# PART ONE

## CHAPTER I

## A SHIFTING REEF

The year 1866 was signalised by a remarkable incident, a mysterious and puzzling phenomenon, which doubtless no one has yet forgotten. Not to mention rumours which agitated the maritime population and excited the public mind, even in the interior of continents, seafaring men were particularly excited. Merchants, common sailors, captains of vessels, skippers, both of Europe and America, naval officers of all countries, and the Governments of several States on the two continents, were deeply interested in the matter.

For some time past vessels had been met by "an enormous thing," a long object, spindle-shaped, occasionally phosphorescent, and infinitely larger and more rapid in its movements than a whale.

The facts relating to this apparition (entered in various log-books) agreed in most respects as to the shape of the object or creature in question, the untiring rapidity of its movements, its surprising power of locomotion, and the peculiar life with which it seemed endowed. If it was a whale, it surpassed in size all those hitherto classified in science. Taking into consideration the mean of observations made at divers times—rejecting the timid estimate of those who assigned to this object a length of two hundred feet, equally with the exaggerated opinions which set it down as a mile in width and three in length—we might fairly conclude that this mysterious being surpassed greatly all dimensions admitted by the learned ones of the day, if it existed at all. And that it DID exist was an undeniable fact; and, with that tendency which disposes the human mind in favour of the marvellous, we can understand the excitement produced in the entire world by this supernatural apparition. As to classing it in the list of fables,

the idea was out of the question.

On the 20th of July, 1866, the steamer Governor Higginson, of the Calcutta and Burnach Steam Navigation Company, had met this moving mass five miles off the east coast of Australia. Captain Baker thought at first that he was in the presence of an unknown sandbank; he even prepared to determine its exact position when two columns of water, projected by the mysterious object, shot with a hissing noise a hundred and fifty feet up into the air. Now, unless the sandbank had been submitted to the intermittent eruption of a geyser, the Governor Higginson had to do neither more nor less than with an aquatic mammal, unknown till then, which threw up from its blow-holes columns of water mixed with air and vapour.

Similar facts were observed on the 23rd of July in the same year, in the Pacific Ocean, by the Columbus, of the West India and Pacific Steam Navigation Company. But this extraordinary creature could transport itself from one place to another with surprising velocity; as, in an interval of three days, the Governor Higginson and the Columbus had observed it at two different points of the chart, separated by a distance of more than seven hundred nautical leagues.

Fifteen days later, two thousand miles farther off, the Helvetia, of the Compagnie-Nationale, and the Shannon, of the Royal Mail Steamship Company, sailing to windward in that portion of the Atlantic lying between the United States and Europe, respectively signalled the monster to each other in 42° 15' N. lat. and 60° 35' W. long. In these simultaneous observations they thought themselves justified in estimating the minimum length of the mammal at more than three hundred and fifty feet, as the Shannon and Helvetia were of smaller dimensions than it, though they measured three hundred feet over all.

Now the largest whales, those which frequent those parts of the sea round the Aleutian, Kulammak, and Umgullich islands, have never exceeded the length of sixty yards, if they attain that.

In every place of great resort the monster was the fashion. They sang of it in the cafes, ridiculed it in the papers, and represented it on the stage. All kinds of stories were circulated regarding it. There appeared in the papers caricatures of every gigantic and imaginary creature, from the white whale, the terrible "Moby Dick" of sub-arctic regions, to the immense kraken, whose tentacles could entangle a ship of five hundred tons and hurry it into the abyss of the ocean. The

legends of ancient times were even revived.

Then burst forth the unending argument between the believers and the unbelievers in the societies of the wise and the scientific journals. "The question of the monster" inflamed all minds. Editors of scientific journals, quarrelling with believers in the supernatural, spilled seas of ink during this memorable campaign, some even drawing blood; for from the sea-serpent they came to direct personalities.

During the first months of the year 1867 the question seemed buried, never to revive, when new facts were brought before the public. It was then no longer a scientific problem to be solved, but a real danger seriously to be avoided. The question took quite another shape. The monster became a small island, a rock, a reef, but a reef of indefinite and shifting proportions.

On the 5th of March, 1867, the Moravian, of the Montreal Ocean Company, finding herself during the night in 27° 30' lat. and 72° 15' long., struck on her starboard quarter a rock, marked in no chart for that part of the sea. Under the combined efforts of the wind and its four hundred horse power, it was going at the rate of thirteen knots. Had it not been for the superior strength of the hull of the Moravian, she would have been broken by the shock and gone down with the 237 passengers she was bringing home from Canada.

The accident happened about five o'clock in the morning, as the day was breaking. The officers of the quarter-deck hurried to the after-part of the vessel. They examined the sea with the most careful attention. They saw nothing but a strong eddy about three cables' length distant, as if the surface had been violently agitated. The bearings of the place were taken exactly, and the Moravian continued its route without apparent damage. Had it struck on a submerged rock, or on an enormous wreck? They could not tell; but, on examination of the ship's bottom when undergoing repairs, it was found that part of her keel was broken.

This fact, so grave in itself, might perhaps have been forgotten like many others if, three weeks after, it had not been re-enacted under similar circumstances. But, thanks to the nationality of the victim of the shock, thanks to the reputation of the company to which the vessel belonged, the circumstance became extensively circulated.

The 13th of April, 1867, the sea being beautiful, the breeze favourable, the

Scotia, of the Cunard Company's line, found herself in 15° 12' long. and 45° 37' lat. She was going at the speed of thirteen knots and a half.

At seventeen minutes past four in the afternoon, whilst the passengers were assembled at lunch in the great saloon, a slight shock was felt on the hull of the Scotia, on her quarter, a little aft of the port-paddle.

The Scotia had not struck, but she had been struck, and seemingly by something rather sharp and penetrating than blunt. The shock had been so slight that no one had been alarmed, had it not been for the shouts of the carpenter's watch, who rushed on to the bridge, exclaiming, "We are sinking! we are sinking!" At first the passengers were much frightened, but Captain Anderson hastened to reassure them. The danger could not be imminent. The Scotia, divided into seven compartments by strong partitions, could brave with impunity any leak. Captain Anderson went down immediately into the hold. He found that the sea was pouring into the fifth compartment; and the rapidity of the influx proved that the force of the water was considerable. Fortunately this compartment did not hold the boilers, or the fires would have been immediately extinguished. Captain Anderson ordered the engines to be stopped at once, and one of the men went down to ascertain the extent of the injury. Some minutes afterwards they discovered the existence of a large hole, two yards in diameter, in the ship's bottom. Such a leak could not be stopped; and the Scotia, her paddles half submerged, was obliged to continue her course. She was then three hundred miles from Cape Clear, and, after three days' delay, which caused great uneasiness in Liverpool, she entered the basin of the company.

The engineers visited the Scotia, which was put in dry dock. They could scarcely believe it possible; at two yards and a half below water-mark was a regular rent, in the form of an isosceles triangle. The broken place in the iron plates was so perfectly defined that it could not have been more neatly done by a punch. It was clear, then, that the instrument producing the perforation was not of a common stamp and, after having been driven with prodigious strength, and piercing an iron plate 1 3/8 inches thick, had withdrawn itself by a backward motion.

Such was the last fact, which resulted in exciting once more the torrent of public opinion. From this moment all unlucky casualties which could not be otherwise accounted for were put down to the monster.

Upon this imaginary creature rested the responsibility of all these shipwrecks, which unfortunately were considerable; for of three thousand ships whose loss was annually recorded at Lloyd's, the number of sailing and steam-ships supposed to be totally lost, from the absence of all news, amounted to not less than two hundred!

Now, it was the "monster" who, justly or unjustly, was accused of their disappearance, and, thanks to it, communication between the different continents became more and more dangerous. The public demanded sharply that the seas should at any price be relieved from this formidable cetacean.[1]

[1] Member of the whale family.

## CHAPTER II

## PRO AND CON

At the period when these events took place, I had just returned from a scientific research in the disagreeable territory of Nebraska, in the United States. In virtue of my office as Assistant Professor in the Museum of Natural History in Paris, the French Government had attached me to that expedition. After six months in Nebraska, I arrived in New York towards the end of March, laden with a precious collection. My departure for France was fixed for the first days in May. Meanwhile I was occupying myself in classifying my mineralogical, botanical, and zoological riches, when the accident happened to the Scotia.

I was perfectly up in the subject which was the question of the day. How could I be otherwise? I had read and reread all the American and European papers without being any nearer a conclusion. This mystery puzzled me. Under the impossibility of forming an opinion, I jumped from one extreme to the other. That there really was something could not be doubted, and the incredulous were invited to put their finger on the wound of the Scotia.

On my arrival at New York the question was at its height. The theory of the floating island, and the unapproachable sandbank, supported by minds little competent to form a judgment, was abandoned. And, indeed, unless this shoal had a machine in its stomach, how could it change its position with such astonishing rapidity?

From the same cause, the idea of a floating hull of an enormous wreck was given up.

There remained, then, only two possible solutions of the question, which created two distinct parties: on one side, those who were for a monster of colossal strength; on the other, those who were for a submarine vessel of enormous motive power.

But this last theory, plausible as it was, could not stand against inquiries made in both worlds. That a private gentleman should have such a machine at his command was not likely. Where, when, and how was it built? and how could its construction have been kept secret? Certainly a Government might possess such a destructive machine. And in these disastrous times, when the ingenuity of man has multiplied the power of weapons of war, it was possible that, without the knowledge of others, a State might try to work such a formidable engine.

But the idea of a war machine fell before the declaration of Governments. As public interest was in question, and transatlantic communications suffered, their veracity could not be doubted. But how admit that the construction of this submarine boat had escaped the public eye? For a private gentleman to keep the secret under such circumstances would be very difficult, and for a State whose every act is persistently watched by powerful rivals, certainly impossible.

Upon my arrival in New York several persons did me the honour of consulting me on the phenomenon in question. I had published in France a work in quarto, in two volumes, entitled Mysteries of the Great Submarine Grounds. This book, highly approved of in the learned world, gained for me a special reputation in this rather obscure branch of Natural History. My advice was asked. As long as I could deny the reality of the fact, I confined myself to a decided negative. But soon, finding myself driven into a corner, I was obliged to explain myself point by point. I discussed the question in all its forms, politically and scientifically; and I give here an extract from a carefully-studied article which I published in the number of the 30th of April. It ran as follows:

"After examining one by one the different theories, rejecting all other suggestions, it becomes necessary to admit the existence of a marine animal of enormous power.

"The great depths of the ocean are entirely unknown to us. Soundings cannot reach them. What passes in those remote depths—what beings live, or can live, twelve or fifteen miles beneath the surface of the waters—what is the organisation of these animals, we can scarcely conjecture. However, the solution of the problem submitted to me may modify the form of the dilemma. Either we do know all the varieties of beings which people our planet, or we do not. If we do NOT know them all—if Nature has still secrets in the deeps for us, nothing is more conformable to reason than to admit the existence of fishes, or cetaceans of other kinds, or even of new species, of an organisation formed to inhabit the strata inaccessible to soundings, and which an accident of some sort has brought at long intervals to the upper level of the ocean.

"If, on the contrary, we DO know all living kinds, we must necessarily seek for the animal in question amongst those marine beings already classed; and, in that case, I should be disposed to admit the existence of a gigantic narwhal.

"The common narwhal, or unicorn of the sea, often attains a length of sixty feet. Increase its size fivefold or tenfold, give it strength proportionate to its size, lengthen its destructive weapons, and you obtain the animal required. It will have the proportions determined by the officers of the Shannon, the instrument required by the perforation of the Scotia, and the power necessary to pierce the hull of the steamer.

"Indeed, the narwhal is armed with a sort of ivory sword, a halberd, according to the expression of certain naturalists. The principal tusk has the hardness of steel. Some of these tusks have been found buried in the bodies of whales, which the unicorn always attacks with success. Others have been drawn out, not without trouble, from the bottoms of ships, which they had pierced through and through, as a gimlet pierces a barrel. The Museum of the Faculty of Medicine of Paris possesses one of these defensive weapons, two yards and a quarter in length, and fifteen inches in diameter at the base.

"Very well! suppose this weapon to be six times stronger and the animal ten times more powerful; launch it at the rate of twenty miles an hour, and you obtain a shock capable of producing the catastrophe required. Until further

information, therefore, I shall maintain it to be a sea-unicorn of colossal dimensions, armed not with a halberd, but with a real spur, as the armoured frigates, or the `rams' of war, whose massiveness and motive power it would possess at the same time. Thus may this puzzling phenomenon be explained, unless there be something over and above all that one has ever conjectured, seen, perceived, or experienced; which is just within the bounds of possibility."

These last words were cowardly on my part; but, up to a certain point, I wished to shelter my dignity as professor, and not give too much cause for laughter to the Americans, who laugh well when they do laugh. I reserved for myself a way of escape. In effect, however, I admitted the existence of the "monster." My article was warmly discussed, which procured it a high reputation. It rallied round it a certain number of partisans. The solution it proposed gave, at least, full liberty to the imagination. The human mind delights in grand conceptions of supernatural beings. And the sea is precisely their best vehicle, the only medium through which these giants (against which terrestrial animals, such as elephants or rhinoceroses, are as nothing) can be produced or developed.

The industrial and commercial papers treated the question chiefly from this point of view. The Shipping and Mercantile Gazette, the Lloyd's List, the Packet-Boat, and the Maritime and Colonial Review, all papers devoted to insurance companies which threatened to raise their rates of premium, were unanimous on this point. Public opinion had been pronounced. The United States were the first in the field; and in New York they made preparations for an expedition destined to pursue this narwhal. A frigate of great speed, the Abraham Lincoln, was put in commission as soon as possible. The arsenals were opened to Commander Farragut, who hastened the arming of his frigate; but, as it always happens, the moment it was decided to pursue the monster, the monster did not appear. For two months no one heard it spoken of. No ship met with it. It seemed as if this unicorn knew of the plots weaving around it. It had been so much talked of, even through the Atlantic cable, that jesters pretended that this slender fly had stopped a telegram on its passage and was making the most of it.

So when the frigate had been armed for a long campaign, and provided with formidable fishing apparatus, no one could tell what course to pursue. Impatience grew apace, when, on the 2nd of July, they learned that a steamer of the line of San Francisco, from California to Shanghai, had seen the animal three weeks before in the North Pacific Ocean. The excitement caused by this news

was extreme. The ship was revictualled and well stocked with coal.

Three hours before the Abraham Lincoln left Brooklyn pier, I received a letter worded as follows:

To M. ARONNAX, Professor in the Museum of Paris, Fifth Avenue Hotel, New York.

SIR,—If you will consent to join the Abraham Lincoln in this expedition, the Government of the United States will with pleasure see France represented in the enterprise. Commander Farragut has a cabin at your disposal.

Very cordially yours, J.B. HOBSON, Secretary of Marine.

## CHAPTER III

## I FORM MY RESOLUTION

Three seconds before the arrival of J. B. Hobson's letter I no more thought of pursuing the unicorn than of attempting the passage of the North Sea. Three seconds after reading the letter of the honourable Secretary of Marine, I felt that my true vocation, the sole end of my life, was to chase this disturbing monster and purge it from the world.

But I had just returned from a fatiguing journey, weary and longing for repose. I aspired to nothing more than again seeing my country, my friends, my little lodging by the Jardin des Plantes, my dear and precious collections—but nothing could keep me back! I forgot all—fatigue, friends and collections—and accepted without hesitation the offer of the American Government.

"Besides," thought I, "all roads lead back to Europe; and the unicorn may be amiable enough to hurry me towards the coast of France. This worthy animal may allow itself to be caught in the seas of Europe (for my particular benefit), and I will not bring back less than half a yard of his ivory halberd to the Museum of Natural History." But in the meanwhile I must seek this narwhal in the North

Pacific Ocean, which, to return to France, was taking the road to the antipodes.

"Conseil," I called in an impatient voice.

Conseil was my servant, a true, devoted Flemish boy, who had accompanied me in all my travels. I liked him, and he returned the liking well. He was quiet by nature, regular from principle, zealous from habit, evincing little disturbance at the different surprises of life, very quick with his hands, and apt at any service required of him; and, despite his name, never giving advice—even when asked for it.

Conseil had followed me for the last ten years wherever science led. Never once did he complain of the length or fatigue of a journey, never make an objection to pack his portmanteau for whatever country it might be, or however far away, whether China or Congo. Besides all this, he had good health, which defied all sickness, and solid muscles, but no nerves; good morals are understood. This boy was thirty years old, and his age to that of his master as fifteen to twenty. May I be excused for saying that I was forty years old?

But Conseil had one fault: he was ceremonious to a degree, and would never speak to me but in the third person, which was sometimes provoking.

"Conseil," said I again, beginning with feverish hands to make preparations for my departure.

Certainly I was sure of this devoted boy. As a rule, I never asked him if it were convenient for him or not to follow me in my travels; but this time the expedition in question might be prolonged, and the enterprise might be hazardous in pursuit of an animal capable of sinking a frigate as easily as a nutshell. Here there was matter for reflection even to the most impassive man in the world. What would Conseil say?

"Conseil," I called a third time.

Conseil appeared.

"Did you call, sir?" said he, entering.

"Yes, my boy; make preparations for me and yourself too. We leave in two hours."

"As you please, sir," replied Conseil, quietly.

"Not an instant to lose; lock in my trunk all travelling utensils, coats, shirts, and stockings—without counting, as many as you can, and make haste."

"And your collections, sir?" observed Conseil.

"They will keep them at the hotel."

"We are not returning to Paris, then?" said Conseil.

"Oh! certainly," I answered, evasively, "by making a curve."

"Will the curve please you, sir?"

"Oh! it will be nothing; not quite so direct a road, that is all. We take our passage in the Abraham, Lincoln."

"As you think proper, sir," coolly replied Conseil.

"You see, my friend, it has to do with the monster—the famous narwhal. We are going to purge it from the seas. A glorious mission, but a dangerous one! We cannot tell where we may go; these animals can be very capricious. But we will go whether or no; we have got a captain who is pretty wide-awake."

Our luggage was transported to the deck of the frigate immediately. I hastened on board and asked for Commander Farragut. One of the sailors conducted me to the poop, where I found myself in the presence of a good-looking officer, who held out his hand to me.

"Monsieur Pierre Aronnax?" said he.

"Himself," replied I. "Commander Farragut?"

"You are welcome, Professor; your cabin is ready for you."

I bowed, and desired to be conducted to the cabin destined for me.

The Abraham Lincoln had been well chosen and equipped for her new destination. She was a frigate of great speed, fitted with high-pressure engines which admitted a pressure of seven atmospheres. Under this the Abraham

Lincoln attained the mean speed of nearly eighteen knots and a third an hour—a considerable speed, but, nevertheless, insufficient to grapple with this gigantic cetacean.

The interior arrangements of the frigate corresponded to its nautical qualities. I was well satisfied with my cabin, which was in the after part, opening upon the gunroom.

"We shall be well off here," said I to Conseil.

"As well, by your honour's leave, as a hermit-crab in the shell of a whelk," said Conseil.

I left Conseil to stow our trunks conveniently away, and remounted the poop in order to survey the preparations for departure.

At that moment Commander Farragut was ordering the last moorings to be cast loose which held the Abraham Lincoln to the pier of Brooklyn. So in a quarter of an hour, perhaps less, the frigate would have sailed without me. I should have missed this extraordinary, supernatural, and incredible expedition, the recital of which may well meet with some suspicion.

But Commander Farragut would not lose a day nor an hour in scouring the seas in which the animal had been sighted. He sent for the engineer.

"Is the steam full on?" asked he.

"Yes, sir," replied the engineer.

"Go ahead," cried Commander Farragut.

## CHAPTER IV

## NED LAND

Captain Farragut was a good seaman, worthy of the frigate he commanded.

His vessel and he were one. He was the soul of it. On the question of the monster there was no doubt in his mind, and he would not allow the existence of the animal to be disputed on board. He believed in it, as certain good women believe in the leviathan—by faith, not by reason. The monster did exist, and he had sworn to rid the seas of it. Either Captain Farragut would kill the narwhal, or the narwhal would kill the captain. There was no third course.

The officers on board shared the opinion of their chief. They were ever chatting, discussing, and calculating the various chances of a meeting, watching narrowly the vast surface of the ocean. More than one took up his quarters voluntarily in the cross-trees, who would have cursed such a berth under any other circumstances. As long as the sun described its daily course, the rigging was crowded with sailors, whose feet were burnt to such an extent by the heat of the deck as to render it unbearable; still the Abraham Lincoln had not yet breasted the suspected waters of the Pacific. As to the ship's company, they desired nothing better than to meet the unicorn, to harpoon it, hoist it on board, and despatch it. They watched the sea with eager attention.

Besides, Captain Farragut had spoken of a certain sum of two thousand dollars, set apart for whoever should first sight the monster, were he cabin-boy, common seaman, or officer.

