' she quietly replied, putting her hand into mine.

I stopped for a moment to kiss the pure brow, then we went together to the morning-room.

'Excuse my sending, dears; but we thought that you had perhaps forgotten,' said the kind little lady. 'But where are the gentlemen? James said that Mr Wentworth had arrived.'

'They are gone,' I replied, trying to nerve myself for what was to come.

'Gone, dear?' Then she nervously added, taking note of Lilian's white face: 'Is there anything the matter? Is not Lilian well, Mary?' {199}

I placed Lilian on a couch, and took my seat beside her; then replied: 'She has had a very great' (I was going to say shock, but substituted) 'surprise. Something has occurred which will affect her whole future life.'

I saw that Marian's interest was awakened now.

'Affect her whole future life!' she slowly repeated. Then with a sudden unholy light in her eyes, she eagerly went on: 'You don't mean to say that there's been a quarrel, and that it's all broken off between Mr Trafford and her?'

'Be good enough to listen quietly,' I sternly replied. 'Lilian wishes me to tell you, and I will do so in as few words as possible. In looking over the contents of a cabinet which had belonged to her father, Lilian found a paper purporting to be an agreement, which, being signed in Scotland, constitutes a marriage between Mr Farrar—and your mother.'

'Ma!'

'And after ascertaining that it is genuine, for that kind of thing' (I could not help putting in the last little tag, though I might just as well have left it unsaid, so little did it trouble her), 'Lilian has decided to act upon it. She intends to recognise your mother's marriage, though it be at the sacrifice of everything she most cares for in the world.'

Mrs Tipper hurriedly rose from her seat, and crossed over to Lilian's side.

'Married to Ma!' ejaculated Marian, gazing at us with dilating eyes and parted lips. 'My gracious! And if Ma was his wife, I must be his daughter—his eldest daughter, and I've as good a right'—She paused, for the moment quite dazzled by the light which was breaking in upon her; then presently added, a little more doubtfully: 'But you forget; Ma died only fifteen years ago, and Lilian is over seventeen. How could he have two wives, unless'—

'It is Lilian's mother who was wronged,' I explained, feeling that the sooner it was all said the better, if I wished to spare Lilian as much as possible from hearing the other's comments.

'My goodness!' In her surprise and excitement, forgetting company manners and her usual fineladyism, as well as being entirely oblivious of Lilian's position and consequent feelings in the matter. 'Then that was what you meant when you questioned me so closely the other day about the exact time of Ma's death. You *were* sharp!'

Mrs Tipper had Lilian in her arms, murmuring tender love-speeches over her. Marian might go on as she pleased now.

It did please her to go on. 'To think of Ma being Mrs Farrar after all! I should like to hear what Mr Pratt will say to *that*, after talking about being able to tell a lady when he saw her! Mrs Farrar! And I'm the eldest daughter, and'— A new thought occurred to her, and she went on with raised colour: 'Why, if I'm the eldest daughter, the real Miss Farrar, and there was no will, everything must be mine!'

'Everything you most care for will most probably be yours.'

My words brought back the recollection of Arthur Trafford, and she eagerly whispered: 'Does he know, Miss Haddon? Will it make any difference to him, do you think?'

I turned away in disgust, and went towards Lilian.

'Come, Lilian; you need rest and quiet: come to your room, dear.—You will come with us—will you not, Mrs Tipper?'

'Certainly I will,' returned Mrs Tipper promptly, rising to accompany us: 'my place is with her.'

There was no necessity to apologise for leaving Marian alone. She was for the moment too entirely absorbed in the contemplation of the great change in her prospects to take any notice of

our proceedings. 'Miss Farrar!' I heard her repeating to herself, as she stood gazing out of the window at the Fairview terraces and gardens, whilst we made our way towards the door—'Miss FARRAR!'

Well, we were not entirely comfortless; we three could wonderfully help each other. Mrs Tipper had at once returned to her allegiance; and from thenceforth, I knew that Lilian would reign alone in her heart. Indeed I think it was some time before the dear little woman could forgive herself for being so disloyal to Lilian as to allow the other to reign with her, even for a time. Marian's reception of the news had shocked her a great deal more than it had shocked me, because she was less prepared to see the former as she really was.

We were sitting together, and were already I was thankful to find beginning to be able to face the worst and talk over the event with some degree of calmness, when Lydia the housemaid tapped at the door with a message from 'Miss Farrar.'

'If you please, ma'am, Miss Farrar wishes to know if you will come to tea, or if you would prefer its being sent up here?' said the girl, staring at us with all her eyes, astonishment depicted in every line of her face.

Truly Marian had lost no time in making the change in her fortune known. But that was, I suppose, to be expected. Obeying a sign from Lilian and her aunt, I bade Lydia bring us some tea there.

We none of us went down again that night, although two or three very gracious messages were sent up by 'Miss Farrar.' The repetition of the name, and the girl's whole manner very evidently shewed that she had been taken into Marian's confidence. I could see by her hesitating reply to a question of Lilian's, that she had been informed that her young mistress had no right to her father's name; and this made me at length decide to give Lydia the true version of the story for circulation. There was now no helping its getting about, and therefore I determined that Lilian's unhesitating justice should be made known. Following her out of the room, I rapidly gave Lydia an account of what had happened. It was not necessary to dwell upon Lilian's unswerving truth and justice. I just related the facts, and they spoke for themselves.

Lydia was astounded; too much so to pick and choose her words, or to assume a higher morality than she really felt.

'My! Give up all that, when she might so easily have kept it all! Oh, Miss Haddon, an angel straight down from heaven couldn't do more than that! It's almost *too* good, it really is' (regretfully), 'giving up this beautiful house, and thousands and thousands a year, when she might have just torn up that paper, and nobody ever been the wiser! One wouldn't mind if a bad person had to give it up; but it don't seem right for dear Miss Lilian to suffer—it really don't.'

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'Do not you think she is better able to endure suffering than a bad person would be, Lydia?'

'I suppose she is, Miss; I suppose that's religion; but— There; I can't bear to think of it! That Miss Reed, who isn't fit to hold a candle to her for goodness, leave alone laded ways, to be set up above over Miss Lilian! A pretty mistress *she* will make; though,' added Lydia, gradually awakening to the possibility of certain consequences accruing to herself, 'I shan't be here long to see it. I've let her see what I think of her, a good deal too plain for that; and for the matter of that, so has every one of us, though she's only got herself to thank for it.'

