

TWENTY THOUSAND LEAGUES UNDER THE SEA

BY JULES VERNE



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JULES VERNE,

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"THE ENGLISH AT THE NORTH POLE," ETC., ETC.

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CONTENTS.



	PAGE.
CHAPTER I.	
A FLOATING REEF	9
CHAPTER II.	
FOR AND AGAINST	14
CHAPTER III.	
AS MONSIEUR PLEASES	18
CHAPTER IV.	
NED LAND	23
CHAPTER V.	
AT RANDOM	26
CHAPTER VI.	
WITH ALL STEAM ON	31
CHAPTER VII.	
A WHALE OF AN UNKNOWN SPECIES	37
CHAPTER VIII.	
MOBILIS IN MOBILI	42

	PAGE.
CHAPTER IX.	
NED LAND'S ANGER	47
CHAPTER X.	
NEMO	52
CHAPTER XI.	
THE NAUTILUS	58
CHAPTER XII.	
EVERYTHING BY ELECTRICITY	63
CHAPTER XIII.	
FIGURES	68
CHAPTER XIV.	
THE BLACK RIVER	73
CHAPTER XV.	
A WRITTEN INVITATION	81
CHAPTER XVI.	
AT THE BOTTOM OF THE SEA	87
CHAPTER XVII.	
A SUBMARINE FOREST	91
CHAPTER XVIII.	
FOUR THOUSAND LEAGUES UNDER THE PACIFIC	95
CHAPTER XIX.	
VANIKORO	101

Contents.

vii

	PAGE.
CHAPTER XX.	
TORRES STRAITS	109
CHAPTER XXI.	
SOME DAYS ON LAND	115
CHAPTER XXII.	
CAPTAIN NEMO'S THUNDERBOLT	124
CHAPTER XXIII.	
ÆGRI SOMNIA	133
CHAPTER XXIV.	
THE CORAL KINGDOM	140





TWENTY THOUSAND LEAGUES UNDER THE SEA.

CHAPTER I

A FLOATING BEEF.

IN the year 1866 the whole maritime population of Europe and America was excited by a mysterious and inexplicable phenomenon. This excitement was not confined to merchants, common sailors, sea-captains, shippers, and naval officers of all countries, but the governments of many states on the two continents were deeply interested.

The excitement was caused by an enormous "something" that ships were often meeting. It was a long, spindle-shaped, and sometimes phosphorescent object, much larger and more rapid than a whale.

The different accounts that were written of this object in various log-books agreed generally as to its structure, wonderful speed, and the peculiar life with which it appeared endowed. If it was a cetacean it surpassed in bulk all those that had hitherto been classified; neither Cuvier, Lacepède, M. Dumeril, nor M. de Quatrefages would have admitted the existence of such a monster, unless he had seen it with his own scientific eyes.

By taking the average of observations made at different times—rejecting the timid estimates that assigned to this object a length of 200 feet, as well as the exaggerated opinions which made it out to be a mile in width and three in length—we may fairly affirm that it surpassed all the dimensions allowed by the

ichthyologists of the day, if it existed at all. It did exist, that was undeniable, and with that leaning towards the marvellous that characterises humanity, we cannot wonder at the excitement it produced in the entire world.

On the 20th of July, 1866, the steamer Governor Higgenson, of the Calcutta and Burnach Steam Navigation Company, met this moving mass five miles off the east coast of Australia. Captain Baker thought at first that he was in presence of an unknown reef; he was preparing to take its exact position, when two columns of water, projected by the inexplicable object, went hissing up a hundred and fifty feet into the air. Unless there was an intermittent geyser on the reef, the Governor Higgenson had to do with some aquatic mammal, unknown till then, which threw out columns of water mixed with air and vapour from its blowholes.

A similar occurrence happened on the 23rd of July in the same year to the Columbus, of the West India and Pacific Steam Navigation Company, in the Pacific Ocean. It was, therefore, evident that this extraordinary cetaceous creature could transport itself from one place to another with surprising velocity, seeing there was but an interval of three days between the two observations, separated by a distance of more than 700 nautical leagues.

Fifteen days later, two thousand leagues from the last place it was seen at, the Helvetia, of the *Compagnie Nationale*, and the Shannon, of the Royal Mail Steamship Company, sailing to windward in that part of the Atlantic between the United States and Europe, each signalled the monster to the other in 42° 15' N. lat. and 60° 35' W. long. As the Shannon and Helvetia were of smaller dimensions than the object, though they measured 300 feet over all, the minimum length of the mammal was estimated at more than 350 feet. Now the largest whales, those that are found in the seas round the Aleutian, Kulammak, and Ungullich Islands, are never more than sixty yards long, if so long.

These accounts arrived one after another; fresh observations made on board the transatlantic ship *Le Pereire*, the running foul of the monster by the *Etna*, of the Inman line; a report drawn up by the officers of the French frigate *La Normandie*; a very grave statement made by the ship's officers of the Commodore FitzJames on board the *Lord Clyde*, deeply stirred public opinion. In light-hearted countries jokes were made on the subject; but in grave and practical countries like England, America, and Germany, much attention was paid to it.

In all the great centres the monster became the fashion; it

was sung about in the *cafes*, scoffed at in the newspapers, and represented at all the theatres. It gave opportunity for hoaxes of every description. In all newspapers short of copy imaginary beings reappeared, from the white whale, the terrible "Moby Dick" of the Northern regions, to the inordinate "kraken," whose tentacles could fold round a vessel of 500 tons burden and drag it down to the depths of the ocean. The accounts of ancient times were reproduced: the opinions of Aristotle and Pliny, who admitted the existence of these monsters, and the Norwegian tales about Bishop Pontoppidan, those of Paul Heggede, and lastly the report of Mr. Harrington, whose good faith could not be put in question when he affirmed that, being on board the *Castilian*, in 1857, he saw this enormous serpent, which until then had only frequented the seas of the old *Constitutionnel* newspaper.

Then broke out the interminable polemics of believers and disbelievers in learned societies and scientific journals. The "question of the monster" inflamed all minds. The journalists who professed to be scientific, at strife with those who professed to be witty, poured out streams of ink during this memorable controversy; some even two or three drops of blood, for they wandered from the sea serpent to the most offensive personalities.

For six months the war went on with different success. To the leading articles of the Geographical Institute of Brazil, the Berlin Royal Academy of Science, the British Association, the Washington Smithsonian Institution, to the discussions of *The Indian Archipelago*, to the *Cosmos* of the Abbé Moigno, Petermann's *Mittheilungen*, the scientific chronicles of the best newspapers of the civilised world, the smaller newspapers answered with great animation. Their witty writers, parodying a saying of Linnæus, quoted by the adversaries of the monster, sustained that, in fact, "Nature did not make fools," and adjured their contemporaries not to give the lie to Nature by admitting the existence of "krakens," sea serpents, "Moby Dicks," and other elucubrations of delirious sailors. Lastly, in an article of a much-dreaded satirical journal, the most liked of its contributors hurried over the whole ground, reached the monster, like Hippolytus gave him his finishing blow, and killed him in the midst of a universal burst of laughter. Wit had conquered science.

During the first months of the year 1867 the question seemed to be buried out of sight and mind, when some fresh facts brought it again before the notice of the public. It had then changed from a scientific problem to be solved to a real and

serious danger to be avoided. The question took another phase. The monster again became an island or rock. On the 5th of March, 1867, the Moravian, of the Montreal Ocean Company, being, during the night, in 27° 30' lat. and 72° 15' long., struck her starboard quarter on a rock which no chart gave in that point. She was then going at the rate of thirteen knots under the combined efforts of the wind and her 400 horse power. Had it not been for the more than ordinary strength of the hull in the Moravian she would have been broken by the shock, and have gone down with the 237 passengers she was bringing from Canada.

The accident happened about 5 a.m. at daybreak. The officers on watch hurried aft and looked at the sea with the most scrupulous attention. They saw nothing except what looked like a strong eddy, three cables' length off, as if the waves had been violently agitated. The bearings of the place were taken exactly, and the Moravian went on her way without apparent damage. Had she struck on a submarine rock or some enormous fragment of wreck? They could not find out, but during the examination made of the ship's bottom when under repair it was found that part of her keel was broken.

This fact, extremely grave in itself, would perhaps have been forgotten, like so many others, if three weeks afterwards it had not happened again under identical circumstances, only, thanks to the nationality of the ship that was this time victim of the shock, and the reputation of the company to which the vessel belonged, the circumstance was immensely commented upon.

Every one knows the name of the celebrated shipowners Cunard and Co. This intelligent company founded, in 1840, a postal service between Liverpool and Halifax, with three wooden vessels and an engine of 400 horse power, gauging 1,162 tons. Eight years afterwards the stock of the company increased to four vessels of 650 horse power and 1,820 tons, and two years later they had two more boats, superior in power and tonnage. In 1853 the Cunard Company, whose privilege of carrying the mails had just been renewed, added successively to their stock the Arabia, Persia, China, Scotia, Java, and Russia, all vessels of first-rate speed, and the largest which, next to the Great Eastern, had ever ploughed the seas. Thus, then, in 1867 the company possessed twelve vessels, eight with paddles and four with screws.

I give these brief details to show the importance of this maritime transport company, known in the entire world by its intelligent administration. No enterprise of transmarine navigation

has been conducted with more skill; no business affair has been crowned with more success. During the last twenty-six years the Cunard vessels have crossed the Atlantic more than two thousand times, and no voyage has ever failed, no letter, man, nor vessel has ever been lost. Notwithstanding the powerful competition of France, passengers still choose the Cunard route in preference to every other, as is apparent from an examination of the official documents of late years. This understood, no one will be astonished at the commotion caused by the accident that happened to one of its finest steamers.

On the 13th of April, 1867, by a smooth sea and favourable breeze, the Cunard steamer *Scotia* was in 15° 12' long. and 45° 37' lat. She was going at the rate of thirteen knots an hour under the pressure of her 1,000 horse power.

At 4.17 p.m., as the passengers were assembled at dinner in the great saloon, a slight shock was felt on the hull of the *Scotia*, on her quarter a little aft of the paddie.

The *Scotia* had not struck anything, but had been struck by some sharp and penetrating rather than blunt surface. The shock was so slight that no one on board would have been uneasy at it had it not been for the carpenter's watch, who rushed upon deck, calling out—"She is sinking! she is sinking!"

At first the passengers were much alarmed, but Captain Anderson hastened to reassure them by telling them the danger could not be imminent, as the ship was divided into seven compartments by strong divisions, and could with impunity brave any leak.

Captain Anderson went down immediately into the hold and found that a leak had sprung in the fifth compartment, and the sea was rushing in rapidly. Happily there were no boilers in this compartment, or the fires would have been at once put out. Captain Anderson ordered the engines to be immediately stopped, and one of the sailors dived to ascertain the extent of the damage. Some minutes after it was ascertained that there was a large hole about two yards in diameter in the ship's bottom. Such a leak could not be stopped, and the *Scotia*, with her paddles half submerged, was obliged to continue her voyage. She was then 300 miles from Cape Clear, and after three days' delay, which caused great anxiety in Liverpool, she entered the company's docks.

The engineers then proceeded to examine her in the dry dock, where she had been placed. They could scarcely believe their eyes; at two yards and a half below water-mark was a regular rent in the shape of an isosceles triangle. The place where the

piece had been taken out of the iron plates was so sharply defined that it could not have been done more neatly by a punch. The perforating instrument that had done the work was of no common stamp, for after having been driven with prodigious force, and piercing an iron plate one and three-eighths of an inch thick, it had been withdrawn by some wonderful retrograde movement.

Such was the last fact, and it again awakened public opinion on the subject. After that all maritime disasters which could not be satisfactorily accounted for were put down to the account of the monster. All the responsibility of the numerous wrecks annually recorded at Lloyd's was laid to the charge of this fantastic animal, and they usually amount to 3,000, of which 200 are lost by unknown causes.

Thanks to the "monster," communication between the two continents became more and more difficult; the public loudly demanded that the seas should be rid of the formidable cetacean at any price.

CHAPTER II.

FOR AND AGAINST.



AT the period when these events were happening I was returning from a scientific expedition into the disagreeable region of Nebraska, in the United States. In my quality of Assistant Professor in the Paris Museum of Natural History, the French Government had attached me to that expedition. I arrived at New York, loaded with precious collections made during six months in Nebraska, at the end of March. My departure from France was fixed for the beginning of May. Whilst I waited and was occupying myself with classifying my mineralogical, botanical, and zoological riches, the incident happened to the Scotia.

I was perfectly acquainted with the subject which was the question of the day, and it would have been strange had I not been. I had repeatedly read all the American and European papers without being any the wiser as to the cause. The mystery puzzled me, and I hesitated to form any conclusion.

When I arrived at New York the subject was hot. The hypothesis of a floating island or reef, which was supported by incompetent opinion, was quite abandoned, for unless the shoal had a machine in its stomach, how could it change its position with such marvellous rapidity? For the same reason the idea of a floating hull or gigantic wreck was given up.

There remained, therefore, two possible solutions of the enigma which created two distinct parties; one was that the object was a colossal monster, the other that it was a submarine vessel of enormous motive power. This last hypothesis, which, after all, was admissible, could not stand against inquiries made in the two hemispheres. It was hardly probable that a private individual should possess such a machine. Where and when had he caused it to be built, and how could he have kept its construction secret? Certainly a government might possess such a destructive engine, and it was possible in these disastrous times, when the power of weapons of war has been multiplied, that, without the knowledge of others, a state might possess so formidable a weapon. After the chassepots came the torpedoes, and after the torpedoes the submarine rams, and after them—the reaction. At least, I hope so.

But the hypothesis of a war machine fell before the declaration of different governments, and as the public interest suffered from the difficulty of transatlantic communication, their veracity could not be doubted. Besides, secrecy would be even more difficult to a government than to a private individual. After inquiries made in England, France, Russia, Prussia, Spain, Italy, America, and even Turkey, the hypothesis of a submarine monitor was definitely rejected.

On my arrival at New York, several persons did me the honour of consulting me about the phenomenon in question. I had published in France a quarto work in two volumes, called *The Mysteries of the Great Submarine Grounds*. This book made some sensation in the scientific world, and gained me a special reputation in this rather obscure branch of Natural History. As long as I could deny the reality of the fact I kept to a decided negative, but I was soon driven into a corner, and was obliged to explain myself categorically. The Honourable Pierre Aronax, Professor in the Paris Museum, was asked by the *New York Herald* to give his opinion on the matter. I subjoin an extract from the article which I published on the 30th of April:—

“After having examined the different hypotheses one by one, and all other suppositions being rejected, the existence of a marine animal of excessive strength must be admitted.

“The greatest depths of the ocean are totally unknown to us. What happens there? What beings can live twelve or fifteen miles below the surface of the sea? We can scarcely conjecture what the organisation of these animals is. However the solution of the problem submitted to me may affect the form of the dilemma, we either know all the varieties of beings that people our planet or we do not. If we do not know them all—

if there are still secrets of ichthyology for us—nothing is more reasonable than to admit the existence of fishes or cetaceans of an organisation suitable to the strata inaccessible to soundings, which for some reason or other come up to the surface at intervals.

“If, on the contrary, we do know all living species, we must of course look for the animal in question amongst the already classified marine animals, and in that case I should be disposed to admit the existence of a gigantic narwhal.

“The common narwhal, or sea-unicorn, is often sixty feet long. This size increased five or tenfold, and a strength in proportion to its size being given to the cetacean, and its offensive arms being increased in the same proportion, you obtain the animal required. It will have the proportions given by the officers of the *Shannon*, the instrument that perforated the *Scotia*, and the strength necessary to pierce the hull of the steamer

“In fact, the narwhal is armed with a kind of ivory sword or halberd, as some naturalists call it. It is the principal tusk, and is as hard as steel. Some of these tusks have been found imbedded in the bodies of whales, which the narwhal always attacks with success. Others have been with difficulty taken out of ships’ bottoms, which they pierced through and through like a gimlet in a barrel. The Museum of the Paris Faculty of Medicine contains one of these weapons, two and a quarter yards in length and fifteen inches in diameter at the base.

“Now suppose this weapon to be ten times stronger, and its possessor ten times more powerful, hurl it at the rate of twenty miles an hour, and you obtain a shock that might produce the catastrophe required. Therefore, until I get fuller information, I shall suppose it to be a sea-unicorn of colossal dimensions, armed, not with a halberd, but with a spur like ironclads or battering rams, the massiveness and motive power of which it would possess at the same time. This inexplicable phenomenon may be thus explained, unless something exists over and above anything ever conjectured, seen, or experienced, which is just possible.”

The last words were cowardly on my part, but I wished up to a certain point to cover my dignity as professor, and not to give too much cause of laughter to the Americans, who laugh well when they do laugh. I reserved myself a loophole of escape, and, in fact, admitted the existence of the monster.

My article was well received, and provoked much discussion amongst the public. It rallied a certain number of partisans.

The solution which it proposed left freedom to the imagination. The human mind likes these grand conceptions of supernatural beings. Now the sea is precisely their best instrument of transmission, the only medium in which these giants, by the side of which terrestrial animals, elephants or rhinoceri, are but dwarfs, can breed and develop. The liquid masses transport the largest known species of mammalia, and they perhaps contain molluscs of enormous size, crustaceans frightful to contemplate, such as lobsters more than a hundred yards long, or crabs weighing two hundred tons. Why should it not be so? Formerly, terrestrial animals, contemporaries of the geological epochs, quadrupeds, quadrumans, reptiles, and birds, were constructed in gigantic moulds. The Creator had thrown them into a colossal mould which time has gradually lessened. Why should not the sea in its unknown depths have kept there vast specimens of the life of another age—the sea which never changes, whilst the earth changes incessantly? Why should it not hide in its bosom the last varieties of these Titanic species, whose years are centuries, and whose centuries are millenniums?

But I am letting myself be carried away by reveries which are no longer such to me. A truce to chimeras which time has changed for me into terrible realities. I repeat, opinion was then made up as to the nature of the phenomenon, and the public admitted without contestation the existence of the prodigious animal which had nothing in common with the fabulous sea serpents.

But if some people saw in this nothing but a purely scientific problem to solve, others more positive, especially in America and England, were of opinion to purge the ocean of this formidable monster, in order to reassure transmarine communications.

The *Shipping and Mercantile Gazette*, *Lloyd's List*, the *Packet Boat*, and *Revue Maritime et Coloniale*, all papers devoted to insurance companies who threatened to raise their rate of premium, were unanimous on this point. Public opinion having declared its verdict, the United States were first in the field, and preparations for an expedition to pursue the narwhal were at once begun in New York. A very fast frigate, the *Abraham Lincoln*, was put in commission, and the arsenals were opened to Captain Farragut, who actively hastened the arming of his frigate.

But, as generally happens, from the moment it was decided to pursue the monster, the monster was not heard of for two months. It seemed as if this unicorn knew about the plots that were being weaved for it. It had been so much talked of, even through the Atlantic Cable! Would-be wits pretended that the

cunning fellow had stopped some telegram in its passage, and was now using the knowledge for his own benefit.

So when the frigate had been prepared for a long campaign, and furnished with formidable fishing apparatus, they did not know where to send her to. Impatience was increasing with the delay, when on July 2nd it was reported that a steamer with the San Francisco line, from California to Shanghai, had met with the animal three weeks before in the North Pacific Ocean.

The emotion caused by the news was extreme, and twenty-four hours only were granted to Captain Farragut before he sailed. The ship was already victualled and well stocked with coal. The crew were there to a man, and there was nothing to do but to light the fires.

Three hours before the Abraham Lincoln left Brooklyn Pier I received the following letter:—

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

“SIR,—If you would like to join the expedition of the Abraham Lincoln, the United States Government will have great pleasure in seeing France represented by you in the enterprise. Captain Farragut has a cabin at your disposition.

“Faithfully yours,

“J. B. HOBSON,

“Secretary of Marine.”

CHAPTER III.

AS MONSIEUR PLEASES.



THREE seconds before the arrival of J. B. Hobson's letter I had no more idea of pursuing the unicorn than of attempting the North-West Passage. Three seconds after having read the secretary's letter I had made up my mind that ridding the world of this monster was my veritable vocation and the single aim of my life.

But I had just returned from a fatiguing journey, and was longing for rest in my own little place in the Jardin des Plantes amongst my dear and precious collections. But I forgot all fatigue, repose and collections, and accepted without further reflection the offer of the American Government.

“Besides,” I said to myself, “all roads lead back to Europe, and the unicorn may be amiable enough to draw me towards the

French coast. This worthy animal may allow itself to be caught in European seas for my especial benefit, and I will not take back less than half a yard of its halberd to the Natural History Museum."

But in the meantime the narwhal was taking me to the North Pacific Ocean, which was going to the antipodes on the road to France.

"Conseil!" I called in an impatient tone. "Conseil!"

Conseil was my servant, a faithful fellow who accompanied me in all my journeys, a brave Dutchman I had great confidence in; he was phlegmatic by nature, regular from principle, zealous from habit, showing little astonishment at the varied surprises of life, very skilful with his hands, apt at any service, and, in spite of his name, never giving any counsel, even when not asked for it.

By dint of contact with the world of *savants* in our Jardin des Plantes, Conseil had succeeded in knowing something. He was a specialist, well up in the classification of Natural History, but his science stopped there. As far as practice was concerned, I do not think he could have distinguished a cachalot from a whale. And yet what a brave fellow he was!

Conseil had followed me during the last ten years wherever science had directed my steps. He never complained of the length or fatigue of a journey, or of having to pack his trunk for any country, however remote, whether China or Congo. He went there or elsewhere without questioning the wherefore. His health defied all illness, and he had solid muscles, but no nerves—not the least appearance of nerves—of course I mean in his mental faculties. He was thirty years old, and his age to that of his master was as fifteen is to twenty. May I be excused for saying that I was forty?

But Conseil had one fault. He was intensely formal, and would never speak to me except in the third person, which was sometimes irritating.

"Conseil!" I repeated, beginning my preparations for departure with a feverish hand.

Certainly, I was certain of this faithful fellow. Usually I did not ask him if it was or was not convenient for him to accompany me on my travels; but this time an expedition was in question which might be a very long and hazardous one, in pursuit of an animal capable of sinking a frigate like a nutshell. There was matter for reflection even to the most impassive man in the world. What would Conseil say?

"Conseil!" I called for the third time.

Conseil appeared.

"Did monsieur call me?" said he on entering.

"Yes, my boy. Get yourself and me ready to start in two hours."

"As it pleases monsieur," answered Conseil calmly.

"There is not a minute to lose. Pack up all my travelling utensils, as many coats, shirts and socks as you can get in. Make haste!"

"And monsieur's collections?" asked Conseil.

"We will see to them presently."

"What, the archiotherium, the hyracotherium, the oreodons, the cheropotamus, and monsieur's other skins?"

"They will stay at the hotel."

"And the live babiroussa of monsieur's?"

"They will feed it during our absence. Besides, I will give orders to have our menagerie forwarded to France."

"We are not going back to Paris, then?" asked Conseil.

"Yes—certainly we are," answered I evasively; "but by making a curve."

"The curve that monsieur pleases."

"Oh, it is not much; not so direct a route, that's all. We are going in the Abraham Lincoln."

"As it may suit monsieur."

"You know about the monster, Conseil—the famous narwhal. We are going to rid the seas of it. The author of the *Great Submarine Grounds* cannot do otherwise than embark with Commander Farragut. A glorious mission, but—dangerous too. We don't know where we are going to. Those animals may be very capricious! But we will go, whether or no! We have a captain who will keep his eyes open."

"As monsieur does I will do," answered Conseil.

"But think, for I will hide nothing from you. It is one of these voyages from which people do not always come back."

"As monsieur pleases."

A quarter of an hour afterwards our trunks were ready. Conseil had packed them by sleight of hand, and I was sure nothing would be missing, for the fellow classified shirts and clothes as well as he did birds or mammals.

The hotel lift deposited us in the large vestibule of the first floor. I went down the few stairs that led to the ground floor. I paid my bill at the vast counter, always besieged by a considerable crowd. I gave the order to send my cases of stuffed animals and dried plants to Paris (France). I opened a sufficient credit for the babiroussa, and, Conseil following me, I sprang into a vehicle.

The vehicle, at fifteen shillings the course, descended Broad-

way as far as Union-square, went along Fourth-avenue to its junction with Bowery-street, then along Katrin-street, and stopped at the thirty-fourth pier. There the Katrin ferry-boat transported us, men, horses, and vehicle, to Brooklyn, the great annex of New York, situated on the left bank of East River, and in a few minutes we arrived at the quay opposite which the Abraham Lincoln was pouring forth clouds of black smoke from her two funnels.

