

## CHAPTER XVIII

Conversation -- Cyrus Harding and Gideon Spilett -- An Idea of the Engineer's -- The Electric Telegraph -- The Wires -- The Battery -- The Alphabet -- Fine Season -- Prosperity of the Colony -- Photography -- An Appearance of Snow -- Two Years in Lincoln Island.

"Poor man!" said Herbert, who had rushed to the door, but returned, having seen Ayrton slide down the rope of the lift and disappear in the darkness.

"He will come back," said Cyrus Harding.

"Come now, captain," exclaimed Pencroft, "what does that mean? What! wasn't it Ayrton who threw that bottle into the sea? Who was it then?"

Certainly, if ever a question was necessary to be made, it was that one!

"It was he," answered Neb, "only the unhappy man was half mad."

"Yes!" said Herbert, "and he was no longer conscious of what he was doing."

"It can only be explained in that way, my friends," replied Harding

quickly, "and I understand now how Ayrton was able to point out exactly the situation of Tabor Island, since the events which had preceded his being left on the Island had made it known to him."

"However," observed Pencroft, "if he was not yet a brute when he wrote that document, and if he threw it into the sea seven or eight years ago, how is it that the paper has not been injured by damp?"

"That proves," answered Cyrus Harding, "that Ayrton was deprived of intelligence at a more recent time than he thinks."

"Of course it must be so," replied Pencroft, "without that the fact would be unaccountable."

"Unaccountable indeed," answered the engineer, who did not appear desirous to prolong the conversation.

"But has Ayrton told the truth?" asked the sailor.

"Yes," replied the reporter. "The story which he has told is true in every point. I remember quite well the account in the newspapers of the yacht expedition undertaken by Lord Glenarvan, and its result."

"Ayrton has told the truth," added Harding. "Do not doubt it, Pencroft, for it was painful to him. People tell the truth when they accuse themselves like that!"

The next day--the 21st of December--the colonists descended to the beach, and having climbed the plateau they found nothing of Ayrton. He had reached his house in the corral during the night, and the settlers judged it best not to agitate him by their presence. Time would doubtless perform what sympathy had been unable to accomplish.

Herbert, Pencroft, and Neb resumed their ordinary occupations. On this day the same work brought Harding and the reporter to the workshop at the Chimneys.

"Do you know, my dear Cyrus," said Gideon Spilett, "that the explanation you gave yesterday on the subject of the bottle has not satisfied me at all! How can it be supposed that the unfortunate man was able to write that document and throw the bottle into the sea without having the slightest recollection of it?"

"Nor was it he who threw it in, my dear Spilett."

"You think then...."

"I think nothing, I know nothing!" interrupted Cyrus Harding. "I am content to rank this incident among those which I have not been able to explain to this day!"

"Indeed, Cyrus," said Spilett, "these things are incredible! Your rescue, the case stranded on the sand, Top's adventure, and lastly this bottle.... Shall we never have the answer to these enigmas?"

"Yes!" replied the engineer quickly, "yes, even if I have to penetrate into the bowels of this island!"

"Chance will perhaps give us the key to this mystery!"

"Chance! Spilett! I do not believe in chance, any more than I believe in mysteries in this world. There is a reason for everything unaccountable which has happened here, and that reason I shall discover. But in the meantime we must work and observe."

The month of January arrived. The year 1867 commenced. The summer occupations were assiduously continued. During the days which followed, Herbert and Spilett having gone in the direction of the corral, ascertained that Ayrton had taken possession of the habitation which had been prepared for him. He busied himself with the numerous flock confided to his care, and spared his companions the trouble of coming every two or three days to visit the corral. Nevertheless, in order not to leave Ayrton in solitude for too long a time, the settlers often paid him a visit.

It was not unimportant either, in consequence of some suspicions entertained by the engineer and Gideon Spilett, that this part of the island should be subject to a surveillance of some sort, and that Ayrton, if any incident occurred unexpectedly, should not neglect to inform the inhabitants of Granite House of it.