I leave you to judge how eyes were used on board the Abraham Lincoln.

For my own part I was not behind the others, and, left to no one my share of daily observations. The frigate might have been called the Argus, for a hundred reasons. Only one amongst us, Conseil, seemed to protest by his indifference against the question which so interested us all, and seemed to be out of keeping with the general enthusiasm on board.

I have said that Captain Farragut had carefully provided his ship with every apparatus for catching the gigantic cetacean. No whaler had ever been better armed. We possessed every known engine, from the harpoon thrown by the hand to the barbed arrows of the blunderbuss, and the explosive balls of the duck-gun. On the forecastle lay the perfection of a breech-loading gun, very thick at the breech, and very narrow in the bore, the model of which had been in the Exhibition of 1867. This precious weapon of American origin could throw with ease a conical projectile of nine pounds to a mean distance of ten miles.

Thus the Abraham Lincoln wanted for no means of destruction; and, what was better still she had on board Ned Land, the prince of harpooners.

Ned Land was a Canadian, with an uncommon quickness of hand, and who knew no equal in his dangerous occupation. Skill, coolness, audacity, and cunning he possessed in a superior degree, and it must be a cunning whale to escape the stroke of his harpoon.

Ned Land was about forty years of age; he was a tall man (more than six feet high), strongly built, grave and taciturn, occasionally violent, and very passionate when contradicted. His person attracted attention, but above all the boldness of his look, which gave a singular expression to his face.

Who calls himself Canadian calls himself French; and, little communicative as Ned Land was, I must admit that he took a certain liking for me. My nationality drew him to me, no doubt. It was an opportunity for him to talk, and for me to hear, that old language of Rabelais, which is still in use in some Canadian provinces. The harpooner's family was originally from Quebec, and was already a tribe of hardy fishermen when this town belonged to France.

Little by little, Ned Land acquired a taste for chatting, and I loved to hear the recital of his adventures in the polar seas. He related his fishing, and his combats, with natural poetry of expression; his recital took the form of an epic poem, and I seemed to be listening to a Canadian Homer singing the Iliad of the regions of the North.

I am portraying this hardy companion as I really knew him. We are old friends now, united in that unchangeable friendship which is born and cemented amidst extreme dangers. Ah, brave Ned! I ask no more than to live a hundred years longer, that I may have more time to dwell the longer on your memory.

Now, what was Ned Land's opinion upon the question of the marine monster? I must admit that he did not believe in the unicorn, and was the only one on board who did not share that universal conviction. He even avoided the subject, which I one day thought it my duty to press upon him. One magnificent evening, the 30th July (that is to say, three weeks after our departure), the frigate was abreast of Cape Blanc, thirty miles to leeward of the coast of Patagonia. We had crossed the tropic of Capricorn, and the Straits of Magellan opened less than seven hundred miles to the south. Before eight days were over the Abraham

Lincoln would be ploughing the waters of the Pacific.

Seated on the poop, Ned Land and I were chatting of one thing and another as we looked at this mysterious sea, whose great depths had up to this time been inaccessible to the eye of man. I naturally led up the conversation to the giant unicorn, and examined the various chances of success or failure of the expedition. But, seeing that Ned Land let me speak without saying too much himself, I pressed him more closely.

"Well, Ned," said I, "is it possible that you are not convinced of the existence of this cetacean that we are following? Have you any particular reason for being so incredulous?"

The harpooner looked at me fixedly for some moments before answering, struck his broad forehead with his hand (a habit of his), as if to collect himself, and said at last, "Perhaps I have, Mr. Aronnax."

"But, Ned, you, a whaler by profession, familiarised with all the great marine mammalia—YOU ought to be the last to doubt under such circumstances!"

"That is just what deceives you, Professor," replied Ned. "As a whaler I have followed many a cetacean, harpooned a great number, and killed several; but, however strong or well-armed they may have been, neither their tails nor their weapons would have been able even to scratch the iron plates of a steamer."

"But, Ned, they tell of ships which the teeth of the narwhal have pierced through and through."

"Wooden ships—that is possible," replied the Canadian, "but I have never seen it done; and, until further proof, I deny that whales, cetaceans, or sea-unicorns could ever produce the effect you describe."

"Well, Ned, I repeat it with a conviction resting on the logic of facts. I believe in the existence of a mammal power fully organised, belonging to the branch of vertebrata, like the whales, the cachalots, or the dolphins, and furnished with a horn of defence of great penetrating power."

"Hum!" said the harpooner, shaking his head with the air of a man who would not be convinced.

"Notice one thing, my worthy Canadian," I resumed. "If such an animal is in existence, if it inhabits the depths of the ocean, if it frequents the strata lying miles below the surface of the water, it must necessarily possess an organisation the strength of which would defy all comparison."

"And why this powerful organisation?" demanded Ned.

"Because it requires incalculable strength to keep one's self in these strata and resist their pressure. Listen to me. Let us admit that the pressure of the atmosphere is represented by the weight of a column of water thirty-two feet high. In reality the column of water would be shorter, as we are speaking of sea water, the density of which is greater than that of fresh water. Very well, when you dive, Ned, as many times 32 feet of water as there are above you, so many times does your body bear a pressure equal to that of the atmosphere, that is to say, 15 lb. for each square inch of its surface. It follows, then, that at 320 feet this pressure equals that of 10 atmospheres, of 100 atmospheres at 3,200 feet, and of 1,000 atmospheres at 32,000 feet, that is, about 6 miles; which is equivalent to saying that if you could attain this depth in the ocean, each square three-eighths of an inch of the surface of your body would bear a pressure of 5,600 lb. Ah! my brave Ned, do you know how many square inches you carry on the surface of your body?"

"I have no idea, Mr. Aronnax."

"About 6,500; and as in reality the atmospheric pressure is about 15 lb. to the square inch, your 6,500 square inches bear at this moment a pressure of 97,500 lb."

"Without my perceiving it?"

"Without your perceiving it. And if you are not crushed by such a pressure, it is because the air penetrates the interior of your body with equal pressure. Hence perfect equilibrium between the interior and exterior pressure, which thus neutralise each other, and which allows you to bear it without inconvenience. But in the water it is another thing."

"Yes, I understand," replied Ned, becoming more attentive; "because the water surrounds me, but does not penetrate."

"Precisely, Ned: so that at 32 feet beneath the surface of the sea you would

undergo a pressure of 97,500 lb.; at 320 feet, ten times that pressure; at 3,200 feet, a hundred times that pressure; lastly, at 32,000 feet, a thousand times that pressure would be 97,500,000 lb.—that is to say, that you would be flattened as if you had been drawn from the plates of a hydraulic machine!"

"The devil!" exclaimed Ned.

"Very well, my worthy harpooner, if some vertebrate, several hundred yards long, and large in proportion, can maintain itself in such depths—of those whose surface is represented by millions of square inches, that is by tens of millions of pounds, we must estimate the pressure they undergo. Consider, then, what must be the resistance of their bony structure, and the strength of their organisation to withstand such pressure!"

"Why!" exclaimed Ned Land, "they must be made of iron plates eight inches thick, like the armoured frigates."

"As you say, Ned. And think what destruction such a mass would cause, if hurled with the speed of an express train against the hull of a vessel."

"Yes—certainly—perhaps," replied the Canadian, shaken by these figures, but not yet willing to give in.

"Well, have I convinced you?"

"You have convinced me of one thing, sir, which is that, if such animals do exist at the bottom of the seas, they must necessarily be as strong as you say."

"But if they do not exist, mine obstinate harpooner, how explain the accident to the Scotia?"

## CHAPTER V

## AT A VENTURE

The voyage of the Abraham Lincoln was for a long time marked by no

special incident. But one circumstance happened which showed the wonderful dexterity of Ned Land, and proved what confidence we might place in him.

The 30th of June, the frigate spoke some American whalers, from whom we learned that they knew nothing about the narwhal. But one of them, the captain of the Monroe, knowing that Ned Land had shipped on board the Abraham Lincoln, begged for his help in chasing a whale they had in sight. Commander Farragut, desirous of seeing Ned Land at work, gave him permission to go on board the Monroe. And fate served our Canadian so well that, instead of one whale, he harpooned two with a double blow, striking one straight to the heart, and catching the other after some minutes' pursuit.

Decidedly, if the monster ever had to do with Ned Land's harpoon, I would not bet in its favour.

The frigate skirted the south-east coast of America with great rapidity. The 3rd of July we were at the opening of the Straits of Magellan, level with Cape Vierges. But Commander Farragut would not take a tortuous passage, but doubled Cape Horn.

The ship's crew agreed with him. And certainly it was possible that they might meet the narwhal in this narrow pass. Many of the sailors affirmed that the monster could not pass there, "that he was too big for that!"

The 6th of July, about three o'clock in the afternoon, the Abraham Lincoln, at fifteen miles to the south, doubled the solitary island, this lost rock at the extremity of the American continent, to which some Dutch sailors gave the name of their native town, Cape Horn. The course was taken towards the north-west, and the next day the screw of the frigate was at last beating the waters of the Pacific.

"Keep your eyes open!" called out the sailors.

And they were opened widely. Both eyes and glasses, a little dazzled, it is true, by the prospect of two thousand dollars, had not an instant's repose.

I myself, for whom money had no charms, was not the least attentive on board. Giving but few minutes to my meals, but a few hours to sleep, indifferent to either rain or sunshine, I did not leave the poop of the vessel. Now leaning on the netting of the forecastle, now on the taffrail, I devoured with eagerness the

soft foam which whitened the sea as far as the eye could reach; and how often have I shared the emotion of the majority of the crew, when some capricious whale raised its black back above the waves! The poop of the vessel was crowded on a moment. The cabins poured forth a torrent of sailors and officers, each with heaving breast and troubled eye watching the course of the cetacean. I looked and looked till I was nearly blind, whilst Conseil kept repeating in a calm voice:

"If, sir, you would not squint so much, you would see better!"

But vain excitement! The Abraham Lincoln checked its speed and made for the animal signalled, a simple whale, or common cachalot, which soon disappeared amidst a storm of abuse.

But the weather was good. The voyage was being accomplished under the most favourable auspices. It was then the bad season in Australia, the July of that zone corresponding to our January in Europe, but the sea was beautiful and easily scanned round a vast circumference.

The 20th of July, the tropic of Capricorn was cut by 105d of longitude, and the 27th of the same month we crossed the Equator on the 110th meridian. This passed, the frigate took a more decided westerly direction, and scoured the central waters of the Pacific. Commander Farragut thought, and with reason, that it was better to remain in deep water, and keep clear of continents or islands, which the beast itself seemed to shun (perhaps because there was not enough water for him! suggested the greater part of the crew). The frigate passed at some distance from the Marquesas and the Sandwich Islands, crossed the tropic of Cancer, and made for the China Seas. We were on the theatre of the last diversions of the monster: and, to say truth, we no longer LIVED on board. The entire ship's crew were undergoing a nervous excitement, of which I can give no idea: they could not eat, they could not sleep—twenty times a day, a misconception or an optical illusion of some sailor seated on the taffrail, would cause dreadful perspirations, and these emotions, twenty times repeated, kept us in a state of excitement so violent that a reaction was unavoidable.

And truly, reaction soon showed itself. For three months, during which a day seemed an age, the Abraham Lincoln furrowed all the waters of the Northern Pacific, running at whales, making sharp deviations from her course, veering suddenly from one tack to another, stopping suddenly, putting on steam, and

backing ever and anon at the risk of deranging her machinery, and not one point of the Japanese or American coast was left unexplored.

The warmest partisans of the enterprise now became its most ardent detractors. Reaction mounted from the crew to the captain himself, and certainly, had it not been for the resolute determination on the part of Captain Farragut, the frigate would have headed due southward. This useless search could not last much longer. The Abraham Lincoln had nothing to reproach herself with, she had done her best to succeed. Never had an American ship's crew shown more zeal or patience; its failure could not be placed to their charge—there remained nothing but to return.

This was represented to the commander. The sailors could not hide their discontent, and the service suffered. I will not say there was a mutiny on board, but after a reasonable period of obstinacy, Captain Farragut (as Columbus did) asked for three days' patience. If in three days the monster did not appear, the man at the helm should give three turns of the wheel, and the Abraham Lincoln would make for the European seas.

This promise was made on the 2nd of November. It had the effect of rallying the ship's crew. The ocean was watched with renewed attention. Each one wished for a last glance in which to sum up his remembrance. Glasses were used with feverish activity. It was a grand defiance given to the giant narwhal, and he could scarcely fail to answer the summons and "appear."

Two days passed, the steam was at half pressure; a thousand schemes were tried to attract the attention and stimulate the apathy of the animal in case it should be met in those parts. Large quantities of bacon were trailed in the wake of the ship, to the great satisfaction (I must say) of the sharks. Small craft radiated in all directions round the Abraham Lincoln as she lay to, and did not leave a spot of the sea unexplored. But the night of the 4th of November arrived without the unveiling of this submarine mystery.

The next day, the 5th of November, at twelve, the delay would (morally speaking) expire; after that time, Commander Farragut, faithful to his promise, was to turn the course to the south-east and abandon for ever the northern regions of the Pacific.

The frigate was then in 31° 15' N. lat. and 136° 42' E. long. The coast of

Japan still remained less than two hundred miles to leeward. Night was approaching. They had just struck eight bells; large clouds veiled the face of the moon, then in its first quarter. The sea undulated peaceably under the stern of the vessel.

At that moment I was leaning forward on the starboard netting. Conseil, standing near me, was looking straight before him. The crew, perched in the ratlines, examined the horizon which contracted and darkened by degrees. Officers with their night glasses scoured the growing darkness: sometimes the ocean sparkled under the rays of the moon, which darted between two clouds, then all trace of light was lost in the darkness.

In looking at Conseil, I could see he was undergoing a little of the general influence. At least I thought so. Perhaps for the first time his nerves vibrated to a sentiment of curiosity.

"Come, Conseil," said I, "this is the last chance of pocketing the two thousand dollars."

"May I be permitted to say, sir," replied Conseil, "that I never reckoned on getting the prize; and, had the government of the Union offered a hundred thousand dollars, it would have been none the poorer."

"You are right, Conseil. It is a foolish affair after all, and one upon which we entered too lightly. What time lost, what useless emotions! We should have been back in France six months ago."

"In your little room, sir," replied Conseil, "and in your museum, sir; and I should have already classed all your fossils, sir. And the Babiroussa would have been installed in its cage in the Jardin des Plantes, and have drawn all the curious people of the capital!"

"As you say, Conseil. I fancy we shall run a fair chance of being laughed at for our pains."

"That's tolerably certain," replied Conseil, quietly; "I think they will make fun of you, sir. And, must I say it——?"

"Go on, my good friend."

"Well, sir, you will only get your deserts."

"Indeed!"

"When one has the honour of being a *savant* as you are, sir, one should not expose one's self to——"

Conseil had not time to finish his compliment. In the midst of general silence a voice had just been heard. It was the voice of Ned Land shouting:

"Look out there! The very thing we are looking for—on our weather beam!"

## CHAPTER VI

## AT FULL STEAM

At this cry the whole ship's crew hurried towards the harpooner—commander, officers, masters, sailors, cabin boys; even the engineers left their engines, and the stokers their furnaces.

The order to stop her had been given, and the frigate now simply went on by her own momentum. The darkness was then profound, and, however good the Canadian's eyes were, I asked myself how he had managed to see, and what he had been able to see. My heart beat as if it would break. But Ned Land was not mistaken, and we all perceived the object he pointed to. At two cables' length from the Abraham Lincoln, on the starboard quarter, the sea seemed to be illuminated all over. It was not a mere phosphoric phenomenon. The monster emerged some fathoms from the water, and then threw out that very intense but mysterious light mentioned in the report of several captains. This magnificent irradiation must have been produced by an agent of great SHINING power. The luminous part traced on the sea an immense oval, much elongated, the centre of which condensed a burning heat, whose overpowering brilliancy died out by successive gradations.

"It is only a massing of phosphoric particles," cried one of the officers.

"No, sir, certainly not," I replied. "That brightness is of an essentially electrical nature. Besides, see, see! it moves; it is moving forwards, backwards; it is darting towards us!"

A general cry arose from the frigate.

"Silence!" said the captain. "Up with the helm, reverse the engines."

The steam was shut off, and the Abraham Lincoln, beating to port, described a semicircle.

"Right the helm, go ahead," cried the captain.

These orders were executed, and the frigate moved rapidly from the burning light.

I was mistaken. She tried to sheer off, but the supernatural animal approached with a velocity double her own.

We gasped for breath. Stupefaction more than fear made us dumb and motionless. The animal gained on us, sporting with the waves. It made the round of the frigate, which was then making fourteen knots, and enveloped it with its electric rings like luminous dust.

Then it moved away two or three miles, leaving a phosphorescent track, like those volumes of steam that the express trains leave behind. All at once from the dark line of the horizon whither it retired to gain its momentum, the monster rushed suddenly towards the Abraham Lincoln with alarming rapidity, stopped suddenly about twenty feet from the hull, and died out—not diving under the water, for its brilliancy did not abate—but suddenly, and as if the source of this brilliant emanation was exhausted. Then it reappeared on the other side of the vessel, as if it had turned and slid under the hull. Any moment a collision might have occurred which would have been fatal to us. However, I was astonished at the manoeuvres of the frigate. She fled and did not attack.

On the captain's face, generally so impassive, was an expression of unaccountable astonishment.

"Mr. Aronnax," he said, "I do not know with what formidable being I have to deal, and I will not imprudently risk my frigate in the midst of this darkness.

Besides, how attack this unknown thing, how defend one's self from it? Wait for daylight, and the scene will change."

"You have no further doubt, captain, of the nature of the animal?"

"No, sir; it is evidently a gigantic narwhal, and an electric one."

"Perhaps," added I, "one can only approach it with a torpedo."

"Undoubtedly," replied the captain, "if it possesses such dreadful power, it is the most terrible animal that ever was created. That is why, sir, I must be on my guard."

The crew were on their feet all night. No one thought of sleep. The Abraham Lincoln, not being able to struggle with such velocity, had moderated its pace, and sailed at half speed. For its part, the narwhal, imitating the frigate, let the waves rock it at will, and seemed decided not to leave the scene of the struggle. Towards midnight, however, it disappeared, or, to use a more appropriate term, it "died out" like a large glow-worm. Had it fled? One could only fear, not hope it. But at seven minutes to one o'clock in the morning a deafening whistling was heard, like that produced by a body of water rushing with great violence.

The captain, Ned Land, and I were then on the poop, eagerly peering through the profound darkness.

"Ned Land," asked the commander, "you have often heard the roaring of whales?"

"Often, sir; but never such whales the sight of which brought me in two thousand dollars. If I can only approach within four harpoons' length of it!"

"But to approach it," said the commander, "I ought to put a whaler at your disposal?"

"Certainly, sir."

"That will be trifling with the lives of my men."

"And mine too," simply said the harpooner.

Towards two o'clock in the morning, the burning light reappeared, not less intense, about five miles to windward of the Abraham Lincoln. Notwithstanding the distance, and the noise of the wind and sea, one heard distinctly the loud strokes of the animal's tail, and even its panting breath. It seemed that, at the moment that the enormous narwhal had come to take breath at the surface of the water, the air was engulfed in its lungs, like the steam in the vast cylinders of a machine of two thousand horse-power.

"Hum!" thought I, "a whale with the strength of a cavalry regiment would be a pretty whale!"

We were on the qui vive till daylight, and prepared for the combat. The fishing implements were laid along the hammock nettings. The second lieutenant loaded the blunder busses, which could throw harpoons to the distance of a mile, and long duck-guns, with explosive bullets, which inflicted mortal wounds even to the most terrible animals. Ned Land contented himself with sharpening his harpoon—a terrible weapon in his hands.

At six o'clock day began to break; and, with the first glimmer of light, the electric light of the narwhal disappeared. At seven o'clock the day was sufficiently advanced, but a very thick sea fog obscured our view, and the best spy glasses could not pierce it. That caused disappointment and anger.

I climbed the mizzen-mast. Some officers were already perched on the mast-heads. At eight o'clock the fog lay heavily on the waves, and its thick scrolls rose little by little. The horizon grew wider and clearer at the same time. Suddenly, just as on the day before, Ned Land's voice was heard:

"The thing itself on the port quarter!" cried the harpooner.

Every eye was turned towards the point indicated. There, a mile and a half from the frigate, a long blackish body emerged a yard above the waves. Its tail, violently agitated, produced a considerable eddy. Never did a tail beat the sea with such violence. An immense track, of dazzling whiteness, marked the passage of the animal, and described a long curve.

The frigate approached the cetacean. I examined it thoroughly.

The reports of the Shannon and of the Helvetia had rather exaggerated its size, and I estimated its length at only two hundred and fifty feet. As to its

dimensions, I could only conjecture them to be admirably proportioned. While I watched this phenomenon, two jets of steam and water were ejected from its vents, and rose to the height of 120 feet; thus I ascertained its way of breathing. I concluded definitely that it belonged to the vertebrate branch, class mammalia.