Our luggage was at once sent on board, and we soon followed it. I asked for Captain Farragut. One of the sailors conducted me to the poop, where I found myself in the presence of a pleasant-looking officer, who held out his hand to me.

"Monsieur Pierre Aronnax?" he said.

"Himself," replied I. "Do I see Captain Farragut?"

"In person. You are welcome, professor. Your cabin is ready for you."

I bowed, and leaving the commander to his duties, went down to the cabin which had been prepared for me.

The Abraham Lincoln had been well chosen and equipped for her new destination. She was a frigate of great speed, furnished with overheating apparatus that allowed the tension of the steam to reach seven atmospheres. Under that pressure the Abraham Lincoln reached an average speed of eighteen miles and three-tenths an hour good speed, but not enough to wrestle with the gigantic cetacean.

The interior arrangements of the frigate were in keeping with her nautical qualities. I was well satisfied with my cabin, which was situated aft, and opened on the wardroom.

"We shall be comfortable here," said I to Conseil.

"Yes, as comfortable as a hermit crab in a crumplet-shell."

I left Conseil to stow our luggage away, and went up on deck in order to see the preparations for departure. Captain Farragut was just ordering the last moorings to be cast loose, so that had I been one quarter of an hour later the frigate would have started without me, and I should have missed this extraordinary, supernatural, and incredible expedition, the true account of which may well be received with some incredulity.

But Commander Farragut did not wish to lose either a day or an hour before scouring the seas in which the animal had just been signalled. He sent for his engineer.

"Is the steam full on?" asked the captain.

"Yes, captain," replied the engineer.

"Go ahead then," cried Farragut.

The Abraham Lincoln was soon moving majestically amongst a hundred ferry-boats and tenders loaded with spectators, past

the Brooklyn quay, on which, as well as on all that part of New York bordering on the East River, crowds of spectators were assembled. Thousands of handkerchiefs were waved above the compact mass, and saluted the Abraham Lincoln until she reached the Hudson at the point of that elongated peninsula which forms the town of New York.

Then the frigate followed the coast of New Jersey, along the right bank of the beautiful river covered with villas, and passed between the forts, which saluted her with their largest guns. The Abraham Lincoln acknowledged the salutation by hoisting the American colours three times, their thirty-nine stars shining resplendent from the mizen peak; then modifying her speed to take the narrow channel marked by buoys and formed by Sandy Hook Point, she coasted the long sandy shore, where several thousand spectators saluted her once more.

Her escort of boats and tenders followed her till she reached the lightboat, the two lights of which mark the entrance to the New York Channel.

Three o'clock was then striking. The pilot went down into his boat and rejoined the little schooner which was waiting under lee, the fires were made up, the screw beat the waves more rapidly, and the frigate coasted the low yellow shore of Long Island, and at 8 p.m., after having lost sight in the north-west of the lights on Fire Island, she ran at full steam on to the dark waters of the Atlantic.

CHAPTER IV.

NED LAND.



CAPTAIN FARRAGUT was a good seaman, worthy of the frigate he was commanding. His ship and he were one. He was the soul of it. No doubt arose in his mind on the question of the cetacean, and he did not allow the existence of the animal to be disputed on board. He believed in it like certain simple souls believe in the Leviathan—by faith, not by sight. The monster existed, and he had sworn to deliver the seas from it. He was a sort of Knight of Rhodes, a second Dieudonné de Gozon going to meet the serpent which was desolating his island. Either Captain Farragut would kill the narwhal or the narwhal would kill Captain Farragut—there was no middle course.

The officers on board shared the opinion of their chief. It was amusing to hear them talking, arguing, disputing and

calculating the different chances of meeting whilst they kept a sharp look-out over the vast extent of ocean. More than one took up his position on the crosstrees who would have cursed the duty as a nuisance at any other time. Whilst the sun described its diurnal circle the rigging was crowded with sailors who could not keep in place on deck. And nevertheless the *Abraham Lincoln* was not yet ploughing with her stern the unsuspected waters of the Pacific.

As to the crew, all they wanted was to meet the unicorn, harpoon it, haul it on board, and cut it up. Captain Farragut had offered a reward of 2,000 dollars to the first cabin-boy, sailor, or officer who should signal the animal. I have already said that Captain Farragut had carefully provided all the tackle necessary for taking the gigantic cetacean. A whaler would not have been better furnished. We had every known engine, from the hand harpoon to the barbed arrow of the blunderbuss and the explosive bullets of the deck-gun. On the forecastle lay a perfect breechloader very thick at the breech and narrow in the bore, the model of which had been in the Paris Exhibition of 1867. This precious weapon, of American make, could throw with ease a conical projectile, weighing nine pounds, to a mean distance of ten miles. Thus the *Abraham Lincoln* not only possessed every means of destruction, but, better still, she had on board Ned Land, the king of harpooners.

Ned Land was a Canadian of uncommon skill, who had no equal in his perilous employment. He possessed ability, *sang-froid*, audacity, and subtleness to a remarkable degree, and it would have taken a sharp whale or a singularly wily cachalot to escape his harpoon. He was about forty years of age, tall (more than six feet high), strongly built, grave, and taciturn, sometimes violent, and very passionate when put out. His person, and especially the power of his glance, which gave a singular expression to his face, attracted attention.

I believe that Captain Farragut had done wisely in engaging this man. He was worth all the rest of the ship's company as far as his eye and arm went. I could not compare him to anything better than a powerful telescope which would be a cannon always ready to fire as well.

Ned Land was a descendant of French Canadians, and although he was so little communicative, he took a sort of liking to me. My nationality, doubtless, attracted him. It was an occasion for him to speak and for me to hear that old language of Rabelais which is still in use in some Canadian provinces. The family of the harpooner came originally from Quebec, and already formed a tribe of hardy fishermen when that town belonged to France.

Little by little Ned Land acquired a liking for talk, and I was delighted to hear the recital of his adventures in the Polar Seas. He related his fishing expeditions and combats with great natural poetry. It was like listening to an epic poem of the time of Homer, an Iliad about hyperborean regions.

I now depict this brave companion as I knew him afterwards, for we are old friends united in that unchangeable friendship which is born and cemented in mutual danger. Ah, brave Ned, I only hope I may live a hundred years more to remember you longer.

Now what was Ned Land's opinion on the subject of this marine monster? I must acknowledge that he hardly believed in the narwhal, and that he was the only one on board who did not share the universal conviction.

One magnificent evening, three weeks after our departure, on the 30th of July, the frigate was abreast of Cape Blanc, thirty miles to leeward of the Patagonian coast. We had crossed the tropic of Capricorn, and the Straits of Magellan lay less than 700 miles to the south. Another week and the Abraham Lincoln would be ploughing the waters of the Pacific.

Seated on the poop, Ned Land and I were talking on all sorts of subjects, looking at that mysterious sea whose greatest depths have remained till now inaccessible to the eye of man. I brought the conversation naturally to the subject of the giant unicorn, and discussed the different chances of success in our expedition. Then seeing that Ned Land let me go on talking without saying anything himself, I pressed him more closely.

"Well, Ned," I said to him, "are you not yet convinced of the existence of the cetacean we are pursuing? Have you any particular reasons for being so incredulous?"

The harpooner looked at me for some minutes before replying, struck his forehead with a gesture habitual to him, shut his eyes as if to collect himself, and said at last—

"Perhaps I have, M. Arounax."

"Yet you, Ned, are a whaler by profession. You are familiar with the great marine mammalia, and your imagination ought easily to accept the hypothesis of enormous cetaceans. You ought to be the last to doubt in such circumstances."

"That is what deceives you, sir," answered Ned. "It is not strange that common people should believe in extraordinary comets, or the existence of antediluvian monsters peopling the interior of the globe, but no astronomer or geologist would believe in such chimeras. The whaler is the same. I have pursued many cetaceans, harpooned a great number, and killed some few; but however powerful or well armed they were, neither

their tails nor their defences could ever have made an incision in the iron plates of a steamer."

"Yet, Ned, it is said that ships have been bored through by the tusk of a narwhal."

"Wooden ships, perhaps," answered the Canadian, "though I have never seen it, and until I get proof to the contrary I deny that whales, cachalots, or sea-unicorns could produce such an effect."

"Listen to me, Ned."

"No, sir, no; anything you like but that—a gigantic poulp, perhaps?"

"No, that can't be. The poulp is only a mollusc; its flesh has no more consistency than its name indicates."

"Then you really do believe in this cetacean, sir?" said Ned.

"Yes, Ned. I repeat it with a conviction resting on the logic of facts. I believe in the existence of a mammal, powerfully organised, belonging to the branch of vertebrata, like whales, cachalots, and dolphins, and furnished with a horn tusk, of which the force of penetration is extreme."

"Hum!" said the harpooner, shaking his head like a man who will not let himself be convinced.

"Remark, my worthy Canadian," I continued, "if such an animal exists and inhabits the depths of the ocean, it necessarily possesses an organisation the strength of which would defy all comparison."

"Why must it have such an organisation?" asked Ned.

"Because it requires an incalculable strength to keep in such deep water and resist its pressure. Admitting that the pressure of the atmosphere is represented by that of a column of water thirty-two feet high. In reality the column of water would not be so high, as it is sea-water that is in question, and its density is greater than that of fresh water. When you dive, Ned, as many times thirty-two feet of water as there are above you, so many times does your body support a pressure equal to that of the atmosphere—that is to say, 15lbs. for each square inch of its surface. It hence follows that at 320 feet this pressure equals that of 10 atmospheres; at 3,200 feet, 100 atmospheres; and at 32,000 feet, 1,000 atmospheres—that is, about six and a half miles, which is equivalent to saying that if you can reach this depth in the ocean, each square inch of the surface of your body would bear a pressure of 14,933½lbs. Do you know how many square inches you have on the surface of your body?"

"I have no idea, Aronnax."

"About 6,500; and as in reality the atmospheric pressure is about 15lbs. to the square inch, your 6,500 square inches support at this minute a pressure of 97,500^{lbs.}"

"Without my perceiving it?"

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

"Yes, I understand," answered Ned, becoming more attentive, "because I am in water, but it is not in me."

"Precisely, Ned; so that at 32 feet below the surface of the sea you would undergo a pressure of 97,500lbs.; at 320 feet, 975,000lbs.; and at 32,000 feet the pressure would be 97,500,000lbs.—that is to say, you would be crushed as flat as a pancake."

"The devil!" exclaimed Ned.

"If vertebrata can maintain themselves in such depths, especially those whose surface is represented by millions of square inches, it is by hundreds of millions of pounds we must estimate the pressure they bear. Calculate, then, what must be the resistance of their bony structure and the strength of their organisation to withstand such a pressure."

"They must be made of iron plate eight inches thick like the ironclads!" said Ned.

"Yes, and think what destruction such a mass could cause if hurled with the speed of an express against the hull of a ship."

Ned would not give in.

"Have I not convinced you?" I said.

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

"But if they do not exist, Mr. Obstinate, how do you account for the Scotia's accident?"

"Because it is——" began Ned hesitatingly.

"Go on!"

"Because—it is not true!" answered the Canadian, repeating, without knowing it, a celebrated answer of Arago.

But this answer proved the obstinacy of the harpooner and nothing else. That day I did not press him further. The accident to the Scotia was undeniable. The hole existed so really that they were obliged to stop it up, and I do not think that the existence of a hole can be more categorically demonstrated. Now the hole had not made itself, and since it had not been done by submarine rocks or submarine machines, it was certainly due to the perforating tool of an animal.

Now, in my opinion, and for all the reasons previously deduced, this animal belonged to the embranchment of the vertebrata, *te*

the class of mammals, to the group of pisciforms, and, finally, to the order of cetaceans. As to the family in which it took rank, whale, cachalot, or dolphin, as to the genus of which it formed a part, as to the species in which it would be convenient to put it, that was a question to be elucidated subsequently. In order to solve it the unknown monster must be dissected; to dissect it, it must be taken, to take it, it must be harpooned—which was Ned Land's business—to harpoon it, it must be seen—which was the crew's business—and to see it, it must be encountered—which was the business of hazard.

CHAPTER V.

AT RANDOM.

THE voyage of the *Abraham Lincoln* for some time was marked by no incident. At last a circumstance happened which showed off the wonderful skill of Ned Land and the confidence that might be placed in him.

On the 30th of June the frigate, being then off the Falkland Islands, spoke some American whalers, who told us they had not met with the narwhal. But one of them, the captain of the *Munroe*, knowing that Ned Land was on board the *Abraham Lincoln*, asked for his help in capturing a whale they had in sight. Captain Farragut, desirous of seeing Ned Land at work, allowed him to go on board the *Munroe*, and fortune favoured our Canadian so well, that instead of one whale he harpooned two with a double blow, striking one right in the heart, and capturing the other after a pursuit of some minutes.

Certainly if the monster ever had Ned Land to deal with I would not bet in its favour.

The frigate skirted the south-east coast of America with extraordinary rapidity. On the 3rd of July we were at the opening of the Straits of Magellan, off Cape Vierge. But Captain Farragut did not wish to take this sinuous passage, but worked the ship for the doubling of Cape Horn.

The crew agreed with him unanimously. And certainly it was not possible that we should meet the narwhal in so narrow a pass.

On the 6th of July, about 3 p.m., we doubled, fifteen miles to the south, the solitary island to which some Dutch sailors gave the name of their native town, Cape Horn. The next day the frigate was in the Pacific.

“Keep a sharp look-out!” cried all the sailors.

Both eyes and telescopes, a little dazzled certainly by the

thought of 2,000 dollars, never had a minute's rest. Day and night they observed the surface of the ocean; and even nyctalops, whose faculty of seeing in the darkness increased their chances fifty per cent., would have had to keep a sharp look-out to win the prize.

I myself, who thought little about the money, was not, however, the least attentive on board. I was constantly on deck, giving but few minutes to my meals, and indifferent to either rain or sunshine. Now leaning over the sea on the fore-castle, now on the taffrail, I devoured with greedy eyes the soft foam which whitened the sea as far as these eyes could reach! How many times have I shared the emotion of the officers and crew when some capricious whale raised its black back above the waves! The deck was crowded in a minute. The companion ladders poured forth a torrent of officers and sailors, each with heaving breast and troubled eye watching the cetacean. I looked and looked till I was nearly blind, whilst Conseil, always calm, kept saying to me—

“If monsieur did not keep his eyes open so much he would see more.”

But vain excitement! The Abraham Lincoln would modify her speed, run down the animal signalled, which always turned out to be a simple whale or common cachalot, and disappeared amidst a storm of execration.

In the meantime the weather remained favourable. The voyage was being accomplished under the best conditions. It was then the bad season in the southern hemisphere, for the July of that zone corresponds with the January of Europe, yet the sea was so calm that the eye could scan a vast circumference.

Ned Land always showed the most tenacious incredulity; he even affected not to examine the seas except during his watch, unless a whale was in sight; and yet his marvellous power of vision might have been of great service. But eight hours out of the twelve the obstinate Canadian read or slept in his cabin.

“Bah!” he would answer; “there is nothing, M. Aronnax; and even if there is an animal, what chance have we of seeing it? Are we not going about at random? I will admit that the beast has been seen again in the North Pacific, but two months have already gone by since that meeting, and according to the temperament of your narwhal it does not like to stop long enough in the same quarter to grow mouldy. It is endowed with a prodigious faculty of moving about. Now, you know as well as I do, professor, that Nature makes nothing inconsistent, and

would not give to a slow animal the faculty of moving rapidly if it did not want to use it. Therefore, if the beast exists, it is far enough off now."

I did not know what to answer to that. We were evidently going along blindly. But how were we to do otherwise? Our chances, too, were very limited. In the meantime no one yet doubted of our success, and there was not a sailor on board who would have bet against the narwhal and against its early apparition.

On the 20th of July the tropic of Capricorn was crossed at 105° longitude, and the 27th of the same month we crossed the equator on the 110th meridian. These bearings taken, the frigate took a more decided direction westward, and entered the central seas of the Pacific. Commander Farragut rightly thought that it was better to frequent the deep seas, and keep at a distance from continents or islands, which the animal had always seemed to avoid approaching. "Doubtless because there was not enough water for him there," said the boatswain. The frigate, therefore, passed at a good distance from the Society, Marquesas, and Sandwich Islands, crossed the tropic of Cancer by 132° longitude, and made for the seas of China.

We were at last on the scene of the last frolics of the monster; and the truth was, no one lived really on board. Hearts beat frightfully fast, and laid down the seeds of future aneurisms. The entire crew were under the influence of such nervous excitement as I could not give the idea of. They neither ate nor slept. Twenty times a day some error of estimation, or the optical delusion of a sailor perched on the yards, caused intolerable frights; and these emotions, twenty times repeated, kept us in a state of erethismus too violent not to cause an early reaction.

And, in fact, the reaction was not slow in coming. For three months—three months, each day of which lasted a century—the Abraham Lincoln ploughed all the waters of the North Pacific, running down all the whales signalled, making sharp deviations from her route, veering suddenly from one tack to another, and not leaving one point of the Chinese or Japanese coast unexplored. And yet nothing was seen but the immense waste of waters—nothing that resembled a gigantic narwhal, nor a submarine islet nor a wreck, nor a floating reef, nor anything at all supernatural.

The reaction, therefore, began. Discouragement at first took possession of all minds, and opened a breach for incredulity. A new sentiment was experienced on board, composed of three-tenths of shame and seven-tenths of rage. They called themselves fools for being taken in by a chimera, and were still more

furious at it. The mountains of arguments piled up for a year fell down all at once, and all every one thought of was to make up the hours of meals and sleep which they had so foolishly sacrificed.

With the mobility natural to the human mind, they threw themselves from one excess into another. The warmest partisans of the enterprise became finally its most ardent detractors. The reaction ascended from the depths of the vessel, from the coal-hole, to the officers' ward-room, and certainly, had it not been for very strong determination on the part of Captain Farragut, the head of the frigate would have been definitely turned southward.

However, this useless search could be no further prolonged. The Abraham Lincoln had nothing to reproach herself with, having done all she could to succeed. No crew of the American Navy had ever shown more patience or zeal; its want of success could not be imputed to it. There was nothing left to do but to return.

A representation in this sense was made to the commander. The commander kept his ground. The sailors did not hide their dissatisfaction, and the service suffered from it. I do not mean that there was revolt on board, but after a reasonable period of obstinacy the commander, Farragut, like Columbus before him, asked for three days' patience. If in the delay of three days the monster had not reappeared, the man at the helm should give three turns of the wheel and the Abraham Lincoln should make for the European seas.

This promise was made on the 2nd of November. Its first effect was to rally the spirits of the ship's company. The ocean was observed with renewed attention.

Two days passed. The frigate kept up steam at half-pressure. Large quantities of bacon were trailed in the wake of the ship, to the great satisfaction of the sharks. The frigate lay to, and her boats were sent in all directions, but the night of the 4th of November passed without unveiling the submarine mystery.

The next day, the 5th of November, was the last of the delay.

The frigate was then in $31^{\circ} 15' N.$ latitude and $136^{\circ} 42' E.$ longitude. Japan lay less than 200 miles to leeward. Eight bells had just struck as I was leaning over the starboard side. Conseil, standing near me, was looking straight in front of him. The crew, perched in the ratlins, were keeping a sharp look-out in the approaching darkness. Officers with their night-glasses swept the horizon.

Looking at Conseil, I saw that the brave fellow was feeling slightly the general influence—at least it seemed to me so.

Perhaps for the first time, his nerves were vibrating under the action of a sentiment of curiosity.

"Well, Conseil," said I, "this is your last chance of pocketing 2,000 dollars."

"Will monsieur allow me to tell him that I never counted upon the reward, and if the Union had promised a hundred thousand dollars it would never be any the poorer."

"You are right, Conseil. It has been a stupid affair, after all. We have lost time and patience, and might just as well have been in France six months ago."

"Yes, in monsieur's little apartments, classifying monsieur's fossils, and monsieur's babiroussa would be in its cage in the Jardin des Plantes, attracting all the curious people in Paris."

"Yes, Conseil, and besides that we shall get well laughed at."

"Certainly," said Conseil tranquilly. "I think they will laugh at monsieur. And I must say——"

"What, Conseil?"

"That it will serve monsieur right! When one has the honour to be a *savant* like monsieur, one does not expose——"

Conseil did not finish his compliment. In the midst of general silence Ned Land's voice was heard calling out—

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

CHAPTER VI.

WITH ALL STEAM ON.



THIS cry the entire crew rushed towards the harpooner. Captain, officers, masters, sailors, and cabin-boys, even the engineers left their engines, and the stokers their fires. The order to stop her had been given, and the frigate was only moving by her own momentum. The darkness was then profound, and although I knew the Canadian's eyes were very good, I asked myself what he could have seen, and how he could have seen it. My heart beat violently.

But Ned Land was not mistaken, and we all saw the object he was pointing to.

At two cables' length from the Abraham Lincoln on her star-board quarter, the sea seemed to be illuminated below the surface. The monster lay some fathoms below the sea, and threw out the very intense but inexplicable light mentioned in the reports of several captains. This light described an immense and much-elongated oval, in the centre of which was condensed a focus the overpowering brilliancy of which died out by successive gradations

"It is only an agglomeration of phosphoric particles," cried one of the officers.

"No, sir," I replied with conviction. "Never did phos or salpæ produce such a light as that. That light is essentially electric. Besides—see! look out! It moves—forward—on to us!"

A general cry rose from the frigate.

"Silence!" called out the captain. "Up with the helm! Reverse the engines!"

The frigate thus tried to escape, but the supernatural animal approached her with a speed double her own.

Stupefaction, more than fear, kept us mute and motionless. The animal gained upon us. It made the round of the frigate, which was then going at the rate of fourteen knots, and enveloped her with its electric ring like luminous dust. Then it went two or three miles off, leaving a phosphoric trail like the steam of an express locomotive. All at once, from the dark limits of the horizon, where it went to gain its momentum, the monster rushed towards the frigate with frightful rapidity, stopped suddenly at a distance of twenty feet, and then went out, not diving, for its brilliancy did not die out by degrees, but all at once as if turned off. Then it reappeared on the other side of the ship, either going round her or gliding under her hull. A collision might have occurred at any moment, which might have been fatal to us.

I was astonished at the way the ship was worked. She was being attacked instead of attacking; and I asked Captain Farragut the reason. On the captain's generally impassive face was an expression of profound astonishment

"M. Aronnax," he said, "I do not know with how formidable a being I have to deal, and I will not imprudently risk my frigate in the darkness. We must wait for daylight, and then we shall change parts."

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

"No, sir. It is evidently a gigantic narwhal, and an electric one too."

"Perhaps," I added, "we can no more approach it than we could a gymnotus or a torpedo."

"It may possess as great blasting properties, and if it does it is the most terrible animal that ever was created. That is why I must keep on my guard."

All the crew remained up that night. No one thought of going to sleep. The Abraham Lincoln, not being able to compete in speed, was kept under half-steam. On its side the narwhal imitated the frigate, let the waves rock it at will, and seemed determined not to leave the scene of combat.

Towards midnight, however, it disappeared, dying out like a large glowworm. At seven minutes to one in the morning a deafening whistle was heard, like that produced by a column of water driven out with extreme violence.

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

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

"Yes, captain, often; but never such a whale as I earned two thousand dollars by sighting."

"True, you have a right to the prize; but tell me, is it the same noise they make?"

"Yes, sir; but this one is incomparably louder. It is not to be mistaken. It is certainly a cetacean there in our seas. With your permission, sir, we will have a few words with him at day break."

"If he is in a humour to hear them, Mr. Land," said I, in an unconvinced tone.

"Let me get within a length of four harpoons," answered the Canadian, "and he will be obliged to listen to me."

"But in order to approach him," continued the captain, "I shall have to put a whaler at your disposition."

"Certainly, sir."

"But that will be risking the lives of my men."

"And mine too," answered the harpooner simply.

About 2 a.m. the luminous focus reappeared, no less intense, about five miles to the windward of the frigate. Notwithstanding the distance and the noise of the wind and sea, the loud strokes of the animal's tail were distinctly heard, and even its panting breathing. When the enormous narwhal came up to the surface to breathe, it seemed as if the air rushed into its lungs like steam in the vast cylinders of a 2,000 horse power engine.