Nevertheless it might happen that something would occur which it would be necessary to bring rapidly to the engineer's knowledge.

Independently of facts bearing on the mystery of Lincoln Island, many others might happen, which would call for the prompt interference of the colonists,--such as the sighting of a vessel, a wreck on the western coast, the possible arrival of pirates, etc.

Therefore Cyrus Harding resolved to put the corral in instantaneous communication with Granite House.

It was on the 10th of January that he made known his project to his companions.

"Why! how are you going to manage that, captain?" asked Pencroft. "Do you by chance happen to think of establishing a telegraph?"

"Exactly so," answered the engineer.

"Electric?" cried Herbert.

"Electric," replied Cyrus Harding. "We have all the necessary materials for making a battery, and the most difficult thing will be to stretch the wires, but by means of a draw-plate I think we shall manage it."

"Well, after that," returned the sailor, "I shall never despair of seeing ourselves some day rolling along on a railway!"

They then set to work, beginning with the most difficult thing, for, if they failed in that, it would be useless to manufacture the battery and other accessories.

The iron of Lincoln Island, as has been said, was of excellent quality, and consequently very fit for being drawn out. Harding commenced by manufacturing a draw-plate, that is to say, a plate of steel, pierced with conical holes of different sizes, which would successively bring the wire to the wished-for tenacity. This piece of steel, after having been tempered, was fixed in as firm a way as possible in a solid framework planted in the ground, only a few feet from the great fall, the motive power of which the engineer intended to utilise. In fact, as the fulling-mill was there, although not then in use, its beam moved with extreme power would serve to stretch out the wire by rolling it round itself. It was a delicate operation, and required much care. The iron, prepared previously in long thin rods, the ends of which were sharpened with the file, having been introduced into the largest hole of the draw-plate, was drawn out by the beam which wound it round itself, to a length of twenty-five or thirty feet, then unrolled, and the same operation was performed successively through the holes of a less size. Finally, the engineer obtained wires from forty to fifty feet long, which could be easily fastened together and stretched over the distance of five miles, which separated the corral from the bounds of Granite House.

It did not take more than a few days to perform this work, and indeed

as soon as the machine had been commenced, Cyrus Harding left his companions to follow the trade of wire-drawers, and occupied himself with manufacturing his battery.

It was necessary to obtain a battery with a constant current. It is known that the elements of modern batteries are generally composed of retort coal, zinc, and copper. Copper was absolutely wanting to the engineer, who, notwithstanding all his researches, had never been able to find any trace of it in Lincoln Island, and was therefore obliged to do without it. Retort coal, that is to say, the hard graphyte which is found in the retorts of gas manufactories, after the coal has been dehydrogenised, could have been obtained, but it would have been necessary to establish a special apparatus, involving great labour. As to zinc, it may be remembered that the case found at Flotsam Point was lined with this metal, which could not be better utilised than for this purpose.

Cyrus Harding, after mature consideration, decided to manufacture a very simple battery, resembling as nearly as possible that invented by Becquerel in 1820, and in which zinc only is employed. The other substances, azotic acid and potash, were all at his disposal.

The way in which the battery was composed was as follows, and the results were to be attained by the reaction of acid and potash on each other. A number of glass bottles were made and filled with azotic acid. The engineer corked them by means of a stopper through which passed a glass tube, bored at its lower extremity, and intended to be

plunged into the acid by means of a clay stopper secured by a rag. Into this tube, through its upper extremity, he poured a solution of potash, previously obtained by burning and reducing to ashes various plants, and in this way the acid and potash could act on each other through the clay.

Cyrus Harding then took two slips of zinc, one of which was plunged into azotic acid, the other into a solution of potash. A current was immediately produced, which was transmitted from the slip of zinc in the bottle to that in the tube, and the two slips having been connected by a metallic wire the slip in the tube became the positive pole, and that in the bottle the negative pole of the apparatus. Each bottle, therefore, produced as many currents as united would be sufficient to produce all the phenomena of the electric telegraph. Such was the ingenious and very simple apparatus constructed by Cyrus Harding, an apparatus which would allow them to establish a telegraphic communication between Granite House and the corral.