I had had my suspicions that Marian was not liked amongst the servants; indeed Becky had more than once given me a hint that the former was just as much disliked in the house as Lilian was beloved. The first thing the next morning, Becky shewed me something else.

'Why, what is the matter, Becky?' I inquired, when she entered the room, her swollen eyelids and red nose betokening recent and violent emotion, which I could not wholly attribute to her attachment to Lilian, and consequent sympathy with her suffering. Though Lilian was growing in Becky's favour, the growth was slow.

'Please, don't ask me, Miss'—lugubriously. Then, after a struggle against herself, she put down the jug of water she was carrying, and burst forth into a wail of sorrow.

'I must ask you, Becky, and of course you must tell me your trouble.'

'You've got to go,' she sobbed out. 'You're going to be sent away the very first! She told Lydia so this morning. But I'll go too; I told her so. You will let me go with you; won't you, Miss Haddon, dear? You've always been my real mistress in my heart; and it won't make scarce any difference to you, till we can get another place. I can live on as little as you can; and there's another quarter's wages nearly due.'

'Hush, Becky! Don't cry so, child!' I murmured, not a little touched, and trying to wipe her tears away. 'It is not so bad as you think—not for me. I should very much prefer leaving Fairview now, I assure you, indeed— What if I tell you a secret, Becky; something which no one else, not even Miss Lilian, knows, though I love her so much? I think I can do very well without taking another situation, and I mean to have you with me.'

'Do without!' she ejaculated, her thoughts, I think, reverting to my small success in 'doing without' at Mrs Sowler's. 'Don't try that again, for'—

'Listen a moment, Becky. In three or four months I am going to be married.'

'Married! Oh, Miss Haddon, dear!' she ejaculated, her mouth expanding and her whole face brightening. 'And may I guess who he is? I think I can.'

'Yes.'

'It's that gentleman, Mr Wentworth, who comes here so often, and looks at you so. Isn't it? Mr Saunders said he knew it would come. And I don't believe there's another gentleman in all the world as is so fit for you, that I don't; for I know a little about him too. I did not like to tell you before, but that time as'—

'Stop, stop, Becky!' I ejaculated, laughing outright. 'What in the world put such an idea into your head? Mr Wentworth indeed! Certainly not; *quite* a different kind of gentleman.'

'Oh!' said Becky, her face falling.

'But I do not wish it mentioned, Becky. I only tell you that you may have the pleasure of feeling that you and I need have no anxiety about the future; for of course you will be with me.'

There was only one little drawback to Becky's happiness now—the regret that Robert Wentworth was not to be my husband; and I thought his being so great a favourite of hers quite sufficiently accounted for her disappointment. I, in turn, was a little disappointed that the face I had shewn her in the locket was so difficult to connect with the idea of my happiness; though I told myself Philip must look much more manly now. But having set Becky's fears at rest, I was a great deal too anxious about Lilian's future to think much about my own.

FOSSIL MEN.

MEN of science in their eagerness to support a theory are apt to fall into mistakes. They reason honestly enough, but from too narrow a basis of facts. For example, the skeleton of a man is found imbedded in limestone. That man must have lived in the geological period, long before the commencement of human record. This theory looks well, but is not satisfactory. We do not know at what time the limestone, which was originally a loose substance, assumed the rocky form. There is a case in point.

At the western end of the geological galleries of the British Museum may be seen a human skeleton imbedded in a block of limestone brought from Guadeloupe. At first sight this would seem to be a silent but unimpeachable witness to the remote antiquity of our race. On investigation, however, the fossil man is found to be in this point of view a bearer of most unreliable testimony. All fossils are not necessarily very old, and this skeleton is comparatively a modern one. The limestone in which it is imbedded is a very rapidly formed deposit of corals and small shells bound together by a kind of natural calcareous cement. The remains are those of an Indian, whose death is placed by some authorities at as recent a period as two hundred years ago. The same rock often contains remains of unmistakably recent origin. In England a coin of Edward I. has been found imbedded in it; in France a cannon buried in this hard stone was quarried out of a deposit on the lower Rhone.

Another 'fossil man' was found at Denise in Auvergne. The bones were beneath the hardened lava stream of an extinct volcano, and it was alleged that the volcanoes of Auvergne had not been active since the Christian era, as Julius Cæsar had actually encamped among them. This view was put forward more than thirty years ago. Since then, a more careful investigation of local history has proved that there were serious volcanic disturbances in Auvergne as late as the fifth century; and further, it appears that the original position of the buried man is very doubtful, as there has been a landslip on the spot.

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In 1848 some human bones were found imbedded in the rocks on the shores of Lake Monroe in Florida. It was reported at the time that the rock was a coralline limestone; and on this basis Agassiz and Lyell assigned to the fossil men an age of at least ten thousand years. But the claim to this venerable antiquity was unfortunately exploded by a discovery which shewed that the evidence on which it rested was false. Pourtalès, the original discoverer, came forward to rectify the mistake. The rock in which the bones lay was not the old coralline limestone of Florida, but a recent fresh-water sandstone, which contains (besides the bones) large numbers of shells of precisely the same species as those still indigenous to the lake.

So far we have dealt only with errors resulting from imperfect information or too hastily drawn inferences. But there are cases in which, as we have said, an uneducated man has succeeded in deceiving a geologist in his own special line of study. The well-known jaw of Moulin Quignon is a case in point. Every one has heard of M. Boucher de Perthes' careful exploration of the gravels of the Somme Valley, which resulted in the discovery of thousands of flint implements, the handiwork of primitive man in Western Europe. But up to 1863 M. Boucher de Perthes had found no human remains in the gravel, though it had been predicted that such would be found; and he was naturally anxious to make the discovery. He had offered a reward for this purpose to the workmen of the different gravel-pits in the valley. Several attempts had been made to deceive him with false discoveries, but in every case his special knowledge had saved him from falling into a trap. At length he and many others with him were completely deceived by the cunning of a workman. In 1863 a quarryman at Moulin Quignon, near Abbeville, came to M. Boucher de Perthes with the news that he had laid bare a human bone in the gravel. He had left it undisturbed, in order that the professor might himself examine it *in situ*, and explore the surrounding deposit for further remains. M. de Perthes and some of his friends went to the spot. Half imbedded in the gravel—a bed of pebbles stained a dull red by the presence of iron in the deposit—they found a human jawbone with several teeth still in position, the whole stained like

the surrounding gravel. Close by was a flint hatchet.