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

Until daylight we were all on the *qui-vive*, and then the fishing-tackle was prepared. The first mate loaded the blunderbusses, which throw harpoons the distance of a mile, and long duck-guns with explosive bullets, which inflict mortal wounds even upon the most powerful animals. Ned Land contented himself with sharpening his harpoon—a terrible weapon in his hands.

At 6 a.m. day began to break, and with the first glimmer of dawn the electric light of the narwhal disappeared. At 7 a.m. a very thick sea-fog obscured the atmosphere, and the best glasses could not pierce it.

I climbed the mizenmast and found some officers already perched on the mast-heads.

At 8 a.m. the mist began to clear away. Suddenly, like the night before, Ned Land's voice was heard calling—

“The thing in question on the port quarter!”

All eyes were turned towards the point indicated. There, a mile and a half from the frigate, a large black body emerged more than a yard above the waves. Its tail, violently agitated, produced a considerable eddy. Never did caudal appendage beat the sea with such force. An immense track, dazzlingly white, marked the passage of the animal, and described a long curve.

The frigate approached the cetacean, and I could see it well. The accounts of it given by the Shannon and Helvetia had rather exaggerated its dimensions, and I estimated its length at 150 feet only. As to its other dimensions, I could only conceive them to be in proportion.

Whilst I was observing it, two jets of vapour and water sprang from its vent-holes and ascended to a height of fifty yards, thus fixing my opinion as to its way of breathing. I concluded definitely that it belonged to the vertebrate branch of mammalia, order of cetaceans, family. . . . Here I could not decide. The order of cetaceans comprehends three families—whales, cachalots, and dolphins—and it is in this last that narwhals are placed.

The crew were waiting impatiently for their captain's orders. Farragut, after attentively examining the animal, had the chief engineer called.

“Is your steam up, sir?” asked the captain.

“Yes, captain,” answered the engineer.

“Then make up your fires and put on all steam.”

Three cheers greeted this order. The hour of combat had struck. Some minutes afterwards the funnels of the frigate were giving out torrents of black smoke, and the deck shook under the trembling of the boilers.

The Abraham Lincoln, propelled by her powerful screw, went straight at the animal, who let her approach to within half a cable's length, and then, as if disdaining to dive, made a little attempt at flight, and contented itself with keeping its distance.

This pursuit lasted about three-quarters of an hour, without the frigate gaining four yards on the cetacean. It was quite evident she would never reach it at that rate.

The captain twisted his beard impatiently.

“Ned Land!” called the captain, “do you think I had better have the boats lowered?”

"No, sir," answered Ned Land, "for that animal won't be caught unless it chooses."

"What must be done, then?"

"Force steam if you can, captain, and I, with your permission, will post myself under the bowsprit, and if we get within a harpoon length I shall hurl one."

"Very well, 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. The log was heaved, and it was found that the frigate was going eighteen miles and five-tenths an hour. But the animal went eighteen and five-tenths an hour too.

During another hour the frigate kept up that speed without gaining a yard. It was humiliating for one of the quickest vessels in the American navy. The crew began to get very angry. The sailors swore at the animal, who did not deign to answer them. The captain not only twisted his beard, he began to gnaw it too. The engineer was called once more.

"Have you reached your maximum of pressure?" asked the captain.

"Yes, sir."

The captain ordered him to do all he could without absolutely blowing up the vessel, and coal was at once piled up on the fires. The speed of the frigate increased. Her masts shook again. The log was again heaved, and this time she was making nineteen miles and three-tenths.

"All steam on!" called out the captain.

The engineer obeyed. The manometer marked ten degrees. But the cetacean did the nineteen miles and three-tenths as easily as the eighteen and five-tenths.

What a chase! I cannot describe the emotion that made my whole being vibrate again. Ned Land kept at his post, harpoon in hand. The animal allowed itself to be approached several times. Sometimes it was so near that the Canadian raised his hand to hurl the harpoon, when the animal rushed away at a speed of at least thirty miles an hour, and even during our maximum of speed it bullied the frigate, going round and round it.

A cry of fury burst from all lips. We were not further advanced at twelve o'clock than we had been at eight. Captain Farragut then made up his mind to employ more direct means.

"Ah!" said he, "so that animal goes faster than my ship! Well, we'll see if he'll go faster than a conical bullet. Master, send your men to the forecastle."

The forecastle gun was immediately loaded and pointed. It

was fired, but the ball passed some feet above the cetacean, which kept about half a mile off.

"Let some one else have a try!" called out the captain. "Five hundred dollars to whomsoever will hit the beast!"

An old gunner with a grey beard—I think I see now his calm face as he approached the gun—put it into position and took a long aim. A loud report followed and mingled with the cheers of the crew.

The bullet reached its destination; it struck the animal, but, gliding off the rounded surface, fell into the sea two miles off.

"Malediction!" cried the captain; "that animal must be clad in six-inch iron plates. But I'll catch it, if I have to blow up my frigate!"

It was to be hoped that the animal would be exhausted, and that it would not be indifferent to fatigue like a steam-engine. But the hours went on, and it showed no signs of exhaustion.

It must be said, in praise of the Abraham Lincoln, that she struggled on indefatigably. I cannot reckon the distance we made during this unfortunate day at less than 300 miles. But night came on and closed round the heaving ocean.

At that minute I believed our expedition to be at an end, and that we should see the fantastic animal no more.

I was mistaken, for at 10.50 p.m. the electric light reappeared, three miles windward to the frigate, as clear and intense as on the night before.

The narwhal seemed motionless. Perhaps, fatigued with its day's work, it was sleeping in its billowy cradle. That was a chance by which the captain resolved to profit.

He gave his orders. The Abraham Lincoln was kept up at half-steam, and advanced cautiously so as not to awaken her adversary. It is not rare to meet in open sea with whales fast asleep, and Ned Land had harpooned many a one in that condition. The Canadian went back to his post under the bowsprit.

The frigate noiselessly approached, and stopped at two cables' length from the animal. No one breathed. A profound silence reigned on deck. We were not 1,000 feet from the burning focus, the light of which increased and dazzled our eyes.

At that minute, leaning on the fore-castle bulwark, I saw Ned Land below me, holding the martingale with one hand and with the other brandishing his terrible harpoon, scarcely twenty feet from the motionless animal.

All at once he threw the harpoon, and I heard the sonorous stroke of the weapon, which seemed to have struck a hard body.

The electric light suddenly went out, and two enormous water-spouts fell on the deck of the frigate, running like a torrent from

tore to aft, upsetting men, and breaking the lashing of the spars.

A frightful shock followed. I was thrown over the rail before I had time to stop myself, and fell into the sea.

CHAPTER VII.

A WHALE OF AN UNKNOWN SPECIES.



ALTHOUGH I was surprised by my unexpected fall, I still kept a very distinct impression of my sensations. I was at first dragged down to a depth of about twenty feet. I was a good swimmer without any pretensions to equal Byron or Edgar Poe, both masters in the art, and this plunge did not make me lose my presence of mind. Two vigorous kicks brought me back to the surface.

My first care was to look for the frigate. Had the crew seen me disappear? Had the Abraham Lincoln veered round? Would the captain have a boat lowered? Might I hope to be saved?

The darkness was profound. I perceived a black mass disappearing in the east, the beacon lights of which were dying out in the distance. It was the frigate. I gave myself up.

"Help! help!" cried I, swimming towards the frigate with desperate strokes.

My clothes embarrassed me. The water glued them to my body. They paralysed my movements. I was sinking.

"Help!" rang out again in the darkness.

This was the last cry I uttered. My mouth filled with water. I struggled not to be sucked into the abyss.

Suddenly my clothes were seized by a vigorous hand, and I felt myself brought back violently to the surface of the water, and I heard—yes, I heard these words uttered in my ear:—

"If monsieur will have the goodness to lean on my shoulder, monsieur will swim much better."

I seized the arm of my faithful Conseil.

"You!" I cried—"you!"

"Myself," answered Conseil, "at monsieur's service."

"Did the shock throw you into the sea too?"

"No; but being in the service of monsieur, I followed him."

The worthy fellow thought that quite natural.

"What about the frigate?" I asked.

"The frigate!" answered Conseil, turning on his back; "I think monsieur will do well not to count upon the frigate."

"Why?"

"Because, as I jumped into the sea, I heard the man at the helm call out, 'The screw and the rudder are broken.'"

"Broken?"

"Yes, by the monster's tusk. It is the only damage she has sustained. I think; but without a helm she can't do anything for us."

"Then we are lost!"

"Perhaps," answered Conseil tranquilly. "In the meantime we have still several hours before us, and in several hours many things may happen."

The imperturbable *sang-froid* of Conseil did me good. I swam more vigorously, but, encumbered by my garments, which dragged me down like a leaden weight, I found it extremely difficult to keep up. Conseil perceived it.

"Will monsieur allow me to make a slit?" said he. And, slipping an open knife under my clothes, he slit them rapidly from top to bottom. Then he quickly helped me off with them whilst I swam for both. I rendered him the same service, and we went on swimming near each other.

In the meantime our situation was none the less terrible. Perhaps our disappearance had not been remarked, and even if it had the frigate could not tack without her helm. Our only chance of safety was in the event of the boats being lowered.

The collision had happened about 11 p.m. About 1 a.m. I was taken with extreme fatigue, and all my limbs became stiff with cramp. Conseil was obliged to keep me up, and the care of our preservation depended upon him alone. I heard the poor fellow breathing hard, and knew he could not keep up much longer.

"Let me go! Leave me!" I cried.

"Leave monsieur? Never!" he answered. "I shall drown with him."

Just then the moon appeared through the fringe of a large cloud that the wind was driving eastward. The surface of the sea shone under her rays. I lifted my head and saw the frigate. She was five miles from us, and only looked like a dark mass, scarcely distinguishable. I saw no boats.

I tried to call out, but it was useless at that distance. My swollen lips would not utter a sound. Conseil could still speak, and I heard him call out "Help!" several times.

We suspended our movements for an instant and listened. It might be only a singing in our ears, but it seemed to me that a cry answered Conseil's.

"Did you hear?" I murmured.

"Yes, yes!"

And Conseil threw another despairing cry into space. This time there could be no mistake. A human voice answered ours. Was it the voice of some other victim of the shock, or a boat hailing us in the darkness? Conseil made a supreme effort, and, leaning on my shoulder whilst I made a last struggle for us both, he raised himself half out of the water, and I heard him shout. Then my strength was exhausted, my fingers slipped, my mouth filled with salt water, I went cold all over, raised my head for the last time, and began to sink.

At that moment I hit against something hard, and I clung to it in desperation. Then I felt myself lifted up out of the water, and I fainted—I soon came to, thanks to the vigorous friction that was being applied to my body, and I half-opened my eyes.

“Conseil!” I murmured.

“Did monsieur ring?” answered Conseil.

Just then, by the light of the moon that was getting lower on the horizon, I perceived a face that was not Conseil's, but which I immediately recognised.

“Ned!” I cried.

“The same, sir, looking after his prize,” replied the Canadian.

“Were you thrown into the sea when the frigate was struck?”

“Yes, sir, but, luckier than you, I soon got upon a floating island.”

“An island?”

“Yes, or if you like better, on our giant narwhal.”

“What do you mean, Ned?”

“I mean that I understand now why my harpoon did not stick into the skin, but was blunted.”

“Why, Ned, why?”

“Because the beast is made of sheet-iron plates.”

I wriggled myself quickly to the top of the half-submerged being or object on which we had found refuge. I struck my foot against it. It was evidently a hard and impenetrable body, and not the soft substance which forms the mass of great marine mammalia. But this hard body could not be a bony carapace like that of antediluvian animals. I could not even class it amongst amphibious reptiles, such as tortoises and alligators, for the blackish back that supported me was not scaly but smooth and polished.

The blow produced a metallic sound, and, strange as it may appear, seemed caused by being struck on riveted plates. Doubt was no longer possible. The animal, monster, natural phenomenon that had puzzled the entire scientific world, and misled the imagination of sailors in the two hemispheres, was, it must be acknowledged, a still more astonishing phenomenon, a pheno-

menon of man's making. The discovery of the existence of the most fabulous and mythological being would not have astonished me in the same degree. It seems quite simple that anything prodigious should come from the hand of the Creator, but to find the impossible realised by the hand of man was enough to confound the imagination.

We were lying upon the top of a sort of submarine boat, which looked to me like an immense steel fish. Ned Land's mind was made up on that point, and Conseil and I could only agree with him.

"But then," said I, "this apparatus must have a locomotive machine, and a crew inside of it to work it."

"Evidently," replied the harpooner, "and yet for the three hours that I have inhabited this floating island it has not given sign of life."

"The vessel has not moved?"

"No, M. Aronnax. It is cradled in the waves, but it does not move."

"We know, without the slightest doubt, however, that it is endowed with great speed, and as a machine is necessary to produce the speed, and a mechanician to guide it, I conclude from that that we are saved."

"Hum," said Ned Land in a reserved tone of voice.

At that moment, and as if to support my arguments, a boiling was heard at the back of the strange apparatus, the propeller of which was evidently a screw, and it began to move. We only had time to hold on to its upper part, which emerged about a yard out of the water. Happily its speed was not excessive.

"As long as it moves horizontally," murmured Ned Land, "I have nothing to say. But if it takes it into its head to plunge I would not give two dollars for my skin!"

The Canadian might have said less still. It therefore became urgent to communicate with whatever beings were shut up in the machine. I looked on its surface for an opening, a panel, a "man-hole," to use the technical expression; but the lines of bolts, solidly fastened down on the joints of the plates, were clear and uniform.

Besides, the moon then disappeared and left us in profound obscurity. We were obliged to wait till daybreak to decide upon the means of penetrating to the interior of this submarine boat.

Thus, then, our safety depended solely upon the caprice of the mysterious steersmen who directed this apparatus, and if they plunged we were lost! Unless that happened I did not doubt the possibility of entering into communication with them. And it was certain that unless they made their own air they

must necessarily return from time to time to the surface of the ocean to renew their provision of breathable molecules. Therefore there must be an opening which put the interior of the boat into communication with the atmosphere.

As to the hope of being saved by Commander Farragut, that had to be completely renounced. We were dragged westward, and I estimated that our speed, relatively moderate, attained twelve miles an hour. The screw beat the waves with mathematical regularity, sometimes emerging and throwing the phosphorescent water to a great height.

About 4 a.m. the rapidity of the apparatus increased. We resisted with difficulty this vertiginous impulsion, when the waves beat upon us in all their fury. Happily Ned touched with his hand a wide balustrade fastened on to the upper part of the iron top, and we succeeded in holding on to it solidly.

At last this long night slipped away. My incomplete memory does not allow me to retrace all the impressions of it. A single detail returns to my mind. During certain lullings of the sea and wind, I thought several times I heard vague sounds, a sort of fugitive harmony produced by far-off chords. What, then, was the mystery of this submarine navigation, of which the entire world vainly sought the explanation? What beings lived in this strange boat? What mechanical agent allowed it to move with such prodigious speed?

When daylight appeared the morning mists enveloped us, but they soon rose, and I proceeded to make an attentive examination of the sort of horizontal platform we were on, when I felt myself gradually sinking.

"*Mille diables!*" cried Land, kicking against the sonorous metal, "open, inhospitable creatures!"

But it was difficult to make oneself heard amidst the deafening noise made by the screw. Happily the sinking ceased.

Suddenly a noise like iron bolts violently withdrawn was heard from the interior of the boat. One of the iron plates was raised, a man appeared, uttered a strange cry, and disappeared immediately.

Some moments after eight strong fellows, with veiled faces, silently appeared, and dragged us down into their formidable machine.

CHAPTER VIII

MOBILIS IN MOBILI.

HIS abduction, so brutally executed, took place with the rapidity of lightning. I do not know what my companions felt at being introduced into this floating prison; but, for my own part, a rapid shudder froze my very veins. With whom had we to do? Doubtless with a new species of pirates, who made use of the sea in a way of their own.

The narrow panel had scarcely closed upon me when I was enveloped by profound darkness. My eyes, dazzled by the light outside, could distinguish nothing. I felt my naked feet touch the steps of an iron ladder. Ned Land and Conseil, firmly held, followed me. At the bottom of the ladder a door opened and closed again immediately with a sonorous bang.

We were alone. Where? I neither knew nor could I imagine. All was darkness, and such absolute darkness, that after some minutes I had not been able to make out even those faint glimmers of light which float in the darkest nights.

Meanwhile, Ned Land, furious at this manner of proceeding, gave free course to his indignation.

"The people here equal the Scotch in hospitality!" he cried. "They could not be worse if they were cannibals. I shouldn't be surprised if they were, but I declare they shan't eat me without my protesting!"

"Calm yourself, friend Ned; calm yourself," answered Conseil tranquilly. "Don't get into a rage beforehand. We aren't on the spit yet."

"No, but we're in the oven. This hole's as dark as one. Happily my 'bowie-knife' is still on me, and I shall see well enough to use it. The first of these rascals that lays his hand on me——"

"Don't get irritated, Ned," then said I to the harpooner, "and do not compromise yourself by useless violence. Who knows that we are not overheard? Let us rather try to make out where we are."

I groped my way about. When I had gone about five steps I came to an iron wall made of riveted plates. Then turning, I knocked against a wooden table, near which were several stools. The flooring of this prison was hidden under thick phormium matting, which deadened the noise of our footsteps. The walls

revealed no traces of either door or window. Conseil, going round the reverse way, met me, and we returned to the centre of the room, which measured about twenty feet by ten. As to its height, Ned Land, notwithstanding his tall stature, could not measure it.

Half an hour passed away without bringing any change in our position, when from the extreme of obscurity our eyes passed suddenly to the most violent light. Our prison was lighted up all at once—that is to say, it was filled with a luminous matter so intense that at first I could not bear its brilliancy. I saw from its whiteness and intensity that it was the same electric light that shone around the submarine boat like a magnificent phosphoric phenomenon. After having involuntarily closed my eyes I opened them again, and saw that the luminous agent was escaping from a polished half-globe, which was shining in the top part of the room.

“Well, we can see at last!” cried Ned Land, who, with his knife in hand, held himself on the defensive.

“Yes,” answered I, risking the anathema, “but the situation is none the less obscure.”

“Let monsieur have patience,” said the impassible Conseil.

The sudden lighting of the cabin had allowed me to examine its least details. It only contained the table and five stools. The invisible door seemed hermetically closed. No noise reached our ears. All seemed dead in the interior of this machine. Was it moving, or was it motionless on the surface of the ocean, or deep in its depths? I could not guess.

However, the luminous globe was not lighted without a reason. I hoped that the men of the crew would soon show themselves, and my hope was well founded. A noise of bolts and bars being withdrawn was heard, the door opened, and two men appeared. One was short in stature, vigorously muscular, with broad shoulders, robust limbs, large head, abundant black hair, thick moustache, and all his person imprinted with that southern vivacity which characterises the Provençal inhabitants of France.

The second deserves a more detailed description. I read at once his dominant qualities on his open face—self-confidence, because his head was firmly set on his shoulders, and his black eyes looked round with cold assurance—calmness, for his pale complexion announced the tranquillity of his blood—energy, demonstrated by the rapid contraction of his eyebrows; and lastly, courage, for his deep breathing denoted vast vital expansion. I felt involuntarily reassured in his presence, and augured good from it. He might be of any age from thirty-

five to fifty. His tall stature, wide forehead, straight nose, clear-cut mouth, magnificent teeth, taper hands, indicated a highly-nervous temperament. This man formed certainly the most admirable type I had ever met with. One strange detail was that his eyes, rather far from each other, could take in nearly a quarter of the horizon at once. This faculty—I verified it later on—was added to a power of vision superior even to that of Ned Land. When the unknown fixed an object he frowned, and his large eyelids closed round so as to contract the range of his vision, and the result was a look that penetrated your very soul. With it he pierced the liquid waves that looked so opaque to us as if he read to the very depths of the sea.

The two strangers had on caps made from the fur of the sea-otter, sealskin boots, and clothes of a peculiar texture, which allowed them great liberty of movement.

The taller of the two—evidently the chief on board—examined us with extreme attention without speaking a word. Then he turned towards his companion, and spoke to him in a language I could not understand. It was a sonorous, harmonious, and flexible idiom, of which the vowels seemed very variously accented.

The other answered by shaking his head and pronouncing two or three perfectly incomprehensible words. Then, from his looks, he seemed to be questioning me directly.

I answered in good French that I did not understand his language; but he did not seem to know French, and the situation became very embarrassing.

“If monsieur would relate his story,” said Conseil, “these gentlemen may understand some words of it.”

I began the recital of my adventures, articulating clearly all my syllables, without leaving out a single detail. I gave our names and qualities. The man with the soft, calm eyes listened to me calmly, and even politely, with remarkable attention. But nothing in his face indicated that he understood me. When I had done he did not speak a single word.

There still remained one resource—that of speaking English. Perhaps they would understand that almost universal language. I knew it, and German too, sufficiently to read it correctly, but not to speak it fluently.

“It is your turn now, Land,” I said to the harpooner. “Make use of your best English, and try to be more fortunate than I.”

Ned did not need urging, and began the same tale in English, and ended by saying what was perfectly true, that we were half-dead with hunger. To his great disgust, the harpooner did not seem more intelligible than I. Our visitors did not move

a feature. It was evident that they neither knew the language of Arago nor Faraday. I was wondering what to do next, when Conseil said to me—

“If monsieur will allow me, I will tell them in German.”

“What! do you know German?” I cried.

“Like a Dutchman, sir.”

“Well, do your best, old fellow.”

And Conseil, in his tranquil voice, told our story for the third time, but without success.

I then assembled all the Latin I had learnt at school, and told my adventures in that dead language. Cicero would have stopped his ears and sent me to the kitchen, but I did the best I could with the same negative result.

After this last attempt the strangers exchanged a few words in their incomprehensible language, and went away without a gesture that could reassure us. The door closed upon them.

“It is infamous!” cried Ned Land, who broke out again for the twentieth time. “What! French, English, German, and Latin are spoken to those rascals, and not one of them has the politeness to answer.”

“Calm yourself, Ned,” said I to the enraged harpooner; “anger will do no good.”

“But do you know, professor,” continued our irascible companion, “that it is quite possible to die of hunger in this iron cage?”

“Bah!” exclaimed Conseil; “with exercising a little philosophy we can still hold out a long while.”

“My friends,” said I, “we must not despair. We have been in worse situations before now. Do me the pleasure of waiting before you form an opinion of the commander and crew of this vessel.”

“My opinion is already formed,” answered Ned Land. “They are rascals——”

“Well, and of what country?”

“Of Rascaldom!”

“My worthy Ned, that country is not yet sufficiently indicated on the map of the world, and I acknowledge that the nationality of those two men is difficult to determine. Neither English, French, nor German, that is all we can affirm. However, I should be tempted to admit that the commander and his second were born under low latitudes. There is something meridional in them. But are they Spaniards, Turks, Arabians, or Indians? Their physical type does not allow me to decide; as to their language, it is absolutely incomprehensible.”

“That is the disadvantage of not knowing every language,”

answered Conseil, "or the disadvantage of not having a single language."

"That would be of no use," answered Ned Land. "Do you not see that those fellows have a language of their own—a language invented to make honest men who want their dinners despair? But in every country in the world, to open your mouth, move your jaws, snap your teeth and lips, is understood. Does it not mean in Quebec as well as the Society Islands, in Paris as well as the antipodes, 'I am hungry—give me something to eat?'"

"Oh," said Conseil, "there are people so unintelligent——"

As he was saying these words the door opened, and a steward entered. He brought us clothes similar to those worn by the two strangers, which we hastened to don.

Meanwhile the servant—dumb and deaf too in all appearance—had laid the cloth for three.

"This is something like," said Conseil, "and promises well."

"I'll bet anything there's nothing here fit to eat," said the harpooner. "Tortoise liver, fillets of shark, or beefsteak from a sea-dog, perhaps!"

"We shall soon see," said Conseil.

The dishes with their silver covers were symmetrically placed on the table. We had certainly civilised people to deal with, and had it not been for the electric light which inundated us I might have imagined myself in the Adelpi Hotel in Liverpool or the Grand Hotel in Paris. There was neither bread nor wine, nothing but pure fresh water, which was not at all to Ned Land's taste. Amongst the dishes that were placed before us I recognised several kinds of fish delicately cooked; but there were some that I knew nothing about, though they were delicious. I could not tell to what kingdom their contents belonged. The dinner service was elegant and in perfect taste; each piece was engraved with a letter and motto of which the following is a *fac-simile*:—

Mobilis in Mobile.