The crew waited impatiently for their chief's orders. The latter, after having observed the animal attentively, called the engineer. The engineer ran to him.

"Sir," said the commander, "you have steam up?"

"Yes, sir," answered the engineer.

"Well, make up your fires and put on all steam."

Three hurrahs greeted this order. The time for the struggle had arrived. Some moments after, the two funnels of the frigate vomited torrents of black smoke, and the bridge quaked under the trembling of the boilers.

The Abraham Lincoln, propelled by her wonderful screw, went straight at the animal. The latter allowed it to come within half a cable's length; then, as if disdaining to dive, it took a little turn, and stopped a short distance off.

This pursuit lasted nearly three-quarters of an hour, without the frigate gaining two yards on the cetacean. It was quite evident that at that rate we should never come up with it.

"Well, Mr. Land," asked the captain, "do you advise me to put the boats out to sea?"

"No, sir," replied Ned Land; "because we shall not take that beast easily."

"What shall we do then?"

"Put on more steam if you can, sir. With your leave, I mean to post myself under the bowsprit, and, if we get within harpooning distance, I shall throw my harpoon."

"Go, Ned," said the captain. "Engineer, put on more pressure."

Ned Land went to his post. The fires were increased, the screw revolved

forty-three times a minute, and the steam poured out of the valves. We heaved the log, and calculated that the Abraham Lincoln was going at the rate of 18 1/2 miles an hour.

But the accursed animal swam at the same speed.

For a whole hour the frigate kept up this pace, without gaining six feet. It was humiliating for one of the swiftest sailers in the American navy. A stubborn anger seized the crew; the sailors abused the monster, who, as before, disdained to answer them; the captain no longer contented himself with twisting his beard —he gnawed it.

The engineer was called again.

"You have turned full steam on?"

"Yes, sir," replied the engineer.

The speed of the Abraham Lincoln increased. Its masts trembled down to their stepping holes, and the clouds of smoke could hardly find way out of the narrow funnels.

They heaved the log a second time.

"Well?" asked the captain of the man at the wheel.

"Nineteen miles and three-tenths, sir."

"Clap on more steam."

The engineer obeyed. The manometer showed ten degrees. But the cetacean grew warm itself, no doubt; for without straining itself, it made 19 3/10 miles.

What a pursuit! No, I cannot describe the emotion that vibrated through me. Ned Land kept his post, harpoon in hand. Several times the animal let us gain upon it.—"We shall catch it! we shall catch it!" cried the Canadian. But just as he was going to strike, the cetacean stole away with a rapidity that could not be estimated at less than thirty miles an hour, and even during our maximum of speed, it bullied the frigate, going round and round it. A cry of fury broke from everyone!

At noon we were no further advanced than at eight o'clock in the morning.

The captain then decided to take more direct means.

"Ah!" said he, "that animal goes quicker than the Abraham Lincoln. Very well! we will see whether it will escape these conical bullets. Send your men to the forecastle, sir."

The forecastle gun was immediately loaded and slewed round. But the shot passed some feet above the cetacean, which was half a mile off.

"Another, more to the right," cried the commander, "and five dollars to whoever will hit that infernal beast."

An old gunner with a grey beard—that I can see now—with steady eye and grave face, went up to the gun and took a long aim. A loud report was heard, with which were mingled the cheers of the crew.

The bullet did its work; it hit the animal, and, sliding off the rounded surface, was lost in two miles depth of sea.

The chase began again, and the captain, leaning towards me, said:

"I will pursue that beast till my frigate bursts up."

"Yes," answered I; "and you will be quite right to do it."

I wished the beast would exhaust itself, and not be insensible to fatigue like a steam engine. But it was of no use. Hours passed, without its showing any signs of exhaustion.

However, it must be said in praise of the Abraham Lincoln that she struggled on indefatigably. I cannot reckon the distance she made under three hundred miles during this unlucky day, November the 6th. But night came on, and overshadowed the rough ocean.

Now I thought our expedition was at an end, and that we should never again see the extraordinary animal. I was mistaken. At ten minutes to eleven in the evening, the electric light reappeared three miles to windward of the frigate, as pure, as intense as during the preceding night.

The narwhal seemed motionless; perhaps, tired with its day's work, it slept, letting itself float with the undulation of the waves. Now was a chance of which the captain resolved to take advantage.

He gave his orders. The Abraham Lincoln kept up half steam, and advanced cautiously so as not to awake its adversary. It is no rare thing to meet in the middle of the ocean whales so sound asleep that they can be successfully attacked, and Ned Land had harpooned more than one during its sleep. The Canadian went to take his place again under the bowsprit.

The frigate approached noiselessly, stopped at two cables' lengths from the animal, and following its track. No one breathed; a deep silence reigned on the bridge. We were not a hundred feet from the burning focus, the light of which increased and dazzled our eyes.

At this moment, leaning on the forecastle bulwark, I saw below me Ned Land grappling the martingale in one hand, brandishing his terrible harpoon in the other, scarcely twenty feet from the motionless animal. Suddenly his arm straightened, and the harpoon was thrown; I heard the sonorous stroke of the weapon, which seemed to have struck a hard body. The electric light went out suddenly, and two enormous waterspouts broke over the bridge of the frigate, rushing like a torrent from stem to stern, overthrowing men, and breaking the lashings of the spars. A fearful shock followed, and, thrown over the rail without having time to stop myself, I fell into the sea.

## CHAPTER VII

## AN UNKNOWN SPECIES OF WHALE

This unexpected fall so stunned me that I have no clear recollection of my sensations at the time. I was at first drawn down to a depth of about twenty feet. I am a good swimmer (though without pretending to rival Byron or Edgar Poe, who were masters of the art), and in that plunge I did not lose my presence of mind. Two vigorous strokes brought me to the surface of the water. My first care was to look for the frigate. Had the crew seen me disappear? Had the Abraham Lincoln veered round? Would the captain put out a boat? Might I hope to be saved?

The darkness was intense. I caught a glimpse of a black mass disappearing in the east, its beacon lights dying out in the distance. It was the frigate! I was lost.

"Help, help!" I shouted, swimming towards the Abraham Lincoln in desperation.

My clothes encumbered me; they seemed glued to my body, and paralysed my movements.

I was sinking! I was suffocating!

"Help!"

This was my last cry. My mouth filled with water; I struggled against being drawn down the abyss. Suddenly my clothes were seized by a strong hand, and I felt myself quickly drawn up to the surface of the sea; and I heard, yes, I heard these words pronounced in my ear:

"If master would be so good as to lean on my shoulder, master would swim with much greater ease."

I seized with one hand my faithful Conseil's arm.

"Is it you?" said I, "you?"

"Myself," answered Conseil; "and waiting master's orders."

"That shock threw you as well as me into the sea?"

"No; but, being in my master's service, I followed him."

The worthy fellow thought that was but natural.

"And the frigate?" I asked.

"The frigate?" replied Conseil, turning on his back; "I think that master had better not count too much on her."

"You think so?"

"I say that, at the time I threw myself into the sea, I heard the men at the wheel say, `The screw and the rudder are broken.'

"Broken?"

"Yes, broken by the monster's teeth. It is the only injury the Abraham Lincoln has sustained. But it is a bad look-out for us—she no longer answers her helm."

"Then we are lost!"

"Perhaps so," calmly answered Conseil. "However, we have still several hours before us, and one can do a good deal in some hours."

Conseil's imperturbable coolness set me up again. I swam more vigorously; but, cramped by my clothes, which stuck to me like a leaden weight, I felt great difficulty in bearing up. Conseil saw this.

"Will master let me make a slit?" said he; and, slipping an open knife under my clothes, he ripped them up from top to bottom very rapidly. Then he cleverly slipped them off me, while I swam for both of us.

Then I did the same for Conseil, and we continued to swim near to each other.

Nevertheless, our situation was no less terrible. Perhaps our disappearance had not been noticed; and, if it had been, the frigate could not tack, being without its helm. Conseil argued on this supposition, and laid his plans accordingly. This quiet boy was perfectly self-possessed. We then decided that, as our only chance of safety was being picked up by the Abraham Lincoln's boats, we ought to manage so as to wait for them as long as possible. I resolved then to husband our strength, so that both should not be exhausted at the same time; and this is how we managed: while one of us lay on our back, quite still, with arms crossed, and legs stretched out, the other would swim and push the other on in front. This towing business did not last more than ten minutes each; and relieving each other thus, we could swim on for some hours, perhaps till day-break. Poor chance! but hope is so firmly rooted in the heart of man! Moreover, there were two of us. Indeed I declare (though it may seem improbable) if I sought to destroy all hope—if I wished to despair, I could not.

The collision of the frigate with the cetacean had occurred about eleven o'clock in the evening before. I reckoned then we should have eight hours to swim before sunrise, an operation quite practicable if we relieved each other. The sea, very calm, was in our favour. Sometimes I tried to pierce the intense darkness that was only dispelled by the phosphorescence caused by our movements. I watched the luminous waves that broke over my hand, whose mirror-like surface was spotted with silvery rings. One might have said that we were in a bath of quicksilver.

Near one o'clock in the morning, I was seized with dreadful fatigue. My limbs stiffened under the strain of violent cramp. Conseil was obliged to keep me up, and our preservation devolved on him alone. I heard the poor boy pant; his breathing became short and hurried. I found that he could not keep up much longer.

"Leave me! leave me!" I said to him.

"Leave my master? Never!" replied he. "I would drown first."

Just then the moon appeared through the fringes of a thick cloud that the wind was driving to the east. The surface of the sea glittered with its rays. This kindly light reanimated us. My head got better again. I looked at all points of the horizon. I saw the frigate! She was five miles from us, and looked like a dark mass, hardly discernible. But no boats!

I would have cried out. But what good would it have been at such a distance! My swollen lips could utter no sounds. Conseil could articulate some words, and I heard him repeat at intervals, "Help! help!"

Our movements were suspended for an instant; we listened. It might be only a singing in the ear, but it seemed to me as if a cry answered the cry from Conseil.

"Did you hear?" I murmured.

"Yes! Yes!"

And Conseil gave one more despairing cry.

This time there was no mistake! A human voice responded to ours! Was it the voice of another unfortunate creature, abandoned in the middle of the ocean, some other victim of the shock sustained by the vessel? Or rather was it a boat from the frigate, that was hailing us in the darkness?

Conseil made a last effort, and, leaning on my shoulder, while I struck out in a desperate effort, he raised himself half out of the water, then fell back exhausted.

"What did you see?"

"I saw——" murmured he; "I saw—but do not talk—reserve all your strength!"

What had he seen? Then, I know not why, the thought of the monster came into my head for the first time! But that voice! The time is past for Jonahs to take refuge in whales' bellies! However, Conseil was towing me again. He raised his head sometimes, looked before us, and uttered a cry of recognition, which was responded to by a voice that came nearer and nearer. I scarcely heard it. My strength was exhausted; my fingers stiffened; my hand afforded me support no longer; my mouth, convulsively opening, filled with salt water. Cold crept over me. I raised my head for the last time, then I sank.

At this moment a hard body struck me. I clung to it: then I felt that I was being drawn up, that I was brought to the surface of the water, that my chest collapsed—I fainted.

It is certain that I soon came to, thanks to the vigorous rubbings that I received. I half opened my eyes.

"Conseil!" I murmured.

"Does master call me?" asked Conseil.

Just then, by the waning light of the moon which was sinking down to the horizon, I saw a face which was not Conseil's and which I immediately recognised.

"Ned!" I cried.

"The same, sir, who is seeking his prize!" replied the Canadian.

"Were you thrown into the sea by the shock to the frigate?"

"Yes, Professor; but more fortunate than you, I was able to find a footing almost directly upon a floating island."

"An island?"

"Or, more correctly speaking, on our gigantic narwhal."

"Explain yourself, Ned!"

"Only I soon found out why my harpoon had not entered its skin and was blunted."

"Why, Ned, why?"

"Because, Professor, that beast is made of sheet iron."

The Canadian's last words produced a sudden revolution in my brain. I wriggled myself quickly to the top of the being, or object, half out of the water, which served us for a refuge. I kicked it. It was evidently a hard, impenetrable body, and not the soft substance that forms the bodies of the great marine mammalia. But this hard body might be a bony covering, like that of the antediluvian animals; and I should be free to class this monster among amphibious reptiles, such as tortoises or alligators.

Well, no! the blackish back that supported me was smooth, polished, without scales. The blow produced a metallic sound; and, incredible though it may be, it seemed, I might say, as if it was made of riveted plates.

There was no doubt about it! This monster, this natural phenomenon that had puzzled the learned world, and over thrown and misled the imagination of seamen of both hemispheres, it must be owned was a still more astonishing phenomenon, inasmuch as it was a simply human construction.

We had no time to lose, however. We were lying upon the back of a sort of submarine boat, which appeared (as far as I could judge) like a huge fish of steel. Ned Land's mind was made up on this point. Conseil and I could only agree with him.

Just then a bubbling began at the back of this strange thing (which was evidently propelled by a screw), and it began to move. We had only just time to seize hold of the upper part, which rose about seven feet out of the water, and happily its speed was not great.

"As long as it sails horizontally," muttered Ned Land, "I do not mind; but, if it takes a fancy to dive, I would not give two straws for my life."

The Canadian might have said still less. It became really necessary to

communicate with the beings, whatever they were, shut up inside the machine. I searched all over the outside for an aperture, a panel, or a manhole, to use a technical expression; but the lines of the iron rivets, solidly driven into the joints of the iron plates, were clear and uniform. Besides, the moon disappeared then, and left us in total darkness.

At last this long night passed. My indistinct remembrance prevents my describing all the impressions it made. I can only recall one circumstance. During some lulls of the wind and sea, I fancied I heard several times vague sounds, a sort of fugitive harmony produced by words of command. What was, then, the mystery of this submarine craft, of which the whole world vainly sought an explanation? What kind of beings existed in this strange boat? What mechanical agent caused its prodigious speed?

Daybreak appeared. The morning mists surrounded us, but they soon cleared off. I was about to examine the hull, which formed on deck a kind of horizontal platform, when I felt it gradually sinking.

"Oh! confound it!" cried Ned Land, kicking the resounding plate. "Open, you inhospitable rascals!"

Happily the sinking movement ceased. Suddenly a noise, like iron works violently pushed aside, came from the interior of the boat. One iron plate was moved, a man appeared, uttered an odd cry, and disappeared immediately.

Some moments after, eight strong men, with masked faces, appeared noiselessly, and drew us down into their formidable machine.

## CHAPTER VIII

## MOBILIS IN MOBILI

This forcible abduction, so roughly carried out, was accomplished with the rapidity of lightning. I shivered all over. Whom had we to deal with? No doubt some new sort of pirates, who explored the sea in their own way. Hardly had the

narrow panel closed upon me, when I was enveloped in darkness. My eyes, dazzled with the outer light, could distinguish nothing. I felt my naked feet cling to the rungs of an iron ladder. Ned Land and Conseil, firmly seized, followed me. At the bottom of the ladder, a door opened, and shut after us immediately with a bang.

We were alone. Where, I could not say, hardly imagine. All was black, and such a dense black that, after some minutes, my eyes had not been able to discern even the faintest glimmer.

Meanwhile, Ned Land, furious at these proceedings, gave free vent to his indignation.

"Confound it!" cried he, "here are people who come up to the Scotch for hospitality. They only just miss being cannibals. I should not be surprised at it, but I declare that they shall not eat me without my protesting."

"Calm yourself, friend Ned, calm yourself," replied Conseil, quietly. "Do not cry out before you are hurt. We are not quite done for yet."

"Not quite," sharply replied the Canadian, "but pretty near, at all events. Things look black. Happily, my bowie knife I have still, and I can always see well enough to use it. The first of these pirates who lays a hand on me——"

"Do not excite yourself, Ned," I said to the harpooner, "and do not compromise us by useless violence. Who knows that they will not listen to us? Let us rather try to find out where we are."

I groped about. In five steps I came to an iron wall, made of plates bolted together. Then turning back I struck against a wooden table, near which were ranged several stools. The boards of this prison were concealed under a thick mat, which deadened the noise of the feet. The bare walls revealed no trace of window or door. Conseil, going round the reverse way, met me, and we went back to the middle of the cabin, which measured about twenty feet by ten. As to its height, Ned Land, in spite of his own great height, could not measure it.

Half an hour had already passed without our situation being bettered, when the dense darkness suddenly gave way to extreme light. Our prison was suddenly lighted, that is to say, it became filled with a luminous matter, so strong that I could not bear it at first. In its whiteness and intensity I recognised that electric

light which played round the submarine boat like a magnificent phenomenon of phosphorescence. After shutting my eyes involuntarily, I opened them, and saw that this luminous agent came from a half globe, unpolished, placed in the roof of the cabin.

"At last one can see," cried Ned Land, who, knife in hand, stood on the defensive.

"Yes," said I; "but we are still in the dark about ourselves."

"Let master have patience," said the imperturbable Conseil.

The sudden lighting of the cabin enabled me to examine it minutely. It only contained a table and five stools. The invisible door might be hermetically sealed. No noise was heard. All seemed dead in the interior of this boat. Did it move, did it float on the surface of the ocean, or did it dive into its depths? I could not guess.

A noise of bolts was now heard, the door opened, and two men appeared.

One was short, very muscular, broad-shouldered, with robust limbs, strong head, an abundance of black hair, thick moustache, a quick penetrating look, and the vivacity which characterises the population of Southern France.

The second stranger merits a more detailed description. I made out his prevailing qualities directly: self-confidence—because his head was well set on his shoulders, and his black eyes looked around with cold assurance; calmness—for his skin, rather pale, showed his coolness of blood; energy—evinced by the rapid contraction of his lofty brows; and courage—because his deep breathing denoted great power of lungs.

Whether this person was thirty-five or fifty years of age, I could not say. He was tall, had a large forehead, straight nose, a clearly cut mouth, beautiful teeth, with fine taper hands, indicative of a highly nervous temperament. This man was certainly the most admirable specimen I had ever met. One particular feature was his eyes, rather far from each other, and which could take in nearly a quarter of the horizon at once.

This faculty—(I verified it later)—gave him a range of vision far superior to Ned Land's. When this stranger fixed upon an object, his eyebrows met, his large

eyelids closed around so as to contract the range of his vision, and he looked as if he magnified the objects lessened by distance, as if he pierced those sheets of water so opaque to our eyes, and as if he read the very depths of the seas.

The two strangers, with caps made from the fur of the sea otter, and shod with sea boots of seal's skin, were dressed in clothes of a particular texture, which allowed free movement of the limbs. The taller of the two, evidently the chief on board, examined us with great attention, without saying a word; then, turning to his companion, talked with him in an unknown tongue. It was a sonorous, harmonious, and flexible dialect, the vowels seeming to admit of very varied accentuation.

The other replied by a shake of the head, and added two or three perfectly incomprehensible words. Then he seemed to question me by a look.

I replied in good French that I did not know his language; but he seemed not to understand me, and my situation became more embarrassing.

"If master were to tell our story," said Conseil, "perhaps these gentlemen may understand some words."

I began to tell our adventures, articulating each syllable clearly, and without omitting one single detail. I announced our names and rank, introducing in person Professor Aronnax, his servant Conseil, and master Ned Land, the harpooner.

The man with the soft calm eyes listened to me quietly, even politely, and with extreme attention; but nothing in his countenance indicated that he had understood my story. When I finished, he said not a word.

There remained one resource, to speak English. Perhaps they would know this almost universal language. I knew it—as well as the German language—well enough to read it fluently, but not to speak it correctly. But, anyhow, we must make ourselves understood.

"Go on in your turn," I said to the harpooner; "speak your best Anglo-Saxon, and try to do better than I."

Ned did not beg off, and recommenced our story.

To his great disgust, the harpooner did not seem to have made himself more intelligible than I had. Our visitors did not stir. They evidently understood neither the language of England nor of France.

Very much embarrassed, after having vainly exhausted our speaking resources, I knew not what part to take, when Conseil said:

"If master will permit me, I will relate it in German."

But in spite of the elegant terms and good accent of the narrator, the German language had no success. At last, nonplussed, I tried to remember my first lessons, and to narrate our adventures in Latin, but with no better success. This last attempt being of no avail, the two strangers exchanged some words in their unknown language, and retired.

The door shut.

"It is an infamous shame," cried Ned Land, who broke out for the twentieth time. "We speak to those rogues in French, English, German, and Latin, and not one of them has the politeness to answer!"

"Calm yourself," I said to the impetuous Ned; "anger will do no good."

"But do you see, Professor," replied our irascible companion, "that we shall absolutely die of hunger in this iron cage?"

"Bah!" said Conseil, philosophically; "we can hold out some time yet."