As soon as the news of the discovery reached England, a number of English men of science visited Abbeville. To the doubts which they expressed as to the genuineness of the discovery, M. de Perthes replied that he had himself removed the jawbone from the undisturbed bed of gravel, and that the workmen who had uncovered it were men of irreproachable character. Two conferences of French and English geologists were held, one at Paris, the other at Abbeville; the bone and teeth were carefully examined; and though many were not fully satisfied, the general impression was that the discovery was a genuine one. M. de Quatrefages expressed his opinion that it might be regarded as 'the first human fossil ever discovered except in a cave.' But among the English geologists there were some who were not so easily convinced. One of the teeth was brought to London and subjected to microscopical examination; and it was shewn that there were no signs of mineral infiltration into its structure. The tooth was like one from a recent grave. The jawbone when sawn across at Paris had emitted the odour of fresh bone. It was pointed out that the edges of the flints found with it were quite sharp and fresh; there were no signs of rounding or rolling in an ancient river. The workmen were watched. It was discovered that they occasionally found means to introduce flint implements of modern manufacture into the gravel. It was observed too that the reddish deposit on the bone could easily be imparted to the surface of bones and flints by artificial means. Suspicion was thus aroused in many quarters, when Mr Busk opened a Celtic grave not far from Moulin Quignon, and there found the skeleton of a Gaulic warrior *minus the lower jawbone*. The famous jaw of Moulin Quignon was all that was needed to make the skeleton a perfect one. For most men this has settled the question of the non-authenticity of the discovery. But some still believe in it.

Another famous fossil is the 'Calaveras Skull,' alleged to have been found one hundred and fifty feet deep in the shaft of a gold mine at Angelos, in Calaveras County, California. The skull is said to have come from the gold-bearing gravel; and in the strata above are no less than five beds of lava and other volcanic rocks. Professor Whitney secured the skull for the Museum of the Californian Geological Survey; but he was not the actual discoverer, and there is a pretty general impression that he was 'hoaxed.' Dr Andrews of Chicago investigated the matter, and gives evidence that the skull was taken by two of the miners from a *cave* in the valley, and placed in the gravel where it was found with a view to hoax the officers of the Survey; and this would explain the fact that there are well-marked traces of stalagmite upon the skull. This 'discovery' it was that suggested to the Californian humorist Bret Harte the idea of his amusing *Address to a Fossil Skull*. Many of our readers are doubtless already familiar with it; they will pardon our quoting a few lines for those who are not. The poet's exordium is a solemn one:

Speak, O man less recent! fragmentary fossil!
Primal pioneer of pliocene formation,
Hid in lowest depths below the earliest stratum
Of volcanic tufa.

Older than the beasts, the oldest Palæotherium;
Older than the trees, the oldest Cryptogami;
Older than the hills, those infantile eruptions
Of earth's epidermis!

He begs the skull to tell its story: what was its epoch; did its former possessor behold 'the dim and watery woodland' of the carboniferous times; or did he live when 'cheerful pterodactyls' might have circled over his head. An answer was vouchsafed to him.

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Even as I gazed, a thrill of the maxilla,
And a lateral movement of the condyloid process,
With post-pliocene sounds of healthy mastication
Ground the teeth together;

And from that imperfect dental exhibition,
Stained with expressed juices of the weed Nicotian,
Came those hollow accents, blent with softer murmurs
Of expectoration:

'Which my name is Bowers! and my crust was busted
Falling down a shaft in Calaveras County;
But I'd take it kindly if you'd send the pieces
Home to old Missouri!'

The bone-caves have of course yielded numbers of ancient skulls—most of them, be it noted, very well developed, and many superior to savage skulls of the present day. The strangely deformed skull of the Neanderthal Valley (found near Düsseldorf) is thought by many to have been that of an idiot. It stands unique among ancient skulls. Even the famous skull of the Engis cavern near Liège, is said by Professor Huxley to have 'no mark of degradation about any part of its structure. It is in fact,' he continues, 'a fair average skull, which might have belonged to a philosopher, or might have contained the thoughtless brains of a savage.'

But we must stop here, or we shall drift into the controversy on primitive man—rather too wide a subject to enter upon here. Let us merely note that among all the remains that we possess of primitive man, we have no vestiges of that ape-man or man-ape which figures so prominently in

SUCH OLD FRIENDS.

A STORY.

CHAPTER I.—COUNTRY LIFE.

THE century was much younger, but it had passed its stormy infancy. Just as after a stormy night we take down the shutters and let in the light and rejoice in the calm of the dawn, so the country was beginning to breathe freely after the long years of agitation it had known. Peace was turning men's thoughts homewards, and there were even spirits daring enough to suggest that the very constitution of England itself needed patching up, or perhaps entirely renovating; scientific men were talking of the wonderful power of steam; but meantime ordinary mortals were content with the road, and were very proud of their 'High-flyers.' People were not so used to novelties then as we are now, and 'newfangled' was frequently the verdict on them, given with severity and even distrust. The far-spreading ocean of Time rubs off points and sharp corners, and leaves them smooth and rounded, and ready to fit in. But the eddies had scarcely yet stirred our far-off west county village. Once a week indeed, the Squire had a newspaper, which he lent to the Rector, who gave the benefit of it to some of his parishioners in his calls before passing it on to the doctor; and so news slowly circulated. It was such a quiet spot; the Parsonage and the Hall nestled lovingly together, with the Church like a link between; a small apology for a village was tucked close under the hill; and a few farms and homesteads scattered here and there completed the parish. But such a wealth of broad fair meadows and laden orchards lay around! The upland fields were bleaker and more stubborn, but the growth of purple heather covered many deficiencies, at least to the eye of the lover of beauty; and the all-bountiful Hand that planted the earth had crowned the ridges of hills with trees. Such trees, so grand and calm and stately in their growth! Winter had the hardest possible fight to rob them of their last robes; even November, whose sky is proverbially 'chill and drear'—November, whose 'leaf is red and sear,' found them in a perfect sunset glory, from gold to deepest purple.

'I do not believe there are any trees like ours,' exclaimed Dorothy Linley; and I think she ought to know, for she had lived with them all her life—not that it was a very long life either when our, or rather her story begins. She had scarcely seen a score of years; but things look bright and sharply defined seen through the clear atmosphere of youth. It was no wonder that she thought so on this afternoon as she stood at the open window, looking up the long avenue of pink-and-white horse-chestnuts, while the air was fragrant with the May from the tree on the lawn. It was not a mere afternoon tea, but the real meal that was laid in the Rectory drawing-room. In those days the article itself was costly but good, and they drank it out of tiny cups. Some had been handed down from a former generation and had no handles, others of more modern make had. Dorothy's mother was sitting at the table, surveying with a little pleased satisfaction its hospitable spread of country dainties prepared under her own eye, if not with her own hands. They were expecting a guest—Madam from the Hall. Mrs Linley's hands were never idle; the whole parish could bear witness to her 'notableness;' and her daughters were considered models of 'bringing up.'