N.

Mobile in a mobile element! The letter N was doubtless the initial of the enigmatical person who commanded at the bottom of the sea.

Ned and Conseil did not observe so much. They devoured all before them, and I ended by imitating them.

But at last even our appetite was satisfied, and we felt overcome with sleep. A natural reaction after the fatigue of the interminable night during which we had struggled with death.

My two companions lay down on the carpet, and were soon fast asleep. I did not go so soon, for too many thoughts filled

my brain; too many insoluble questions asked me for a solution; too many images kept my eyes open. Where were we? What strange power was bearing us along? I felt, or rather I thought I felt, the strange machine sinking down to the lowest depths of the sea. Dreadful nightmares took possession of me. I saw a world of unknown animals in these mysterious asylums, amongst which the submarine boat seemed as living, moving, and formidable as they. Then my brain grew calmer, my imagination melted into dreaminess, and I fell into a deep sleep.

CHAPTER IX.

NED LAND'S ANGER.



DO not know how long our sleep lasted, but it must have been a long time, for it rested us completely from our fatigues. I awoke first. My companions had not yet moved.

I had scarcely risen from my rather hard couch when I felt all my faculties clear, and looked about me.

Nothing was changed in the room. The prison was still a prison, and the prisoners prisoners. The steward, profiting by our sleep, had cleared the supper-things away. Nothing indicated an approaching change in our position, and I asked myself seriously if we were destined to live indefinitely in that cage.

This prospect seemed to me the more painful because, though my head was clear, my chest was oppressed. The heavy air weighed upon my lungs. We had evidently consumed the larger part of the oxygen the cell contained, although it was large. One man consumes in one hour the oxygen contained in 176 pints of air, and this air, then loaded with an almost equal quantity of carbonic acid, becomes unbearable.

It was, therefore, urgent to renew the atmosphere of our prison, and most likely that of the submarine boat also. Thereupon a question came into my head, "How did the commander of this floating dwelling manage? Did he obtain air by chemical means, by evolving the heat of oxygen contained in chlorate of potassium, and by absorbing the carbonic acid with caustic potassium? In that case he must have kept up some relations with land in order to procure the materials necessary to this operation. Did he confine himself simply to storing up air under great pressure in reservoirs, and then let it out according to the needs of his crew? Perhaps. Or did he use the more convenient, economical, and consequently more probable means of contenting him-

self with returning to breathe on the surface of the water like a cetacean, and of renewing for twenty-four hours his provision of atmosphere? Whatever his method might be, it seemed to me prudent to employ it without delay.

I was reduced to multiplying my respirations to extract from our cell the small quantity of oxygen it contained, when, suddenly, I was refreshed by a current of fresh air, loaded with saline odours. It was a sea breeze, life-giving, and charged with iodine. I opened my mouth wide, and my lungs became saturated with fresh particles. At the same time I felt the boat roll, and the iron-plated monster had evidently just ascended to the surface of the ocean to breathe like the whales. When I had breathed fully, I looked for the ventilator which had brought us the beneficent breeze, and, before long, found it.

I was making these observations when my two companions awoke nearly at the same time, doubtless through the influence of the reviving air. They rubbed their eyes, stretched themselves, and were on foot instantly.

"Did monsieur sleep well?" Conseil asked me with his usual politeness.

"Very well, old fellow. And you, Mr. Land?"

"Profoundly, Mr. Professor. But if I am not mistaken, I am breathing a sea breeze."

A seaman could not be mistaken in that, and I told the Canadian what had happened while he was asleep.

"That accounts for the roarings we heard when the supposed narwhal was in sight of the Abraham Lincoln."

"Yes, Mr. Land, that is its breathing."

"I have not the least idea what time it can be, M. Aronnax, unless it be dinner time."

"Dinner time, Ned? Say breakfast time at least, for we have certainly slept something like twenty-four hours."

"I will not contradict you," answered Ned Land, "but dinner or breakfast, the steward would be welcome. I wish he would bring one or the other."

"The one and the other," said Conseil.

"Certainly," answered the Canadian, "we have right to two meals, and, for my own part, I shall do honour to both."

"Well, Ned, we must wait," I answered. "It is evident that those two men had no intention of leaving us to die of hunger, for in that case there would have been no reason to give us dinner yesterday."

"Unless it is to fatten us!" answered Ned.

"I protest," I answered. "We have not fallen into the hands of cannibals."

"One swallow does not make a summer," answered the Canadian seriously. "Who knows if those fellows have not been long deprived of fresh meat, and in that case these healthy and well-constituted individuals like the professor, his servant, and me——"

"Drive away such ideas, Mr. Land," I answered, "and above all do not act upon them to get into a rage with our hosts, for that would only make the situation worse."

"Any way," said the harpooner, "I am devilishly hungry, and, dinner or breakfast, the meal does not arrive!"

"Mr. Land," I replied, "we must conform to the rule of the vessel, and I suppose that our stomachs are in advance of the steward's bell."

"Well, then, we must put them right," answered Conseil tranquilly.

"That is just like you, Conseil," answered the impatient Canadian. "You do not use up your bile or your nerves! Always calm, you would be capable of saying your grace before your Benedicite, and of dying of hunger before you complained."

"What is the use of complaining?" asked Conseil.

"It does one good to complain! It is something. And if these pirates—I say pirates not to vex the professor, who does not like to hear them called cannibals—and if these pirates think that they are going to keep me in this cage where I am stilled without hearing how I can swear, they are mistaken. Come, M. Aronnax, speak frankly. Do you think they will keep us long in this iron box?"

"To tell you the truth I know no more about it than you, friend Land."

"But what do you think about it?"

"I think that hazard has made us masters of an important secret. If it is the interest of the crew of this submarine vessel to keep it, and if this interest is of more consequence than the life of three men, I believe our existence to be in great danger. In the contrary case, on the first opportunity, the monster who has swallowed us will send us back to the world inhabited by our fellow-men."

"Unless he enrolls us amongst his crew," said Conseil, "and he keeps us thus——"

"Until some frigate," replied Ned Land, "more rapid or more skilful than the Abraham Lincoln, masters this nest of plunderers, and sends its crew and us to breathe our last at the end of his mainyard."

"Well reasoned, Mr. Land," I replied. "But I believe no

proposition of the sort has yet been made to us, so it is useless to discuss what we should do in that case. I repeat, we must wait, take counsel of circumstances, and do nothing, as there is nothing to do."

"On the contrary, Mr. Professor," answered the harpooner, who would not give up his point, "we must do something."

"What, then?"

"Escape."

"To escape from a terrestrial prison is often difficult, but from a submarine prison, that seems to me quite impracticable."

"Come, friend Ned," said Conseil, "what have you to say to master's objection? I do not believe an American is ever at the end of his resources."

The harpooner, visibly embarrassed, was silent, a flight under the conditions hazard had imposed upon us was absolutely impossible. But a Canadian is half a Frenchman, and Ned Land showed it by his answer.

"Then, M. Aronnax," he said, after some minutes' reflection, "you do not guess what men ought to do who cannot escape from prison?"

"No, my friend."

"It is very simple; they must make their arrangements to stop in it."

"I should think so," said Conseil; "it is much better to be inside than on the top or underneath."

"But after you have thrown your gaolers and keepers out?" added Ned Land.

"What, Ned? You seriously think of seizing this vessel?"

"Quite seriously," answered the Canadian.

"It is impossible."

"How so, sir? A favourable chance may occur, and I do not see what could prevent us profiting by it. If there are twenty men on board this machine they will not frighten two Frenchmen and a Canadian, I suppose."

It was better to admit the proposition of the harpooner than to discuss it. So I contented myself with answering—

"Let such circumstances come, Mr. Land, and we will see. But until they do I beg of you to contain your impatience. We can only act by stratagem, and you will not make yourself master of favourable chances by getting in a rage. Promise me, therefore, that you will accept the situation without too much anger."

"I promise you, professor," answered Ned Land in a not very assuring tone; "not a violent word shall leave my mouth, not an angry movement shall betray me, not even if we are not waited upon at table with desirable regularity."

"I have your word, Ned," I answered.

Then the conversation was suspended, and each of us began to reflect on his own account. I acknowledge that, for my own part, and notwithstanding the assurance of the harpooner, I kept no illusion. I did not admit the probability of the favourable occasions of which Ned Land had spoken. To be so well worked the submarine boat must have a numerous crew, and consequently, in case of a struggle, we should have to do with numbers too great. Besides, before aught else we must be free, and we were not. I did not even see any means of leaving this iron cell so hermetically closed. And should the strange commander of the boat have a secret to keep—which appeared at least probable—he would not allow us freedom of movement on board. Now, would he get rid of us by violence, or would he throw us upon some corner of earth? All that was the unknown. All these hypotheses seemed to me extremely plausible, and one must be a harpooner to hope to conquer liberty again.

I understood, though, that Ned Land should get more exasperated with the thoughts that took possession of his brain. I heard him swearing in a gruff undertone, and saw his looks again become threatening. He rose, moved about like a wild beast in a cage, and struck the wall with his fist and foot. Moreover, time was going, hunger was cruelly felt, and this time the steward did not appear. If they had really good intentions towards us they had too long forgotten our shipwrecked condition.

Ned Land, tormented by the twinges of his robust stomach, became more and more enraged, and notwithstanding his promise I really feared an explosion when he would again be in the presence of the men on board.

Two more hours rolled on, and Ned's anger increased; he cried and called at the top of his voice, but in vain. The iron walls were deaf. The boat seemed quite still. The silence became quite oppressive.

I dare no longer think how long our abandonment and isolation in this cell might last. The hopes that I had conceived after our interview with the commander of the vessel vanished one by one. The gentle look of this man, the generous expression of his face, the nobility of his carriage, all disappeared from my memory. I again saw this enigmatical personage such as he must necessarily be, pitiless and cruel. I felt him to be outside the pale of humanity, inaccessible to all sentiment of pity, the implacable enemy of his fellow-men, to whom he had vowed imperishable hatred.

But was the man going, then, to let us perish from inanition,

shut up in this narrow prison, given up to the horrible temptations to which ferocious famine leads? This frightful thought took a terrible intensity in my mind, and imagination helping, I felt myself invaded by unreasoning fear. Conseil remained calm. Ned was roaring. At that moment a noise was heard outside. Steps clanged on the metal slabs. The bolts were withdrawn, the door opened, the steward appeared.

Before I could make a movement to prevent him the Canadian had rushed upon the unfortunate fellow, knocked him down, and fastened on his throat. The steward was choking under his powerful hand.

Conseil was trying to rescue his half-suffocated victim from the hands of the harpooner, and I was going to join my efforts to his, when, suddenly, I was riveted to my place by these words spoken in French:—

“Calm yourself, Mr. Land, and you, professor, please to listen to me.”

CHAPTER X.

NEMO.



HE man who spoke thus was the commander of the vessel.

When Ned Land heard these words he rose suddenly. The almost strangled steward went tottering out on a sign from his master; but such was the power of the commander on his vessel that not a gesture betrayed the resentment the man must have felt towards the Canadian. Conseil, interested in spite of himself, and I stupefied, awaited the result of this scene in silence.

The commander, leaning against the angle of the table, with his arms folded, looked at us with profound attention. After some minutes of a silence which none of us thought of interrupting, he said in a calm and penetrating voice—

“Gentlemen, I speak French, English, German, and Latin equally well. I might, therefore, have answered you at our last interview, but I wished to know you first, and afterwards to ponder on what you said. The stories told by each of you agreed in the main, and assured me of your identity. I know now that accident has brought me into the presence of M. Pierre Aronnax, Professor of Natural History in the Paris Museum, charged with a foreign scientific mission, his servant Conseil, and Ned Land, of Canadian origin, harpooner on board the frigate Abraham Lincoln, of the United States Navy.”

I bent my head in sign of assent. There was no answer necessary. This man expressed himself with perfect ease, and without the least foreign accent. And yet I felt that he was not one of my countrymen. He continued the conversation in these terms:—

“I daresay you thought me a long time in coming to pay you this second visit. It was because, after once knowing your identity, I wished to ponder upon what to do with you. I hesitated long. The most unfortunate conjuncture of circumstances has brought you into the presence of a man who has broken all ties that bound him to humanity. You came here to trouble my existence——”

“Unintentionally,” said I.

“Unintentionally,” he repeated, raising his voice a little. “Is it unintentionally that the Abraham Lincoln pursues me in every sea? Was it unintentionally that you took passage on board her? Was it unintentionally that your bullets struck my vessel? Did Mr. Land throw his harpoon unintentionally?”

“You are doubtless unaware,” I answered, “of the commotion you have caused in Europe and America. When the Abraham Lincoln pursued you on the high seas every one on board believed they were pursuing a marine monster.”

A slight smile curled round the commander’s lips, then he went on in a calmer tone—

“Dare you affirm, M. Aronnax, that your frigate would not have pursued a submarine vessel as well as a marine monster?”

This question embarrassed me, for it was certain that Captain Farragut would not have hesitated. He would have thought it as much his duty to destroy such a machine as the gigantic narwhal he took it to be.

“You see, sir,” continued the commander, “I have the right to treat you as enemies.”

I answered nothing, and for a very good reason; the unknown had force on his side, and it can destroy the best arguments.

“I have long hesitated,” continued the commander. “Nothing obliges me to give you hospitality. I could place you upon the platform of this vessel, upon which you took refuge; I might sink it beneath the waters and forget that you ever existed. I should only be using my right.”

“The right of a savage, perhaps,” I answered, “but not that of a civilised man.”

“Professor,” quickly answered the commander, “I am not what is called a civilised man. I have done with society entirely for reasons that seem to me good; therefore I do not obey its laws, and I desire you never to allude to them before me again.”

This was uttered clearly. A flash of anger and contempt had kindled in the man's eyes, and I had a glimpse of a terrible past in his life. He had not only put himself out of the pale of human laws, but he had made himself independent of them, free, in the most rigorous sense of the word, entirely out of their reach. Who, then, would dare to pursue him in the depths of the sea, when on its surface he baffled all efforts attempted against him? What armour, however thick, could support the blows of his spur? No man could ask him for an account of his works. God, if he believed in Him, his conscience, if he had one, were the only judges he could depend upon.

These reflections rapidly crossed my mind, whilst the strange personage was silent, absorbed, withdrawn into himself. I looked at him with terror mingled with interest, doubtless as *Oedipus* considered the Sphinx.

After a rather long silence the commander went on speaking.

"I have hesitated, therefore," said he, "but I thought that my interest might be reconciled with that natural pity to which every human being has a right. You may remain on my vessel, since fate has brought you to it. You will be free, and in exchange for this liberty, which after all will be relative, I shall only impose one condition upon you. Your word of honour to submit to it will be sufficient."

"Speak, sir," I answered. "I suppose this condition is one that an honest man can accept?"

"Yes; it is this:—It is possible that certain unforeseen events may force me to consign you to your cabin for some hours, or even days. As I do not wish to use violence, I expect from you, in such a case, more than from all others, passive obedience. By acting thus I take all the responsibility; I acquit you entirely, by making it impossible for you to see what ought not to be seen. Do you accept the condition?"

So things took place on board which were, at least, singular and not to be seen by people who were not placed beyond the pale of social laws.

"We accept," I replied. "Only I ask your permission to address to you one question—only one. What degree of liberty do you intend giving us?"

"The liberty to move about freely and observe even all that passes here—except under rare circumstances—in short, the liberty that my companions and I enjoy ourselves."

It was evident that we did not understand each other.

"Pardon me, sir," I continued, "but this liberty is only that of every prisoner to pace his prison. It is not enough for us."

"You must make it enough."

"Do you mean to say we must for ever renounce the idea of seeing country, friends, and relations again?"

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

"I declare," said Ned Land, "I'll never give my word of honour not to try to escape."

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

"Sir," I replied, carried away in spite of myself, "you take advantage of your position towards us. It is cruel!"

"No, sir, it is kind. 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 and surprised a secret that I mean no man inhabiting the world to penetrate—the secret of my whole existence. And you think that I am going to send you back to that world? Never! In retaining you it is not you I guard, it is myself!"

These words indicated that the commander's mind was made up, and that argument was useless.

"Then, sir," I answered, "you give us the simple choice between life and death?"

"As you say."

"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 voice he went on—

"Now allow me to finish what I have to say to you. I know you, M. Aronnax. You, if not your companions, will not have so much to complain of in the chance that has bound you to my lot. You will find amongst the books which are my favourite study the work you have published on the *Great Submarine Grounds*. I have often read it. You have carried your investigations as far as terrestrial science allowed you. But on board my vessel you will have an opportunity of seeing what no man has seen before. Thanks to me, our planet will give up her last secrets."

I cannot deny that these words had a great effect upon me. My weak point was touched, and I forgot for a moment that the contemplation of these divine things was not worth the loss of liberty. Besides, I counted upon the future to decide that grave question, and so contented myself with saying—

"What name am I to call you by, sir?"

"Captain Nemo," answered the commander. "That is all I am to you, and you and your companions are nothing to me but the passengers of the *Nautilus*."

The captain called, and a steward appeared. The captain gave him his orders in that foreign tongue which I could not understand. Then turning to the Canadian and Conseil—

“Your meal is prepared in your cabin,” he said to them. “Be so good as to follow that man.”

My two companions in misfortune left the cell where they had been confined for more than thirty hours.

“And now, M. Aronnax, our breakfast is ready. Allow me to lead the way.”

I followed Captain Nemo into a sort of corridor lighted by electricity, similar to the waist of a ship. After going about a dozen yards a second door opened before me into a kind of dining-room, decorated and furnished with severe taste. High oaken sideboards, inlaid with ebony ornaments, stood at either end of the room, and on their shelves glittered china, porcelain, and glass of inestimable value. The plate that was on them sparkled in the light which shone from the ceiling, tempered and softened by fine painting. In the centre of the room was a table richly spread. Captain Nemo pointed to my seat.

“Sit down,” said he, “and eat like a man who must be dying of hunger.”

The breakfast consisted of a number of dishes, the contents of which were all furnished by the sea; of some I neither knew the nature nor mode of preparation. They were good, but had a peculiar flavour which I soon became accustomed to. They appeared to be rich in phosphorus.

Captain Nemo looked at me. I asked him no questions, but he guessed my thoughts, and said—

“Most of these dishes are unknown to you, but you can eat of them without fear. They are wholesome and nourishing. I have long renounced the food of the earth, and I am none the worse for it. My crew, who are healthy, have the same food.”

“Then all these dishes are the produce of the sea?” said I.

“Yes, professor, the sea supplies all my needs. Sometimes I cast my nets in tow, and they are drawn in ready to break. Sometimes I go and hunt in the midst of this element, which seems inaccessible to man, and run down the game of submarine forests. My flocks, like those of Neptune’s old shepherd, graze fearlessly the immense ocean meadows. I have a vast estate there, which I cultivate myself, and which is always stocked by the Creator of all things.”

I looked at Captain Nemo with some astonishment, and answered—

“I can quite understand that your nets should furnish excellent fish for your table, and that you should pursue aquatic game in

your submarine forests; but I do not understand how a particle of meat can find its way into your bill of fare."

"What you believe to be meat, professor, is nothing but fillet of turtle. Here also are dolphins' livers, which you might take for ragout of pork. My cook is a clever fellow, who excels in preparing these various products of the sea. Taste all these dishes. Here is a conserve of holothuria, which a Malay would declare to be unrivalled in the world; here is a cream furnished by the cetacea, and the sugar by the great fucus of the North Sea; and, lastly, allow me to offer you some anemone preserve, which equals that made from the most delicious fruits."

Whilst I was tasting, more from curiosity than as a gourmet, Captain Nemo enchanted me with extraordinary stories.

"Not only does the sea feed me," he continued, "but it clothes me too. These materials that clothe you are wrought from the byssus of certain shells; they are dyed with the purple of the ancients, and the violet shades which I extract from the aplysis of the Mediterranean. The perfumes you will find on the toilette of your cabin are produced from the distillation of marine plants. Your bed is made with the softest wrack-grass of the ocean. Your pen will be a whale's fin, your ink the liquor secreted by the calamary. Everything now comes to me from the sea, and everything will one day return to it!"

"You love 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 alone, for he feels life quivering around him on every side. The sea is only the medium of a preternatural and wonderful existence; it is only movement and love; it is the infinite with life breathed into it, as one of your poets has said. And in reality, professor, Nature is manifested in it by her three kingdoms—mineral, vegetable, and animal. This last is largely represented by the four groups of zoophytes, by three classes of vertebrates, mammals, reptiles, and those innumerable legions of fish, an infinite order of animals that counts more than 13,000 species, of which a tenth only belongs to fresh water. The sea is the vast reservoir of Nature. It is by the sea that the globe has, so to speak, commenced, and who knows if it will not end by it? There is supreme tranquillity. The sea does not belong to despots. On its surface iniquitous rights can still be exercised, men can fight there, devour each other there, and transport all terrestrial horrors there. But at thirty feet below its level their power ceases, their influence dies out, their might disappears. Ah, sir, live in the bosom of the waters! There alone is independence! There I recognise no masters! There I am free!"

Captain Nemo stopped suddenly in the midst of this burst of enthusiasm which overflowed in him. Had he let himself be carried out of his habitual reserve? Had he said too much? During some moments he walked about much agitated. Then his nerves became calmer, his face regained its usual calm expression, and turning towards us—

“Now, professor,” said he, “if you wish to visit the Nautilus, I am at your service.”

CHAPTER XI.

THE NAUTILUS.



CAPTAIN NEMO rose, and I followed him. A folding door, contrived at the back of the room, opened, and I entered a room about the same size as the one I had just left.

It was a library. High bookcases of black rosewood supported on their shelves a great number of books in uniform binding. They went round the room, terminating at their lower part in large divans, covered with brown leather, curved so as to afford the greatest comfort. Light movable desks, made to slide in and out at will, were there to rest one's book while reading. In the centre was a vast table, covered with pamphlets, amongst which appeared some newspapers, already old. The electric light flooded this harmonious whole, and was shed from four polished globes half sunk in the volutes of the ceiling. This room, so ingeniously fitted up, excited my admiration, and I could scarcely believe my eyes.

“Captain Nemo,” said I to my host, who had just thrown himself on one of the divans, “you have a library here that would do honour to more than one continental palace, and I am lost in wonder when I think that it can follow you to the greatest depths of the ocean.”

“Where could there be more solitude or more silence, professor?” answered Captain Nemo. “Did your study in the museum offer you as complete quiet?”

“No, and I must acknowledge it is a very poor one compared with yours. You must have from six to seven thousand volumes here.”

“Twelve thousand, M. Aronnax. These are the only ties between me and the earth. But the day that my Nautilus plunged for the first time beneath the waters the world was at an end for me. That day I bought my last books, my last pamphlets, and my last newspapers; and since then I wish to believe that men no longer think nor write. These books, professor, are at your disposition, and you can use them freely.”

I thanked Captain Nemo, and went up to the library shelves. Books of science, ethics, and literature—written in every language—were there in quantities; but I did not see a single work on political economy amongst them; they seemed to be severely prohibited on board. A curious detail was that all these books were classified indistinctly, in whatever language they were written, and this confusion showed that the captain of the Nautilus could read with the utmost facility any volume he might take up by chance.

Amongst these works I remarked the *chef d'œuvres* of the ancient and modern masters—that is to say, all the finest things that humanity has produced in history, poetry, romance, and science, from Homer to Victor Hugo; from Xenophon to Michelet; from Rabelais to Madame Sand. But science, more particularly, was represented in this library; books on mechanics, ballistics, hydrography, meteorology, geography, geology, &c., held a no less important place than the works on natural history; and I understood that they formed the principal study of the captain. I saw there all the works of Humboldt, Arago, Foucault, Henry Sainte-Clare Deville, Charles, Milne Edwards, Quatre-fages, Tyndall, Faraday, Berthelot, Abbé Secchi, Petermann, Commander Maury, Agassiz, &c.; memoirs of the Académie des Sciences, the bulletins of different geographical societies, &c.; and, in a good place, the two volumes which had perhaps procured me the relatively charitable welcome of Captain Nemo. Amongst the works of Joseph Bertrand, his book, entitled, *Le Fondateur de l'Astronomie*, gave me a certain date; and as I knew that it had appeared during the course of 1865, I could conclude from that that the launching of the Nautilus did not take place at a later date. It was, therefore, three years, at the most, since Captain Nemo began his submarine existence. I hope, besides, that more recent works still will allow me to fix exactly the epoch; but I should have time to make that research, and I did not wish to delay any longer our inspection of the marvels of the Nautilus.