On the 6th of February was commenced the planting, along the road to the corral, of posts, furnished with glass insulators, and intended to support the wire. A few days after, the wire was extended, ready to produce the electric current at a rate of twenty thousand miles a second.

Two batteries had been manufactured, one for Granite House, the other for the corral; for if it was necessary the corral should be able to communicate with Granite House, it might also be useful that Granite



House should be able to communicate with the corral.

As to the receiver and manipulator, they were very simple. At the two stations the wire was wound round a magnet, that is to say, round a piece of soft iron surrounded with a wire. The communication was thus established between the two poles, the current, starting from the positive pole, traversed the wire, passed through the magnet which was temporarily magnetised, and returned through the earth to the negative pole. If the current was interrupted the magnet immediately became unmagnetised. It was sufficient to place a plate of soft iron before the magnet, which, attracted during the passage of the current, would fall back when the current was interrupted. This movement of the plate thus obtained, Harding could easily fasten to it a needle arranged on a dial, bearing the letters of the alphabet, and in this way communicate from one station to the other.

All was completely arranged by the 12th of February. On this day, Harding, having sent the current through the wire, asked if all was going on well at the corral, and received in a few moments a satisfactory reply from Ayrton. Pencroft was wild with joy, and every morning and evening he sent a telegram to the corral, which always received an answer.

This mode of communication presented two very real advantages; firstly, because it enabled them to ascertain that Ayrton was at the corral, and secondly, that he was thus not left completely isolated. Besides, Cyrus Harding never allowed a week to pass without going to

see him, and Ayrton came from time to time to Granite House, where he always found a cordial welcome.

The fine season passed away in the midst of the usual work. The resources of the colony, particularly in vegetables and corn, increased from day to day; and the plants brought from Tabor Island had succeeded perfectly.

The plateau of Prospect Heights presented an encouraging aspect. The fourth harvest had been admirable, and it may be supposed that no one thought of counting whether the four hundred thousand millions of grains duly appeared in the crop. However, Pencroft had thought of doing so, but Cyrus Harding having told him that even if he managed to count three hundred grains a minute, or nine thousand an hour, it would take him nearly five thousand five hundred years to finish his task, the honest sailor considered it best to give up the idea.

The weather was splendid, the temperature very warm in the day time; but in the evening the sea-breezes tempered the heat of the atmosphere and procured cool nights for the inhabitants of Granite House. There were, however, a few storms, which, although they were not of long duration, swept over Lincoln Island with extraordinary fury. The lightning blazed and the thunder continued to roll for some hours.

At this period the little colony was extremely prosperous.

The tenants of the poultry-yard swarmed, and they lived on the

surplus, but it became necessary to reduce the population to a more moderate number. The pigs had already produced young, and it may be understood that their care for those animals absorbed a great part of Neb and Pencroft's time. The onagas, who had two pretty colts, were most often mounted by Gideon Spilett and Herbert, who had become an excellent rider under the reporter's instruction, and they also harnessed them to the cart either for carrying wood and coal to Granite House, or different mineral productions required by the engineer.

Several expeditions were made about this time into the depths of the Far West Forests. The explorers could venture there without having anything to fear from the heat, for the sun's rays scarcely penetrated through the thick foliage spreading above their heads. They thus visited all the left bank of the Mercy, along which ran the road from the corral to the mouth of Falls River.

But in these excursions the settlers took care to be well armed, for they frequently met with savage wild boars, with which they often had a tussle. They also, during this season, made fierce war against the jaguars. Gideon Spilett had vowed a special hatred against them, and his pupil Herbert seconded him well. Armed as they were, they no longer feared to meet one of those beasts. Herbert's courage was superb, and the reporter's sang froid astonishing. Already twenty magnificent skins ornamented the dining-room of Granite House, and if this continued, the jaguar race would soon be extinct in the island, the object aimed at by the hunters.