'You would not have liked to live in the town where you were born, my dear,' she said in answer to Dorothy's exclamation; then suffering her work to drop into her lap, she looked beyond the slight figure at the window, away through the chestnuts, far back into the past. 'I thought as you do when first I walked up this avenue carrying you, an infant, in my arms. Your father and I had had a hard struggle—his means were so small as a curate, and he tried in vain to increase them by teaching—those were such terrible times; bread was almost at famine price; and I have sat with windows and doors bolted and barred, trembling to hear the people in the streets, for bread-riots were not uncommon. Everything was taxed, even the light that came in at the windows; so many of them were closed up, making the houses dark and gloomy. We could hardly believe it, when your father's cousin Kent Linley, whom he had not seen for years, wrote to say that the family "living" was vacant, and sooner than give it to a stranger, he offered it to him.'

'It must have been like a glimpse of Paradise, mother.'

'It was; for your father's health was giving way under the strain. He would have it that you, our first child, born just when our troubles were greatest, were the herald of the peace that was coming; and when he gave you his mother's name, he called you also Olive. You were the first he christened at the little church here, and "Dorothy Olive" the first name he wrote on the parish register.'

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'Was Madam at the Hall then?' asked her daughter.

'No; the Squire brought home his bride two years later, before your sister was born; and Mrs Melton used to come and see us very often. As you know, she gave Juliet her own name. We thought it rather fanciful, but could not refuse so kind a friend.' Mrs Linley looked up and smiled as the owner of it entered the room—a younger copy of herself, small, and with the same sweet tender eyes.

'Mother dear,' said the new-comer, seating herself beside her, 'do you know what it is my

godmother is coming to talk about this afternoon?

'No, my child: perhaps some parish matter.'

'Perhaps,' said Dorothy from the window, 'it may be the long-talked-of visit to London.'

'Oh, if it should!' cried Juliet, her face flushing with delight at the thought.

'Well, we shall not have long to wait,' answered their mother, laying down her work; 'for I hear the wheels coming up the avenue;' and the Squire's large roomy carriage, drawn by its two sleek well-fed horses, drawing up to the door, they all rose to receive their guest.

CHAPTER II.—VISITS.

And so it proved. Around the tea-table the purpose was unfolded; for the warm-hearted mistress of the Hall *had* come to ask to carry off her favourite. 'Mr Melton and I have been thinking lately,' she explained, 'that if we put it off much longer we shall not care to undertake such a journey; and we should like to take Juliet to see London: it is an old promise; and we like to have young folks about us.'

A slight sigh escaped the speaker, and it found an echo in the gentle hearts round her. They knew that easy and comfortable as her lot was, it did not lack its sad memories, and in three little graves in the churchyard on the side of the hill were buried the dearest hopes of the Squire and his wife.

Juliet took her godmother's hand and kissed it gratefully. 'How good you are to me!' she whispered. The hand was passed softly over the fair cheek, and then the broken thread of talk was taken up.

'We have another reason also. We think' (they were always one, the Squire and his wife) 'that we ought not to remain strangers to the next heir, who you know is my husband's great-nephew' (here the voice trembled slightly); 'so we have arranged to meet him in London, and hope to bring him back. We should like him to make acquaintance with the old Hall before going abroad, as he talks of doing.'

We will not follow the ladies in all the plans that were necessary to prepare for so great an event; female requirements were much the same then as now, only the journey was a more considerable undertaking, occupying several days, as they were to post. Presently they were joined by the Rector, who gave a pleased adherence to the whole scheme. 'But,' he added, looking fondly at his younger daughter, 'will this small head bear the weight of so much dissipation? She has never left the nest before.' The thought of the separation brought a cloud over Juliet's brow; but Madam said in her sweet way: 'Such birds will always wing their way back;' and the shadows beginning to lengthen, she rose to go. It was but a short walk across the fields, the houses being within sight of each other, and the Rector accompanied her back to the Hall.

Before the chestnut blossoms had faded, Dorothy found herself at home alone; but time did not hang heavily; more little services fell upon her, and there were little surprises to prepare, like small flints with which to strike light even out of a loved one's absence; and the parent hearts fearing she might be dull without her sister, devised many little pleasures. There were long rounds with her father, and kindly welcomes in many lowly homes; then came the sweet hay-time, and hospitable teas in comfortable farm-houses; two or three visits were even made to the nearest town, a two hours' drive, and there she found many who claimed and valued the Rector's friendship. She always looked back upon it as a time of peace. How often we are allowed to find an Elixir before resuming the weary desert march!

Letters then did not appear at the breakfast-table on the wings of the penny postage, but waited for the cover of a friendly frank; and the absence not being a long one, those from our travellers were few and far between. Juliet spoke of the great city and the sights she had seen; but the streets seemed dark and dull; people too did not seem so cheerful as at home; and the Squire and his friends in their talks often shook their heads and said: 'The times were so bad,' that it sometimes gave her a frightened feeling as they drove slowly home at night through the dark streets with flaring links. She liked best when they went a day in the fine Park at Bushy, and Stafford Melton had taken them upon the river. Yes; they had met the future heir of Melton Hall, and he was to return with them.

Swiftly the days flew by, till one evening the Squire's carriage waited at the Rectory gate to take them to meet the newly arrived travellers, and father, mother, and Dorothy gladly obeyed the summons.

In the joy of the sisters' meeting, Dorothy was scarcely conscious of the presence of a stranger, until she heard the Squire's voice addressing her father: 'Our newly found nephew, Stafford Melton; we want him to come and be at home among us; and as the Rectory and the Hall have always been such old friends, we trust he will follow suit.' The two gentlemen shook hands cordially; and then Dorothy in turn found herself face to face with the new guest: 'Another young friend—Miss Dorothy Olive Linley.' (The Squire, like the Vicar of Wakefield, loved a full sounding name.)

So they all sat down to supper in the old wainscoted parlour, Mr and Mrs Melton declaring there was no place like home. Dorothy found herself wondering a little at Juliet's merry flow of talk with the grave-looking stranger; but there was not time for reflection; indeed there was so much to hear and tell, that when the sisters were once more together in their own room, it was not until Juliet's pretty head sank on the pillow for very weariness that the eager strains ceased; they

died away in a last question: 'Dorothy, what do you think of Stafford Melton?'