"Sir," said I to the captain, "I thank you for placing this library at my disposal. I see it contains treasures of science, and I shall profit by them."

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

"A smoking-room?" cried I. "Do you smoke here, then?"

"Certainly."

"Then, sir, I am forced to believe that you have kept up relations with Havannah?"

"No, I have not," answered the captain. "Accept this cigar, M. Aronnax; although it does not come from Havannah, you will be pleased with it if you are a connoisseur."

I took the cigar that was offered me; its shape was something like that of a *Londres*, but it seemed to be made of leaves of gold. I lighted it at a little brazier which was supported on an elegant bronze pedestal, and drew the first whiffs with the delight of an amateur who has not smoked for two days.

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

"No," answered the captain. "This tobacco comes neither from Havannah nor the East. It is a sort of seaweed, rich in nicotine, with which the sea supplies me, but somewhat sparingly. If you do not regret the *Londres*, M. Arounax, smoke these as much as you like."

As Captain Nemo spoke he opened the opposite door to the one by which we had entered the library, and I passed into an immense and brilliantly-lighted saloon. It was a vast four-sided room, with panelled walls, measuring thirty feet by eighteen, and about fifteen feet high. A luminous ceiling, decorated with light arabesques, distributed a soft, clear light over all the marvels collected in the museum. For it was, in fact, a museum in which an intelligent and prodigal hand had gathered together all the treasures of nature and art with the artistic confusion of a painter's studio.

About thirty pictures by the first artists, uniformly framed and separated by brilliant drapery, were hung on tapestry of severe design. I saw there works of great value, most of which I had admired in the special collections of Europe, and in exhibitions of paintings. The different schools of the old masters were represented by a Madonna by Raphael, a Virgin by Leonardo da Vinci, a nymph by Correggio, an Assumption by Murillo, a portrait by Holbein, &c. The amazement which the captain of the *Nautilus* had predicted had already begun to take possession of me.

"Professor," then 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, may I be allowed to recognise in you an artist?"

"Only an amateur, sir. Formerly I liked to collect these works of art. I was a greedy collector and an indefatigable antiquary, and have been able to get together some objects of great value. These are my last gatherings from that world which is now dead to me. In my eyes your modern artists are already old; they have two or three thousand years of existence, and all masters are of the same age in my mind."

"And these musicians?" said I, pointing to the works of Weber, Rossini, Mozart, Beethoven, Haydn, Meyerbeer, Hérold, Wagner, Auber, Gounod, and many others, scattered over a large piano organ fixed in one of the panels of the room.

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

Captain Nemo ceased talking, and seemed lost in a profound reverie. I looked at him with great interest, analysing in silence the strange expressions of his face.

Leaning on the corner of a costly mosaic table, he no longer saw me, and forgot my presence.

I respected his meditation, and went on passing in review the curiosities that enriched the saloon. They consisted principally of marine plants, shells, and other productions of the ocean, which must have been found by Captain Nemo himself. In the centre of the saloon rose a jet of water lighted up by electricity, and falling into a basin formed of a single tridacne shell, measuring about seven yards in circumference; it, therefore, surpassed in size the beautiful tridacnes which were given to Francis I. of France by the Venetian Republic, and that now form two basins for holy water in the church of Saint Sulpice in Paris.

All round this basin were elegant glass cases, fastened by copper rivets, in which were classed and labelled the most precious productions of the sea that had ever been presented to the eye of a naturalist. My delight as a professor may be imagined. The division that contained the zoophyte presented very curious specimens of the two groups of polypi and echinodermes. In the first group of the tubipores were gorgones arranged like a fan, soft Syrian sponges, Molucca ises, pennatules, superb varieties of coral, and, in short, every species of those curious polypi of which entire islands are formed, which will one day become continents.

A conchyliologist at all nervous would certainly have fainted before other more numerous cases in which the specimens of molluscs were classified. I saw there a collection of inestimable value. Amongst these specimens I will quote from memory the elegant royal hammer-fish of the Indian Ocean, with its regular white spots standing out brightly on a red and brown ground; an imperial spondyle, bright-coloured, and bristling with spikes, a rare specimen in the museums of Europe, and the value of which I estimated at £800; a common hammer-fish from the Australian seas, which is only procured with difficulty; exotic buccardia from Senegal; fragile white bivalve shells that a breath might blow away like a soap-bubble; several varieties of the Java aspirigillum, a sort of calcareous tube, edged with leafy folds, much prized by amateurs; a whole series of trochi, some a greenish yellow, found in the American seas; others of a reddish brown, natives of Australian waters; others from the Gulf of

Mexico, remarkable for their imbricated shells; stellari, found in the southern seas; and, last and rarest of all, the magnificent New Zealand spur.

Apart and in special apartments were spread out chaplets of pearls of the greatest beauty, which the electric light pricked with points of fire; pink pearls, torn from the pinna-marina of the Red Sea; green pearls from the haliotide iris; yellow, blue, and black pearls, the curious productions of different molluscs from every ocean, and certain mussels from the watercourses of the North; lastly, several specimens of priceless value, which had been gathered from the rarest pintadines. Some of these pearls were bigger than a pigeon's egg, and were worth more than the one which the traveller Tavernier sold to the Shah of Persia for 3,000,000 francs, and surpassed the one in the possession of the Imám of Muscat, which I had believed to be unrivalled in the world.

It was impossible to estimate the worth of this collection. Captain Nemo must have spent millions in acquiring these various specimens, and I was asking myself from whence he had drawn the money to gratify his fancy for collecting, when I was interrupted by these words:—

"You are examining my shells, professor. They certainly must be interesting to a naturalist, but for me they have a greater charm, for I have collected them all myself, and there is not a sea on the face of the globe that has escaped my search."

"I understand, captain—I understand the delight of moving amongst such riches. You are one of those people who lay up treasures for themselves. There is not a museum in Europe that possesses such a collection of marine products. But if I exhaust all my admiration upon it, I shall have none left for the vessel that carries it. I do not wish to penetrate into your secrets, but I must confess that this Nautilus, with the motive power she contains, the contrivances by which she is worked, the powerful agent which propels her, all excite my utmost curiosity. I see hung on the walls of this room instruments the use of which I ignore."

"When I told you that you were free on board my vessel, I meant that every portion of the Nautilus was open to your inspection. The instruments you will see in my room, professor, where I shall have much pleasure in explaining their use to you. But come and look at your own cabin."

I followed Captain Nemo, who, by one of the doors opening from each panel of the drawing-room, regained the waist of the vessel. He conducted me aft, and there I found, not a cabin, but an elegant room with a bed, toilette-table, and several other articles of furniture. I could only thank my host.

"Your room is next to mine," said he, opening a door: "and mine opens into the saloon we have just left."

I entered the captain's room; it had a severe, almost monkish aspect. A small iron bedstead, an office desk, some articles of toilet—all lighted by a strong light. There were no comforts, only the strictest necessaries.

Captain Nemo pointed to a seat.

"Pray sit down," he said.

I obeyed, and he began thus:—

CHAPTER XII.

EVERYTHING BY ELECTRICITY.

"**S**IR," said Captain Nemo, showing me the instruments hung on the walls of the room, "here are the instruments necessary for the navigation of the Nautilus. Here, as in the saloon, I have them always before me, and they indicate my position and exact direction in the midst of the ocean. You are acquainted with some of them—the thermometer, for instance—which gives the internal temperature of the vessel; the barometer, indicating the weight of the air, and foretelling changes in the weather; the hygrometer, for indicating the degree of dryness in the atmosphere; the storm-glass, the contents of which decompose at the approach of tempests; the compass, for guiding our course; the sextant, for taking latitude; chronometers, for calculating longitude; and, lastly, the glasses for day and night, which I use to examine the horizon when the Nautilus rises to the surface of the waves."

"Yes," I answered; "I understand the usual nautical instruments. But I see others that doubtless answer the peculiar requirements of your vessel. That dial with a movable needle is a manometer, is it not?"

"Yes; by communication with the water it indicates the exterior pressure and gives our depth at the same time."

"And these sounding-lines of a novel kind?"

"They are thermometric, and give the temperature of the different depths of water."

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

"Here I ought to give you some explanation, professor. There is a powerful, obedient, rapid, and easy agent which lends itself to all uses, and reigns supreme here. We do everything by its means. It is the light, warmth, and soul of my mechanical apparatus. This agent is electricity."

"Yet, captain, you possess an extreme rapidity of movement which does not well agree with the power of electricity. Until now its dynamic force has been very restricted, and has only produced little power."

"Professor," answered Captain Nemo, "my electricity is not everybody's, and you will permit me to withhold any further information."

"I will not insist, sir; I will content myself with being astonished at such wonderful results. A single question, however, I will ask, which you need not answer if it is an indiscreet one. The elements which you employ to produce this marvellous agent must necessarily be soon consumed. The zinc, for instance, that you use—how do you obtain a fresh supply? You now have no communication with the land?"

"I will answer your question," replied Captain Nemo. "In the first place I must inform you that there exist, at the bottom of the sea, mines of zinc, iron, silver, and gold, the working of which would most certainly be practicable; but I am not indebted to any of these terrestrial metals. I was determined to seek from the sea alone the means of producing my electricity."

"From the sea?"

"Yes, professor, and I was at no loss to find these means. It would have been possible, by establishing a circuit between wires plunged to different depths, to obtain electricity by the diversity of temperature to which they would have been exposed; but I preferred to employ a more practicable system."

"And what was that?"

"You know the composition of sea-water? In 1,000 grammes of sea-water you find 96½ centigrammes of pure water, and about 2½ centigrammes of chloride of sodium; in addition, small quantities of the chlorides of magnesium and potassium, bromide of magnesium, sulphate of magnesia, sulphate and carbonate of lime. You see, then, that chloride of sodium forms a notable proportion of it. Now it is this sodium that I extract from sea-water, and of which I compose my ingredients. Mixed with mercury it takes the place of zinc for the voltaic pile. The mercury is never exhausted; only the sodium is consumed, and the sea itself gives me that. Besides, the electric power of the sodium piles is double that of the zinc ones."

"I clearly understand, captain, the convenience of sodium in the circumstances in which you are placed. The sea contains it. Good. But you still have to make it, to extract it, in a word. And how do you do that? Your pile would evidently serve the purpose of extracting it; but unless I am mistaken, the consumption of sodium necessitated by the electrical apparatus would exceed the quantity extracted. The consequence would be that you would consume more of it than you would produce."

"That is why I do not extract it by the pile, my dear professor. I employ nothing but the heat of coal."

"Coal!" I urged.

"We will call it sea-coal if you like," replied Captain Nemo.

"And are you able to work submarine coal-mines?"

"You shall see me so employed, M. Aronnax. I only ask you for a little patience; you have time to be patient here. Only remember I get everything from the ocean. It produces electricity, and electricity supplies the Nautilus with light—in a word, with life."

"But not with the air you breathe."

"I could produce the air necessary for my consumption, but I do not, because I go up to the surface of the water when I please. But though electricity does not furnish me with the air to breathe, it works the powerful pumps which store it up in special reservoirs, and which enable me to prolong at need, and as long as I like, my stay in the depths of the sea."

"Captain," I replied, "I can do nothing but admire. You have evidently discovered what mankind at large will, no doubt, one day discover, the veritable dynamic power of electricity."

"Whether they will discover it I do not know," replied Captain Nemo coldly. "However that may be, you now know the first application that I have made of this precious agent. It is electricity that furnishes us with a light that surpasses in uniformity and continuity that of the sun itself. Look now at this clock! It is an electric one, and goes with a regularity that defies the best of chronometers. I have divided it into twenty-four hours, like the Italian clocks, because there exists for me neither night nor day, sun nor moon, only this factitious light that I take with me to the bottom of the sea. Look! just now it is ten a.m."

"Exactly so."

"This dial hanging in front of us indicates the speed of the Nautilus. An electric wire puts it into communication with the screw. Look! just now we are going along at the moderate speed of fifteen miles an hour. But we have not finished yet, M. Aronnax," continued Captain Nemo, rising, "if you will follow me we will visit the stern of the Nautilus."

I already knew all the anterior part of this submarine boat, of which the following is the exact division, starting from the centre to the prow:—The dining-room, 15 feet long, separated from the library by a water-tight partition; the library, 15 feet long; the large saloon, 30 feet long, separated from the captain's room by a second water-tight partition; the captain's room, 15 feet; mine, 9 feet; and lastly, a reservoir of air of 20 feet that reached to the prow; total, 104 feet. The partitions had doors that were shut hermetically by means of indiarubber, assuring the safety of the Nautilus in case of a leak.

I followed Captain Nemo across the waist, and in the centre of the boat came to a sort of well that opened between two water-tight partitions. An iron ladder, fastened by an iron hook to the partition, led to the upper end. I asked the captain what it was for.

"It leads to the boat," answered he.

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

"Certainly, an excellent one, light and unsinkable, that serves either for fishing or pleasure trips."

"Then when you wish to embark you are obliged to go up to the surface of the water."

"Not at all. The boat is fixed on the top of the Nautilus in a cavity made for it. It has a deck, is quite water-tight, and fastened by solid bolts. This ladder leads to a man-hole in the hull of the Nautilus, corresponding to a similar hole in the boat. It is by this double opening that I get to the boat. The one is shut by my men in the vessel, I shut the one in the boat by means of screw pressure, I undo the bolts, and the little boat darts up to the surface of the sea with prodigious rapidity. I then open the panel of the deck, carefully closed before, I mast it, hoist my sail, take my oars, and am off."

"But how do you return?"

"I do not return to it; it comes to me."

"At your order?"

"At my order. An electric wire connects us. I telegraph my orders."

"Really," I said, intoxicated by such marvels, "nothing can be more simple!"

After having passed the companion-ladder that led to the platform I saw a cabin about twelve feet long, in which Conseil and Ned Land were devouring their meal. Then a door opened upon a kitchen nine feet long, situated between the vast store-rooms of the vessel. There electricity, better than gas itself, did all the cooking. The wires under the stoves communicated with platinum sponges, and gave out a heat which was regularly kept up and distributed. They also heated a distilling apparatus, which, by evaporation, furnished excellent drinking water. A bath-room, comfortably furnished with hot and cold water taps, opened out of this kitchen.

Next to the kitchen was the berth-room of the vessel, eighteen feet long. But the door was closed, and I could not see how it was furnished, which might have given me an idea of the number of men employed on board the Nautilus. At the far end was a fourth partition, which separated this room from the engine-room. A door opened, and I entered the compartment where

Captain Nemo—certainly a first-rate engineer—had arranged his locomotive machinery. It was well lighted, and did not measure less than sixty-five feet. It was naturally divided into two parts; the first contained the materials for producing electricity, and the second the machinery that moved the screw. I was at first surprised at a smell *sui generis* which filled the compartment. The captain saw that I perceived it.

"It is only a slight escape of gas produced by the use of the sodium, and not much inconvenience, as every morning we purify the vessel by ventilating it in the open air."

In the meantime I was examining the machinery with great interest.

"You see," said the captain, "I use Bunsen's elements, not Ruhmkorff's—they 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 to the back, where it works by electro-magnets of great size on a peculiar system of levers and cog-wheels that transmit the movement to the axle of the screw. This one, with a diameter of nineteen feet and a thread twenty-three feet, performs about a hundred and twenty revolutions in a second."

"What speed do you obtain from it?"

"About fifty miles an hour."

There was a mystery, but I did not press for a solution of it. How could electricity act with so much power? Where did this almost unlimited force originate? Was it in the excessive tension obtained by some new kind of spools? Was it by its transmission that a system of unknown levers could infinitely increase? (And by a remarkable coincidence, a discovery of this kind is talked of in which a new arrangement of levers produces considerable force. Can the inventor have met with Captain Nemo?)

"Captain Nemo," I replied, "I recognise the results, and do not seek to explain them. I saw the Nautilus worked in the presence of the Abraham Lincoln, and I know what to think of its speed. But it is not enough to be able to walk; you must see where you are going; you must be able to direct yourself to the right or left, above or below. How do you reach 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, or maintain yourself at the proper depth? Am I indiscreet in asking you this question?"

"Not at all, professor," answered the captain, after a slight hesitation. "As you are never to leave this submarine boat, come into the saloon—it is our true study—and there you shall learn all you want to know about the Nautilus."

CHAPTER XIII.

FIGURES.



A MOMENT afterwards we were seated on a divan in the saloon, with our cigars. The captain spread out a diagram that gave the plan of the Nautilus. Then he began his description in these terms:—

“Here, M. Aronnax, are the different dimensions of the vessel you are in. It is a very elongated cylinder, with conical ends, much like a cigar in shape—a shape already adopted in London for constructions of the same sort. The length of this cylinder, from one end to the other, is exactly 232 feet, and its maximum breadth is 26 feet. It is, therefore, not altogether constructed by tenths, like your quick steamers, but its lines are sufficiently long, and its slope lengthened out to allow the displaced water to escape easily, and opposes no obstacle to its speed. These two dimensions allow you to obtain, by a simple calculation, the surface and volume of the Nautilus. Its surface is 1,011 metres and 45 centimetres; its volume, 1,500 cubic metres and two-tenths, which is the same as saying that it is entirely immersed. It displaces 50,000 feet of water, or weighs 1,500 tons.

“When I made the plans for this vessel—destined for submarine navigation—I wished that when it was in equilibrium nine-tenths of it should be under water, and one-tenth only should emerge. Consequently, under these conditions, it only ought to displace nine-tenths of its volume, or 1,356 cubic metres and 48 centimetres—that is to say, it only ought to weigh the same number of tons. I therefore did not exceed this weight in constructing it according to the above-named dimensions.

“The Nautilus is composed of two hulls, one inside the other, and joined together by T-shaped irons, which make it very strong. Owing to this cellular arrangement it resists like a block, as if it were solid. Its sides cannot yield; they adhere spontaneously, and not by the closeness of their rivets; and the homogeneity of their construction, due to the perfect union of the materials, enables my vessel to defy the roughest seas.

“These two hulls are made of steel plates, the density of which is to water seven eight-tenths. The first is not less than five centimetres thick, and weighs 394·96 tons. The second envelope, the keel, is 50 centimetres high and 25 wide, weighing by itself 62 tons; the machine, ballast, different accessories, the

interior partitions and props weigh 961 tons, which, added to the rest, form the required total of 1,356·18 tons. Do you follow me?"

"Yes," I replied.

"Then," continued the captain, "when the Nautilus is afloat in these conditions one-tenth is out of the water. I have placed reservoirs of a size equal to this tenth capable of holding 150 72 tons, and when I fill them with water the vessel becomes completely immersed. These reservoirs exist in the lowest parts of the Nautilus. I turn on taps, they fill, and the vessel sinks just below the surface of the water."

"Well, captain, but now we arrive at the real difficulty. I can understand your being able to keep just level with the surface of the ocean. But lower down, when you plunge below that surface, does not your submarine apparatus meet with a pressure from below, which must be equal to one atmosphere for every thirty feet of water, or one kilogramme for every square centimetre?"

"True, sir."

"Then unless you fill the Nautilus entirely I do not see how you can draw it down into the bosom of the liquid mass."

"Professor," answered Captain Nemo, "you must not confound statics with dynamics, or you will expose yourself to grave errors. There is very little work necessary to reach the lowest depths of the ocean, for bodies have a tendency 'to sink.' Follow my reasoning."

"I am listening to you, captain."

"When I wished to determine the increase of weight that must be given to the Nautilus to sink it, I had only to occupy myself with the reduction in volume which sea-water experiences as it becomes deeper and deeper."

"That is evident," said I.

"Now if water is not absolutely incompressible, it is, at least, very slightly compressible—in fact, according to the most recent calculations 0·000436 in an atmosphere or in each thirty feet of depth. If I wish to go to the depth of 1,000 metres I take into account the reduction of volume under a pressure equivalent to that of a column of water of 1,000 metres—that is to say, under a pressure of 100 atmospheres. I ought, therefore, to increase the weight so as to weigh 1,513·79 tons instead of 1,507·2 tons. The augmentation will, consequently, only be 6·77 tons. Only that, Monsieur Aronnax, and the calculation is easy to verify. Now I have supplementary reservoirs capable of embarking 100 tons. I can, therefore, descend to considerable depths. When I wish to remount to the level of the surface, I

have only to let out this water, and to entirely empty all the reservoirs, if I desire that the Nautilus should emerge one-tenth of its total capacity."

To this reasoning, founded upon figures, I had nothing to object.

"I admit your calculations, captain," I replied, "and I should be foolish to dispute them, as experience proves them every day, but I foresee a real difficulty."

"What is that, sir?"

"When you are at the depth of 1,000 yards the sides of the Nautilus support a pressure of 100 atmospheres. If, therefore, at this moment you wish to empty the supplementary reservoirs to lighten your vessel and ascend to the surface, the pumps must conquer this pressure of 100 atmospheres, which is that of 100 kilogrammes for every square centimetre. Hence a power——"

"Which electricity alone can give me," hastened to say Captain Nemo. "I repeat, sir, that the dynamic power of my machines is nearly infinite. The pumps of the Nautilus have prodigious force, which you must have seen when their columns of water were precipitated like a torrent over the Abraham Lincoln. Besides, I only use supplementary reservoirs to obtain middle depths of 1,500 to 2,000 metres, and that in order to save my apparatus. When the fancy takes me to visit the depths of the ocean at two or three leagues below its surface, I use longer means, but no less infallible."

"What are they, captain?" I asked.

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

"I am all impatience to hear it."

"In order to steer my vessel horizontally I use an ordinary rudder, worked by a wheel and tackle. But I can also move the Nautilus by a vertical movement, by means of two inclined planes fastened to the sides and at the centre of flotation, planes that can move in every direction, and are worked from the interior by means of powerful levers. When these planes are kept parallel with the boat it moves horizontally; when slanted, the Nautilus, according to their inclination, and under the influence of the screw, either sinks according to an elongated diagonal, or rises diagonally as it suits me. And even when I wish to rise more quickly to the surface I engage the screw, and the pressure of the water causes the Nautilus to rise vertically like a balloon into the air."

"Bravo! captain," I cried. "But how can the helmsman follow the route you give him in the midst of the waters?"

"The helmsman is placed in a glass cage jutting from the top of the Nautilus and furnished with lenses."

"Capable of resisting such pressure?"

"Perfectly. Glass, which a blow can break, offers, nevertheless, considerable resistance. During some fishing experiments we made in 1864, by electric light, 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."

"I see now. But, after all, it is dark under water; how do you see where you are going?"

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

"Ah, now I can account for the phosphorescence in the supposed narwhal that puzzled me so. May I now ask you if the damage you did to the Scotia was due to an accident?"

"Yes, it was quite accidental. I was sailing only one fathom below the surface when the shock came. Had it any bad result?"

"None, sir. But how about the shock you gave the Abraham Lincoln?"

"Professor, it was a great pity for one of the best ships in the American navy; but they attacked me and I had to defend myself! Besides, I contented myself with putting it out of the power of the frigate to harm me; there will be no difficulty in getting her repaired at the nearest port."

"Ah, commander!" I cried with conviction, "your Nautilus is certainly a marvellous boat."

"Yes, professor," answered Captain Nemo with real emotion, "and I love it as if it were flesh of my flesh! Though all is danger on one of your ships in subjection to the hazards of the ocean, though on this sea the first impression is the sentiment of unfathomable depth, as the Dutchman Jansen has so well said. below and on board the Nautilus the heart of man has nothing to dread. There is no deformation to fear, for the double hull of this vessel is as rigid as iron; no rigging to be injured by rolling and pitching; no sails for the wind to carry away; no boilers for steam to blow up; no fire to dread, as the apparatus is made of iron and not of wood; no coal to get exhausted, as electricity is its mechanical agent; no collision to fear, as it is the only vessel in deep waters; no tempests to set at defiance, as there is perfect tranquillity at some yards below the surface of the sea! The Nautilus is the ship of ships, sir. And if it is true that the engineer has more confidence in the vessel than the constructor, and the constructor more than the captain himself, you will understand with what confidence I trust to my Nautilus, as I am at the same time captain, constructor, and engineer!"

Captain Nemo spoke with captivating eloquence. His fiery look and passionate gestures transfigured him. Yes! he did love his vessel like a father loves his child!

But a question, perhaps an indiscreet one, came up naturally, and I could not help putting it.

"Then you are an engineer, Captain Nemo?"