"My friends," I said, "we must not despair. We have been worse off than this. Do me the favour to wait a little before forming an opinion upon the commander and crew of this boat."

"My opinion is formed," replied Ned Land, sharply. "They are rascals."

"Good! and from what country?"

"From the land of rogues!"

"My brave Ned, that country is not clearly indicated on the map of the world; but I admit that the nationality of the two strangers is hard to determine. Neither

English, French, nor German, that is quite certain. However, I am inclined to think that the commander and his companion were born in low latitudes. There is southern blood in them. But I cannot decide by their appearance whether they are Spaniards, Turks, Arabians, or Indians. As to their language, it is quite incomprehensible."

"There is the disadvantage of not knowing all languages," said Conseil, "or the disadvantage of not having one universal language."

As he said these words, the door opened. A steward entered. He brought us clothes, coats and trousers, made of a stuff I did not know. I hastened to dress myself, and my companions followed my example. During that time, the steward —dumb, perhaps deaf—had arranged the table, and laid three plates.

"This is something like!" said Conseil.

"Bah!" said the angry harpooner, "what do you suppose they eat here? Tortoise liver, filleted shark, and beef steaks from seadogs."

"We shall see," said Conseil.

The dishes, of bell metal, were placed on the table, and we took our places. Undoubtedly we had to do with civilised people, and, had it not been for the electric light which flooded us, I could have fancied I was in the dining-room of the Adelphi Hotel at Liverpool, or at the Grand Hotel in Paris. I must say, however, that there was neither bread nor wine. The water was fresh and clear, but it was water and did not suit Ned Land's taste. Amongst the dishes which were brought to us, I recognised several fish delicately dressed; but of some, although excellent, I could give no opinion, neither could I tell to what kingdom they belonged, whether animal or vegetable. As to the dinner-service, it was elegant, and in perfect taste. Each utensil—spoon, fork, knife, plate—had a letter engraved on it, with a motto above it, of which this is an exact facsimile:

MOBILIS IN MOBILI N

The letter N was no doubt the initial of the name of the enigmatical person who commanded at the bottom of the seas.

Ned and Conseil did not reflect much. They devoured the food, and I did likewise. I was, besides, reassured as to our fate; and it seemed evident that our hosts would not let us die of want.

However, everything has an end, everything passes away, even the hunger of people who have not eaten for fifteen hours. Our appetites satisfied, we felt overcome with sleep.

"Faith! I shall sleep well," said Conseil.

"So shall I," replied Ned Land.

My two companions stretched themselves on the cabin carpet, and were soon sound asleep. For my own part, too many thoughts crowded my brain, too many insoluble questions pressed upon me, too many fancies kept my eyes half open. Where were we? What strange power carried us on? I felt—or rather fancied I felt—the machine sinking down to the lowest beds of the sea. Dreadful nightmares beset me; I saw in these mysterious asylums a world of unknown animals, amongst which this submarine boat seemed to be of the same kind, living, moving, and formidable as they. Then my brain grew calmer, my imagination wandered into vague unconsciousness, and I soon fell into a deep sleep.

## CHAPTER IX

## NED LAND'S TEMPERS

How long we slept I do not know; but our sleep must have lasted long, for it rested us completely from our fatigues. I woke first. My companions had not moved, and were still stretched in their corner.

Hardly roused from my somewhat hard couch, I felt my brain freed, my mind clear. I then began an attentive examination of our cell. Nothing was changed inside. The prison was still a prison—the prisoners, prisoners. However, the steward, during our sleep, had cleared the table. I breathed with difficulty. The

heavy air seemed to oppress my lungs. Although the cell was large, we had evidently consumed a great part of the oxygen that it contained. Indeed, each man consumes, in one hour, the oxygen contained in more than 176 pints of air, and this air, charged (as then) with a nearly equal quantity of carbonic acid, becomes unbreathable.

It became necessary to renew the atmosphere of our prison, and no doubt the whole in the submarine boat. That gave rise to a question in my mind. How would the commander of this floating dwelling-place proceed? Would he obtain air by chemical means, in getting by heat the oxygen contained in chlorate of potash, and in absorbing carbonic acid by caustic potash? Or—a more convenient, economical, and consequently more probable alternative—would he be satisfied to rise and take breath at the surface of the water, like a whale, and so renew for twenty-four hours the atmospheric provision?

In fact, I was already obliged to increase my respirations to eke out of this cell the little oxygen it contained, when suddenly I was refreshed by a current of pure air, and perfumed with saline emanations. It was an invigorating sea breeze, charged with iodine. I opened my mouth wide, and my lungs saturated themselves with fresh particles.

At the same time I felt the boat rolling. The iron-plated monster had evidently just risen to the surface of the ocean to breathe, after the fashion of whales. I found out from that the mode of ventilating the boat.

When I had inhaled this air freely, I sought the conduit pipe, which conveyed to us the beneficial whiff, and I was not long in finding it. Above the door was a ventilator, through which volumes of fresh air renewed the impoverished atmosphere of the cell.

I was making my observations, when Ned and Conseil awoke almost at the same time, under the influence of this reviving air. They rubbed their eyes, stretched themselves, and were on their feet in an instant.

"Did master sleep well?" asked Conseil, with his usual politeness.

"Very well, my brave boy. And you, Mr. Land?"

"Soundly, Professor. But, I don't know if I am right or not, there seems to be a sea breeze!"

A seaman could not be mistaken, and I told the Canadian all that had passed during his sleep.

"Good!" said he. "That accounts for those roarings we heard, when the supposed narwhal sighted the Abraham Lincoln."

"Quite so, Master Land; it was taking breath."

"Only, Mr. Aronnax, I have no idea what o'clock it is, unless it is dinner-time."

"Dinner-time! my good fellow? Say rather breakfast-time, for we certainly have begun another day."

"So," said Conseil, "we have slept twenty-four hours?"

"That is my opinion."

"I will not contradict you," replied Ned Land. "But, dinner or breakfast, the steward will be welcome, whichever he brings."

"Master Land, we must conform to the rules on board, and I suppose our appetites are in advance of the dinner hour."

"That is just like you, friend Conseil," said Ned, impatiently. "You are never out of temper, always calm; you would return thanks before grace, and die of hunger rather than complain!"

Time was getting on, and we were fearfully hungry; and this time the steward did not appear. It was rather too long to leave us, if they really had good intentions towards us. Ned Land, tormented by the cravings of hunger, got still more angry; and, notwithstanding his promise, I dreaded an explosion when he found himself with one of the crew.

For two hours more Ned Land's temper increased; he cried, he shouted, but in vain. The walls were deaf. There was no sound to be heard in the boat; all was still as death. It did not move, for I should have felt the trembling motion of the hull under the influence of the screw. Plunged in the depths of the waters, it belonged no longer to earth: this silence was dreadful.

I felt terrified, Conseil was calm, Ned Land roared.

Just then a noise was heard outside. Steps sounded on the metal flags. The locks were turned, the door opened, and the steward appeared.

Before I could rush forward to stop him, the Canadian had thrown him down, and held him by the throat. The steward was choking under the grip of his powerful hand.

Conseil was already trying to unclasp the harpooner's hand from his half-suffocated victim, and I was going to fly to the rescue, when suddenly I was nailed to the spot by hearing these words in French:

"Be quiet, Master Land; and you, Professor, will you be so good as to listen to me?"

## CHAPTER X

## THE MAN OF THE SEAS

It was the commander of the vessel who thus spoke.

At these words, Ned Land rose suddenly. The steward, nearly strangled, tottered out on a sign from his master. But such was the power of the commander on board, that not a gesture betrayed the resentment which this man must have felt towards the Canadian. Conseil interested in spite of himself, I stupefied, awaited in silence the result of this scene.

The commander, leaning against the corner of a table with his arms folded, scanned us with profound attention. Did he hesitate to speak? Did he regret the words which he had just spoken in French? One might almost think so.

After some moments of silence, which not one of us dreamed of breaking, "Gentlemen," said he, in a calm and penetrating voice, "I speak French, English, German, and Latin equally well. I could, therefore, have answered you at our

first interview, but I wished to know you first, then to reflect. The story told by each one, entirely agreeing in the main points, convinced me of your identity. I know now that chance has brought before me M. Pierre Aronnax, Professor of Natural History at the Museum of Paris, entrusted with a scientific mission abroad, Conseil, his servant, and Ned Land, of Canadian origin, harpooner on board the frigate Abraham Lincoln of the navy of the United States of America."

I bowed assent. It was not a question that the commander put to me. Therefore there was no answer to be made. This man expressed himself with perfect ease, without any accent. His sentences were well turned, his words clear, and his fluency of speech remarkable. Yet, I did not recognise in him a fellow-countryman.

He continued the conversation in these terms:

"You have doubtless thought, sir, that I have delayed long in paying you this second visit. The reason is that, your identity recognised, I wished to weigh maturely what part to act towards you. I have hesitated much. Most annoying circumstances have brought you into the presence of a man who has broken all the ties of humanity. You have come to trouble my existence."

"Unintentionally!" said I.

"Unintentionally?" replied the stranger, raising his voice a little. "Was it unintentionally that the Abraham Lincoln pursued me all over the seas? Was it unintentionally that you took passage in this frigate? Was it unintentionally that your cannon-balls rebounded off the plating of my vessel? Was it unintentionally that Mr. Ned Land struck me with his harpoon?"

I detected a restrained irritation in these words. But to these recriminations I had a very natural answer to make, and I made it.

"Sir," said I, "no doubt you are ignorant of the discussions which have taken place concerning you in America and Europe. You do not know that divers accidents, caused by collisions with your submarine machine, have excited public feeling in the two continents. I omit the theories without number by which it was sought to explain that of which you alone possess the secret. But you must understand that, in pursuing you over the high seas of the Pacific, the Abraham Lincoln believed itself to be chasing some powerful sea-monster, of which it was necessary to rid the ocean at any price."

A half-smile curled the lips of the commander: then, in a calmer tone:

"M. Aronnax," he replied, "dare you affirm that your frigate would not as soon have pursued and cannonaded a submarine boat as a monster?"

This question embarrassed me, for certainly Captain Farragut might not have hesitated. He might have thought it his duty to destroy a contrivance of this kind, as he would a gigantic narwhal.

"You understand then, sir," continued the stranger, "that I have the right to treat you as enemies?"

I answered nothing, purposely. For what good would it be to discuss such a proposition, when force could destroy the best arguments?

"I have hesitated some time," continued the commander; "nothing obliged me to show you hospitality. If I chose to separate myself from you, I should have no interest in seeing you again; I could place you upon the deck of this vessel which has served you as a refuge, I could sink beneath the waters, and forget that you had ever existed. Would not that be my right?"

"It might be the right of a savage," I answered, "but not that of a civilised man."

"Professor," replied the commander, quickly, "I am not what you call a civilised man! I have done with society entirely, for reasons which I alone have the right of appreciating. I do not, therefore, obey its laws, and I desire you never to allude to them before me again!"

This was said plainly. A flash of anger and disdain kindled in the eyes of the Unknown, and I had a glimpse of a terrible past in the life of this man. Not only had he put himself beyond the pale of human laws, but he had made himself independent of them, free in the strictest acceptation of the word, quite beyond their reach! Who then would dare to pursue him at the bottom of the sea, when, on its surface, he defied all attempts made against him?

What vessel could resist the shock of his submarine monitor? What cuirass, however thick, could withstand the blows of his spur? No man could demand from him an account of his actions; God, if he believed in one—his conscience, if he had one—were the sole judges to whom he was answerable.

These reflections crossed my mind rapidly, whilst the stranger personage was silent, absorbed, and as if wrapped up in himself. I regarded him with fear mingled with interest, as, doubtless, OEdiphus regarded the Sphinx.

After rather a long silence, the commander resumed the conversation.

"I have hesitated," said he, "but I have thought that my interest might be reconciled with that pity to which every human being has a right. You will remain on board my vessel, since fate has cast you there. You will be free; and, in exchange for this liberty, I shall only impose one single condition. Your word of honour to submit to it will suffice."

"Speak, sir," I answered. "I suppose this condition is one which a man of honour may accept?"

"Yes, sir; it is this: It is possible that certain events, unforeseen, may oblige me to consign you to your cabins for some hours or some days, as the case may be. As I desire never to use violence, I expect from you, more than all the others, a passive obedience. In thus acting, I take all the responsibility: I acquit you entirely, for I make it an impossibility for you to see what ought not to be seen. Do you accept this condition?"

Then things took place on board which, to say the least, were singular, and which ought not to be seen by people who were not placed beyond the pale of social laws. Amongst the surprises which the future was preparing for me, this might not be the least.

"We accept," I answered; "only I will ask your permission, sir, to address one question to you—one only."

"Speak, sir."

"You said that we should be free on board."

"Entirely."

"I ask you, then, what you mean by this liberty?"

"Just the liberty to go, to come, to see, to observe even all that passes here save under rare circumstances—the liberty, in short, which we enjoy ourselves,

my companions and I."

It was evident that we did not understand one another.

"Pardon me, sir," I resumed, "but this liberty is only what every prisoner has of pacing his prison. It cannot suffice us."

"It must suffice you, however."

"What! we must renounce for ever seeing our country, our friends, our relations again?"

"Yes, sir. But to renounce that unendurable worldly yoke which men believe to be liberty is not perhaps so painful as you think."

"Well," exclaimed Ned Land, "never will I give my word of honour not to try to escape."

"I did not ask you for your word of honour, Master Land," answered the commander, coldly.

"Sir," I replied, beginning to get angry in spite of my self, "you abuse your situation towards us; it is cruelty."

"No, sir, it is clemency. You are my prisoners of war. I keep you, when I could, by a word, plunge you into the depths of the ocean. You attacked me. You came to surprise a secret which no man in the world must penetrate—the secret of my whole existence. And you think that I am going to send you back to that world which must know me no more? Never! In retaining you, it is not you whom I guard—it is myself."

These words indicated a resolution taken on the part of the commander, against which no arguments would prevail.

"So, sir," I rejoined, "you give us simply the choice between life and death?"

"Simply."

"My friends," said I, "to a question thus put, there is nothing to answer. But no word of honour binds us to the master of this vessel."

"None, sir," answered the Unknown.

Then, in a gentler tone, he continued:

"Now, permit me to finish what I have to say to you. I know you, M. Aronnax. You and your companions will not, perhaps, have so much to complain of in the chance which has bound you to my fate. You will find amongst the books which are my favourite study the work which you have published on `the depths of the sea.' I have often read it. You have carried out your work as far as terrestrial science permitted you. But you do not know all—you have not seen all. Let me tell you then, Professor, that you will not regret the time passed on board my vessel. You are going to visit the land of marvels."

These words of the commander had a great effect upon me. I cannot deny it. My weak point was touched; and I forgot, for a moment, that the contemplation of these sublime subjects was not worth the loss of liberty. Besides, I trusted to the future to decide this grave question. So I contented myself with saying:

"By what name ought I to address you?"

"Sir," replied the commander, "I am nothing to you but Captain Nemo; and you and your companions are nothing to me but the passengers of the Nautilus."

Captain Nemo called. A steward appeared. The captain gave him his orders in that strange language which I did not understand. Then, turning towards the Canadian and Conseil:

"A repast awaits you in your cabin," said he. "Be so good as to follow this man.

"And now, M. Aronnax, our breakfast is ready. Permit me to lead the way."

"I am at your service, Captain."

I followed Captain Nemo; and as soon as I had passed through the door, I found myself in a kind of passage lighted by electricity, similar to the waist of a ship. After we had proceeded a dozen yards, a second door opened before me.

I then entered a dining-room, decorated and furnished in severe taste. High oaken sideboards, inlaid with ebony, stood at the two extremities of the room,

and upon their shelves glittered china, porcelain, and glass of inestimable value. The plate on the table sparkled in the rays which the luminous ceiling shed around, while the light was tempered and softened by exquisite paintings.

In the centre of the room was a table richly laid out. Captain Nemo indicated the place I was to occupy.

The breakfast consisted of a certain number of dishes, the contents of which were furnished by the sea alone; and I was ignorant of the nature and mode of preparation of some of them. I acknowledged that they were good, but they had a peculiar flavour, which I easily became accustomed to. These different aliments appeared to me to be rich in phosphorus, and I thought they must have a marine origin.

Captain Nemo looked at me. I asked him no questions, but he guessed my thoughts, and answered of his own accord the questions which I was burning to address to him.

"The greater part of these dishes are unknown to you," he said to me. "However, you may partake of them without fear. They are wholesome and nourishing. For a long time I have renounced the food of the earth, and I am never ill now. My crew, who are healthy, are fed on the same food."

"So," said I, "all these eatables are the produce of the sea?"

"Yes, Professor, the sea supplies all my wants. Sometimes I cast my nets in tow, and I draw them in ready to break. Sometimes I hunt in the midst of this element, which appears to be inaccessible to man, and quarry the game which dwells in my submarine forests. My flocks, like those of Neptune's old shepherds, graze fearlessly in the immense prairies of the ocean. I have a vast property there, which I cultivate myself, and which is always sown by the hand of the Creator of all things."

"I can understand perfectly, sir, that your nets furnish excellent fish for your table; I can understand also that you hunt aquatic game in your submarine forests; but I cannot understand at all how a particle of meat, no matter how small, can figure in your bill of fare."

"This, which you believe to be meat, Professor, is nothing else than fillet of turtle. Here are also some dolphins' livers, which you take to be ragout of pork.

My cook is a clever fellow, who excels in dressing these various products of the ocean. Taste all these dishes. Here is a preserve of sea-cucumber, which a Malay would declare to be unrivalled in the world; here is a cream, of which the milk has been furnished by the cetacea, and the sugar by the great fucus of the North Sea; and, lastly, permit me to offer you some preserve of anemones, which is equal to that of the most delicious fruits."

I tasted, more from curiosity than as a connoisseur, whilst Captain Nemo enchanted me with his extraordinary stories.

"You like the sea, Captain?"

"Yes; I love it! The sea is everything. It covers seven tenths of the terrestrial globe. Its breath is pure and healthy. It is an immense desert, where man is never lonely, for he feels life stirring on all sides. The sea is only the embodiment of a supernatural and wonderful existence. It is nothing but love and emotion; it is the `Living Infinite,' as one of your poets has said. In fact, Professor, Nature manifests herself in it by her three kingdoms—mineral, vegetable, and animal. The sea is the vast reservoir of Nature. The globe began with sea, so to speak; and who knows if it will not end with it? In it is supreme tranquillity. The sea does not belong to despots. Upon its surface men can still exercise unjust laws, fight, tear one another to pieces, and be carried away with terrestrial horrors. But at thirty feet below its level, their reign ceases, their influence is quenched, and their power disappears. Ah! sir, live—live in the bosom of the waters! There only is independence! There I recognise no masters! There I am free!"

Captain Nemo suddenly became silent in the midst of this enthusiasm, by which he was quite carried away. For a few moments he paced up and down, much agitated. Then he became more calm, regained his accustomed coldness of expression, and turning towards me:

"Now, Professor," said he, "if you wish to go over the Nautilus, I am at your service."

Captain Nemo rose. I followed him. A double door, contrived at the back of the dining-room, opened, and I entered a room equal in dimensions to that which I had just quitted.

It was a library. High pieces of furniture, of black violet ebony inlaid with brass, supported upon their wide shelves a great number of books uniformly

bound. They followed the shape of the room, terminating at the lower part in huge divans, covered with brown leather, which were curved, to afford the greatest comfort. Light movable desks, made to slide in and out at will, allowed one to rest one's book while reading. In the centre stood an immense table, covered with pamphlets, amongst which were some newspapers, already of old date. The electric light flooded everything; it was shed from four unpolished globes half sunk in the volutes of the ceiling. I looked with real admiration at this room, so ingeniously fitted up, and I could scarcely believe my eyes.

"Captain Nemo," said I to my host, who had just thrown himself on one of the divans, "this is a library which would do honour to more than one of the continental palaces, and I am absolutely astounded when I consider that it can follow you to the bottom of the seas."

"Where could one find greater solitude or silence, Professor?" replied Captain Nemo. "Did your study in the Museum afford you such perfect quiet?"

"No, sir; and I must confess that it is a very poor one after yours. You must have six or seven thousand volumes here."

"Twelve thousand, M. Aronnax. These are the only ties which bind me to the earth. But I had done with the world on the day when my Nautilus plunged for the first time beneath the waters. That day I bought my last volumes, my last pamphlets, my last papers, and from that time I wish to think that men no longer think or write. These books, Professor, are at your service besides, and you can make use of them freely."

I thanked Captain Nemo, and went up to the shelves of the library. Works on science, morals, and literature abounded in every language; but I did not see one single work on political economy; that subject appeared to be strictly proscribed. Strange to say, all these books were irregularly arranged, in whatever language they were written; and this medley proved that the Captain of the Nautilus must have read indiscriminately the books which he took up by chance.