'He has a good face,' replied Dorothy, musingly recalling it.

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'Yes; but you should see his friend, Gilbert Strange.'

CHAPTER III.—VISITORS.

It was not long before Stafford Melton became quite at home; his grave manner was only the indication of a thoughtful mind, and in nowise implied a want of cheerfulness. Cordial as his relations with his uncle became, it was at the Rectory he found the most sympathy. The Squire was a politician of the old school, with a wholesome dread of anything newfangled, while the young man had imbibed some of the rising spirit of the age. 'I,' Mr Linley was wont to say, 'am a man of peace, and to avoid storms, eschew politics;' but he lent a willing ear to all that was stirring men's minds—social questions, new inventions, and the wonders beginning to be worked by the marvellous power of steam. There was often another listener too; Dorothy followed these new tracks of thought, and it was in the light of a new experience, every day becoming deeper. She never asked herself what it might be that made her feel such gladness, only when Stafford spoke of his travels in prospect, her heart sank at the thought of what life would be like when he had gone.

September came, and then she saw Gilbert Strange, Stafford's close friend, whom the Squire had cordially invited to come and join their sport when the vacation should set him free, for he was a young barrister. Used to a life in town, he threw himself with almost boyish ardour into their country pursuits; and his high spirits and courteous ways soon endeared him to the little circle. He won the Squire's heart, and many a cover they shot over together, for often Stafford, who was no sportsman by choice, abandoned the gun for more peaceful rambles with the Rector and deep discussions on the new theories of Culture.

'You see, Mrs Linley,' said Gilbert, as he joined them one evening to find his truant friend, 'Fortune committed an error in casting our lots in life. Stafford ought to have worn my wig and gown; while I—can you not fancy the country Squire I should have made?'

Dorothy, who was sitting near, looked up from her work. 'Do you not think, Mr Strange,' she asked, 'that it is better to improve your acres than to shoot over them?'

'Miss Dorothy,' he said, in mock-appealing tones, 'I always remark that you are severe upon my follies, and the worst part is, your arguments are unanswerable. Stafford is happy in having so staunch a supporter.' It was a random shot, but Dorothy felt the colour rise to her face; and her mirthful adversary continued: 'I must retire from the field.—Miss Juliet, will you be more lenient, and accord me a shelter?' Juliet moved her seat to allow him to take one near, with a smile of welcome, but said nothing. I think Gilbert was beginning to read even her silences, and another heart too guessed their meaning.

Days flew by, but still the young men lingered. October was dying out with such a flush of glory, it seemed like the last kiss of Summer. 'Oh, must it ever change to winter?' sighed Dorothy as from their window she watched Juliet start on some kindly errand to a cottage near. Only a little while she stepped out of the every-day world into the ideal; her youth's golden dreams were passing away as swiftly as that autumn time. Presently, her sister was again in sight, but this time not alone. Oh, cruel picture set against the fair sky! what sharp instinct like a quivering stab made it so clear? The little downcast figure lifting its softened eyes in mute apology for the pain it gave, and Stafford's well-known form bending towards it with sad earnest pleading. They pause at length, and he crushing his hopes in a last grasp of the little hand, turned and walked quickly away. Dorothy's heart went out to him in pity and unknown sympathy—those two, so far apart, and yet both passing through their baptism of fire. She could not stand idle; she would go to meet her sister; there was nothing strange in that; they often did so to each other; and swiftly she hurried down the avenue into which Juliet had turned. She was met almost sharply.

'Why, Dorothy, why did you come? Do you not see it is raining?'

Yes, the sun had gone down, and a soft October shower was dropping on the dead leaves.

'I thought it would be dusk, dear, and you were alone.'

'Yes, at least now. But,' faltered Juliet, 'I met Stafford;' and with a sudden outburst, she almost sobbed: 'Why should he love me? He wanted me to be his wife!'

'And you could not?'

'I! O no—of course not.' Dorothy could not see the reason so plainly; but Juliet seemed to do so very conclusively. 'I am so sorry,' she went on. But her auditor cared to hear no more; she knew it now, and wanted only to take up her steely shield of womanly pride. 'Had we not better hasten in?' she said gently. Already the pretty frilled cape on her shoulders hung limp with the damp.

CHAPTER IV.—IN DESOLATION UNREPINING.

That evening Juliet was tired, and sat quietly working; but Dorothy read aloud and talked and went through the little home duties with the iron entering her soul. O true words! None others so fitly express the cold hard pressure of a hopeless pain. But such brave hearts do not go through the conflict unaided; and often a passing shelter is provided, into which they may creep till the worst is over.

The next day Dorothy's limbs ached, and her throat pained her. 'She must have taken a chill last evening,' Juliet said; and for several days she kept her room, waited on by loving hands. Even a mother's eyes cannot always discern how much is ailment of the body and how much of the mind. But Dorothy was almost thankful for the pain that laid her quietly by, when nothing was expected of her; the trial could be faced, the burden adjusted for every-day bearing, and she was spared even the sight of Stafford. She heard the horses' feet beneath her window when they came to take leave, and received their kindly messages. To Juliet she never again spoke of that autumn afternoon. Perhaps Gilbert guessed his friend's secret, and generously forbore to wound him further by the sight of his own success; or perhaps he read his fate so surely in Juliet's eyes that he felt secure in waiting. Certainly it was not until some months after, when Stafford was away in foreign lands, that he came to ask her to be his wife. It was not a long engagement. There being no obstacles, they were soon married, and he took her away to his London home. They sorely missed the bright young girl at the Rectory, and father and mother drew more closely to the one daughter left. Dorothy had passed into the bloom of womanhood before the blow came that broke the little circle; the kindly Rector was laid in the village churchyard, and then Mrs Linley and her daughter removed into the neighbouring town.

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As if to compensate for some things denied to Dorothy's lot in life, Fortune's gifts were cast into her lap. The same cousin who years before had bestowed the family living, dying childless, again benefited his far-away relatives; and when the dear old Squire was gathered to his fathers, he had not forgotten the children of his old friend. Thus spared the thorn of poverty herself, Dorothy lightened it to many another; and as time rolled on, was numbered in the ranks of those dear maiden ladies (what should we do without them?) in whose lives are hid many an unwritten story, and who make the sweetest aunties and such dear old friends.