"Yes, professor, I studied in London, Paris, and New York when I was still an inhabitant of the world's continents."

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

"I had each separate portion made in different parts of the globe, and it reached me through a disguised address. The keel was forged at Creuzot, the shaft of the screw at Penn and Co.'s, of London; the iron plates of the hull at Laird's, of Liverpool; the screw itself at Scott's, of Glasgow. Its reservoirs were made by Cail and Co., of Paris; the engine by the Prussian Krupp; the prow in Motala's workshop in Sweden; the mathematical instruments by Hart Brothers, of New York, &c.; all of these people had my orders under different names."

"But how did you get all the parts put together?"

"I set up a workshop upon a desert island in the ocean. There, my workmen—that is to say, my brave companions whom I instructed—and I put together our Nautilus. When the work was ended, fire destroyed all trace of our proceedings on the island, which I should have blown up if I could."

"It must have cost you a great deal."

"An iron vessel costs £45 a ton. The Nautilus weighs 1,500 tons. It came, therefore, to £67,500, and £80,000 more for fitting up; altogether, with the works of art and collections it contains, it cost about £200,000."

"One last question, Captain Nemo."

"Ask it, professor."

"You must be rich?"

"Immensely rich, sir; and I could, without missing it, pay the English National Debt."

I stared at the singular person who spoke thus. Was he taking advantage of my credulity? The future alone could decide.

CHAPTER XIV.

THE BLACK RIVER.



THE portion of the terrestrial globe covered by water is estimated at 3,832,558 square myriamètres, or 38,000,000 hectares. This liquid mass comprehends 2,250,000,000 of cubic miles, and would form a sphere of a diameter of sixty leagues, the weight of which would be three trillions of tons. To take in the idea of such a number we must remember that a trillion is to a thousand millions what a thousand millions are to unity—that is to say, there are as many thousand millions in a trillion as there are unities in a thousand millions. Now this liquid mass is about the quantity of water that all the rivers of the earth would pour out during forty thousand years. In the geological epochs the period of water succeeded the period of fire. The ocean was at first universal. Then, by degrees, in the silurian epoch, the summits of mountains appeared, islands emerged, disappeared under partial deluges, again showed themselves, united together, formed continents, and at last lands were geographically placed as we see them now. Solid matter had conquered from liquid matter 37,657,000 square miles, or 12,916,000,000 of hectares.

The configuration of continents allows us to divide water into five great parts—the Arctic Frozen Ocean, the Antarctic Frozen Ocean, the Indian Ocean, the Atlantic Ocean, and the Pacific Ocean.

The Pacific Ocean extends from north to south between the two polar circles, and from west to east between Asia and America over an extent of 145° of longitude. It is the smoothest of all seas; its currents are wide and slow, its tides slight, its rains abundant. Such was the ocean that my destiny called upon me to go over under such strange conditions.

“Now, professor,” said Captain Nemo, “we will, if you please, take our bearings and fix the starting-point of this voyage. It wants a quarter to twelve. I am going up to the surface of the water.”

The captain pressed an electric bell three times. The pumps began to drive the water out of the reservoirs; the needle of the manometer marked by the different pressures the ascensional movement of the Nautilus, then it stopped.

“We have arrived,” said the captain.

We went to the central staircase which led up to the platform, climbed the iron steps, and found ourselves on the top of the Nautilus.

The platform was only three feet out of the water. The front

and back of the Nautilus were of that spindle shape which caused it justly to be compared to a cigar. I noticed that its iron plates slightly overlaid each other, like the scales on the body of our large terrestrial reptiles. I well understood how, in spite of the best glasses, this boat should have been taken for a marine animal.

Towards the middle of the platform, the boat, half sunk in the vessel, formed a slight excrecence. Fore and aft rose two cages of medium height, with inclined sides, and partly inclosed by thick lenticular glasses. In the one was the helmsman who directed the Nautilus; in the other a powerful electric lantern that lighted up his course.

The sea was beautiful, the sky pure. The long vessel could hardly feel the broad undulations of the ocean. A slight breeze from the east rippled the surface of the water. The horizon was quite clear, making observation easy. There was nothing in sight—not a rock nor an island, no Abraham Lincoln, nothing but a waste of waters.

Captain Nemo took the altitude of the sun with his sextant to get his latitude. He waited some minutes till the planet came on a level with the edge of the horizon. Whilst he was observing not one of his muscles moved, and the instrument would not have been more motionless in a hand of marble.

“It is noon. Professor, when you are ready——”

I cast a last look at the sea, slightly yellowed by the Japanese coast, and went down again to the saloon.

There the captain made his point, and calculated his longitude chronometrically, which he controlled by preceding observations of horary angles. Then he said to me—

“M. Aronnax, we are in west longitude 137° 15’.

“By what meridian?” I asked quickly, hoping that the captain’s answer might indicate his nationality.

“Sir,” he answered, “I have different chronometers regulated on the meridians of Paris, Greenwich, and Washington. But, in your honour, I will use the Paris one.”

This answer taught me nothing. I bowed, and the commander continued—

“Thirty-seven degrees and fifteen minutes longitude west of the Paris meridian, and thirty degrees and seven minutes north latitude—that is to say, about three hundred miles from the coasts of Japan. To-day, the 8th of November, at noon, our voyage of exploration under the waters begins.”

“God preserve us!” I answered.

“And now, professor,” added the captain, “I leave you to your studies. I have given E.N.E. as our route at a depth of fifty yards. Here are maps on a large scale on which you can

follow it. The saloon is at your disposition, and I ask your permission to withdraw."

Captain Nemo bowed to me. I remained alone, absorbed in my thoughts. All of them referred to the commander of the Nautilus. Should I ever know to what nation belonged the strange man who boasted of belonging to none? This hatred which he had vowed to humanity—this hatred which perhaps sought terrible means of revenge, what had provoked it? Was he one of those misjudged *savants*, a genius to whom "*on a fait du chagrin*," according to an expression of Conseil's, a modern Galileo, or one of those scientific men like the American Maury, whose career has been broken by political revolutions? I could not yet say. I, whom hazard had just cast upon his vessel—I, whose life he held in his hands, he had received me coldly, but with hospitality. Only he had never taken the hand I had held out to him. He had never held out his to me.

For a whole hour I remained buried in these reflections, seeking to pierce the mystery that interested me so greatly. Then my eyes fell upon the vast planisphere on 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 continents. They are special currents, known by their temperature and colour. The most remarkable is known under the name of the Gulf Stream. Science has found out the direction of five principal currents—one in the North Atlantic, a second in the South Atlantic, a third in the North Pacific, a fourth in the South Pacific, and a fifth in the South Indian Ocean. It is probable that a sixth current formerly existed in the North Indian Ocean, when the Caspian and Aral Seas, united to the great Asiatic lakes, only formed one vast sheet of water.

At the point on the planisphere where my finger lay, one of these currents was rolling—the Kuro-Scivo or Black River of the Japanese, which, leaving the Gulf of Bengal, where the perpendicular rays of a tropical sun warm it, crosses the Straits of Malacca, runs along the coast of Asia, turns into the North Pacific as far as the Aleutian Islands, carrying with it the trunks of camphor-trees and other indigenous productions, contrasting by the pure indigo of its warm waters with the waves of the ocean. It was this current that the Nautilus was going to follow. I saw that it lost itself in the immensity of the Pacific, and felt myself carried along by it. Just then Ned Land and Conseil appeared at the door of the saloon.

My two companions were petrified at the sight of the marvels spread out before their eyes.

Twenty Thousand Leagues

"Where are we—where are we?" cried the Canadian. "At the Quebec Museum?"

"If monsieur allows me to say so," replied Conseil, "it is more like the Hôtel du Sommerard."

"My friends," said I, making them a sign to enter, "you are neither in Canada nor France, but on board the Nautilus, and at more than twenty-five fathoms below the sea level."

"We must believe what monsieur says," replied Conseil, "but really this saloon is enough to astonish even a Dutchman like me."

"Marvel and look, Conseil, for there is enough for such a good classifier as you to do here."

There was no need for me to encourage Conseil. The worthy fellow, leaning over the cases, was already muttering words in the language of naturalists—Gasteropodes class, Buccinoides family, sea-snail genus, *Cypræa Madagascariensis* species, &c.

During this time Ned Land, who was not much interested in conchology, questioned me about my interview with Captain Nemo. Had I discovered who he was, from whence he came, whither he was going, to what depths he was dragging us?—in short, a thousand questions, to which I had not time to answer.

I told him all I knew, or rather all I did not know, and I asked him what he had heard or seen on his side.

"I have seen nothing, heard nothing," answered the Canadian. "I have not even perceived the ship's crew. Is it by chance, or can it be electric too?"

"Electric!"

"Faith, any one would think so. But you, M. Aronnax," said Ned Land, who stuck to his idea, "can you tell me how many men there are on board? Are there ten, twenty, fifty, a hundred?"

"I know no more than you, Mr. Land; it is better to abandon at present all idea of either taking possession of the Nautilus or escaping from it. This vessel is a masterpiece of modern industry, and I should regret not to have seen it. Many people would accept our position only to move amidst such marvels. The only thing to do is to keep quiet and watch what passes around us."

"Watch!" exclaimed the harpooner, "but there's nothing to watch; we can't see anything in this iron prison. We are moving along blindfolded."

Ned Land had scarcely uttered these words when it became suddenly dark. The light in the ceiling went out, and so rapidly that my eyes ached with the change, in the same way as they do after passage from profound darkness to the most brilliant light.

We remained mute and did not stir, not knowing what surprise, agreeable or disagreeable, awaited us. But a sliding noise was heard. It was like as if panels were being drawn back in the sides of the Nautilus.

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

"Hydrometridæ family!" muttered Conseil.

Suddenly light appeared on either side of the saloon, through two oblong openings. The liquid mass appeared vividly lighted up by the electric effluence.

Two crystal panes separated us from the sea. At first I shuddered at the thought that this feeble partition might break, but strong copper bands bound it, giving an almost infinite power of resistance.

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

The transparency of the sea is well known, and its limpidity is far greater than that of fresh water. The mineral and organic substances which it holds in suspension increase its transparency. In certain parts of the ocean at the Antilles, under seventy-five fathoms of water, the sandy bottom can be seen with surprising clearness, and the penetrating strength of the sun's rays only appears to stop at a depth of 150 fathoms. But in this fluid medium through which the Nautilus was travelling the electric light was produced in the very bosom of the waves. It was not luminous water, but liquid light.

If the hypothesis of Erhemberg, who believes in a phosphorescent illumination in the submarine depths, is admitted, Nature has certainly reserved to the inhabitants of the sea one of her most marvellous spectacles, and I could judge of it by the effect of the thousand rays of this light. On either side I had a window opening on these unexplored depths. The darkness in the saloon made the exterior light seem greater, and we could see the same as if the pure crystal had been the panes of an immense aquarium.

The Nautilus did not seem to be moving. It was because there were no landmarks. Sometimes, however, the lines of water, furrowed by her prow, flowed before our eyes with excessive speed.

Lost in wonder we stood before these windows, and none of us had broken this silence of astonishment when Conseil said—

"Well, friend Ned, you wanted to look; well, now you see!"

"It is curious!" exclaimed the Canadian, who, forgetting his

anger and projects of flight, was under the influence of irresistible attraction. "Who wouldn't come for the sake of such a sight?"

"Now I understand the man's life," I exclaimed. "He has made a world of marvels for himself?"

"But I don't see any fish," said the Canadian.

"What does it matter to you, friend Ned," answered Conseil, "since you know nothing about them?"

"I! A fisherman!" cried Ned Land.

And thereupon a dispute arose between the two friends, for each had some knowledge of fish, though in a very different way.

Every one knows that fish form the fourth and last class in the embranchment of vertebrates. They have been rightly defined as "vertebrates with double circulation and cold blood, breathing through gills, and made to live in water." They are composed of two distinct series: the series of bony fish—that is to say, those whose spines are made of cartilaginous vertebrate.

Perhaps the Canadian knew this distinction, but Conseil knew much more, and now that he had made friends with Ned, he could not allow himself to seem less learned than he. He accordingly said to him—

"Friend Ned, you are a killer of fish—a very skilful fisher. You have taken a great number of these interesting animals. But I wager that you do not know how they are classified."

"Yes, I do," answered the harpooner seriously. "They are classified into fish that are good for food and fish that are not."

"That is a greedy distinction," answered Conseil. "But do you know the difference between bony and cartilaginous fish?"

"Perhaps I do, Conseil."

"And the subdivision of these two grand classes?"

"I daresay I do," answered the Canadian.

"Well, friend Ned, listen and remember! The bony fish are subdivided into six orders. Primo, the *acanthopterygii*, of which the upper jaw is complete, mobile with gills in the form of a comb. This order comprises fifteen families—that is to say, the three-fourths of known fish. Type: the common perch."

"Pretty good eating," answered Ned Land.

"Secundo," continued Conseil, "the *abdominals*, an order of fish whose ventral fins are placed behind the pectoral, without being attached to the shoulder-bones—an order which is divided into five families, and comprises most fresh-water fish. Type: the carp, roach, salmon, pike, &c."

"Perch!" said the Canadian disdainfully; "fresh-water fish!"

"Tertio," said Conseil, "the *subrachians*, with ventral fins

under the pectoral, and fastened to the shoulder-bones. This order contains four families. Type: plaice, mud-fish, turbot, brills, soles, &c."

"Excellent!—excellent!" cried the harpooner, who would only think of them from their eatable point of view.

"Quarto," said Conseil, nowise confused, "the apodes with long bodies and no ventral fins, covered with a thick and often sticky skin—an order that only comprises one family. Type: the eel, wolf-fish, sword-fish, lance, &c."

"Middling!—only middling!" answered Ned Land.

"Quinto," said Conseil, "the lophiadae, distinguished by the bones of the carpus being elongated, and forming a kind of arm, which supports the pectoral fins. Type: the angler, or fishing frog."

"Bad!—bad!" replied the harpooner.

"Sexto and lastly," said Conseil, "the plectognathes, which include those which have the maxillary bones anchylosed to the sides of the intermaxillaries, which alone form the jaws—an order which has no real ventral fins, and is composed of two families. Type: the sun-fish."

"Which any saucepan would be ashamed of!" cried the Canadian.

"Did you understand, friend Ned?" asked the learned Conseil.

"Not the least in the world, friend Conseil," answered the harpooner. "But go on, for you are very interesting."

"As to the cartilaginous fish," continued the imperturbable Conseil, "they only include three orders."

"So much the better," said Ned.

"Primo, the cyclostomes; with circular mouths and gills opening by numerous holes—an order including only one family. Type: the lamprey."

"You must get used to it to like it," answered Ned Land.

"Secundo, the selachii, with gills like the cyclostomes, but whose lower jaw is mobile. This order, which is the most important of the class, includes two families. Types: sharks and rays."

"What!" cried Ned; "rays and sharks in the same order? Well, friend Conseil, I should not advise you to put them in the same jar."

"Tertio," answered Conseil, "the sturiones, with gills opened as usual by a single slit, furnished with an operaculum—an order which includes four genera. Type: the sturgeon."

"Well, friend Conseil, you have kept the best for the last, in my opinion, at least. Is that all?"

"Yes, Ned," answered Conseil; "and remark that even when

you know that you know nothing, for the families are subdivided into genera, sub-genera, species, varieties."

"Well, friend Conseil," said the harpooner, leaning against the glass of the panel, "there are some varieties passing now."

"Yes!—some fish," cried Conseil. "It is like being at an aquarium."

"No," I answered, "for an aquarium is only a cage, and those fish are as free as birds in the air."

"Well, now, Conseil, tell me their names!—tell me their names!" said Ned Land.

"I?" answered Conseil; "I could not do it; that is my master's business."

And, in fact, the worthy fellow, though an enthusiastic classifier, was not a naturalist, and I do not know if he could have distinguished a tunny-fish from a bonito. The Canadian, on the contrary, named them all without hesitation.

"A balister," said I.

"And a Chinese balister too!" answered Ned Land.

"Genus of the balisters, family of the scleroderms; order of the plectognaths," muttered Conseil.

Decidedly, between them, Ned Land and Conseil would have made a distinguished naturalist.

The Canadian was not mistaken. A shoal of balisters with fat bodies, grained skins, armed with a spur on their dorsal fin, were playing round the Nautilus and agitating the four rows of quills bristling on either side of their tails. Nothing could be more admirable than their grey backs, white stomachs, and gold spots that shone amidst the waves. Amongst them undulated skates like a sheet abandoned to the winds, and with them I perceived, to my great joy, the Chinese skate, yellow above, pale pink underneath, with three darts behind the eye—a rare species, and even doubtful in the time of Lacepède, who had never seen any except in a book of Japanese drawings.

For two hours a whole aquatic army escorted the Nautilus. Amidst their games and gambols, whilst they rivalled each other in brilliancy and speed, I recognised the green wrasse, the surmullet, marked with a double black stripe; the goby, with its round tail, white with violet spots; the Japanese mackerel, with blue body and silver head; brilliant, the azure fish, the name of which beggars all description, gilt heads with a black band down their tails; aulostomes with flute-like noses, real sea-woodcocks, of which some specimens attain a yard in length; Japanese salamanders; sea-eels, serpents six feet long with bright little eyes and a huge mouth bristling with teeth, &c.

Our admiration was excited to the highest pitch. Ned named

the fish, Conseil classified them, and I was delighted with their vivacity and the beauty of their forms. It had never been my lot to see these animals living and free in their natural element. I shall not cite all the varieties that passed before our dazzled eyes, all that collection from the Japanese and Chinese seas. More numerous than the birds of the air, these fish swam round us, doubtless attracted by the electric light.

Suddenly light again appeared in the saloon. The iron panels were again closed. The enchanting vision disappeared. But long after that I was dreaming still, until my eyes happened to fall on the instruments hung on the partition. The compass still indicated the direction of N.N.E., the manometer indicated a pressure of five atmospheres, corresponding to a depth of 100 fathoms, and the electric log gave a speed of 15 miles an hour.

I expected Captain Nemo, but he did not appear. The clock was on the stroke of five. Ned Land and Conseil returned to their cabin, and I regained my room. My dinner was laid there. It consisted of turtle soup made of the most delicate imbricated hawksbill turtle, of a delicate white surmullet, slightly crimped, of which the liver, cooked by itself, made a delicious dish, and fillets of the emperor-holocanthus, the flavour of which appeared to me superior even to salmon.

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

CHAPTER XV.

A WRITTEN INVITATION.



THE next day, the 9th of November, I awoke after a long sleep that had lasted twelve hours. Conseil came, as was his custom, to ask "how monsieur had 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 in his life.

I let the brave fellow chatter on in his own fashion, without troubling to answer him much. I was anxious about the absence of Captain Nemo during our spectacle of the evening before, and hoped to see him again that day.

I was soon clothed in my byssus garments. Their nature provoked many reflections from Conseil. I told him they were

manufactured with the lustrous and silky filaments which fasten a sort of shell, very abundant on the shores of the Mediterranean, to the rocks. Formerly beautiful materials—stockings and gloves—were made from it, and they were both very soft and very warm. The crew of the *Nautilus* could, therefore, be clothed at a cheap rate, without help of either cotton-trees, sheep, or silkworms of the earth.

When I was dressed I went into the saloon. It was deserted.

I plunged into the study of the conchological treasures piled up in the cases. I ransacked in great herbals filled with the rarest marine plants, which, though dried up, retained their lovely colours. Amongst these precious hydrophytes I remarked vorticellæ, pavoniæ, vine-leaved caulerps, callibrichacæ, delicate ceramics with scarlet tints, fan-shaped agari, acalephæ, like much-depressed mushrooms, which were for a long time classified amongst the zoophytes—in short, a perfect series of algæ.

The whole day passed without my being honoured with a visit from Captain Nemo. The panels of the saloon were not opened. Perhaps they did not wish us to get tired of such beautiful things.

The direction of the *Nautilus* kept N.N.E., its speed at twelve miles, its depth between twenty-five and thirty fathoms.

The next day, the 10th of November, the same desertion, the same solitude. I did not see one of the ship's crew. Ned and Conseil passed the greater part of the day with me. They were astonished at the inexplicable absence of the captain. Was the singular man ill? Did he mean to alter his plans about us?

After all, as Conseil said, we enjoyed complete liberty; we were delicately and abundantly fed. Our host kept to the terms of his treaty. We could not complain, and, besides, the singularity of our destiny reserved us such great compensations that we had no right to accuse it.

That day I began the account of these adventures, which allowed me to relate them with the most scrupulous exactness, and, curious detail, I wrote it on paper made with marine zostera.

Early in the morning of November 11th, the fresh air spread over the interior of the *Nautilus* told me that we were again on the surface of the ocean to renew our supply of oxygen. I went to the central staircase and ascended it to the platform. It was 6 a.m. The weather was cloudy, the sea grey, but calm. There was scarcely any swell. I hoped to meet Captain Nemo there. Would he come? I only saw the helmsman in his glass cage. Seated on the upper portion of the hull, I drank in the sea-breeze with delight.

Little by little the clouds disappeared under the action of the sun's rays. The clouds announced wind for all that day. But the wind was no concern to the Nautilus. I was admiring this joyful sunrise, so gay and reviving, when I heard some one coming up to the platform. I prepared to address Captain Nemo, but it was his mate—whom I had already seen during the captain's first visit—who appeared. He did not seem to perceive my presence, and with his powerful glass he swept the horizon, after which he approached the stair-head and called out some words which I reproduce exactly, for every morning they were uttered under the same conditions. They were the following:—

“Nautron respoc lorni virch.”

What those words meant I know not.

After pronouncing them the mate went below again, and I supposed that the Nautilus was going to continue her submarine course. I therefore followed the mate and regained my room.

Five days passed thus and altered nothing in our position. Each morning I ascended to the platform. The same sentence was pronounced by the same individual. Captain Nemo did not appear.

I had made up my mind that I was not going to see him again, when on the 16th of November, on entering my room with Ned Land and Conseil, I found a note directed to me upon the table.

I opened it with impatient fingers. It was written in a bold, clear hand, of slightly Gothic character, something like the German types.

The note contained the following:—

“To Professor ARONNAX, on board the Nautilus.

November 16th, 1867.

“Captain Nemo invites Professor Aronnax to a hunt which will take place to-morrow morning in the forest of the island of Crespo. He hopes nothing will prevent the professor joining it, and he will have much pleasure in seeing his companions also.

“The Commander of the Nautilus,

“CAPTAIN NEMO.”

“A hunt!” cried Ned.

“And in the forests of Crespo Island,” added Conseil.

“Then that fellow does land sometimes,” said Ned Land.

“It looks like it,” said I, reading the letter again.

“Well, we must accept,” replied the Canadian. “Once on land we can decide what to do. Besides, I shall not be sorry to eat some fresh meat.”

I consulted the planisphere as to the whereabouts of the island of Crespo, and in $32^{\circ} 40'$ north lat. and $167^{\circ} 50'$ west long. I found a small island which was reconnoitred in 1801 by Captain Crespo, and which was marked in old Spanish maps as *Rocca de la Plata*, or "Silver Rock." We were then about 1,800 miles from our starting-point, and the course of the *Nautilus*, a little changed, was bringing it back towards the south-east. I pointed out to my companions the little rock lost in the midst of the North Pacific.

"If Captain Nemo does land sometimes," I said, "he at least chooses quite desert islands."

Ned Land shrugged his shoulders without speaking, and he and Conseil left me. After supper, which was served by the mute and impassible steward, I went to bed, not without some anxiety.

The next day, November 17th, when I awoke, I felt that the *Nautilus* was perfectly still. I dressed quickly and went to 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 eight days' absence I abstained from speaking of it, and answered simply that my companions and I were ready to follow him.

"May I ask you, captain," I said, "how it is that, having broken all ties with earth, you possess forests in Crespo Island?"

"Professor," answered the captain, "my forests are not terrestrial forests but submarine forests."

"Submarine forests!" I exclaimed.

"Yes, professor."

"And you offer to take me to them?"

"Precisely."

"On foot?"

"Yes, and dryfooted too."

"But how shall we hunt?—with a gun?"

"Yes, with a gun."

I thought the captain was gone mad, and the idea was expressed on my face, but he only invited me to follow him like a man resigned to anything. We entered the dining-room, where breakfast was laid.

"M. Aronnax," said the captain, "will you share my breakfast without ceremony? We will talk as we eat. You will not find a restaurant in our walk though you will a forest. Breakfast like a man who will probably dine very late."