"Sir," said I to the Captain, "I thank you for having placed this library at my disposal. It contains treasures of science, and I shall profit by them."

"This room is not only a library," said Captain Nemo, "it is also a smoking-room."

"A smoking-room!" I cried. "Then one may smoke on board?"

"Certainly."

"Then, sir, I am forced to believe that you have kept up a communication with Havannah."

"Not any," answered the Captain. "Accept this cigar, M. Aronnax; and, though it does not come from Havannah, you will be pleased with it, if you are a connoisseur."

I took the cigar which was offered me; its shape recalled the London ones, but it seemed to be made of leaves of gold. I lighted it at a little brazier, which was supported upon an elegant bronze stem, and drew the first whiffs with the delight of a lover of smoking who has not smoked for two days.

"It is excellent, but it is not tobacco."

"No!" answered the Captain, "this tobacco comes neither from Havannah nor from the East. It is a kind of sea-weed, rich in nicotine, with which the sea provides me, but somewhat sparingly."

At that moment Captain Nemo opened a door which stood opposite to that by which I had entered the library, and I passed into an immense drawing-room splendidly lighted.

It was a vast, four-sided room, thirty feet long, eighteen wide, and fifteen high. A luminous ceiling, decorated with light arabesques, shed a soft clear light over all the marvels accumulated in this museum. For it was in fact a museum, in which an intelligent and prodigal hand had gathered all the treasures of nature and art, with the artistic confusion which distinguishes a painter's studio.

Thirty first-rate pictures, uniformly framed, separated by bright drapery, ornamented the walls, which were hung with tapestry of severe design. I saw works of great value, the greater part of which I had admired in the special collections of Europe, and in the exhibitions of paintings. The several schools of the old masters were represented by a Madonna of Raphael, a Virgin of Leonardo da Vinci, a nymph of Corregio, a woman of Titan, an Adoration of Veronese, an Assumption of Murillo, a portrait of Holbein, a monk of Velasquez, a martyr of Ribera, a fair of Rubens, two Flemish landscapes of Teniers, three

little "genre" pictures of Gerard Dow, Metsu, and Paul Potter, two specimens of Gericault and Prudhon, and some sea-pieces of Backhuysen and Vernet. Amongst the works of modern painters were pictures with the signatures of Delacroix, Ingres, Decamps, Troyon, Meissonier, Daubigny, etc.; and some admirable statues in marble and bronze, after the finest antique models, stood upon pedestals in the corners of this magnificent museum. Amazement, as the Captain of the Nautilus had predicted, had already begun to take possession of me.

"Professor," said this strange man, "you must excuse the unceremonious way in which I receive you, and the disorder of this room."

"Sir," I answered, "without seeking to know who you are, I recognise in you an artist."

"An amateur, nothing more, sir. Formerly I loved to collect these beautiful works created by the hand of man. I sought them greedily, and ferreted them out indefatigably, and I have been able to bring together some objects of great value. These are my last souvenirs of that world which is dead to me. In my eyes, your modern artists are already old; they have two or three thousand years of existence; I confound them in my own mind. Masters have no age."

"And these musicians?" said I, pointing out some works of Weber, Rossini, Mozart, Beethoven, Haydn, Meyerbeer, Herold, Wagner, Auber, Gounod, and a number of others, scattered over a large model piano-organ which occupied one of the panels of the drawing-room.

"These musicians," replied Captain Nemo, "are the contemporaries of Orpheus; for in the memory of the dead all chronological differences are effaced; and I am dead, Professor; as much dead as those of your friends who are sleeping six feet under the earth!"

Captain Nemo was silent, and seemed lost in a profound reverie. I contemplated him with deep interest, analysing in silence the strange expression of his countenance. Leaning on his elbow against an angle of a costly mosaic table, he no longer saw me,—he had forgotten my presence.

I did not disturb this reverie, and continued my observation of the curiosities which enriched this drawing-room.

Under elegant glass cases, fixed by copper rivets, were classed and labelled the most precious productions of the sea which had ever been presented to the eye of a naturalist. My delight as a professor may be conceived.

The division containing the zoophytes presented the most curious specimens of the two groups of polypi and echinodermes. In the first group, the tubipores, were gorgones arranged like a fan, soft sponges of Syria, ises of the Moluccas, pennatules, an admirable virgularia of the Norwegian seas, variegated unbellulairae, alcyonariae, a whole series of madrepores, which my master Milne Edwards has so cleverly classified, amongst which I remarked some wonderful flabellinae oculinae of the Island of Bourbon, the "Neptune's car" of the Antilles, superb varieties of corals—in short, every species of those curious polypi of which entire islands are formed, which will one day become continents. Of the echinodermes, remarkable for their coating of spines, asteri, sea-stars, pantacrinae, comatules, asterophons, echini, holothuri, etc., represented individually a complete collection of this group.

A somewhat nervous conchyliologist would certainly have fainted before other more numerous cases, in which were classified the specimens of molluscs. It was a collection of inestimable value, which time fails me to describe minutely. Amongst these specimens I will quote from memory only the elegant royal hammer-fish of the Indian Ocean, whose regular white spots stood out brightly on a red and brown ground, an imperial spondyle, bright-coloured, bristling with spines, a rare specimen in the European museums—(I estimated its value at not less than L1000); a common hammer-fish of the seas of New Holland, which is only procured with difficulty; exotic buccardia of Senegal; fragile white bivalve shells, which a breath might shatter like a soap-bubble; several varieties of the aspirgillum of Java, a kind of calcareous tube, edged with leafy folds, and much debated by amateurs; a whole series of trochi, some a greenish-yellow, found in the American seas, others a reddish-brown, natives of Australian waters; others from the Gulf of Mexico, remarkable for their imbricated shell; stellari found in the Southern Seas; and last, the rarest of all, the magnificent spur of New Zealand; and every description of delicate and fragile shells to which science has given appropriate names.

Apart, in separate compartments, were spread out chaplets of pearls of the greatest beauty, which reflected the electric light in little sparks of fire; pink pearls, torn from the pinna-marina of the Red Sea; green pearls of the haliotyde iris; yellow, blue and black pearls, the curious productions of the divers molluscs

of every ocean, and certain mussels of the water-courses of the North; lastly, several specimens of inestimable value which had been gathered from the rarest pintadines. Some of these pearls were larger than a pigeon's egg, and were worth as much, and more than that which the traveller Tavernier sold to the Shah of Persia for three millions, and surpassed the one in the possession of the Imaum of Muscat, which I had believed to be unrivalled in the world.

Therefore, to estimate the value of this collection was simply impossible. Captain Nemo must have expended millions in the acquirement of these various specimens, and I was thinking what source he could have drawn from, to have been able thus to gratify his fancy for collecting, when I was interrupted by these words:

"You are examining my shells, Professor? Unquestionably they must be interesting to a naturalist; but for me they have a far greater charm, for I have collected them all with my own hand, and there is not a sea on the face of the globe which has escaped my researches."

"I can understand, Captain, the delight of wandering about in the midst of such riches. You are one of those who have collected their treasures themselves. No museum in Europe possesses such a collection of the produce of the ocean. But if I exhaust all my admiration upon it, I shall have none left for the vessel which carries it. I do not wish to pry into your secrets: but I must confess that this Nautilus, with the motive power which is confined in it, the contrivances which enable it to be worked, the powerful agent which propels it, all excite my curiosity to the highest pitch. I see suspended on the walls of this room instruments of whose use I am ignorant."

"You will find these same instruments in my own room, Professor, where I shall have much pleasure in explaining their use to you. But first come and inspect the cabin which is set apart for your own use. You must see how you will be accommodated on board the Nautilus."

I followed Captain Nemo who, by one of the doors opening from each panel of the drawing-room, regained the waist. He conducted me towards the bow, and there I found, not a cabin, but an elegant room, with a bed, dressing-table, and several other pieces of excellent furniture.

I could only thank my host.

"Your room adjoins mine," said he, opening a door, "and mine opens into the drawing-room that we have just quitted."

I entered the Captain's room: it had a severe, almost a monkish aspect. A small iron bedstead, a table, some articles for the toilet; the whole lighted by a skylight. No comforts, the strictest necessaries only.

Captain Nemo pointed to a seat.

"Be so good as to sit down," he said. I seated myself, and he began thus:

## CHAPTER XI

## ALL BY ELECTRICITY

"Sir," said Captain Nemo, showing me the instruments hanging on the walls of his room, "here are the contrivances required for the navigation of the Nautilus. Here, as in the drawing-room, I have them always under my eyes, and they indicate my position and exact direction in the middle of the ocean. Some are known to you, such as the thermometer, which gives the internal temperature of the Nautilus; the barometer, which indicates the weight of the air and foretells the changes of the weather; the hygrometer, which marks the dryness of the atmosphere; the storm-glass, the contents of which, by decomposing, announce the approach of tempests; the compass, which guides my course; the sextant, which shows the latitude by the altitude of the sun; chronometers, by which I calculate the longitude; and glasses for day and night, which I use to examine the points of the horizon, when the Nautilus rises to the surface of the waves."

"These are the usual nautical instruments," I replied, "and I know the use of them. But these others, no doubt, answer to the particular requirements of the Nautilus. This dial with movable needle is a manometer, is it not?"

"It is actually a manometer. But by communication with the water, whose external pressure it indicates, it gives our depth at the same time."

"And these other instruments, the use of which I cannot guess?"

"Here, Professor, I ought to give you some explanations. Will you be kind enough to listen to me?"

He was silent for a few moments, then he said:

"There is a powerful agent, obedient, rapid, easy, which conforms to every use, and reigns supreme on board my vessel. Everything is done by means of it. It lights, warms it, and is the soul of my mechanical apparatus. This agent is electricity."

"Electricity?" I cried in surprise.

"Yes, sir."

"Nevertheless, Captain, you possess an extreme rapidity of movement, which does not agree well with the power of electricity. Until now, its dynamic force has remained under restraint, and has only been able to produce a small amount of power."

"Professor," said Captain Nemo, "my electricity is not everybody's. You know what sea-water is composed of. In a thousand grammes are found 96 1/2 per cent. of water, and about 2 2/3 per cent. of chloride of sodium; then, in a smaller quantity, chlorides of magnesium and of potassium, bromide of magnesium, sulphate of magnesia, sulphate and carbonate of lime. You see, then, that chloride of sodium forms a large part of it. So it is this sodium that I extract from the sea-water, and of which I compose my ingredients. I owe all to the ocean; it produces electricity, and electricity gives heat, light, motion, and, in a word, life to the Nautilus."

"But not the air you breathe?"

"Oh! I could manufacture the air necessary for my consumption, but it is useless, because I go up to the surface of the water when I please. However, if electricity does not furnish me with air to breathe, it works at least the powerful pumps that are stored in spacious reservoirs, and which enable me to prolong at need, and as long as I will, my stay in the depths of the sea. It gives a uniform and unintermittent light, which the sun does not. Now look at this clock; it is electrical, and goes with a regularity that defies the best chronometers. I have

divided it into twenty-four hours, like the Italian clocks, because for me there is neither night nor day, sun nor moon, but only that factitious light that I take with me to the bottom of the sea. Look! just now, it is ten o'clock in the morning."

"Exactly."

"Another application of electricity. This dial hanging in front of us indicates the speed of the Nautilus. An electric thread puts it in communication with the screw, and the needle indicates the real speed. Look! now we are spinning along with a uniform speed of fifteen miles an hour."

"It is marvelous! And I see, Captain, you were right to make use of this agent that takes the place of wind, water, and steam."

"We have not finished, M. Aronnax," said Captain Nemo, rising. "If you will allow me, we will examine the stern of the Nautilus."

Really, I knew already the anterior part of this submarine boat, of which this is the exact division, starting from the ship's head: the dining-room, five yards long, separated from the library by a water-tight partition; the library, five yards long; the large drawing-room, ten yards long, separated from the Captain's room by a second water-tight partition; the said room, five yards in length; mine, two and a half yards; and, lastly a reservoir of air, seven and a half yards, that extended to the bows. Total length thirty five yards, or one hundred and five feet. The partitions had doors that were shut hermetically by means of india-rubber instruments, and they ensured the safety of the Nautilus in case of a leak.

I followed Captain Nemo through the waist, and arrived at the centre of the boat. There was a sort of well that opened between two partitions. An iron ladder, fastened with an iron hook to the partition, led to the upper end. I asked the Captain what the ladder was used for.

"It leads to the small boat," he said.

"What! have you a boat?" I exclaimed, in surprise.

"Of course; an excellent vessel, light and insubmersible, that serves either as a fishing or as a pleasure boat."

"But then, when you wish to embark, you are obliged to come to the surface

of the water?"

"Not at all. This boat is attached to the upper part of the hull of the Nautilus, and occupies a cavity made for it. It is decked, quite water-tight, and held together by solid bolts. This ladder leads to a man-hole made in the hull of the Nautilus, that corresponds with a similar hole made in the side of the boat. By this double opening I get into the small vessel. They shut the one belonging to the Nautilus; I shut the other by means of screw pressure. I undo the bolts, and the little boat goes up to the surface of the sea with prodigious rapidity. I then open the panel of the bridge, carefully shut till then; I mast it, hoist my sail, take my oars, and I'm off."

"But how do you get back on board?"

"I do not come back, M. Aronnax; the Nautilus comes to me."

"By your orders?"

"By my orders. An electric thread connects us. I telegraph to it, and that is enough."

"Really," I said, astonished at these marvels, "nothing can be more simple."

After having passed by the cage of the staircase that led to the platform, I saw a cabin six feet long, in which Conseil and Ned Land, enchanted with their repast, were devouring it with avidity. Then a door opened into a kitchen nine feet long, situated between the large store-rooms. There electricity, better than gas itself, did all the cooking. The streams under the furnaces gave out to the sponges of platina a heat which was regularly kept up and distributed. They also heated a distilling apparatus, which, by evaporation, furnished excellent drinkable water. Near this kitchen was a bathroom comfortably furnished, with hot and cold water taps.

Next to the kitchen was the berth-room of the vessel, sixteen feet long. But the door was shut, and I could not see the management of it, which might have given me an idea of the number of men employed on board the Nautilus.

At the bottom was a fourth partition that separated this office from the engine-room. A door opened, and I found myself in the compartment where Captain Nemo—certainly an engineer of a very high order—had arranged his

locomotive machinery. This engine-room, clearly lighted, did not measure less than sixty-five feet in length. It was divided into two parts; the first contained the materials for producing electricity, and the second the machinery that connected it with the screw. I examined it with great interest, in order to understand the machinery of the Nautilus.

"You see," said the Captain, "I use Bunsen's contrivances, not Ruhmkorff's. Those would not have been powerful enough. Bunsen's are fewer in number, but strong and large, which experience proves to be the best. The electricity produced passes forward, where it works, by electro-magnets of great size, on a system of levers and cog-wheels that transmit the movement to the axle of the screw. This one, the diameter of which is nineteen feet, and the thread twenty-three feet, performs about 120 revolutions in a second."

"And you get then?"

"A speed of fifty miles an hour."

"I have seen the Nautilus manoeuvre before the Abraham Lincoln, and I have my own ideas as to its speed. But this is not enough. We must see where we go. We must be able to direct it to the right, to the left, above, below. How do you get to the great depths, where you find an increasing resistance, which is rated by hundreds of atmospheres? How do you return to the surface of the ocean? And how do you maintain yourselves in the requisite medium? Am I asking too much?"

"Not at all, Professor," replied the Captain, with some hesitation; "since you may never leave this submarine boat. Come into the saloon, it is our usual study, and there you will learn all you want to know about the Nautilus."

## CHAPTER XII

## SOME FIGURES

A moment after we were seated on a divan in the saloon smoking. The Captain showed me a sketch that gave the plan, section, and elevation of the Nautilus. Then he began his description in these words:

"Here, M. Aronnax, are the several dimensions of the boat you are in. It is an elongated cylinder with conical ends. It is very like a cigar in shape, a shape already adopted in London in several constructions of the same sort. The length of this cylinder, from stem to stern, is exactly 232 feet, and its maximum breadth is twenty-six feet. It is not built quite like your long-voyage steamers, but its lines are sufficiently long, and its curves prolonged enough, to allow the water to slide off easily, and oppose no obstacle to its passage. These two dimensions enable you to obtain by a simple calculation the surface and cubic contents of the Nautilus. Its area measures 6,032 feet; and its contents about 1,500 cubic yards; that is to say, when completely immersed it displaces 50,000 feet of water, or weighs 1,500 tons.

"When I made the plans for this submarine vessel, I meant that nine-tenths should be submerged: consequently it ought only to displace nine-tenths of its bulk, that is to say, only to weigh that number of tons. I ought not, therefore, to have exceeded that weight, constructing it on the aforesaid dimensions.

"The Nautilus is composed of two hulls, one inside, the other outside, joined by T-shaped irons, which render it very strong. Indeed, owing to this cellular arrangement it resists like a block, as if it were solid. Its sides cannot yield; it coheres spontaneously, and not by the closeness of its rivets; and its perfect union of the materials enables it to defy the roughest seas.

"These two hulls are composed of steel plates, whose density is from .7 to .8 that of water. The first is not less than two inches and a half thick and weighs 394 tons. The second envelope, the keel, twenty inches high and ten thick, weighs only sixty-two tons. The engine, the ballast, the several accessories and apparatus appendages, the partitions and bulkheads, weigh 961.62 tons. Do you follow all this?"

"I do."

"Then, when the Nautilus is afloat under these circumstances, one-tenth is out of the water. Now, if I have made reservoirs of a size equal to this tenth, or capable of holding 150 tons, and if I fill them with water, the boat, weighing then 1,507 tons, will be completely immersed. That would happen, Professor. These reservoirs are in the lower part of the Nautilus. I turn on taps and they fill, and the vessel sinks that had just been level with the surface."

"Well, Captain, but now we come to the real difficulty. I can understand your rising to the surface; but, diving below the surface, does not your submarine contrivance encounter a pressure, and consequently undergo an upward thrust of one atmosphere for every thirty feet of water, just about fifteen pounds per square inch?"

"Just so, sir."

"Then, unless you quite fill the Nautilus, I do not see how you can draw it down to those depths."

"Professor, you must not confound statics with dynamics or you will be exposed to grave errors. There is very little labour spent in attaining the lower regions of the ocean, for all bodies have a tendency to sink. When I wanted to find out the necessary increase of weight required to sink the Nautilus, I had only to calculate the reduction of volume that sea-water acquires according to the depth."

"That is evident."

"Now, if water is not absolutely incompressible, it is at least capable of very slight compression. Indeed, after the most recent calculations this reduction is only .000436 of an atmosphere for each thirty feet of depth. If we want to sink 3,000 feet, I should keep account of the reduction of bulk under a pressure equal to that of a column of water of a thousand feet. The calculation is easily verified. Now, I have supplementary reservoirs capable of holding a hundred tons. Therefore I can sink to a considerable depth. When I wish to rise to the level of the sea, I only let off the water, and empty all the reservoirs if I want the Nautilus to emerge from the tenth part of her total capacity."

I had nothing to object to these reasonings.

"I admit your calculations, Captain," I replied; "I should be wrong to dispute them since daily experience confirms them; but I foresee a real difficulty in the way."

"What, sir?"

"When you are about 1,000 feet deep, the walls of the Nautilus bear a pressure of 100 atmospheres. If, then, just now you were to empty the supplementary reservoirs, to lighten the vessel, and to go up to the surface, the pumps must overcome the pressure of 100 atmospheres, which is 1,500 lbs. per square inch. From that a power——"

"That electricity alone can give," said the Captain, hastily. "I repeat, sir, that the dynamic power of my engines is almost infinite. The pumps of the Nautilus have an enormous power, as you must have observed when their jets of water burst like a torrent upon the Abraham Lincoln. Besides, I use subsidiary reservoirs only to attain a mean depth of 750 to 1,000 fathoms, and that with a view of managing my machines. Also, when I have a mind to visit the depths of the ocean five or six mlles below the surface, I make use of slower but not less infallible means."

"What are they, Captain?"

"That involves my telling you how the Nautilus is worked."

"I am impatient to learn."

"To steer this boat to starboard or port, to turn, in a word, following a horizontal plan, I use an ordinary rudder fixed on the back of the stern-post, and with one wheel and some tackle to steer by. But I can also make the Nautilus rise and sink, and sink and rise, by a vertical movement by means of two inclined planes fastened to its sides, opposite the centre of flotation, planes that move in every direction, and that are worked by powerful levers from the interior. If the planes are kept parallel with the boat, it moves horizontally. If slanted, the Nautilus, according to this inclination, and under the influence of the screw, either sinks diagonally or rises diagonally as it suits me. And even if I wish to rise more quickly to the surface, I ship the screw, and the pressure of the water causes the Nautilus to rise vertically like a balloon filled with hydrogen."