And did Dorothy lose all sight of Stafford Melton? No; bear witness, years of kindly intercourse and loyal friendship. It has been said that the hopes of the past are the best seed-bed of the future—even crushed and broken ones bear their fruit.

When at length *he* became master of Melton Hall, and brought home his young bride, to whom should she, strong and proud in her husband's love, turn so warmly as to his old friends Dorothy and her mother; and when gentle Mrs Linley was laid beside her husband, the young mistress at the Hall grieved for her almost like a daughter.

Dorothy Linley and Stafford Melton lived, in their respective walks down the pathway of life, to see the ripening century roll its wealth of marvels at the feet of another generation, and rejoiced in the development of many of the theories of their youth; yet sometimes, as they looked on the old spots, they spoke of years gone by, for they were such old friends.

RABBITS IN NEW ZEALAND.

WE already have had some remarks on the disastrous increase of rabbits in South Australia; and now comes to us information from New Zealand, that describes the alarming spread of the creatures in that colony, into which they had been imprudently introduced about twenty years ago, under a fancied notion of doing good.

It appears, says our authority, that it is about twelve years since the rabbits began to attract attention by their numbers and the increasing extent of their ravages in the district of Southland. In the immediate neighbourhood of Invercargill, a tract of grass-land was first found to be colonised by a large number of these rodents; and settlers in more remote parts of the country came from time to time to trap a few of the animals, and carry them away to various localities in the interior. By this means new centres of reproduction were created; and with the idea of conferring a benefit upon their neighbourhood the colonists were unwittingly spreading and multiplying what has now proved a uniform pest. The rabbits themselves gradually moved onwards, in ever-increasing numbers, leaving what was once a country of rolling sward and valuable grass-land a complete desert. During the last two years the greatest impulse seems to have been given to their migration, and they may now be found in suitable localities swarming on the banks of rivers, in the sunny grassy uplands, and surmounting the highest ranges of hills.

It has been calculated that, from the number of times they breed, the number of their progeny, and the early age at which the young begin to reproduce their species, a pair of rabbits will multiply to the amount of a million and a quarter in the space of four years! When the exceptional advantages which they meet with in New Zealand are considered, in the absence of enemies, the sparse population of the country, and the abundance of food which they can obtain, it is not surprising that they have increased enormously.

The matter indeed is becoming one of very great danger to the welfare of the colony; so much so, that a special Commission has been appointed by the government to inquire into the subject. Without quoting an array of figures to prove the harm which has been wrought in a few short years, it may truly be said that large tracts of rich pasture-land have been converted into a veritable wilderness. The sheep-farmers and cattle-raisers find their occupation is becoming impossible. The yield of wool is falling off fifty and sixty per cent. in quantity, while its quality is deteriorating. The lack of food has caused many farmers who used to kill two thousand five hundred animals out of a stock of sixteen thousand, to reduce their stock to a few hundreds, hardly any of which are fit to be killed. The number of lambs in proportion to the ewes kept has fallen from sixty-five or seventy per cent. to in some cases twelve and a half per cent.

It must not be imagined that no efforts have been made to keep down the pests. Large numbers of men and dogs are employed specially for the purpose of shooting and trapping the rabbits. In one run, where scarcely a rabbit was to be seen three years ago, there are now sixteen men and one hundred and twenty dogs employed; costing the lessee twopence for each rabbit-skin brought in, and ten shillings per week for each man, besides the expense of keep and powder and shot. And the numbers killed are enormous. On this run, says the official Report, the average number of rabbits killed weekly is between four and five thousand; and though thirty-six thousand were killed in 1875, yet the report is that there is no appreciable decrease. On another run, close on sixteen thousand rabbits were killed during the first three months of the year 1876 at a cost of twopence a skin. On a third, the expense each week averages twenty-seven pounds; and fifty thousand rabbits were killed in the first four months of 1876. On a fourth run, nine men are employed with sixty dogs, killing at the rate of two thousand per week.

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One landowner, in despair of reclaiming a large tract of land infested by these destructive rodents, inclosed an area of ten thousand acres with a solid masonry wall, the foundations of which were dug down to the hard rock, to prevent any chance of the rabbits burrowing under it. Seven years were occupied in erecting this 'great wall'—an undertaking comparable with the ancient walls built in the north of England to keep out the Picts and Scots—and thirty-five thousand pounds were expended in the course of the work. What a happy family the countless myriads of rabbits in that area must be, if they have not already starved themselves to death! This heroic remedy was adopted not only in New Zealand but in Victoria; for others of our Australasian colonies besides New Zealand have (as we have already shewn in the former article) suffered from a scourge of conies. Tasmania and Victoria and South Australia have been made the victims of a misplaced confidence in the virtues of the rabbit. The chief inspector of sheep in Tasmania, writing in 1875, stated that at that time the rabbits were consuming sufficient food to support two hundred and fifty thousand sheep, and thus causing a direct annual loss to the colony of sixty-two thousand pounds, without taking into account the money expended in keeping them down. In all these colonies special laws have been made for the purpose of dealing with these troublesome inhabitants. The main feature of the system adopted is that trustees are appointed, who have power to levy a rate on the lands in 'proclaimed districts,' the proceeds of which are expended in a specially organised campaign against the rabbits; and generally good results have followed these operations. There are runs in Tasmania on which a good shot could bag three to four hundred bunnies in a day six years ago, but where half-a-dozen could not now be seen in the same time.

Some enterprising individuals have put into practice the old motto that 'Out of evil cometh good,' by buying up the slaughtered hosts of rabbits, cooking their bodies, and preserving them in tins as an article of food, and preparing their skins for the market. Nearly half a million rabbit-skins were exported from Hobart-Town in 1874, valued at three thousand seven hundred and twenty-five pounds.

What has been done in Australia and Tasmania ought *primâ facie* to be as easily accomplished in New Zealand. So urgent, however, are the representations of the farmers—and so great the fear of the government, which derives a large revenue from the rents paid for land, that this source of income will fail, as the land threatens soon to become worthless—that it is proposed to supplement such measures by a state grant in aid of the war against the invaders, and by the introduction of natural enemies, such as stoats, weasels, ferrets, and hawks; and means have already been taken to send a few of our surplus stock of these invaluable animals from England. If ordinary measures of this kind are not sufficient to keep in check the inordinate increase of an animal which will reproduce itself a million and a quarter times in the space of four years, extraordinary means must be adopted.

THE MONTH:

SCIENCE AND ARTS.