I did honour to the meal. It was composed of different fish

and slices of holithuria, excellent zoophytes, cooked with different sea-weeds, such as the *Porphyria laciniata* and the *Laurentia primafitida*. We drank clear water, and, following the captain's example, I added a few drops of some fermented liquor, extracted by the Kamschatchan method from a sea-weed known under the name of *Rhodomenia palmata*. Captain Nemo went on eating at first without saying a word. Then he said to me—

“When I invited you to hunt in my submarine forests, professor, you thought I was mad. You judged me too lightly. You know as well as I do that man can live under water, providing he takes with him a provision of air to breathe. When submarine work has to be done, the workman, clad in an impervious dress, with his head in a metal helmet, receives air from above by means of pumps and regulators.”

“Then it is a diving apparatus?”

“Yes, but in one that enables him to get rid of the indiarubber tube attached to the pump. It is the Rouquayrol-Denayrouze apparatus, invented by two of your own countrymen, but which I have brought to perfection for my own use, and which will allow you to risk yourself in the water without suffering. It is composed of a reservoir of thick iron plates, in which I store the air under a pressure of fifty atmospheres. This reservoir is fastened on to 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 bellows, and which cannot escape except at its normal tension. Two indiarubber pipes leave this box and join a sort of tent, which imprisons the nose and mouth; one introduces fresh air, the other lets out foul, and the tongue closes either according to the needs of respiration. But I, who encounter great pressure at the bottom of the sea, am obliged to shut my head in a globe of copper, into which the two pipes open.”

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

“I have already told you, M. Aronnax, that the pumps of the Nautilus allow me to store up air under considerable pressure, and under these conditions the reservoir of the apparatus can furnish breathable air for nine or ten hours.”

“I have no other objection to make,” I answered. “I will only ask you one thing, captain. How do you light your road at the bottom of the ocean?”

“With the Ruhmkorff apparatus, M. Aronnax. It is composed of a Bunsen pile, which I do not work with bichromate of potassium, 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 the gas becomes luminous, and gives out a white and continuous light. Thus provided, I breathe and see."

"But, Captain Nemo, what sort of a gun do you use?"

"It is not a gun for powder, but an air-gun. How could I manufacture gunpowder on board without either saltpetre, sulphur, or charcoal?"

"Besides," I added, "to fire under water in a medium 855 times denser than air, very considerable resistance would have to be conquered."

"That would be no difficulty. There exist certain Felton guns, perfected in England by Philip Coles and Burley, by the Frenchman Furey and the Italian Landi, furnished with a peculiar system of closing, which can be fired 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 consumed."

"Well, have I not my Rouquayrol reservoir, which can furnish me with what I need? All I want for that is a tap *ad hoc*. Besides, you will see for yourself, M. Aronnax, that during these submarine shooting excursions you do not use either much air or bullets."

"But it seems to me that in the half-light, and amidst a liquid so much more dense than the atmosphere, bodies cannot be projected far, and are not easily mortal."

"Sir, with these guns every shot is mortal, and as soon as the animal is touched, however slightly, it falls crushed."

"Why?"

"Because they are not ordinary bullets. We use little glass percussion-caps, invented by the Austrian chemist Leniebroek, and of which I have a considerable provision. These glass caps, covered with steel, and weighted with a leaden bottom, are really little Leyden bottles, in which electricity is forced to a very high tension. At the slightest shock they go off, and the animal, however powerful it may be, falls dead. I must add that these caps are not larger than the No. 4, and the charge of an ordinary gun could contain ten of them."

"I will argue no longer," I replied, rising from the table. "The only thing left me is to take my gun. Besides, where you go I will follow."

Captain Nemo then led me aft of the Nautilus, and whilst passing the cabin of Ned Conseil, I called my two companions, who followed me immediately. Then we came to a kind of cell, situated near the engine-room, in which we were to put on our walking dress.

CHAPTER XVI.

AT THE BOTTOM OF THE SEA.



HIS cell was, properly speaking, the arsenal and wardrobe of the Nautilus. A dozen diving apparatus, hung from the wall, awaited our use.

Ned Land, seeing them, manifested evident repugnance to put one on.

"But, my worthy Ned," I said, "the forests of Crespo Island are only submarine forests!"

The disappointed harpooner saw his dreams of fresh meat fade away.

"And you, M. Aronnax, are you going to put on one of those things?"

"I must, Master Ned."

"You can do 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, Ned," said Captain Nemo.

"Does Conseil mean to risk it?" said Ned.

"I shall follow monsieur wherever he goes," answered Conseil.

Two of the ship's crew came to help us on the call of the captain, and we donned the heavy and impervious clothes made of seamless indiarubber, and constructed expressly to resist considerable pressure. They looked like a suit of armour, both supple and resisting, and formed trousers and coat; the trousers were finished off with thick boots, furnished with heavy leaden soles. The texture of the coat was held together by bands of copper, which crossed the chest, protecting it from the pressure of the water, and leaving the lungs free to act; the sleeves ended in the form of supple gloves, which in no way restrained the movements of the hands.

There was much difference noticeable between these perfected diving apparatus and the old, shapeless cork breastplates, sea-jackets, boxes, &c., in vogue during the eighteenth century.

Captain Nemo and one of his companions—a sort of Hercules, who must have been of prodigious strength—Conseil, and myself, were soon enveloped in these dresses. There was nothing left but to put our heads into the metallic globes. But before proceeding with this operation I asked the captain's permission to examine the guns we were to take.

One of the crew gave me a simple gun, the butt-end of which, made of steel and hollowed in the interior, 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, fixed in a groove in the thickness of the butt-end, contained about twenty electric bullets, 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 managed; all I ask now is to try it. But how shall we gain the bottom of the sea?"

"At this moment, professor, the Nautilus is stranded in five fathoms of water, and we have only to start."

"But how shall we get out?"

"You will soon see."

Captain Nemo put on his helmet. Conseil and I did the same, not without hearing an ironical "Good sport" from the Canadian. The upper part of our coat was terminated by a copper collar, upon which the metal helmet was screwed. As soon as it was in position the apparatus on our backs began to act, and, for my part, I could breathe with ease.

I found when I was ready, lamp and all, that I could not move a step. But this was foreseen. I felt myself pushed along a little room contiguous to the wardrobe-room. My companions, tugged along in the same way, followed me. I heard a door, furnished with obturators, close behind us, and we were wrapped in profound darkness.

After some minutes I heard a loud whistling, and felt the cold mount from my feet to my chest. It was evident that they had filled the room in which we were with sea-water by means of a tap. A second door in the side of the Nautilus opened then. A faint light appeared. A moment after, our feet were treading the bottom of the sea.

And now, how could I retrace the impression made upon me by that walk under the sea? Words are powerless to describe such marvels. When the brush itself is powerless to depict the particular effects of the liquid element, how can the pen reproduce them?

Captain Nemo walked on in front, and his companion followed us some steps behind. Conseil and I remained near one another, as if any exchange of words had been possible through our metallic covering. I no longer felt the weight of my clothes, shoes, air-reservoir, nor of that thick globe in the midst of which my head shook like an almond in its shell.

The light which lighted up the ground at thirty feet below the surface of the ocean astonished me by its power. The solar rays easily pierced this watery mass and dissipated its colour. One

easily distinguished objects 120 yards off. Beyond that the tints faded into fine gradations of ultramarine, and became effaced in a vague obscurity. The water around me only appeared a sort of air, denser than the terrestrial atmosphere, but nearly as transparent. Above me I perceived the calm surface of the sea.

We were walking on fine even sand, not wrinkled, as it is on a flat shore which keeps the imprint of the billows. This dazzling carpet reflected the rays of the sun with surprising intensity. Shall I be believed when I affirm that at that depth of thirty feet I saw as well as in open daylight?

For a quarter of an hour I trod on this shining sand, sown with the impalpable dust of tinted shells. The hull of the Nautilus, looking like a long rock, disappeared by degrees; but its lantern, when night came, would facilitate our return on board. I put back with my hands the liquid curtains which closed again behind me, and the print of my steps was soon effaced by the pressure of the water.

I soon came to some magnificent rocks, carpeted with splendid zoophytes, and I was at first struck by a special effect of this medium.

It was then 10 a.m. The rays of the sun struck the surface of the waves at an oblique angle, and at their contact with the light, composed by a refraction as through a prism, flowers, rocks, plants, and polypi were shaded at their edges by the seven solar colours; it was a grand feast for the eyes this complication of tints, a veritable kaleidoscope of green, yellow, orange, violet, indigo, and blue—in a word, all the palette of an enthusiastic colourist.

Before this splendid spectacle Conseil and I both stopped. Variegated isis, clusters of pure tufted coral, prickly fungi and anemones adhering by their muscular disc, made perfect flower-beds, enamelled with porphitæ, decked with their azure tentacles, sea-stars studding the sand, and warted asterophytions, like fine lace embroidered by the hands of Naiads, whose festoons waved in the gentle undulations caused by our walk. It was quite a grief to me to crush under my feet the brilliant specimens of molluses which lay on the ground by thousands, the concentric combs, the hammerheads, the donaces, real bounding shells, the broques, the red helmets, the angel-winged strombes, the aphysics, and many other products of the inexhaustible ocean. But we were obliged to keep on walking, whilst above our heads shoals of physalia, letting their ultramarine tentacles float after them, medusæ, with their rose-pink opaline parasols, festooned with an azure border, sheitred us from the solar rays,

and panophyrian pelagies, which, had it been dark, would have showered their phosphorescent gleams over our path.

All these wonders I saw in the space of a quarter of a mile. Soon the nature of the soil changed; to the sandy plains succeeded an extent of slimy mud composed of equal parts of siliceous and calcareous shells. Then we travelled over meadows of seaweed so soft to the foot that they would rival the softest carpet made by man. And at the same time that verdure was spread under our feet, marine plants, of which more than two thousand species are known, were growing on the surface of the ocean. I saw long ribands of fucus floating, some globular and others tubulous; laurenciæ and cladostephi, of most delicate foliage, and some rhodomeniæ and palmatæ resembling the fan of a cactus. I noticed that the green plants kept near the surface, whilst the red occupied a middle depth, leaving to the black or brown hydrophytes the care of forming gardens and flower-beds in the remote depths of the ocean. The family of seaweeds produces the largest and smallest vegetables of the globe.

We had left the Nautilus about an hour and a-half. It was nearly twelve o'clock; I knew that by the perpendicularity of the sun's rays, which were no longer refracted. The magical colours disappeared by degrees, and the emerald and sapphire tints died out. We marched along with a regular step which rang upon the ground with astonishing intensity; the slightest sound is transmitted with a speed to which the ear is not accustomed on the earth—in fact, water is a better conductor of sound than air in the ratio of four to one.

The ground gradually sloped downwards, and the light took a uniform tint. We were at a depth of more than a hundred yards, and bearing a pressure of ten atmospheres. But my diving apparatus was so small that I suffered nothing from this pressure. I merely felt a slight discomfort in my finger-joints, and even that soon disappeared. As to the fatigue that this walk in such unusual harness might be expected to produce, it was nothing. My movements, helped by the water, were made with surprising facility.

At this depth of three hundred feet I could still see the rays of the sun, but feebly. To their intense brilliancy had succeeded a reddish twilight, middle term between day and night. Still we saw sufficiently to guide ourselves, and it was not yet necessary to light our Ruhmkorff lamps.

At that moment Captain Nemo stopped. He waited for me to come up to him, and with his finger pointed to some obscure masses which stood out of the shade at some little distance.

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

CHAPTER XVII.

A SUBMARINE FOREST.



WE had at last arrived on the borders of this forest, doubtless one of the most beautiful in the immense domain of Captain Nemo. He looked upon it as his own, and who was there to dispute his right? This forest was composed of arboresecent plants, and as soon as we had penetrated under its vast arcades, I was struck at first by the singular disposition of their branches, which I had not observed before.

None of those herbs which carpeted the ground—none of the branches of the larger plants, were either bent, drooped, or extended horizontally. There was not a single filament, however thin, that did not keep as upright as a rod of iron. The fusi and lianas grew in rigid perpendicular lines, commanded by the density of the element which had produced them. When I bent them with my hand these plants immediately resumed their first position. It was the reign of perpendicularity.

I soon accustomed myself to this fantastic disposition of things, as well as to the relative obscurity which enveloped us. The soil of the forest seemed covered with sharp blocks difficult to avoid. The submarine flora appeared to me very perfect, and richer than it would have been in the Arctic or tropical zones, where these productions are less numerous. But for some minutes I involuntarily confounded the genera, taking zoophytes for hydrophytes, animals for plants. And who would not have been mistaken? The fauna and flora are so nearly allied in this submarine world.

I noticed that all these productions of the vegetable kingdom had no roots, and only held on to either sand, shell, or rock. These plants drew no vitality from anything but the water. The greater number, instead of leaves, shot forth blades of capricious shapes, comprised within a scale of colours—pink, carmine, red, olive, fawn, and brown.

“Curious anomaly, fantastic element,” said an ingenious naturalist. “Where the animal kingdom blossoms the vegetable does not.”

Amongst these different shrubs, as large as the trees of temperate zones, and under their humid shade, were massed veritable bushes of living flowers, hedges of zoophytes, on which blossomed meandrina with tortuous stripes, yellow cariophylles with transparent tentacles, grassy tufts of zoantharia, and, to complete

the illusion, the fish-flies flew from branch to branch like a swarm of humming-birds, whilst yellow lepisacomthi, with bristling jaws, dactylopteri, and monocentrides rose at our feet like a flight of snipes.

About one o'clock Captain Nemo gave the signal to halt. I, for my part, was not sorry, and we stretched ourselves under a thicket of alariæ, the long thin blades of which shot up like arrows.

This short rest seemed delicious to me. Nothing was wanting but the charm of conversation, but it was impossible to speak—I could only approach my large copper head to that of Conseil. I saw the eyes of the worthy fellow shine with contentment, and he moved about in his covering in the most comical way in the world.

After this four hours' walk I was much astonished not to find myself violently hungry, and I cannot tell why, but instead I was intolerably sleepy, as all divers are. My eyes closed behind their thick glass, and I fell into an unavoidable slumber, which the movement of walking had alone prevented up till then. Captain Nemo and his robust companion, lying down in the clear crystal, set us the example.

How long I remained asleep I cannot tell, but when I awoke the sun seemed sinking towards the horizon. Captain Nemo was already on his feet, and I was stretching myself when an unexpected apparition brought me quickly to my feet.

A few steps off an enormous sea-spider, more than a yard high, was looking at me with his squinting eyes ready to spring upon me. Although my dress was thick enough to defend me against the bite of this animal, I could not restrain a movement of horror. Conseil and the sailor of the Nautilus awoke at that moment. Captain Nemo showed his companions the hideous crustacean, and a blow from the butt-end of a gun killed it, and I saw its horrible claws writhe in horrible convulsions.

This accident reminded me that other animals, more to be feared, might haunt these obscure depths, and that my diver's dress would not protect me against their attacks. I had not thought of that before, and resolved to be on my guard. I supposed that this halt marked the limit of our excursion, but I was mistaken, and instead of returning to the Nautilus, Captain Nemo went on.

The ground still inclined and took us to greater depths. It must have been about three o'clock when we reached a narrow valley between two high cliffs, 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 the submarine excursions of man,

I know how deep we were because the obscurity became so profound—not an object was visible at ten paces. I walked along groping when I suddenly saw a white light shine out. Captain Nemo had just lighted his electric lamp. His companion imitated him. Conseil and I followed their example. By turning a screw I established the communication between the spool and the glass serpentine, and the sea, lighted up by our four lanterns, was illuminated in a radius of twenty-five yards.

Captain Nemo still kept on plunging into the dark depths of the forest, the trees of which were getting rarer and rarer. I remarked that the vegetable life disappeared sooner than the animal. The medusæ had already left the soil, which had become arid, whilst a prodigious number of animals, zoophytes, articulata, molluscs, and fish swarmed there still.

As we walked I thought that the light of our Ruhmkorff apparatus could not fail to draw some inhabitants from these sombre depths. But if they did approach us they at least kept a respectful distance from the hunters. Several times I saw Captain Nemo stop and take aim; then, after some minutes' observation, he rose and went on walking.

At last, about four o'clock, this wonderful excursion was ended. A wall of superb rocks rose up before us, enormous granite cliffs impossible to climb. It was the island of Crespo. Captain Nemo stopped suddenly. We stopped at a sign from him. Here ended the domains of the captain.

The return began. Captain Nemo again kept at the head of his little band, and directed his steps without hesitation. I thought I perceived that we were not returning to the Nautilus by the road we had come. This new one was very steep, and consequently very painful. We approached the surface of the sea rapidly. But this return to the upper beds was not so sudden as to produce the internal lesions so fatal to divers. Very soon light reappeared and increased, and as the sun was already low on the horizon refraction edged the different objects with a spectral ring.

At a depth of ten yards we were walking in a swarm of little fish of every sort, more numerous than birds in the air, and more agile too. But no aquatic game worthy of a shot had as yet met our gaze.

At that moment I saw the captain put his gun to his shoulder and follow a moving object into the shrubs. He fired, I heard a feeble hissing, and an animal fell a few steps from us.

It was a magnificent sea-otter, a veritable onychurus, the only quadruped which is exclusively marine. 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 lustre of its coat was certainly worth at least eighty pounds. I admired this curious mammal—its rounded head and short ears, round eyes and white whiskers, like those of a cat, with webbed feet and claws and tufted tail. This precious animal, hunted and tracked by fishermen, is becoming very rare, and it takes refuge principally in the northern parts of the Pacific, where it is likely that its race will soon become extinct. Captain Nemo's companion took up the animal and threw it over his shoulders, and we continued our route.

During the next hour a plain of sand lay stretched before us. Sometimes it rose within two yards and some inches of the surface of the water. I then saw the reflection of our images above us, like us in every point, except that they walked with their heads downwards and their feet in the air.

The thick waves above us looked like clouds above our heads—clouds which were no sooner formed than they vanished rapidly. I even perceived the shadows of the large birds as they floated on the surface of the water.

On this occasion I was witness to one of the finest gun-shots which ever made a hunter's nerve thrill. A large bird, with great breadth of wing, hovered over us. Captain Nemo's companion shouldered his gun and fired when it was only a few yards above the waves. The bird fell dead, and the fall brought it in reach of the skilful hunter's grasp. It was an albatross of the finest kind.

Our march was not interrupted by this incident. I was worn out by fatigue when we at last perceived a faint light half a mile off. Before twenty minutes were over we should be on board and able to breathe with ease, for it seemed to me that my reservoir of air was getting very deficient in oxygen, but I did not reckon upon a meeting which delayed our arrival.

I was about twenty steps behind Captain Nemo when he suddenly turned towards me. With his vigorous hand he threw me to the ground, whilst his companion did the same to Conseil. At first I did not know what to think of this sudden attack, but I was reassured when I saw that the captain lay down beside me and remained perfectly motionless.

I was stretched on the ground just under the shelter of a bush of algae, when, on raising my head, I perceived enormous masses throwing phosphorescent gleams pass blusteringly by.

My blood froze in my veins. I saw two formidable dog-fish threatening us; they were terrible creatures, with enormous tails and a dull and glassy stare, who threw out phosphorescent

beams from holes pierced round their muzzles. Monstrous brutes which would crush a whole man in their jaws! I do not know if Conseil stayed to classify them. For my part, I noticed their silver stomachs and their formidable mouths bristling with teeth from a very unscientific point of view—more as a possible victim than as a naturalist.

Happily, these voracious animals see badly. They passed without perceiving us, brushing us with their brownish fins, and we escaped, as if by a miracle, this danger, certainly greater than the meeting of a tiger in a forest.

Half an hour after, guided by the electric light, we reached the *Nautilus*. The outside door had remained open, and Captain Nemo closed it as soon as we had entered the first cell. Then he pressed a knob. I heard the pumps worked inside the vessel. I felt the water lower around me, and in a few moments the cell was entirely empty. The inner door then opened, and we entered the wardrobe-room.

There our diving dresses were taken off, and, quite worn out from want of food and sleep, I returned to my room, lost in wonder at this surprising excursion under the sea.

CHAPTER XVIII.

FOUR THOUSAND LEAGUES UNDER THE PACIFIC.



THE next morning, the 18th of November, I was perfectly recovered from my fatigue of the day before, and I went up on to the platform at the very moment that the mate was pronouncing his daily sentence. It then came into my mind that it had to do with the state of the sea, and that it signified "There is nothing in sight."

And, in fact, the ocean was quite clear. There was not a sail on the horizon. The heights of Crespo Island had disappeared during the night. The sea, absorbing the colours of the solar prism, with the exception of the blue rays, reflected them in every direction, and was of an admirable indigo shade. A large wave was regularly undulating its surface.

I was admiring this magnificent aspect of the sea when Captain Nemo appeared. He did not seem to perceive my presence, and began a series of astronomical observations. Then, when he had ended his operation, he went and leaned against the cage of the watch-light and watched the surface of the ocean.

In the meantime about twenty sailors from the *Nautilus*, strong and well-built men, ascended upon the platform. They came

to draw in the nets which had been out all night. These sailors evidently belonged to different nations, although they were all of the European type. I recognised, to a certainty, Irishmen, Frenchmen, some Selaves, one Greek, or a Candiote. These men spoke very little, and only used the strange idiom of which I could not even guess the origin, so that I could not question them.

The nets were hauled in. They were a species of "chaluts," like those used on the Normandy coast, vast pockets which a floating yard and a chain marled into the lower stitches keep half open. These pockets, thus dragged along in their iron gauntlets, swept the bottom of the ocean, and took in all its products on their way. That day they brought in curious specimens from these fish-fields—*Iophiadae*, that from their comical movements have acquired the name of buffoons; black commersons, furnished with antennæ, undulating balisters, encircled with red bands, *orthratorisci*, with very subtle venom; olive-coloured lampreys, *macrorhynchi*, covered with silver scales; *trichiuri*, with an electric power equal to that of the *gymnotus* and cramp-fish; scaly *notopleri*, with transverse brown bands; greenish cod, several varieties of gobies, &c.; and, lastly, several fish of larger size, a *caraux* with a prominent head more than a yard long, several fine bonitos, bedizened with blue and silver colours, and three magnificent tunnies, which, in spite of their speed, had not escaped the net.

I reckoned that the haul had brought in more than nine hundred-weight of fish. It was a fine haul, but not to be wondered at. We should not want for food.

These different products of the sea were immediately lowered down by the panel leading to the storerooms, some to be eaten fresh, others to be preserved.

The fishing ended and the provision of air renewed, I thought that the *Nautilus* was going to continue its submarine excursion, and I was preparing to return to my room, when, without further preamble, the captain turned to me and said—

"Is not the ocean gifted with real life, professor? It is sometimes gentle, at other times tempestuous. Yesterday it slept as we did, and now it has awaked after a peaceful night."

Neither "Good morning" nor "Good evening!" It was as though this strange personage was continuing a conversation already commenced with me.

"See now," he said, "it wakes under the sun's influence. It will now renew its diurnal existence. It is deeply interesting to watch the play of its organisation. It possesses a pulse and arteries, it has its spasms, and I agree with the learned Maury, who discovered in it a circulation as real as the circulation of blood in animals."

It was certain that Captain Nemo expected no answer from me, and it appeared to me useless to keep saying "Evidently," or "You are right," or "It must be so." He spoke rather to himself, taking some time between each sentence. It was a meditation aloud.

"Yes," said he, "the ocean possesses a veritable circulation, and in order to cause it, it sufficed the Creator of all things to multiply in it caloric, salt, and animalculæ. Caloric creates the different densities, the cause of currents and under-currents. Evaporation, which does not go on at all in hyperborean regions, and is very active in the equatorial zones, constitutes a permanent exchange between tropical and polar water. Besides, I have felt the perpendicular currents which form the real respiration of the ocean. I have seen the molecule of sea-water warmed on the surface, re-descend to the depths, reach its maximum of density at 2° below zero, then, cooling again, become lighter, and ascend again. You will see at the poles the consequences of this phenomenon, and you will understand why, according to the law of provident Nature, freezing can never take place except on the surface of the water!"

Whilst Captain Nemo was finishing his sentence I said to myself, "The Pole! Does the daring man intend to take us as far as there?"

In the meantime the captain had stopped talking, and was contemplating the element he so incessantly studied. Then he resumed.