"Bravo, Captain! But how can the steersman follow the route in the middle of

the waters?"

"The steersman is placed in a glazed box, that is raised about the hull of the Nautilus, and furnished with lenses."

"Are these lenses capable of resisting such pressure?"

"Perfectly. Glass, which breaks at a blow, is, nevertheless, capable of offering considerable resistance. During some experiments of fishing by electric light in 1864 in the Northern Seas, we saw plates less than a third of an inch thick resist a pressure of sixteen atmospheres. Now, the glass that I use is not less than thirty times thicker."

"Granted. But, after all, in order to see, the light must exceed the darkness, and in the midst of the darkness in the water, how can you see?"

"Behind the steersman's cage is placed a powerful electric reflector, the rays from which light up the sea for half a mile in front."

"Ah! bravo, bravo, Captain! Now I can account for this phosphorescence in the supposed narwhal that puzzled us so. I now ask you if the boarding of the Nautilus and of the Scotia, that has made such a noise, has been the result of a chance rencontre?"

"Quite accidental, sir. I was sailing only one fathom below the surface of the water when the shock came. It had no bad result."

"None, sir. But now, about your rencontre with the Abraham Lincoln?"

"Professor, I am sorry for one of the best vessels in the American navy; but they attacked me, and I was bound to defend myself. I contented myself, however, with putting the frigate hors de combat; she will not have any difficulty in getting repaired at the next port."

"Ah, Commander! your Nautilus is certainly a marvellous boat."

"Yes, Professor; and I love it as if it were part of myself. If danger threatens one of your vessels on the ocean, the first impression is the feeling of an abyss above and below. On the Nautilus men's hearts never fail them. No defects to be afraid of, for the double shell is as firm as iron; no rigging to attend to; no sails

for the wind to carry away; no boilers to burst; no fire to fear, for the vessel is made of iron, not of wood; no coal to run short, for electricity is the only mechanical agent; no collision to fear, for it alone swims in deep water; no tempest to brave, for when it dives below the water it reaches absolute tranquillity. There, sir! that is the perfection of vessels! And if it is true that the engineer has more confidence in the vessel than the builder, and the builder than the captain himself, you understand the trust I repose in my Nautilus; for I am at once captain, builder, and engineer."

"But how could you construct this wonderful Nautilus in secret?"

"Each separate portion, M. Aronnax, was brought from different parts of the globe."

"But these parts had to be put together and arranged?"

"Professor, I had set up my workshops upon a desert island in the ocean. There my workmen, that is to say, the brave men that I instructed and educated, and myself have put together our Nautilus. Then, when the work was finished, fire destroyed all trace of our proceedings on this island, that I could have jumped over if I had liked."

"Then the cost of this vessel is great?"

"M. Aronnax, an iron vessel costs L145 per ton. Now the Nautilus weighed 1,500. It came therefore to L67,500, and L80,000 more for fitting it up, and about L200,000, with the works of art and the collections it contains."

"One last question, Captain Nemo."

"Ask it, Professor."

"You are rich?"

"Immensely rich, sir; and I could, without missing it, pay the national debt of France."

I stared at the singular person who spoke thus. Was he playing upon my credulity? The future would decide that.

# CHAPTER XIII

# THE BLACK RIVER

The portion of the terrestrial globe which is covered by water is estimated at upwards of eighty millions of acres. This fluid mass comprises two billions two hundred and fifty millions of cubic miles, forming a spherical body of a diameter of sixty leagues, the weight of which would be three quintillions of tons. To comprehend the meaning of these figures, it is necessary to observe that a quintillion is to a billion as a billion is to unity; in other words, there are as many billions in a quintillion as there are units in a billion. This mass of fluid is equal to about the quantity of water which would be discharged by all the rivers of the earth in forty thousand years.

During the geological epochs the ocean originally prevailed everywhere. Then by degrees, in the silurian period, the tops of the mountains began to appear, the islands emerged, then disappeared in partial deluges, reappeared, became settled, formed continents, till at length the earth became geographically arranged, as we see in the present day. The solid had wrested from the liquid thirty-seven million six hundred and fifty-seven square miles, equal to twelve billions nine hundred and sixty millions of acres.

The shape of continents allows us to divide the waters into five great portions: the Arctic or Frozen Ocean, the Antarctic, or Frozen Ocean, the Indian, the Atlantic, and the Pacific Oceans.

The Pacific Ocean extends from north to south between the two Polar Circles, and from east to west between Asia and America, over an extent of 145 degrees of longitude. It is the quietest of seas; its currents are broad and slow, it has medium tides, and abundant rain. Such was the ocean that my fate destined me first to travel over under these strange conditions.

"Sir," said Captain Nemo, "we will, if you please, take our bearings and fix the starting-point of this voyage. It is a quarter to twelve; I will go up again to the surface."

The Captain pressed an electric clock three times. The pumps began to drive the water from the tanks; the needle of the manometer marked by a different pressure the ascent of the Nautilus, then it stopped.

"We have arrived," said the Captain.

I went to the central staircase which opened on to the platform, clambered up the iron steps, and found myself on the upper part of the Nautilus.

The platform was only three feet out of water. The front and back of the Nautilus was of that spindle-shape which caused it justly to be compared to a cigar. I noticed that its iron plates, slightly overlaying each other, resembled the shell which clothes the bodies of our large terrestrial reptiles. It explained to me how natural it was, in spite of all glasses, that this boat should have been taken for a marine animal.

Toward the middle of the platform the longboat, half buried in the hull of the vessel, formed a slight excrescence. Fore and aft rose two cages of medium height with inclined sides, and partly closed by thick lenticular glasses; one destined for the steersman who directed the Nautilus, the other containing a brilliant lantern to give light on the road.

The sea was beautiful, the sky pure. Scarcely could the long vehicle feel the broad undulations of the ocean. A light breeze from the east rippled the surface of the waters. The horizon, free from fog, made observation easy. Nothing was in sight. Not a quicksand, not an island. A vast desert.

Captain Nemo, by the help of his sextant, took the altitude of the sun, which ought also to give the latitude. He waited for some moments till its disc touched the horizon. Whilst taking observations not a muscle moved, the instrument could not have been more motionless in a hand of marble.

"Twelve o'clock, sir," said he. "When you like——"

I cast a last look upon the sea, slightly yellowed by the Japanese coast, and descended to the saloon.

"And now, sir, I leave you to your studies," added the Captain; "our course is E.N.E., our depth is twenty-six fathoms. Here are maps on a large scale by which you may follow it. The saloon is at your disposal, and, with your permission, I

will retire." Captain Nemo bowed, and I remained alone, lost in thoughts all bearing on the commander of the Nautilus.

For a whole hour was I deep in these reflections, seeking to pierce this mystery so interesting to me. Then my eyes fell upon the vast planisphere spread upon the table, and I placed my finger on the very spot where the given latitude and longitude crossed.

The sea has its large rivers like the continents. They are special currents known by their temperature and their colour. The most remarkable of these is known by the name of the Gulf Stream. Science has decided on the globe the direction of five principal currents: one in the North Atlantic, a second in the South, a third in the North Pacific, a fourth in the South, and a fifth in the Southern Indian Ocean. It is even probable that a sixth current existed at one time or another in the Northern Indian Ocean, when the Caspian and Aral Seas formed but one vast sheet of water.

At this point indicated on the planisphere one of these currents was rolling, the Kuro-Scivo of the Japanese, the Black River, which, leaving the Gulf of Bengal, where it is warmed by the perpendicular rays of a tropical sun, crosses the Straits of Malacca along the coast of Asia, turns into the North Pacific to the Aleutian Islands, carrying with it trunks of camphor-trees and other indigenous productions, and edging the waves of the ocean with the pure indigo of its warm water. It was this current that the Nautilus was to follow. I followed it with my eye; saw it lose itself in the vastness of the Pacific, and felt myself drawn with it, when Ned Land and Conseil appeared at the door of the saloon.

My two brave companions remained petrified at the sight of the wonders spread before them.

"Where are we, where are we?" exclaimed the Canadian. "In the museum at Quebec?"

"My friends," I answered, making a sign for them to enter, "you are not in Canada, but on board the Nautilus, fifty yards below the level of the sea."

"But, M. Aronnax," said Ned Land, "can you tell me how many men there are on board? Ten, twenty, fifty, a hundred?"

"I cannot answer you, Mr. Land; it is better to abandon for a time all idea of

seizing the Nautilus or escaping from it. This ship is a masterpiece of modern industry, and I should be sorry not to have seen it. Many people would accept the situation forced upon us, if only to move amongst such wonders. So be quiet and let us try and see what passes around us."

"See!" exclaimed the harpooner, "but we can see nothing in this iron prison! We are walking—we are sailing—blindly."

Ned Land had scarcely pronounced these words when all was suddenly darkness. The luminous ceiling was gone, and so rapidly that my eyes received a painful impression.

We remained mute, not stirring, and not knowing what surprise awaited us, whether agreeable or disagreeable. A sliding noise was heard: one would have said that panels were working at the sides of the Nautilus.

"It is the end of the end!" said Ned Land.

Suddenly light broke at each side of the saloon, through two oblong openings. The liquid mass appeared vividly lit up by the electric gleam. Two crystal plates separated us from the sea. At first I trembled at the thought that this frail partition might break, but strong bands of copper bound them, giving an almost infinite power of resistance.

The sea was distinctly visible for a mile all round the Nautilus. What a spectacle! What pen can describe it? Who could paint the effects of the light through those transparent sheets of water, and the softness of the successive gradations from the lower to the superior strata of the ocean?

We know the transparency of the sea and that its clearness is far beyond that of rock-water. The mineral and organic substances which it holds in suspension heightens its transparency. In certain parts of the ocean at the Antilles, under seventy-five fathoms of water, can be seen with surprising clearness a bed of sand. The penetrating power of the solar rays does not seem to cease for a depth of one hundred and fifty fathoms. But in this middle fluid travelled over by the Nautilus, the electric brightness was produced even in the bosom of the waves. It was no longer luminous water, but liquid light.

On each side a window opened into this unexplored abyss. The obscurity of the saloon showed to advantage the brightness outside, and we looked out as if

this pure crystal had been the glass of an immense aquarium.

"You wished to see, friend Ned; well, you see now."

"Curious! curious!" muttered the Canadian, who, forgetting his ill-temper, seemed to submit to some irresistible attraction; "and one would come further than this to admire such a sight!"

"Ah!" thought I to myself, "I understand the life of this man; he has made a world apart for himself, in which he treasures all his greatest wonders."

For two whole hours an aquatic army escorted the Nautilus. During their games, their bounds, while rivalling each other in beauty, brightness, and velocity, I distinguished the green labre; the banded mullet, marked by a double line of black; the round-tailed goby, of a white colour, with violet spots on the back; the Japanese scombrus, a beautiful mackerel of these seas, with a blue body and silvery head; the brilliant azurors, whose name alone defies description; some banded spares, with variegated fins of blue and yellow; the woodcocks of the seas, some specimens of which attain a yard in length; Japanese salamanders, spider lampreys, serpents six feet long, with eyes small and lively, and a huge mouth bristling with teeth; with many other species.

Our imagination was kept at its height, interjections followed quickly on each other. Ned named the fish, and Conseil classed them. I was in ecstasies with the vivacity of their movements and the beauty of their forms. Never had it been given to me to surprise these animals, alive and at liberty, in their natural element. I will not mention all the varieties which passed before my dazzled eyes, all the collection of the seas of China and Japan. These fish, more numerous than the birds of the air, came, attracted, no doubt, by the brilliant focus of the electric light.

Suddenly there was daylight in the saloon, the iron panels closed again, and the enchanting vision disappeared. But for a long time I dreamt on, till my eyes fell on the instruments hanging on the partition. The compass still showed the course to be E.N.E., the manometer indicated a pressure of five atmospheres, equivalent to a depth of twenty five fathoms, and the electric log gave a speed of fifteen miles an hour. I expected Captain Nemo, but he did not appear. The clock marked the hour of five.

Ned Land and Conseil returned to their cabin, and I retired to my chamber.

My dinner was ready. It was composed of turtle soup made of the most delicate hawks bills, of a surmullet served with puff paste (the liver of which, prepared by itself, was most delicious), and fillets of the emperor-holocanthus, the savour of which seemed to me superior even to salmon.

I passed the evening reading, writing, and thinking. Then sleep overpowered me, and I stretched myself on my couch of zostera, and slept profoundly, whilst the Nautilus was gliding rapidly through the current of the Black River.

## CHAPTER XIV

## A NOTE OF INVITATION

The next day was the 9th of November. I awoke after a long sleep of twelve hours. Conseil came, according to custom, to know "how I passed the night," and to offer his services. He had left his friend the Canadian sleeping like a man who had never done anything else all his life. I let the worthy fellow chatter as he pleased, without caring to answer him. I was preoccupied by the absence of the Captain during our sitting of the day before, and hoping to see him to-day.

As soon as I was dressed I went into the saloon. It was deserted. I plunged into the study of the shell treasures hidden behind the glasses.

The whole day passed without my being honoured by a visit from Captain Nemo. The panels of the saloon did not open. Perhaps they did not wish us to tire of these beautiful things.

The course of the Nautilus was E.N.E., her speed twelve knots, the depth below the surface between twenty-five and thirty fathoms.

The next day, 10th of November, the same desertion, the same solitude. I did not see one of the ship's crew: Ned and Conseil spent the greater part of the day with me. They were astonished at the puzzling absence of the Captain. Was this singular man ill?—had he altered his intentions with regard to us?

After all, as Conseil said, we enjoyed perfect liberty, we were delicately and abundantly fed. Our host kept to his terms of the treaty. We could not complain, and, indeed, the singularity of our fate reserved such wonderful compensation for us that we had no right to accuse it as yet.

That day I commenced the journal of these adventures which has enabled me to relate them with more scrupulous exactitude and minute detail.

11th November, early in the morning. The fresh air spreading over the interior of the Nautilus told me that we had come to the surface of the ocean to renew our supply of oxygen. I directed my steps to the central staircase, and mounted the platform.

It was six o'clock, the weather was cloudy, the sea grey, but calm. Scarcely a billow. Captain Nemo, whom I hoped to meet, would he be there? I saw no one but the steersman imprisoned in his glass cage. Seated upon the projection formed by the hull of the pinnace, I inhaled the salt breeze with delight.

By degrees the fog disappeared under the action of the sun's rays, the radiant orb rose from behind the eastern horizon. The sea flamed under its glance like a train of gunpowder. The clouds scattered in the heights were coloured with lively tints of beautiful shades, and numerous "mare's tails," which betokened wind for that day. But what was wind to this Nautilus, which tempests could not frighten!

I was admiring this joyous rising of the sun, so gay, and so life-giving, when I heard steps approaching the platform. I was prepared to salute Captain Nemo, but it was his second (whom I had already seen on the Captain's first visit) who appeared. He advanced on the platform, not seeming to see me. With his powerful glass to his eye, he scanned every point of the horizon with great attention. This examination over, he approached the panel and pronounced a sentence in exactly these terms. I have remembered it, for every morning it was repeated under exactly the same conditions. It was thus worded:

"Nautron respoc lorni virch."

What it meant I could not say.

These words pronounced, the second descended. I thought that the Nautilus was about to return to its submarine navigation. I regained the panel and returned to my chamber.

Five days sped thus, without any change in our situation. Every morning I mounted the platform. The same phrase was pronounced by the same individual. But Captain Nemo did not appear.

I had made up my mind that I should never see him again, when, on the 16th November, on returning to my room with Ned and Conseil, I found upon my table a note addressed to me. I opened it impatiently. It was written in a bold, clear hand, the characters rather pointed, recalling the German type. The note was worded as follows:

TO PROFESSOR ARONNAX, On board the Nautilus. 16th of November, 1867.

Captain Nemo invites Professor Aronnax to a hunting-party, which will take place to-morrow morning in the forests of the Island of Crespo. He hopes that nothing will prevent the Professor from being present, and he will with pleasure see him joined by his companions.

CAPTAIN NEMO, Commander of the Nautilus.

"A hunt!" exclaimed Ned.

"And in the forests of the Island of Crespo!" added Conseil.

"Oh! then the gentleman is going on terra firma?" replied Ned Land.

"That seems to me to be clearly indicated," said I, reading the letter once more.

"Well, we must accept," said the Canadian. "But once more on dry ground, we shall know what to do. Indeed, I shall not be sorry to eat a piece of fresh venison."

Without seeking to reconcile what was contradictory between Captain Nemo's manifest aversion to islands and continents, and his invitation to hunt in a forest, I contented myself with replying:

"Let us first see where the Island of Crespo is."

I consulted the planisphere, and in 32° 40' N. lat. and 157° 50' W. long., I found a small island, recognised in 1801 by Captain Crespo, and marked in the ancient Spanish maps as Rocca de la Plata, the meaning of which is The Silver Rock. We were then about eighteen hundred miles from our starting-point, and the course of the Nautilus, a little changed, was bringing it back towards the southeast.

I showed this little rock, lost in the midst of the North Pacific, to my companions.

"If Captain Nemo does sometimes go on dry ground," said I, "he at least chooses desert islands."

Ned Land shrugged his shoulders without speaking, and Conseil and he left me.

After supper, which was served by the steward, mute and impassive, I went to bed, not without some anxiety.

The next morning, the 17th of November, on awakening, I felt that the Nautilus was perfectly still. I dressed quickly and entered the saloon.

Captain Nemo was there, waiting for me. He rose, bowed, and asked me if it was convenient for me to accompany him. As he made no allusion to his absence during the last eight days, I did not mention it, and simply answered that my companions and myself were ready to follow him.

We entered the dining-room, where breakfast was served.

"M. Aronnax," said the Captain, "pray, share my breakfast without ceremony; we will chat as we eat. For, though I promised you a walk in the forest, I did not undertake to find hotels there. So breakfast as a man who will most likely not have his dinner till very late."

I did honour to the repast. It was composed of several kinds of fish, and slices of sea-cucumber, and different sorts of seaweed. Our drink consisted of pure water, to which the Captain added some drops of a fermented liquor, extracted by the Kamschatcha method from a seaweed known under the name of

Rhodomenia palmata. Captain Nemo ate at first without saying a word. Then he began:

"Sir, when I proposed to you to hunt in my submarine forest of Crespo, you evidently thought me mad. Sir, you should never judge lightly of any man."

"But Captain, believe me——"

"Be kind enough to listen, and you will then see whether you have any cause to accuse me of folly and contradiction."

"I listen."

"You know as well as I do, Professor, that man can live under water, providing he carries with him a sufficient supply of breathable air. In submarine works, the workman, clad in an impervious dress, with his head in a metal helmet, receives air from above by means of forcing pumps and regulators."

"That is a diving apparatus," said I.

"Just so, but under these conditions the man is not at liberty; he is attached to the pump which sends him air through an india-rubber tube, and if we were obliged to be thus held to the Nautilus, we could not go far."

"And the means of getting free?" I asked.

"It is to use the Rouquayrol apparatus, invented by two of your own countrymen, which I have brought to perfection for my own use, and which will allow you to risk yourself under these new physiological conditions without any organ whatever suffering. It consists of a reservoir of thick iron plates, in which I store the air under a pressure of fifty atmospheres. This reservoir is fixed on the back by means of braces, like a soldier's knapsack. Its upper part forms a box in which the air is kept by means of a bellows, and therefore cannot escape unless at its normal tension. In the Rouquayrol apparatus such as we use, two india rubber pipes leave this box and join a sort of tent which holds the nose and mouth; one is to introduce fresh air, the other to let out the foul, and the tongue closes one or the other according to the wants of the respirator. But I, in encountering great pressures at the bottom of the sea, was obliged to shut my head, like that of a diver in a ball of copper; and it is to this ball of copper that the two pipes, the inspirator and the expirator, open."

"Perfectly, Captain Nemo; but the air that you carry with you must soon be used; when it only contains fifteen per cent. of oxygen it is no longer fit to breathe."

"Right! But I told you, M. Aronnax, that the pumps of the Nautilus allow me to store the air under considerable pressure, and on those conditions the reservoir of the apparatus can furnish breathable air for nine or ten hours."

"I have no further objections to make," I answered. "I will only ask you one thing, Captain—how can you light your road at the bottom of the sea?"

"With the Ruhmkorff apparatus, M. Aronnax; one is carried on the back, the other is fastened to the waist. It is composed of a Bunsen pile, which I do not work with bichromate of potash, but with sodium. A wire is introduced which collects the electricity produced, and directs it towards a particularly made lantern. In this lantern is a spiral glass which contains a small quantity of carbonic gas. When the apparatus is at work this gas becomes luminous, giving out a white and continuous light. Thus provided, I can breathe and I can see."

"Captain Nemo, to all my objections you make such crushing answers that I dare no longer doubt. But, if I am forced to admit the Rouquayrol and Ruhmkorff apparatus, I must be allowed some reservations with regard to the gun I am to carry."