'On the Transport of Solid and Liquid Particles in Sewer Gases,' is the title of a short paper by Dr Frankland, read at a meeting of the Royal Society. That particles of many kinds are constantly floating in the atmosphere, even at great heights, is well known. At times noxious or deadly particles are diffused among the mass, and disease and death are the consequence. Dr Frankland has proved by experiment that noxious particles can be conveyed long distances, and he sums up his conclusions thus: '1. The moderate agitation of a liquid does not cause the suspension of liquid particles capable of transport by the circumambient air, and therefore the flow of fresh sewage through a properly constructed sewer is not likely to be attended by the suspension of zymotic matters in the air of the sewer. 2. The breaking of minute gas bubbles on the surface of a liquid is a potent cause of the suspension of transportable liquid particles in the surrounding air; and therefore when, through the stagnation of sewage, putrefaction sets in, and causes the generation of gases, the suspension of zymotic matters in the air of the sewer is extremely likely to occur. 3. It is therefore of the greatest importance to the health of towns, villages, and even isolated houses, that foul liquids should pass freely and quickly through sewers and drain-pipes, so as to complete their discharge from the sewerage system before putrefaction sets in.'

The Birmingham Corporation sewage-works comprise a farm of two hundred and sixty-six acres in the valley of the Tame. The outflow of the two main sewers is treated with lime, which throws down the solid matters; and after the sewage has crossed a few tanks, the liquid portion flows into the Tame in a condition much less impure than the water of the river itself. The deposited sludge amounts to nearly four hundred tons a day. Great part of this is utilised by 'double-digging' of it into the land, three years being required to dig the whole farm. Another part is converted into Roman cement by General Scott's process.

The results appear to be satisfactory, for we are informed that 'the rye-grass grown on the farm averages from thirteen to fourteen tons an acre at each cutting, and several cuttings are obtained each year. After each cutting the land is immediately irrigated thoroughly with sewage, and in about three weeks the next crop is generally ready for cutting.'

At Manchester the Health Committee collect the excrementitious matters and other house-refuse in properly constructed vans, which are cleansed after each journey to the yard in the outskirts. There the whole mass is sorted; and what that sorting involves may be judged of from the fact that the quantity collected each week amounts to about three thousand tons, comprising 'paper, one ton; rags, three tons; dead dogs, cats, rats, guinea-pigs, and other animals, two tons; stable manure, seventeen tons; meat tins and old tin and iron, thirty-three tons; refuse from slaughter-houses and fish-shops, sixty tons; broken pots, bottles, and glasses, eighty tons; vegetable refuse, door-mats, table-covers, floor-cloths, and old straw mattresses, one hundred tons; fine ashes, one thousand two hundred and thirty tons; cinders, one thousand four hundred tons.'

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In a communication to the Scientific and Mechanical Society of Manchester, from the *Proceedings* of which these particulars are taken, it is further stated that 'not only is patent manure produced, but disinfecting powder, mortar, fuel, and other useful commodities, all from the vilest refuse; and another matter for wonder is that all this abominable stuff is worked up with so little offensive smell arising from it. In addition to these works, there are workshops in which the Corporation make their own vans, pails, harness, and other requisite appliances for dealing with the new system of treating town-refuse.' No coal is bought: the cinders brought in furnish fuel enough for all the furnaces and heating apparatus, and for the 'destructors,' in which the absolute refuse which was formerly piled in huge heaps in different parts of the city, is burnt into harmlessness, while the heat is communicated to a neighbouring 'concretor.' 'The spent fuel,' we are told, 'is carted to the mills, and is there converted into mortar, a mortar too of the best description, as the samples of brickwork built with it abundantly testify.' Some of the most offensive refuse is passed through the 'carbonisers,' and 'is resolved into a perfectly harmless material.' From all this we learn that the art of keeping a town thoroughly clean may be made to occupy a high place among the useful arts.

The manufacture of iodine by distillation of seaweed, established a few years ago in the isle of Tyree and other parts of the West Highlands, still goes on, and as is stated, with tenfold increase. The selling price, which used to be 1s. 3d. per ounce, is now not more than 5³/₄d.

In America it has been discovered that the canker-worm, which infests fruit-trees to a mischievous extent, can be effectually checked and destroyed by smearing the stem and branches with printers' ink. It is interesting to know that there are two ways in which printers' ink can be made use of for the suppression of pests. And in France experience has proved that the *Phylloxera* can be destroyed by planting red maize between the rows of vines. The insects quit the vines and attack the maize-roots.

Meteorologists are well aware of the fact, that as a rule the barometer rises and falls twice within the twenty-four hours. Wherever observations are made, this movement is seen; and attempts have been made to refer it to the influence of tides in the air. But what causes the aërial tides? Some observers say magnetism, others say heat and differences of temperature. Mr Blanford, meteorological reporter to the government of India, has studied the subject; and in a communication to the Asiatic Society of Bengal, he remarks: 'It appears in a high degree probable that a great part of the diurnal irregularity of the barometric tides is due to the transfer of air from land to sea, and *vice versâ*, and to a similar transfer which may be proved to take place between the plains and the mountains. But the phenomenon is very complex, and much study and labour are yet required to unravel its elements, consisting as they do partly of elastic and reactionary pressure, partly of dynamic pressure, and partly of variations in the static pressure of the atmosphere. Till this shall have been done, and it shall be found, after all, that heat and its effects are insufficient to explain the phenomenon, it seems premature to resort to magnetic and electrical phenomena for the explanation of the barometric tides.'

Amateur meteorologists would do well to remember that the trustworthiness of the anemometer as a measurer of the force of the wind is seriously affected by the presence of trees; even a single tree will exert a disturbing influence. For wind-observations, the more open the space the better. We hear that the Meteorological Office is about to place at a high elevation an anemometer which will indicate its work to the observer below by telegraph. In the study of the weather, it would often be of advantage to know the rate and force of the wind on the top of St Paul's or Ben Lomond.

It had been noticed that ozone was developed by the spray of water when under pressure; Signor Bellucci was thereby induced to make observations at the Falls of Terni 'to ascertain if ozone was produced by the natural pulverisation of the water, especially as he had often noticed there the characteristic odour of ozone.' The tests employed completely demonstrated the presence of ozone, and that the quantity varied with the volume of water rushing over the Falls. From this result Signor Bellucci concludes that wherever water is converted into powder or spray, whether

by a cascade, a torrent, or by the rolling of waves, there ozone is produced. 'It is noteworthy that the air over the surface of the ocean is richer in ozone than that collected on land. Hence the production of ozone may be due to the electrical state induced by the friction of the minute drops of water against one another, which is increased by the mineral matter suspended or even dissolved in the water.'