The engineer sometimes took part in the expeditions made to the unknown parts of the island, which he surveyed with great attention. It was for other traces than those of animals that he searched the thickest of the vast forest, but nothing suspicious ever appeared. Neither Top nor Jup, who accompanied him, ever betrayed by their behaviour that there was anything strange there, and yet more than once again the dog barked at the mouth of the well, which the engineer had before explored without result.

At this time Gideon Spilett, aided by Herbert, took several views of the most picturesque parts of the island, by means of the photographic apparatus found in the cases, and of which they had not as yet made any use.

This apparatus, provided with a powerful object-glass, was very complete. Substances necessary for the photographic reproduction, collodion for preparing the glass plate, nitrate of silver to render it sensitive, hyposulphate of soda to fix the prints obtained, chloride of ammonium in which to soak the paper destined to give the positive proof, acetate of soda and chloride of gold in which to immerse the paper, nothing was wanting. Even the papers were there, all prepared, and before laying in the printing-frame upon the negatives, it was sufficient to soak them for a few minutes in the solution of nitrate of silver.

The reporter and his assistant became in a short time very skilful

operators, and they obtained fine views of the country, such as the island, taken from Prospect Heights with Mount Franklin in the distance, the mouth of the Mercy, so picturesquely framed in high rocks, the glade and the corral, with the spurs of the mountain in the background, the curious development of Claw Cape, Flotsam Point, etc.

Nor did the photographers forget to take the portraits of all the inhabitants of the island, leaving out no one.

"It multiplies us," said Pencroft.

And the sailor was enchanted to see his own countenance, faithfully reproduced, ornamenting the walls of Granite House, and he stopped as willingly before this exhibition as he would have done before the richest shop-windows in Broadway.

But it must be acknowledged that the most successful portrait was incontestably that of Master Jup. Master Jup had sat with a gravity not to be described, and his portrait was lifelike!

"He looks as if he was just going to grin!" exclaimed Pencroft.

And if Master Jup had not been satisfied, he would have been very difficult to please, but he was quite contented, and contemplated his own countenance with a sentimental air which expressed some small amount of conceit.

The summer heat ended with the month of March. The weather was sometimes rainy, but still warm. The month of March, which corresponds to the September of northern latitudes, was not so fine as might have been hoped. Perhaps it announced an early and rigorous winter.

It might have been supposed one morning--the 21st--that the first snow had already made its appearance. In fact Herbert, looking early from one of the windows of Granite House, exclaimed,--

"Hallo! the islet is covered with snow!"

"Snow at this time?" answered the reporter, joining the boy.

Their companions were soon beside them, but could only ascertain one thing, that not only the islet, but all the beach below Granite House, was covered with one uniform sheet of white.

"It must be snow!" said Pencroft.

"Or rather it's very like it!" replied Neb.

"But the thermometer marks fifty-eight degrees!" observed Gideon Spilett.

Cyrus Harding gazed at the sheet of white without saying anything, for he really did not know how to explain this phenomenon, at this time of year and in such a temperature.

"By Jove!" exclaimed Pencroft, "all our plants will be frozen!"

And the sailor was about to descend, when he was preceded by the nimble Jup, who slid down to the sand.

But the orang had not touched the ground, when the snowy sheet arose and dispersed in the air in such innumerable flakes that the light of the sun was obscured for some minutes.

"Birds!" cried Herbert.

They were indeed swarms of sea-birds, with dazzling white plumage. They had perched by thousands on the islet and on the shore, and they disappeared in the distance, leaving the colonists amazed as if they had been present at some transformation scene, in which summer succeeded winter at the touch of a fairy's wand. Unfortunately the change had been so sudden that neither the reporter nor the lad had been able to bring down one of these birds, of which they could not recognise the species.

A few days after came the 26th of March, the day on which, two years before, the castaways from the air had been thrown upon Lincoln Island.