"But it is not a gun for powder," answered the Captain.

"Then it is an air-gun."

"Doubtless! How would you have me manufacture gun powder on board, without either saltpetre, sulphur, or charcoal?"

"Besides," I added, "to fire under water in a medium eight hundred and fifty-five times denser than the air, we must conquer very considerable resistance."

"That would be no difficulty. There exist guns, according to Fulton, perfected in England by Philip Coles and Burley, in France by Furcy, and in Italy by Landi, which are furnished with a peculiar system of closing, which can fire under these conditions. But I repeat, having no powder, I use air under great pressure, which the pumps of the Nautilus furnish abundantly."

"But this air must be rapidly used?"

"Well, have I not my Rouquayrol reservoir, which can furnish it at need? A tap is all that is required. Besides M. Aronnax, you must see yourself that, during our submarine hunt, we can spend but little air and but few balls."

"But it seems to me that in this twilight, and in the midst of this fluid, which is very dense compared with the atmosphere, shots could not go far, nor easily prove mortal."

"Sir, on the contrary, with this gun every blow is mortal; and, however lightly the animal is touched, it falls as if struck by a thunderbolt."

"Why?"

"Because the balls sent by this gun are not ordinary balls, but little cases of glass. These glass cases are covered with a case of steel, and weighted with a pellet of lead; they are real Leyden bottles, into which the electricity is forced to a very high tension. With the slightest shock they are discharged, and the animal, however strong it may be, falls dead. I must tell you that these cases are size number four, and that the charge for an ordinary gun would be ten."

"I will argue no longer," I replied, rising from the table. "I have nothing left me but to take my gun. At all events, I will go where you go."

Captain Nemo then led me aft; and in passing before Ned's and Conseil's cabin, I called my two companions, who followed promptly. We then came to a cell near the machinery-room, in which we put on our walking-dress.

## CHAPTER XV

## A WALK ON THE BOTTOM OF THE SEA

This cell was, to speak correctly, the arsenal and wardrobe of the Nautilus. A dozen diving apparatuses hung from the partition waiting our use.

Ned Land, on seeing them, showed evident repugnance to dress himself in one.

"But, my worthy Ned, the forests of the Island of Crespo are nothing but submarine forests."

"Good!" said the disappointed harpooner, who saw his dreams of fresh meat fade away. "And you, M. Aronnax, are you going to dress yourself in those clothes?"

"There is no alternative, Master Ned."

"As you please, sir," replied the harpooner, shrugging his shoulders; "but, as for me, unless I am forced, I will never get into one."

"No one will force you, Master Ned," said Captain Nemo.

"Is Conseil going to risk it?" asked Ned.

"I follow my master wherever he goes," replied Conseil.

At the Captain's call two of the ship's crew came to help us dress in these heavy and impervious clothes, made of india-rubber without seam, and constructed expressly to resist considerable pressure. One would have thought it a suit of armour, both supple and resisting. This suit formed trousers and waistcoat. The trousers were finished off with thick boots, weighted with heavy leaden soles. The texture of the waistcoat was held together by bands of copper, which crossed the chest, protecting it from the great pressure of the water, and leaving the lungs free to act; the sleeves ended in gloves, which in no way restrained the movement of the hands. There was a vast difference noticeable between these consummate apparatuses and the old cork breastplates, jackets, and other contrivances in vogue during the eighteenth century.

Captain Nemo and one of his companions (a sort of Hercules, who must have possessed great strength), Conseil and myself were soon enveloped in the dresses. There remained nothing more to be done but to enclose our heads in the metal box. But, before proceeding to this operation, I asked the Captain's permission to examine the guns.

One of the Nautilus men gave me a simple gun, the butt end of which, made

of steel, hollow in the centre, was rather large. It served as a reservoir for compressed air, which a valve, worked by a spring, allowed to escape into a metal tube. A box of projectiles in a groove in the thickness of the butt end contained about twenty of these electric balls, which, by means of a spring, were forced into the barrel of the gun. As soon as one shot was fired, another was ready.

"Captain Nemo," said I, "this arm is perfect, and easily handled: I only ask to be allowed to try it. But how shall we gain the bottom of the sea?"

"At this moment, Professor, the Nautilus is stranded in five fathoms, and we have nothing to do but to start."

"But how shall we get off?"

"You shall see."

Captain Nemo thrust his head into the helmet, Conseil and I did the same, not without hearing an ironical "Good sport!" from the Canadian. The upper part of our dress terminated in a copper collar upon which was screwed the metal helmet. Three holes, protected by thick glass, allowed us to see in all directions, by simply turning our head in the interior of the head-dress. As soon as it was in position, the Rouquayrol apparatus on our backs began to act; and, for my part, I could breathe with ease.

With the Ruhmkorff lamp hanging from my belt, and the gun in my hand, I was ready to set out. But to speak the truth, imprisoned in these heavy garments, and glued to the deck by my leaden soles, it was impossible for me to take a step.

But this state of things was provided for. I felt myself being pushed into a little room contiguous to the wardrobe room. My companions followed, towed along in the same way. I heard a water-tight door, furnished with stopper plates, close upon us, and we were wrapped in profound darkness.

After some minutes, a loud hissing was heard. I felt the cold mount from my feet to my chest. Evidently from some part of the vessel they had, by means of a tap, given entrance to the water, which was invading us, and with which the room was soon filled. A second door cut in the side of the Nautilus then opened. We saw a faint light. In another instant our feet trod the bottom of the sea.

And now, how can I retrace the impression left upon me by that walk under the waters? Words are impotent to relate such wonders! Captain Nemo walked in front, his companion followed some steps behind. Conseil and I remained near each other, as if an exchange of words had been possible through our metallic cases. I no longer felt the weight of my clothing, or of my shoes, of my reservoir of air, or my thick helmet, in the midst of which my head rattled like an almond in its shell.

The light, which lit the soil thirty feet below the surface of the ocean, astonished me by its power. The solar rays shone through the watery mass easily, and dissipated all colour, and I clearly distinguished objects at a distance of a hundred and fifty yards. Beyond that the tints darkened into fine gradations of ultramarine, and faded into vague obscurity. Truly this water which surrounded me was but another air denser than the terrestrial atmosphere, but almost as transparent. Above me was the calm surface of the sea. We were walking on fine, even sand, not wrinkled, as on a flat shore, which retains the impression of the billows. This dazzling carpet, really a reflector, repelled the rays of the sun with wonderful intensity, which accounted for the vibration which penetrated every atom of liquid. Shall I be believed when I say that, at the depth of thirty feet, I could see as if I was in broad daylight?

For a quarter of an hour I trod on this sand, sown with the impalpable dust of shells. The hull of the Nautilus, resembling a long shoal, disappeared by degrees; but its lantern, when darkness should overtake us in the waters, would help to guide us on board by its distinct rays.

Soon forms of objects outlined in the distance were discernible. I recognised magnificent rocks, hung with a tapestry of zoophytes of the most beautiful kind, and I was at first struck by the peculiar effect of this medium.

It was then ten in the morning; the rays of the sun struck the surface of the waves at rather an oblique angle, and at the touch of their light, decomposed by refraction as through a prism, flowers, rocks, plants, shells, and polypi were shaded at the edges by the seven solar colours. It was marvellous, a feast for the eyes, this complication of coloured tints, a perfect kaleidoscope of green, yellow, orange, violet, indigo, and blue; in one word, the whole palette of an enthusiastic colourist! Why could I not communicate to Conseil the lively sensations which were mounting to my brain, and rival him in expressions of admiration? For aught I knew, Captain Nemo and his companion might be able to exchange

thoughts by means of signs previously agreed upon. So, for want of better, I talked to myself; I declaimed in the copper box which covered my head, thereby expending more air in vain words than was perhaps wise.

Various kinds of isis, clusters of pure tuft-coral, prickly fungi, and anemones formed a brilliant garden of flowers, decked with their collarettes of blue tentacles, sea-stars studding the sandy bottom. It was a real grief to me to crush under my feet the brilliant specimens of molluscs which strewed the ground by thousands, of hammerheads, donaciae (veritable bounding shells), of staircases, and red helmet-shells, angel-wings, and many others produced by this inexhaustible ocean. But we were bound to walk, so we went on, whilst above our heads waved medusae whose umbrellas of opal or rose-pink, escalloped with a band of blue, sheltered us from the rays of the sun and fiery pelagiae, which, in the darkness, would have strewn our path with phosphorescent light.

All these wonders I saw in the space of a quarter of a mile, scarcely stopping, and following Captain Nemo, who beckoned me on by signs. Soon the nature of the soil changed; to the sandy plain succeeded an extent of slimy mud which the Americans call "ooze," composed of equal parts of silicious and calcareous shells. We then travelled over a plain of seaweed of wild and luxuriant vegetation. This sward was of close texture, and soft to the feet, and rivalled the softest carpet woven by the hand of man. But whilst verdure was spread at our feet, it did not abandon our heads. A light network of marine plants, of that inexhaustible family of seaweeds of which more than two thousand kinds are known, grew on the surface of the water.

I noticed that the green plants kept nearer the top of the sea, whilst the red were at a greater depth, leaving to the black or brown the care of forming gardens and parterres in the remote beds of the ocean.

We had quitted the Nautilus about an hour and a half. It was near noon; I knew by the perpendicularity of the sun's rays, which were no longer refracted. The magical colours disappeared by degrees, and the shades of emerald and sapphire were effaced. We walked with a regular step, which rang upon the ground with astonishing intensity; the slightest noise was transmitted with a quickness to which the ear is unaccustomed on the earth; indeed, water is a better conductor of sound than air, in the ratio of four to one. At this period the earth sloped downwards; the light took a uniform tint. We were at a depth of a hundred and five yards and twenty inches, undergoing a pressure of six

atmospheres.

At this depth I could still see the rays of the sun, though feebly; to their intense brilliancy had succeeded a reddish twilight, the lowest state between day and night; but we could still see well enough; it was not necessary to resort to the Ruhmkorff apparatus as yet. At this moment Captain Nemo stopped; he waited till I joined him, and then pointed to an obscure mass, looming in the shadow, at a short distance.

"It is the forest of the Island of Crespo," thought I; and I was not mistaken.

## CHAPTER XVI

## A SUBMARINE FOREST

We had at last arrived on the borders of this forest, doubtless one of the finest of Captain Nemo's immense domains. He looked upon it as his own, and considered he had the same right over it that the first men had in the first days of the world. And, indeed, who would have disputed with him the possession of this submarine property? What other hardier pioneer would come, hatchet in hand, to cut down the dark copses?

This forest was composed of large tree-plants; and the moment we penetrated under its vast arcades, I was struck by the singular position of their branches—a position I had not yet observed.

Not an herb which carpeted the ground, not a branch which clothed the trees, was either broken or bent, nor did they extend horizontally; all stretched up to the surface of the ocean. Not a filament, not a ribbon, however thin they might be, but kept as straight as a rod of iron. The fuci and llianas grew in rigid perpendicular lines, due to the density of the element which had produced them. Motionless yet, when bent to one side by the hand, they directly resumed their former position. Truly it was the region of perpendicularity!

I soon accustomed myself to this fantastic position, as well as to the

comparative darkness which surrounded us. The soil of the forest seemed covered with sharp blocks, difficult to avoid. The submarine flora struck me as being very perfect, and richer even than it would have been in the arctic or tropical zones, where these productions are not so plentiful. But for some minutes I involuntarily confounded the genera, taking animals for plants; and who would not have been mistaken? The fauna and the flora are too closely allied in this submarine world.

These plants are self-propagated, and the principle of their existence is in the water, which upholds and nourishes them. The greater number, instead of leaves, shoot forth blades of capricious shapes, comprised within a scale of colours pink, carmine, green, olive, fawn, and brown.

"Curious anomaly, fantastic element!" said an ingenious naturalist, "in which the animal kingdom blossoms, and the vegetable does not!"

In about an hour Captain Nemo gave the signal to halt; I, for my part, was not sorry, and we stretched ourselves under an arbour of alariae, the long thin blades of which stood up like arrows.

This short rest seemed delicious to me; there was nothing wanting but the charm of conversation; but, impossible to speak, impossible to answer, I only put my great copper head to Conseil's. I saw the worthy fellow's eyes glistening with delight, and, to show his satisfaction, he shook himself in his breastplate of air, in the most comical way in the world.

After four hours of this walking, I was surprised not to find myself dreadfully hungry. How to account for this state of the stomach I could not tell. But instead I felt an insurmountable desire to sleep, which happens to all divers. And my eyes soon closed behind the thick glasses, and I fell into a heavy slumber, which the movement alone had prevented before. Captain Nemo and his robust companion, stretched in the clear crystal, set us the example.

How long I remained buried in this drowsiness I cannot judge, but, when I woke, the sun seemed sinking towards the horizon. Captain Nemo had already risen, and I was beginning to stretch my limbs, when an unexpected apparition brought me briskly to my feet.

A few steps off, a monstrous sea-spider, about thirty-eight inches high, was watching me with squinting eyes, ready to spring upon me. Though my diver's

dress was thick enough to defend me from the bite of this animal, I could not help shuddering with horror. Conseil and the sailor of the Nautilus awoke at this moment. Captain Nemo pointed out the hideous crustacean, which a blow from the butt end of the gun knocked over, and I saw the horrible claws of the monster writhe in terrible convulsions. This incident reminded me that other animals more to be feared might haunt these obscure depths, against whose attacks my diving-dress would not protect me. I had never thought of it before, but I now resolved to be upon my guard. Indeed, I thought that this halt would mark the termination of our walk; but I was mistaken, for, instead of returning to the Nautilus, Captain Nemo continued his bold excursion. The ground was still on the incline, its declivity seemed to be getting greater, and to be leading us to greater depths. It must have been about three o'clock when we reached a narrow valley, between high perpendicular walls, situated about seventy-five fathoms deep. Thanks to the perfection of our apparatus, we were forty-five fathoms below the limit which nature seems to have imposed on man as to his submarine excursions.

I say seventy-five fathoms, though I had no instrument by which to judge the distance. But I knew that even in the clearest waters the solar rays could not penetrate further. And accordingly the darkness deepened. At ten paces not an object was visible. I was groping my way, when I suddenly saw a brilliant white light. Captain Nemo had just put his electric apparatus into use; his companion did the same, and Conseil and I followed their example. By turning a screw I established a communication between the wire and the spiral glass, and the sea, lit by our four lanterns, was illuminated for a circle of thirty-six yards.

As we walked I thought the light of our Ruhmkorff apparatus could not fail to draw some inhabitant from its dark couch. But if they did approach us, they at least kept at a respectful distance from the hunters. Several times I saw Captain Nemo stop, put his gun to his shoulder, and after some moments drop it and walk on. At last, after about four hours, this marvellous excursion came to an end. A wall of superb rocks, in an imposing mass, rose before us, a heap of gigantic blocks, an enormous, steep granite shore, forming dark grottos, but which presented no practicable slope; it was the prop of the Island of Crespo. It was the earth! Captain Nemo stopped suddenly. A gesture of his brought us all to a halt; and, however desirous I might be to scale the wall, I was obliged to stop. Here ended Captain Nemo's domains. And he would not go beyond them. Further on was a portion of the globe he might not trample upon.

The return began. Captain Nemo had returned to the head of his little band, directing their course without hesitation. I thought we were not following the same road to return to the Nautilus. The new road was very steep, and consequently very painful. We approached the surface of the sea rapidly. But this return to the upper strata was not so sudden as to cause relief from the pressure too rapidly, which might have produced serious disorder in our organisation, and brought on internal lesions, so fatal to divers. Very soon light reappeared and grew, and, the sun being low on the horizon, the refraction edged the different objects with a spectral ring. At ten yards and a half deep, we walked amidst a shoal of little fishes of all kinds, more numerous than the birds of the air, and also more agile; but no aquatic game worthy of a shot had as yet met our gaze, when at that moment I saw the Captain shoulder his gun quickly, and follow a moving object into the shrubs. He fired; I heard a slight hissing, and a creature fell stunned at some distance from us. It was a magnificent sea-otter, an enhydrus, the only exclusively marine quadruped. This otter was five feet long, and must have been very valuable. Its skin, chestnut-brown above and silvery underneath, would have made one of those beautiful furs so sought after in the Russian and Chinese markets: the fineness and the lustre of its coat would certainly fetch L80. I admired this curious mammal, with its rounded head ornamented with short ears, its round eyes, and white whiskers like those of a cat, with webbed feet and nails, and tufted tail. This precious animal, hunted and tracked by fishermen, has now become very rare, and taken refuge chiefly in the northern parts of the Pacific, or probably its race would soon become extinct.

Captain Nemo's companion took the beast, threw it over his shoulder, and we continued our journey. For one hour a plain of sand lay stretched before us. Sometimes it rose to within two yards and some inches of the surface of the water. I then saw our image clearly reflected, drawn inversely, and above us appeared an identical group reflecting our movements and our actions; in a word, like us in every point, except that they walked with their heads downward and their feet in the air.

Another effect I noticed, which was the passage of thick clouds which formed and vanished rapidly; but on reflection I understood that these seeming clouds were due to the varying thickness of the reeds at the bottom, and I could even see the fleecy foam which their broken tops multiplied on the water, and the shadows of large birds passing above our heads, whose rapid flight I could discern on the surface of the sea.

On this occasion I was witness to one of the finest gun shots which ever made the nerves of a hunter thrill. A large bird of great breadth of wing, clearly visible, approached, hovering over us. Captain Nemo's companion shouldered his gun and fired, when it was only a few yards above the waves. The creature fell stunned, and the force of its fall brought it within the reach of dexterous hunter's grasp. It was an albatross of the finest kind.

Our march had not been interrupted by this incident. For two hours we followed these sandy plains, then fields of algae very disagreeable to cross. Candidly, I could do no more when I saw a glimmer of light, which, for a half mile, broke the darkness of the waters. It was the lantern of the Nautilus. Before twenty minutes were over we should be on board, and I should be able to breathe with ease, for it seemed that my reservoir supplied air very deficient in oxygen. But I did not reckon on an accidental meeting which delayed our arrival for some time.

I had remained some steps behind, when I presently saw Captain Nemo coming hurriedly towards me. With his strong hand he bent me to the ground, his companion doing the same to Conseil. At first I knew not what to think of this sudden attack, but I was soon reassured by seeing the Captain lie down beside me, and remain immovable.

I was stretched on the ground, just under the shelter of a bush of algae, when, raising my head, I saw some enormous mass, casting phosphorescent gleams, pass blusteringly by.

My blood froze in my veins as I recognised two formidable sharks which threatened us. It was a couple of tintoreas, terrible creatures, with enormous tails and a dull glassy stare, the phosphorescent matter ejected from holes pierced around the muzzle. Monstrous brutes! which would crush a whole man in their iron jaws. I did not know whether Conseil stopped to classify them; for my part, I noticed their silver bellies, and their huge mouths bristling with teeth, from a very unscientific point of view, and more as a possible victim than as a naturalist.

Happily the voracious creatures do not see well. They passed without seeing us, brushing us with their brownish fins, and we escaped by a miracle from a danger certainly greater than meeting a tiger full-face in the forest. Half an hour after, guided by the electric light we reached the Nautilus. The outside door had

been left open, and Captain Nemo closed it as soon as we had entered the first cell. He then pressed a knob. I heard the pumps working in the midst of the vessel, I felt the water sinking from around me, and in a few moments the cell was entirely empty. The inside door then opened, and we entered the vestry.

There our diving-dress was taken off, not without some trouble, and, fairly worn out from want of food and sleep, I returned to my room, in great wonder at this surprising excursion at the bottom of the sea.

## CHAPTER XVII

## FOUR THOUSAND LEAGUES UNDER THE PACIFIC

The next morning, the 18th of November, I had quite recovered from my fatigues of the day before, and I went up on to the platform, just as the second lieutenant was uttering his daily phrase.

I was admiring the magnificent aspect of the ocean when Captain Nemo appeared. He did not seem to be aware of my presence, and began a series of astronomical observations. Then, when he had finished, he went and leant on the cage of the watch-light, and gazed abstractedly on the ocean. In the meantime, a number of the sailors of the Nautilus, all strong and healthy men, had come up onto the platform. They came to draw up the nets that had been laid all night. These sailors were evidently of different nations, although the European type was visible in all of them. I recognised some unmistakable Irishmen, Frenchmen, some Sclaves, and a Greek, or a Candiote. They were civil, and only used that odd language among themselves, the origin of which I could not guess, neither could I question them.

The nets were hauled in. They were a large kind of "chaluts," like those on the Normandy coasts, great pockets that the waves and a chain fixed in the smaller meshes kept open. These pockets, drawn by iron poles, swept through the water, and gathered in everything in their way. That day they brought up curious specimens from those productive coasts.