Land flooded by the sea generally remains barren many years. The *Journal* of the Chemical Society gives a German chemist's explanation of the reason why. The land is charged with too large a proportion of chlorine salts; it has a tendency to remain damp; and there is a formation of ferrous sulphate, which, as is known, exerts a very prejudicial influence on plant-growth. Land when brought into this condition by an inflow of the sea, should be drained as quickly as possible, and sown with grass or clover and allowed to rest. Experience shews that it recovers its fertility sooner if treated in this way, than when cultivated all the year round as arable land.

In the course of a lecture on the Motion of Waves in Air and Water, by Professor Guthrie, a light, hollow india-rubber ball was floated on water, and a vibrating tuning-fork was held near it. The ball moved towards and followed the fork. Why? Some people might say that the fork attracted the ball; but the lecturer decided that attraction had nothing to do with it. Each oscillation of a wave is followed by a reflection: in this case, the reflection pushed the farther side of the ball; from which the conclusion was drawn 'that there is no such thing as attraction—that the apparent pull will be found to be a push from the opposite direction. The approach,' said Professor Guthrie, 'need not necessarily be called attraction, and it is better in all cases to substitute the word approach, which is a fact, for attraction, which is a theory.'

Mr Siemens' paper on the Bathometer, which we noticed some months ago, is now published in the *Philosophical Transactions*. Objections have been made to the instrument as an indicator of the depth of the sea, because the sea-level is disturbed by the attraction of large masses of land. Mr Siemens answers that he is aware of the objection; that the bathometer is not expected to do more than indicate comparatively small variations in total terrestrial attraction, which the hydrographer or navigator using the instrument will have to interpret according to the circumstances of the case. If the zero-point of the instrument varies with the latitude, or in consequence of special geological causes, we must bear in mind that these causes are of a permanent character, and that when an ocean has been once surveyed by means of the bathometer, the special local conditions become observed facts, and would thus serve to increase the value of the bathometer as an instrument for measuring the depth of the sea without the use of the sounding-line. {208}

At a meeting held at Salem, Massachusetts, a lecture on 'Visible Speech' was delivered by Professor Graham Bell, who, by means of the drum in a human ear cut from a dead subject, has succeeded in producing a phonograph. The ear is placed in the end of an ordinary speaking-trumpet; on speaking into the trumpet the drum is set in motion; this moves the style; the style traces the effect on a plate of smoked glass; and by means of a camera the curves and lines can be exhibited to a large number of spectators. The five vowels make five different curves; and according to Mr Bell, there is no such thing as a sound or tone pure and simple, but each is a composite of a number of tones; and the wavelets by which these are produced can also be shewn on a screen. Tables of the various symbols have been drawn up, and found useful for educational purposes, as was demonstrated by a young deaf and dumb pupil from the Boston Institution, who interpreted the symbols at sight.

Professor Bell has improved the method devised by his father, formerly of University College, London, for rendering speech visible; and as is well known, membranes have long been used for experiments in acoustics. Some of our readers may remember the experiments of Mr W. H. Barlow, F.R.S., described in his paper 'On the Pneumatic Action which accompanies the Articulation of the Human Voice,' read two years ago at the Royal Society, and published in vol. 22 of their *Proceedings*. And within the past few weeks we learn that the telephone has been so far improved that an account of a public meeting was talked into one end of a wire and was distinctly heard and understood at a distance of eighteen miles.

There is good news for eaters of fish, for the government of Newfoundland have recently ascertained from the survey made by Professor Hind, under their authority, that the fishing-grounds off the coast of Labrador cover an area of more than seven thousand geographical square miles; about a thousand more than the Newfoundland fisheries. And there is good prospect of duration, for the Arctic drift brings down infinite quantities of the infusorial animals on which the cod-fish delight to feed. Owing to the higher latitude, the fishing season varies from that of Newfoundland; and it is found that the cod approach the shore one week later for every degree of latitude, going northwards. The coast of Labrador is described as similar to that of Norway, bare and rocky, and cut by fiords, some of which penetrate seventy miles inland. A summer cruise along that coast would be an interesting adventure for some of our yachtsmen.

The Smithsonian Institution at Washington does not confine itself exclusively to science, but makes itself useful in other ways. One of these ways is fish-culture; and we find from a recent Report, that in three years 1873-75, the Institution distributed forty millions of fish. Among these, shad and two kinds of salmon were the most numerous. The distribution is carried on under the superintendence of Professor Baird, an American naturalist of high repute.

A recently published part of the Royal Asiatic Society's *Journal* contains a report of a meeting held some months ago in which Sir H. Rawlinson stated that from the further investigations that had taken place there was reason to believe 'that the Hittites were really the chief people intervening between Egypt and Assyria, and that to them we owe the intercommunication of the

art of those two countries.'

At the same meeting, Professor Monier Williams, in giving an account of his visit to India, mentioned that while there he had heard the learned men speak Sanscrit with astonishing fluency; and that in his opinion the day is approaching when Sanscrit will be as much studied in England as Greek.

One of the English delegates who took part in the International Statistical Congress held last September at Buda-Pesth, remarks on the disadvantage under which the Hungarians lie in their isolation from other nations by their language. It is a serious obstacle to their development; and as antipathies of race prevent their adoption of German, he recommends that they should take to English. In this he says: 'There would be no race difficulties, and the use of English would aid the Hungarians in more ways than one, and secure for them a predominance on the Lower Danube.'

If the present enthusiasm for African travel should continue, Africa will, before many years are over, cease to be an unknown country. Travellers from Germany, France, Belgium, Italy, and Portugal, are either actually at work or about to commence their explorations, in addition to the Englishmen who are always pushing their way into the interior. And now that Colonel Gordon (Gordon Pasha) has been appointed by the Khedive of Egypt governor of Sudan, facilities for travel in the equatorial regions may be looked for, and Æthiopia will cease to be a mystery.

We are informed that the use of leather belts for transmission of power in factories is more widely spread in the manufacturing districts than is implied in our paragraph on that subject ([ante, p. 63](#)), and that in the Anchor Thread Works at Paisley, where the belts were adopted four years ago, two thousand five hundred horse-power are transmitted by means thereof.

We take this opportunity of correcting an error in our recent article on *Austrian Arctic Discovery*. Lieutenant Payer's farthest point north ought to have been 82° 5' instead of 85° 5'.

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