I reckoned that the haul had brought in more than nine hundredweight of fish. It was a fine haul, but not to be wondered at. Indeed, the nets are let down for several hours, and enclose in their meshes an infinite variety. We had no lack of excellent food, and the rapidity of the Nautilus and the attraction of the electric light could always renew our supply. These several productions of the sea were immediately lowered through the panel to the steward's room, some to be eaten fresh, and others pickled.

The fishing ended, the provision of air renewed, I thought that the Nautilus was about to continue its submarine excursion, and was preparing to return to my room, when, without further preamble, the Captain turned to me, saying:

"Professor, is not this ocean gifted with real life? It has its tempers and its gentle moods. Yesterday it slept as we did, and now it has woke after a quiet night. Look!" he continued, "it wakes under the caresses of the sun. It is going to renew its diurnal existence. It is an interesting study to watch the play of its organisation. It has a pulse, arteries, spasms; and I agree with the learned Maury, who discovered in it a circulation as real as the circulation of blood in animals.

"Yes, the ocean has indeed circulation, and to promote it, the Creator has caused things to multiply in it—caloric, salt, and animalculae."

When Captain Nemo spoke thus, he seemed altogether changed, and aroused an extraordinary emotion in me.

"Also," he added, "true existence is there; and I can imagine the foundations of nautical towns, clusters of submarine houses, which, like the Nautilus, would ascend every morning to breathe at the surface of the water, free towns, independent cities. Yet who knows whether some despot——"

Captain Nemo finished his sentence with a violent gesture. Then, addressing me as if to chase away some sorrowful thought:

"M. Aronnax," he asked, "do you know the depth of the ocean?"

"I only know, Captain, what the principal soundings have taught us."

"Could you tell me them, so that I can suit them to my purpose?"

"These are some," I replied, "that I remember. If I am not mistaken, a depth

of 8,000 yards has been found in the North Atlantic, and 2,500 yards in the Mediterranean. The most remarkable soundings have been made in the South Atlantic, near the thirty-fifth parallel, and they gave 12,000 yards, 14,000 yards, and 15,000 yards. To sum up all, it is reckoned that if the bottom of the sea were levelled, its mean depth would be about one and three-quarter leagues."

"Well, Professor," replied the Captain, "we shall show you better than that I hope. As to the mean depth of this part of the Pacific, I tell you it is only 4,000 yards."

Having said this, Captain Nemo went towards the panel, and disappeared down the ladder. I followed him, and went into the large drawing-room. The screw was immediately put in motion, and the log gave twenty miles an hour.

During the days and weeks that passed, Captain Nemo was very sparing of his visits. I seldom saw him. The lieutenant pricked the ship's course regularly on the chart, so I could always tell exactly the route of the Nautilus.

Nearly every day, for some time, the panels of the drawing-room were opened, and we were never tired of penetrating the mysteries of the submarine world.

The general direction of the Nautilus was south-east, and it kept between 100 and 150 yards of depth. One day, however, I do not know why, being drawn diagonally by means of the inclined planes, it touched the bed of the sea. The thermometer indicated a temperature of 4.25 (cent.): a temperature that at this depth seemed common to all latitudes.

At three o'clock in the morning of the 26th of November the Nautilus crossed the tropic of Cancer at 172° long. On 27th instant it sighted the Sandwich Islands, where Cook died, February 14, 1779. We had then gone 4,860 leagues from our starting-point. In the morning, when I went on the platform, I saw two miles to windward, Hawaii, the largest of the seven islands that form the group. I saw clearly the cultivated ranges, and the several mountain-chains that run parallel with the side, and the volcanoes that overtop Mouna-Rea, which rise 5,000 yards above the level of the sea. Besides other things the nets brought up, were several flabellariae and graceful polypi, that are peculiar to that part of the ocean. The direction of the Nautilus was still to the south-east. It crossed the equator December 1, in 142° long.; and on the 4th of the same month, after

crossing rapidly and without anything in particular occurring, we sighted the Marquesas group. I saw, three miles off, Martin's peak in Nouka-Hiva, the largest of the group that belongs to France. I only saw the woody mountains against the horizon, because Captain Nemo did not wish to bring the ship to the wind. There the nets brought up beautiful specimens of fish: some with azure fins and tails like gold, the flesh of which is unrivalled; some nearly destitute of scales, but of exquisite flavour; others, with bony jaws, and yellow-tinged gills, as good as bonitos; all fish that would be of use to us. After leaving these charming islands protected by the French flag, from the 4th to the 11th of December the Nautilus sailed over about 2,000 miles.

During the daytime of the 11th of December I was busy reading in the large drawing-room. Ned Land and Conseil watched the luminous water through the half-open panels. The Nautilus was immovable. While its reservoirs were filled, it kept at a depth of 1,000 yards, a region rarely visited in the ocean, and in which large fish were seldom seen.

I was then reading a charming book by Jean Mace, The Slaves of the Stomach, and I was learning some valuable lessons from it, when Conseil interrupted me.

"Will master come here a moment?" he said, in a curious voice.

"What is the matter, Conseil?"

"I want master to look."

I rose, went, and leaned on my elbows before the panes and watched.

In a full electric light, an enormous black mass, quite immovable, was suspended in the midst of the waters. I watched it attentively, seeking to find out the nature of this gigantic cetacean. But a sudden thought crossed my mind. "A vessel!" I said, half aloud.

"Yes," replied the Canadian, "a disabled ship that has sunk perpendicularly."

Ned Land was right; we were close to a vessel of which the tattered shrouds still hung from their chains. The keel seemed to be in good order, and it had been wrecked at most some few hours. Three stumps of masts, broken off about two feet above the bridge, showed that the vessel had had to sacrifice its masts. But,

lying on its side, it had filled, and it was heeling over to port. This skeleton of what it had once been was a sad spectacle as it lay lost under the waves, but sadder still was the sight of the bridge, where some corpses, bound with ropes, were still lying. I counted five—four men, one of whom was standing at the helm, and a woman standing by the poop, holding an infant in her arms. She was quite young. I could distinguish her features, which the water had not decomposed, by the brilliant light from the Nautilus. In one despairing effort, she had raised her infant above her head—poor little thing!—whose arms encircled its mother's neck. The attitude of the four sailors was frightful, distorted as they were by their convulsive movements, whilst making a last effort to free themselves from the cords that bound them to the vessel. The steersman alone, calm, with a grave, clear face, his grey hair glued to his forehead, and his hand clutching the wheel of the helm, seemed even then to be guiding the three broken masts through the depths of the ocean.

What a scene! We were dumb; our hearts beat fast before this shipwreck, taken as it were from life and photographed in its last moments. And I saw already, coming towards it with hungry eyes, enormous sharks, attracted by the human flesh.

However, the Nautilus, turning, went round the submerged vessel, and in one instant I read on the stern—"The Florida, Sunderland."

# CHAPTER XVIII

# VANIKORO

This terrible spectacle was the forerunner of the series of maritime catastrophes that the Nautilus was destined to meet with in its route. As long as it went through more frequented waters, we often saw the hulls of shipwrecked vessels that were rotting in the depths, and deeper down cannons, bullets, anchors, chains, and a thousand other iron materials eaten up by rust. However, on the 11th of December we sighted the Pomotou Islands, the old "dangerous group" of Bougainville, that extend over a space of 500 leagues at E.S.E. to W.N.W., from the Island Ducie to that of Lazareff. This group covers an area of 370 square leagues, and it is formed of sixty groups of islands, among which the Gambier group is remarkable, over which France exercises sway. These are coral islands, slowly raised, but continuous, created by the daily work of polypi. Then this new island will be joined later on to the neighboring groups, and a fifth continent will stretch from New Zealand and New Caledonia, and from thence to the Marquesas.

One day, when I was suggesting this theory to Captain Nemo, he replied coldly:

"The earth does not want new continents, but new men."

Chance had conducted the Nautilus towards the Island of Clermont-Tonnere, one of the most curious of the group, that was discovered in 1822 by Captain Bell of the Minerva. I could study now the madreporal system, to which are due the islands in this ocean.

Madrepores (which must not be mistaken for corals) have a tissue lined with a calcareous crust, and the modifications of its structure have induced M. Milne Edwards, my worthy master, to class them into five sections. The animalcule that the marine polypus secretes live by millions at the bottom of their cells. Their calcareous deposits become rocks, reefs, and large and small islands. Here they form a ring, surrounding a little inland lake, that communicates with the sea by means of gaps. There they make barriers of reefs like those on the coasts of New Caledonia and the various Pomoton islands. In other places, like those at Reunion and at Maurice, they raise fringed reefs, high, straight walls, near which

the depth of the ocean is considerable.

Some cable-lengths off the shores of the Island of Clermont I admired the gigantic work accomplished by these microscopical workers. These walls are specially the work of those madrepores known as milleporas, porites, madrepores, and astraeas. These polypi are found particularly in the rough beds of the sea, near the surface; and consequently it is from the upper part that they begin their operations, in which they bury themselves by degrees with the debris of the secretions that support them. Such is, at least, Darwin's theory, who thus explains the formation of the *atolls*, a superior theory (to my mind) to that given of the foundation of the madreporical works, summits of mountains or volcanoes, that are submerged some feet below the level of the sea.

I could observe closely these curious walls, for perpendicularly they were more than 300 yards deep, and our electric sheets lighted up this calcareous matter brilliantly. Replying to a question Conseil asked me as to the time these colossal barriers took to be raised, I astonished him much by telling him that learned men reckoned it about the eighth of an inch in a hundred years.

Towards evening Clermont-Tonnerre was lost in the distance, and the route of the Nautilus was sensibly changed. After having crossed the tropic of Capricorn in 135° longitude, it sailed W.N.W., making again for the tropical zone. Although the summer sun was very strong, we did not suffer from heat, for at fifteen or twenty fathoms below the surface, the temperature did not rise above from ten to twelve degrees.

On 15th of December, we left to the east the bewitching group of the Societies and the graceful Tahiti, queen of the Pacific. I saw in the morning, some miles to the windward, the elevated summits of the island. These waters furnished our table with excellent fish, mackerel, bonitos, and some varieties of a sea-serpent.

On the 25th of December the Nautilus sailed into the midst of the New Hebrides, discovered by Quiros in 1606, and that Bougainville explored in 1768, and to which Cook gave its present name in 1773. This group is composed principally of nine large islands, that form a band of 120 leagues N.N.S. to S.S.W., between 15° and 2° S. lat., and 164 deg. and 168° long. We passed tolerably near to the Island of Aurou, that at noon looked like a mass of green woods, surmounted by a peak of great height.

That day being Christmas Day, Ned Land seemed to regret sorely the non-celebration of "Christmas," the family fete of which Protestants are so fond. I had not seen Captain Nemo for a week, when, on the morning of the 27th, he came into the large drawing-room, always seeming as if he had seen you five minutes before. I was busily tracing the route of the Nautilus on the planisphere. The Captain came up to me, put his finger on one spot on the chart, and said this single word.

"Vanikoro."

The effect was magical! It was the name of the islands on which La Perouse had been lost! I rose suddenly.

"The Nautilus has brought us to Vanikoro?" I asked.

"Yes, Professor," said the Captain.

"And I can visit the celebrated islands where the Boussole and the Astrolabe struck?"

"If you like, Professor."

"When shall we be there?"

"We are there now."

Followed by Captain Nemo, I went up on to the platform, and greedily scanned the horizon.

To the N.E. two volcanic islands emerged of unequal size, surrounded by a coral reef that measured forty miles in circumference. We were close to Vanikoro, really the one to which Dumont d'Urville gave the name of Isle de la Recherche, and exactly facing the little harbour of Vanou, situated in 16° 4' S. lat., and 164° 32' E. long. The earth seemed covered with verdure from the shore to the summits in the interior, that were crowned by Mount Kapogo, 476 feet high. The Nautilus, having passed the outer belt of rocks by a narrow strait, found itself among breakers where the sea was from thirty to forty fathoms deep. Under the verdant shade of some mangroves I perceived some savages, who appeared greatly surprised at our approach. In the long black body, moving between wind and water, did they not see some formidable cetacean that they

regarded with suspicion?

Just then Captain Nemo asked me what I knew about the wreck of La Perouse.

"Only what everyone knows, Captain," I replied.

"And could you tell me what everyone knows about it?" he inquired, ironically.

"Easily."

I related to him all that the last works of Dumont d'Urville had made known —works from which the following is a brief account.

La Perouse, and his second, Captain de Langle, were sent by Louis XVI, in 1785, on a voyage of circumnavigation. They embarked in the corvettes Boussole and the Astrolabe, neither of which were again heard of. In 1791, the French Government, justly uneasy as to the fate of these two sloops, manned two large merchantmen, the Recherche and the Esperance, which left Brest the 28th of September under the command of Bruni d'Entrecasteaux.

Two months after, they learned from Bowen, commander of the Albemarle, that the debris of shipwrecked vessels had been seen on the coasts of New Georgia. But D'Entrecasteaux, ignoring this communication—rather uncertain, besides—directed his course towards the Admiralty Islands, mentioned in a report of Captain Hunter's as being the place where La Perouse was wrecked.

They sought in vain. The Esperance and the Recherche passed before Vanikoro without stopping there, and, in fact, this voyage was most disastrous, as it cost D'Entrecasteaux his life, and those of two of his lieutenants, besides several of his crew.

Captain Dillon, a shrewd old Pacific sailor, was the first to find unmistakable traces of the wrecks. On the 15th of May, 1824, his vessel, the St. Patrick, passed close to Tikopia, one of the New Hebrides. There a Lascar came alongside in a canoe, sold him the handle of a sword in silver that bore the print of characters engraved on the hilt. The Lascar pretended that six years before, during a stay at Vanikoro, he had seen two Europeans that belonged to some vessels that had run aground on the reefs some years ago.

Dillon guessed that he meant La Perouse, whose disappearance had troubled the whole world. He tried to get on to Vanikoro, where, according to the Lascar, he would find numerous debris of the wreck, but winds and tides prevented him.

Dillon returned to Calcutta. There he interested the Asiatic Society and the Indian Company in his discovery. A vessel, to which was given the name of the Recherche, was put at his disposal, and he set out, 23rd January, 1827, accompanied by a French agent.

The Recherche, after touching at several points in the Pacific, cast anchor before Vanikoro, 7th July, 1827, in that same harbour of Vanou where the Nautilus was at this time.

There it collected numerous relics of the wreck—iron utensils, anchors, pulley-strops, swivel-guns, an 18 lb. shot, fragments of astronomical instruments, a piece of crown work, and a bronze clock, bearing this inscription —"Bazin m'a fait," the mark of the foundry of the arsenal at Brest about 1785. There could be no further doubt.

Dillon, having made all inquiries, stayed in the unlucky place till October. Then he quitted Vanikoro, and directed his course towards New Zealand; put into Calcutta, 7th April, 1828, and returned to France, where he was warmly welcomed by Charles X.

But at the same time, without knowing Dillon's movements, Dumont d'Urville had already set out to find the scene of the wreck. And they had learned from a whaler that some medals and a cross of St. Louis had been found in the hands of some savages of Louisiade and New Caledonia. Dumont d'Urville, commander of the Astrolabe, had then sailed, and two months after Dillon had left Vanikoro he put into Hobart Town. There he learned the results of Dillon's inquiries, and found that a certain James Hobbs, second lieutenant of the Union of Calcutta, after landing on an island situated 8° 18' S. lat., and 156° 30' E. long., had seen some iron bars and red stuffs used by the natives of these parts. Dumont d'Urville, much perplexed, and not knowing how to credit the reports of low-class journals, decided to follow Dillon's track.

On the 10th of February, 1828, the Astrolabe appeared off Tikopia, and took as guide and interpreter a deserter found on the island; made his way to Vanikoro, sighted it on the 12th inst., lay among the reefs until the 14th, and not

until the 20th did he cast anchor within the barrier in the harbour of Vanou.

On the 23rd, several officers went round the island and brought back some unimportant trifles. The natives, adopting a system of denials and evasions, refused to take them to the unlucky place. This ambiguous conduct led them to believe that the natives had ill-treated the castaways, and indeed they seemed to fear that Dumont d'Urville had come to avenge La Perouse and his unfortunate crew.

However, on the 26th, appeased by some presents, and understanding that they had no reprisals to fear, they led M. Jacquireot to the scene of the wreck.

There, in three or four fathoms of water, between the reefs of Pacou and Vanou, lay anchors, cannons, pigs of lead and iron, embedded in the limy concretions. The large boat and the whaler belonging to the Astrolabe were sent to this place, and, not without some difficulty, their crews hauled up an anchor weighing 1,800 lbs., a brass gun, some pigs of iron, and two copper swivel-guns.

Dumont d'Urville, questioning the natives, learned too that La Perouse, after losing both his vessels on the reefs of this island, had constructed a smaller boat, only to be lost a second time. Where, no one knew.

But the French Government, fearing that Dumont d'Urville was not acquainted with Dillon's movements, had sent the sloop Bayonnaise, commanded by Legoarant de Tromelin, to Vanikoro, which had been stationed on the west coast of America. The Bayonnaise cast her anchor before Vanikoro some months after the departure of the Astrolabe, but found no new document; but stated that the savages had respected the monument to La Perouse. That is the substance of what I told Captain Nemo.

"So," he said, "no one knows now where the third vessel perished that was constructed by the castaways on the island of Vanikoro?"

"No one knows."

Captain Nemo said nothing, but signed to me to follow him into the large saloon. The Nautilus sank several yards below the waves, and the panels were opened.

I hastened to the aperture, and under the crustations of coral, covered with

fungi, syphonules, alcyons, madrepores, through myriads of charming fish—girelles, glyphisidri, pompherides, diacopes, and holocentres—I recognised certain debris that the drags had not been able to tear up—iron stirrups, anchors, cannons, bullets, capstan fittings, the stem of a ship, all objects clearly proving the wreck of some vessel, and now carpeted with living flowers. While I was looking on this desolate scene, Captain Nemo said, in a sad voice:

"Commander La Perouse set out 7th December, 1785, with his vessels La Boussole and the Astrolabe. He first cast anchor at Botany Bay, visited the Friendly Isles, New Caledonia, then directed his course towards Santa Cruz, and put into Namouka, one of the Hapai group. Then his vessels struck on the unknown reefs of Vanikoro. The Boussole, which went first, ran aground on the southerly coast. The Astrolabe went to its help, and ran aground too. The first vessel was destroyed almost immediately. The second, stranded under the wind, resisted some days. The natives made the castaways welcome. They installed themselves in the island, and constructed a smaller boat with the debris of the two large ones. Some sailors stayed willingly at Vanikoro; the others, weak and ill, set out with La Perouse. They directed their course towards the Solomon Islands, and there perished, with everything, on the westerly coast of the chief island of the group, between Capes Deception and Satisfaction."

"How do you know that?"

"By this, that I found on the spot where was the last wreck."

Captain Nemo showed me a tin-plate box, stamped with the French arms, and corroded by the salt water. He opened it, and I saw a bundle of papers, yellow but still readable.

They were the instructions of the naval minister to Commander La Perouse, annotated in the margin in Louis XVI's handwriting.

"Ah! it is a fine death for a sailor!" said Captain Nemo, at last. "A coral tomb makes a quiet grave; and I trust that I and my comrades will find no other."

# CHAPTER XIX

# TORRES STRAITS

During the night of the 27th or 28th of December, the Nautilus left the shores of Vanikoro with great speed. Her course was south-westerly, and in three days she had gone over the 750 leagues that separated it from La Perouse's group and the south-east point of Papua.

Early on the 1st of January, 1863, Conseil joined me on the platform.

"Master, will you permit me to wish you a happy New Year?"

"What! Conseil; exactly as if I was at Paris in my study at the Jardin des Plantes? Well, I accept your good wishes, and thank you for them. Only, I will ask you what you mean by a `Happy New Year' under our circumstances? Do you mean the year that will bring us to the end of our imprisonment, or the year that sees us continue this strange voyage?"

"Really, I do not know how to answer, master. We are sure to see curious things, and for the last two months we have not had time for dullness. The last marvel is always the most astonishing; and, if we continue this progression, I do not know how it will end. It is my opinion that we shall never again see the like. I think then, with no offence to master, that a happy year would be one in which we could see everything."

On 2nd January we had made 11,340 miles, or 5,250 French leagues, since our starting-point in the Japan Seas. Before the ship's head stretched the dangerous shores of the coral sea, on the north-east coast of Australia. Our boat lay along some miles from the redoubtable bank on which Cook's vessel was lost, 10th June, 1770. The boat in which Cook was struck on a rock, and, if it did not sink, it was owing to a piece of coral that was broken by the shock, and fixed itself in the broken keel.

I had wished to visit the reef, 360 leagues long, against which the sea, always rough, broke with great violence, with a noise like thunder. But just then the inclined planes drew the Nautilus down to a great depth, and I could see nothing of the high coral walls. I had to content myself with the different specimens of fish brought up by the nets. I remarked, among others, some germons, a species