"The salts," said he, "exist in a considerable quantity in the sea, professor, and if you were to take out all it contains in solution, you would make a mass of four million and a half square miles, which, spread over the globe, would form a layer more than ten yards deep. And do not think that the presence of this salt is due to a caprice of Nature. No. It makes sea-water less capable of evaporation, and prevents the wind taking off too great a quantity of vapour, which, when it condenses, would submerge the temperate zones. It has a great balancing part to play in the general economy of the globe!"

Captain Nemo stopped, rose, took several steps on the platform, and came back towards me.

"As to the infusoria, as to the hundreds of millions of animalculæ which exist by millions in a drop of water, and of which it takes 800,000 to weigh a milligramme, their part is not less important. They absorb the marine salts, they assimilate the solid elements of water, and, veritable manufacturers of calcareous continents, they make coral and madrepores, and then the drop of water deprived of its mineral element is lightened, mounts to

the surface, absorbs there the salt left by evaporation, is weighted, sinks again, and takes back to the animalculæ new elements to absorb. Hence a double current, ascending and descending, always movement and life—life more intense than that of continents, more exuberant, more infinite, flourishing in every part of this ocean, element of death to man, they say, element of life to myriads of animals, and to me!”

When Captain Nemo spoke thus he was transfigured, and evoked in me extraordinary emotion.

“True existence is there,” added he, “and I could conceive the foundation of nautical towns, agglomeration of submarine houses, which, like the Nautilus, would go up every morning to breathe on the surface of the water—free towns, if ever there were any, independent cities! And yet who knows if some despot——”

Captain Nemo finished his sentence by a violent gesture. Then, addressing himself directly to me as if to drive away some gloomy thought, he said—

“M. Aronnax, do you know how deep the ocean is?”

“I know at least, captain, what the principal soundings have taught us.”

“Could you repeat them to me, so that I might counter-register them if necessary?”

“Here are some that occur to me,” I answered. “If I am not mistaken they have found an average depth of 8,200 metres in the North Atlantic, and 2,500 metres in the Mediterranean. The most remarkable soundings have been taken in the South Atlantic, near the 35th degree; and they have given 1,200 metres, 14,081 metres, and 15,149 metres—in short, it is estimated that if the bottom of the sea was levelled its average depth would be about five miles.”

“Well, professor,” answered Captain Nemo, “we shall show you better than that, I hope. As to the average depth of this part of the Pacific, I can tell you that it is only 4,000 metres.”

That said, Captain Nemo went towards the panel and disappeared down the ladder. I followed him, and went into the saloon. The screw then began to work, and the log gave twenty miles an hour.

For days and weeks Captain Nemo was very sparing of his visits. I only saw him at rare intervals. His mate pricked the ship’s course regularly on the chart, and I could always tell the exact route of the Nautilus.

Conseil and Land passed long hours with me. Conseil had related to his friend the marvels of our excursion, and the Canadian regretted not having accompanied us.

Almost every day, during some hours, the panels of the saloon were opened, and our eyes were never tired of penetrating the mysteries of the submarine world.

The general direction of the Nautilus was S.E., and it kept between 100 and 150 yards depth. One day, however—I do not know by what caprice—it reached the beds of water situated at 2,000 yards. On the 26th of November, at 3 a.m., the Nautilus crossed the tropic of Cancer by long. 172°. On the 27th it sighted the Sandwich Islands, where the illustrious Cook met his death on the 14th of February, 1779. We had then made 4,800 leagues from our starting-point. In the morning, when I arrived on the platform, I saw, two miles to the windward, Hawaii, the largest of the seven islands which form this archipelago. I clearly distinguished its cultivated border, the different chains of mountains which run parallel to the coast, and its volcanoes, the highest of which is the Mouna-Rea. Amongst other specimens brought up by the nets in this part of the ocean were several polypi of graceful form, which are peculiar to that region.

The Nautilus still kept a north-easterly direction. It crossed the equator on December 1st by long. 142°, and the 4th of the same month, after a rapid passage during which no particular incident happened, we sighted the group of the Marquesas. I perceived, at a distance of three miles, by 8° 57' south lat. and 139° 32' west long., the point Martin de Nouka-Hiva, the principal of this group, which belongs to France. I only saw the wooded mountains outlined on the horizon, for Captain Nemo did not like to draw near any land. There the nets brought in some fine specimens of fish—choryphenes with azure fins and golden tails, the flesh of which is without a rival in the world; hologymnoses, nearly destitute of scales, but of exquisite flavour; ostorhyncs with bony jaws and yellowish thasards, as good as bonitoes—all fish worthy of being classified in the pantries on board.

After leaving these charming islands protected by the French flag, from the 4th to the 11th of December the Nautilus sailed over 2,000 miles. This navigation was marked by the meeting of an immense shoal of calmars, curious molluscs, near neighbours to the cuttle. The French fishermen call them *encornets*; they belong to the class of cephalopods and the family of the dibranches, that comprehends the cuttles and argonauts. These animals were particularly studied by the naturalists of antiquity, and they furnished numerous metaphors to the orators of the Agora, as well as excellent dishes for the tables of the rich citizens, if we can believe Athenæus, a Greek doctor who lived before Galen.

It was during the night between the 9th and 10th of December that the Nautilus met with the shoal of molluscs that are particularly nocturnal. They could be counted by millions. They were emigrating from the temperate to the warmer zones, following the track of herrings and sardines. We watched them through the crystal panes, swimming backwards with extreme rapidity, moving by means of their locomotive tube, pursuing fish and molluscs, eating the little ones, eaten by the big ones, and agitating, in indescribable confusion, the ten arms that Nature has placed on their heads, like a crest of pneumatic serpents. The Nautilus, notwithstanding its speed, sailed for several hours in the midst of these animals, and its nets drew in an innumerable quantity, amongst which I recognised the nine species that Orbigny has classified as belonging to the Pacific Ocean.

It will be seen that during this voyage the sea was prodigal of its most marvellous spectacles. It varied them infinitely. It changed its scenes and grouping for the pleasure of our eyes, and we were called upon, not only to contemplate the works of the Creator amidst the liquid element, but to penetrate as well into the most fearful mysteries of the ocean.

During the day of the 11th of December I was reading in the saloon. Ned Land and Conseil were looking at the luminous water through the half-open panels. The Nautilus was stationary; it was keeping at a depth of 1,000 yards, a region not much inhabited, in which large fish alone make rare appearances.

I was reading at that moment a charming book by Jean Macé, *Les Serviteurs de l'Estomac*, and I was learning the ingenious lessons it gives, when Conseil interrupted me.

"Will monsieur come here for a moment?" said he in a singular voice.

I rose, went to the window, and looked out. Full in the electric light an enormous black mass, immovable, was suspended in the midst of the waters. I looked at it attentively, trying to make out the nature of this gigantic cetacean. But an idea suddenly came into my mind.

"A vessel!" I cried.

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

Ned Land was right. We were close to a vessel of which the tattered shrouds still hung from their chains. The hull seemed to be in good order, and it could not have been wrecked more than a few hours; the vessel had had to sacrifice its mast. It lay on its side, had filled, and was heeling over to port. This skeleton of what it had once been was a sad spectacle under the waves, but sadder still was the sight of the deck, where

corpses, bound with rope, were still lying. I counted five; one man was at the helm, and a woman stood by the poop holding an infant in her arms; she was quite young. I could clearly see her features by the light of the Nautilus—features which the water had not yet decomposed. In a last effort she had raised the child above her head, and the arms of the little one were round its mother's neck. The sailors looked frightful, and seemed to be making a last effort to free themselves from the cords that bound them to the vessel. The helmsman alone, calm, with a clear, grave face and iron-grey hair glued to his forehead, was clutching the wheel of the helm, and seemed, even then, to be guiding the vessel through the depths of the ocean!

What a scene! It struck us dumb, and our hearts beat faster at the sight of this wreck, photographed at the last moment, and I already saw, advancing towards it with hungry eyes, enormous sharks attracted by the human flesh!

The Nautilus just then turned round the submerged vessel, and I read on the stern "Florida, Sunderland."

CHAPTER XIX.

VANIKORO.



HIS terrible spectacle inaugurated the series of maritime catastrophes which the Nautilus was to meet with on her route. Since it had been in more frequented seas we often perceived the hulls of ships—wrecked vessels which were rotting in the midst of the waters, and, deeper down, cannons, bullets, anchors, chains, and other iron objects which were being eaten up by the rust.

We lived in the Nautilus our usual isolated lives, and on the 11th of December we sighted the archipelago of Pomotou, the ancient "dangerous group" of Bougainville, which extends over a space of 500 leagues from the E.S.E. to W.N.W., between 13° 30' and 23° 50' south lat. and 125° 30' and 151° 30' west long., from Ducie Island to that of Lazareffe.

This archipelago covers an area of 370 square leagues, and is formed of sixty groups of islands, amongst which is the Gambier group, over which France rules. These islands are of coral formation. They slowly but continuously rise by the work of the polypi, which will one day join them together. Then this new island will be joined to the neighbouring archipelagoes, and a

fifth continent will stretch from New Zealand and New Caledonia to the Marquesas.

The day that I developed this theory before Captain Nemo he answered me coldly—

“The earth does not want new continents, but new men!”

The hazards of its navigation had precisely conducted the Nautilus towards the island of Clermont-Tonnerre, one of the most curious of the group, which was discovered in 1822 by Captain Bell, of the *Minerva*. I could now study the madreporal system to which the islands of this ocean are due.

Madrepores, which must not be mistaken for corals, have a tissue covered with a calcareous crust, and the modifications of its structure have made Mr. Milne Edwards, my illustrious master, classify them into five sections. The little animalculæ which these polypi secrete live by millions at the bottom of their cells. It is their calcareous deposit which becomes rocks, reefs, and large and small islands. Here they form a ring surrounding a lagoon or small interior lake, which gaps put into communication with the sea. There they make barriers of reefs like those which exist on the coasts of New Caledonia and the different Pomotou Islands. In other places, such as Réunion and Maurice, they raise fringed reefs, high straight walls, near which the depths of the ocean are considerable.

As we were coasting at some cable-lengths only off the shore of the island of Clermont-Tonnerre I admired the gigantic work accomplished by these microscopical workmen. These walls are specially the work of madrepores, known as milleporas, porites, astræas, and meandrines. These polypi breed particularly in the rough beds on the surface of the sea, and consequently it is from their upper part that they begin their substructure, which sinks gradually with the *débris* of secretions which support them. Such is at least Mr. Darwin's theory, who thus explains the formation of the *atolls*, which I think a superior theory to that which gives for basis of madreporical works the summits of mountains or volcanocs that are submerged some feet below the level of the sea.

I could closely observe these curious walls, for the fathom-line gave them perpendicularly more than 300 yards in depth, and our electric light made the calcareous matter shine brilliantly.

Replying to a question Conseil asked me as to how long it took these colossal barriers to grow, I astonished him much by telling him that learned men reckoned the growth to be one-eighth of an inch in a century.

“Then how long has it taken to raise these walls?” he said.

“Four hundred and ninety-two thousand years, Conseil

Besides, the formation of coal and the mineralising of the forests buried by the deluge has taken a much longer time still."

When the Nautilus returned to the surface of the ocean I could take in all the development of this low and wooded island of Clermont-Tonnerre. Its madreporal rocks were evidently fertilised by water-spouts and tempests. One day some grain, carried away from neighbouring land by a tempest of wind, fell on these calcareous layers, mixed with the decomposed detritus of fish and marine plants which formed vegetable soil. A cocoon, pushed along by the waves, arrived on this new coast. The germ took root. The tree grew and stopped the vapour of the water. Streams were born, vegetation spread little by little. Animalculæ, worms, insects landed upon trunks of trees, torn away from other islands by the wind. Turtles came to lay their eggs. Birds built their nests in the young trees. In that manner animal life was developed, and, attracted by verdure and fertility, man appeared. Thus these islands, the immense works of microscopical animals, were formed.

Towards evening Clermont-Tonnerre was lost in the distance, and the route of the Nautilus was changed perceptibly. After having touched the tropic of Capricorn, in long. 135°, it directed its course W.N.W., sailing up the whole tropical zone again. Although the summer sun was prodigal of its rays, we did not suffer at all from the heat, for at thirty or forty yards below the water the temperature did not rise above from ten to twelve degrees.

On the 15th of December we left to the east the bewitching archipelago of the Society Islands and the graceful Tahiti, the queen of the Pacific. I perceived in the morning the elevated summits of this island. Its waters furnished our tables with excellent fish, mackerel, bonitoes, and albigores, and some varieties of a sea-serpent called munirophis.

The Nautilus had come 8,100 miles; 9,720 miles were registered by the log as we passed between the archipelago of Tonga-Tabou, where perished the crews of the Argo, the Port-au-Prince, and the Duke of Portland, and the Navigator archipelago, where Captain Langle, the friend of La Perouse, was killed. Then we sighted the archipelago Viti, where the natives massacred the crews of L'Union, and Captain Bureau, of Nantes, commander of L'Aimable Josephine.

This archipelago, which stretches over one hundred leagues from north to south, and ninety leagues from east to west, is comprised between 6° and 2° of S. lat. and 179° of west long. It is composed of a number of large and small islands and reefs, amongst which are the islands of Viti-Levou, of Vanona-Levou, and Kandubon.

It was Tasman who discovered this group in 1643, the same year that Torricelli invented the barometer and Louis XIV. ascended the throne. I leave it to be imagined which of these facts was the more useful to humanity. Afterwards came Cook in 1771, D'Entrecasteaux in 1793, and, lastly, Dumont d'Urville in 1827 unravelled all the geographical chaos of this archipelago.

The Nautilus approached Waitia Bay, the scene of the terrible adventures of Captain Dillon, who was the first to clear up the mystery of the shipwreck of La Perouse.

This bay, after several draggings, furnished us with abundance of excellent oysters. We ate them immoderately, opening them on our own table, according to the precept of Seneca. These molluscs belong to the species known under the name of "*ostrea camelloso*," which is very common in Corsica. This Waitia bank must be considerable, and certainly without multiplied causes of destruction, the oysters would end by filling up the bays, as each contains two millions of eggs.

If Ned Land had not to repent of his greediness in this case, it was because the oyster is the only dish which never provokes indigestion. In fact, it takes at least sixteen dozen of these acephalous molluscs to furnish the quantity of azote necessary to the daily food of one man.

On the 25th of December the Nautilus sailed into the midst of the New Hebrides, which Quiros discovered in 1606, which 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 from the N.N.W. to the S.S.E. between 15' and 2' south lat., and 164° and 168° long. We passed rather near to the island of Aurou, that at noon looked to me like a mass of green woods, surmounted by a peak of great height.

That day being Christmas Day, Ned Land seemed to me to regret that it could not be celebrated as the family *fête* dear to Protestant hearts.

I had not seen Captain Nemo for a week, when, on the 27th, in the morning, he entered the saloon, looking like a man who had seen you five minutes before. I was occupied in tracing the route of the Nautilus on the planisphere. The captain approached, put his finger on a spot in the map, and pronounced this one word:—

"Vanikoro."

This name was magical. It was the name of the islands upon which the vessels of La Perouse had been lost. I rose immediately.

"Is the Nautilus taking us to Vanikoro?" I asked.

"Yes, professor," answered the captain.

"And can I visit these celebrated islands where the *Boussole* and *Astrolabe* were lost?"

"If you please, professor."

"When shall we reach Vanikoro?"

"We are there now, professor."

Followed by Captain Nemo I went up to the platform, and from there I looked with avidity round the horizon.

To the N.E. emerged two volcanic islands of unequal size, surrounded by coral reefs measuring forty miles in circumference. We were in presence of Vanikoro Island, properly so called, to which Dumont d'Urville gave the name of *Ile de la Recherche*; we were just in front of the little harbour of Vanou, situated in 16° 4' south lat. and 164° 32' east long. The land seemed covered with verdure from the shore to the summits of the interior, crowned by Mount Kapogo, 3,000 feet high.

The *Nautilus*, after having crossed the exterior ring of rocks through a narrow passage, was inside the reefs where the sea is from thirty to forty fathoms deep. Under the verdant shade of some mangroves I perceived several savages, who looked extremely astonished at our approach. Perhaps they took the long body advancing along the surface of the water for some formidable cetacean that they ought to guard themselves against. At that moment Captain Nemo asked me what I knew about the shipwreck of *La Perouse*.

"What every one knows, captain," I answered.

"And can you tell me what every one knows?" he asked in a slightly ironical tone.

"Easily."

I then related what the last works of Dumont d'Urville had made known, of which the following is an abridgment:—"La Perouse and his second in command, Captain Langle, were sent by Louis XVI., in 1785, to make a voyage round the world. They equipped the corvettes, the *Boussole* and the *Astrolabe*, neither of which was again heard of."

In 1791 the French Government, rightly uneasy about the fate of the two corvettes, equipped two large merchantmen, the *Recherche* and the *Espérance*, which left Brest on the 28th of September, under the orders of Bruni d'Entrecasteaux. Two months afterwards it was learnt, through the testimony of Bowen, captain of the *Albermarle*, that the *débris* of shipwrecked vessels had been seen on the coasts of New Georgia. But D'Entrecasteaux, ignoring this communication, which was rather uncertain, made for the Admiralty Islands, designated in a report of Captain Hunter's as the scene of *La Perouse's* shipwreck.

His search was fruitless. The *Espérance* and *Recherche* even passed before Vanikoro without stopping there, and, on the whole, this voyage was very unfortunate, for it cost the life of D'Entrecasteaux, of two of his mates, and several sailors of his crew.

It was an old Pacific seaman, Captain Dillon, who first found indisputable traces of the shipwreck. On May 15th, 1824, his ship, the *Saint Patrick*, passed near the Island of Tikopia, one of the New Hebrides. There a Lascar, having hailed him in a pirogue, sold him the silver handle of a sword that had something engraved on it. The Lascar said that six years before, while he was staying at Vanikoro, he had seen two Europeans who belonged to ships wrecked many years before upon the reefs of the island.

Dillon guessed that he referred to the ships of La Perouse, the disappearance of which had troubled the entire world. He wished to reach Vanikoro, where, according to the Lascar, numerous *débris* of the wrecks were to be found; but contrary winds and currents prevented him. Dillon returned to Calcutta. There he interested the Asiatic Society and the East India Company in his search. A ship, to which they gave the name of the *Recherche*, was placed at his disposal, and he set out on the 23rd of January, 1827, accompanied by a French agent.

The *Recherche*, after touching at several points in the Pacific, anchored before Vanikoro the 7th of July, 1827, in this same harbour of Vanou where the *Nautilus* is now floating. There he gathered together numerous remains of the wrecks—iron utensils, anchors, pulley-strops, swivel-guns, an 18lb. shot, *débris* of astronomical instruments, a piece of taffrail, and a bronze bell, bearing the inscription, *Bazin m'a fait*, the mark of the foundry of Brest Arsenal, about 1785. Doubt was no longer possible.

Dillon, to complete his information, remained upon the scene of the disaster till the month of October. Then he left Vanikoro, made for New Zealand, anchored at Calcutta on the 7th of April, 1828, and returned to France, where he was received very warmly by Charles X.

Dumont d'Urville, commander of the *Astrolabe*, had set sail, and two months after Dillon had left Vanikoro he anchored before Hobart Town. There he heard of the results obtained by Dillon, and, moreover, he learnt that a certain James Hobbs, mate on board the *Union*, of Calcutta, having landed on an island situated by 80° 18' south lat. and 156° 30' east long., had noticed bars of iron and red stuffs being used by the natives of the place. Dumont d'Urville was perplexed, and did not know if he ought to credit these reports, made by newspapers little

worthy of confidence. However, he decided to go on Dillon's track.

On the 10th of February, 1828, the *Astrolabe* anchored before Tikopia, and took for guide and interpreter a deserter who had taken refuge on that island, set sail for Vanikoro, and sighted it on the 12th of February, coasted its reefs until the 14th, and on the 20th only anchored inside the barrier, in the harbour of Vanou.

On the 23rd several officers went round the island and brought back some unimportant *débris*. The natives, adopting a system of denials and evasions, refused to take them to the scene of the disaster. This suspicious conduct led to the belief that they had ill-treated the shipwrecked men, and, in fact, they seemed to fear that Dumont d'Urville and his companions were come to revenge La Perouse and his unfortunate companions.

However, on the 26th, decided by presents, and understanding that they had nothing to fear, they conducted the mate, M. Jacquinet, to the place of shipwreck.

There, in three to four fathoms of water, between the reefs of Pacou and Vanou, lay anchors, pigs of iron and lead, encrusted in the calcareous concretion. The longboat and the whaler from the *Astrolabe* were sent to this place, and, not without much fatigue, their crews succeeded in raising an anchor weighing 800 pounds, an 800-pound brass cannon, some pigs of lead, and two copper swivel guns.

Dumont d'Urville, by questioning the natives, learnt also that La Perouse, after having lost his two ships on the reefs of the island, had built a smaller vessel, only to be lost a second time—no one knew where. The commander of the *Astrolabe* then, under a thicket of mangroves, caused a cenotaph to be raised to the memory of the celebrated navigator and his companions. It was a simple quadrangular pyramid on a coral foundation, in which there was no iron to tempt the cupidity of the natives. Then Dumont d'Urville wished to depart, but his crew were worn out by the fevers of these unhealthy shores, and he was so ill himself that he could not get under sail before the 17th of March.

In the meantime the French Government, fearing that Dumont d'Urville was not acquainted with Dillon's movements, had sent the sloop *Bayonnaise*, commanded by Legoarrant de Tromelin, who was stationed on the West Coast of America. He anchored before Vanikoro some months after the departure of the *Astrolabe*, found no new document, but saw that the savages had respected La Perouse's mausoleum. Such is the substance of what I told Captain Nemo.

"Then," he said, "they do not know where the third vessel,

built by the shipwrecked men on the island of Vanikoro, perished?"

"No one knows."

Captain Nemo answered nothing, and made me a sign to follow him to the saloon. The Nautilus sank some yards below the surface of the waves, and then the panels were drawn back. I rushed towards the window, and under the crustations of coral covered with fungi, syphonules, alcyons, madrepores, through myriads of charming fish—jirells, glyphisidons, pomphérides, diacopes, holocentres—I recognised certain objects which the drags could not bring up—iron stirrups, anchors, cannons, bullets, capstan fittings, the stem of a ship—all objects from shipwrecked vessels, now carpeted with living flowers. While I was looking upon these sad remnants Captain Nemo said to me in a grave voice—

"Commander La Perouse started the 7th of December, 1785, with his ships the *Boussole* and the *Astrolabe*. He anchored first in Botany Bay, visited the Friendly Isles, New Caledonia, made for Santa Cruz, and touched at Namouka, one of the Hapai group. Then his ships arrived on the unknown reefs of Vanikoro. The *Boussole*, which went first, struck on the south coast. The *Astrolabe* went to help, and met with the same fate. The former ship was almost immediately destroyed; but the *Astrolabe*, sheltered by the wind, lasted some days. The natives received the shipwrecked men very well. They installed themselves on the island, and built a smaller vessel with the remains of the two large ones. Some of the sailors chose to remain at Vanikoro. The others, weakened by illness, started with La Perouse. They directed their course towards the Solomon Islands. They all perished on the western coast of the principal island of the group, between Capes Deception and Satisfaction."

"And how do you know that?" I exclaimed.

"This is what I found on the very spot of the last shipwreck."

Captain Nemo showed me a tin box, stamped with the French arms, and corroded by the salt water. He opened it, and I saw a mass of papers, yellow but still readable. They were the instructions of the *Ministre de la Marine* to the Commander La Perouse, annotated on the margin in the handwriting of Louis XVI.

"Ah, that is a fine death for a sailor!" then said Captain Nemo; "a coral tomb is a tranquil one, and may Heaven grant that my companions and I may never have another!"

CHAPTER XX.

TORRES STRAITS.

DURING the night between the 27th and 28th of December the Nautilus left the neighbourhood of Vanikoro with excessive speed. Its direction was south-west, and in three days it cleared the 750 leagues that separate the group of La Perouse from the south-east point of Papua. Early on the morning of the 1st of January, 1863, Conseil joined me on the platform.

"Monsieur," said the brave fellow, "will monsieur allow me to wish him a happy New Year?"

"Why, any one would think, Conseil, that I was in Paris in my Jardin des Plantes study. Thank you for your good wishes, only I should like to ask you what you mean by a 'happy year' in our present circumstances? Will this year bring the end of our imprisonment, or will it see us continue this strange voyage?"

"I do not know quite what to say to monsieur," answered Conseil. "It is certain that we see curious things, and the last two months we have not had time to be dull. The last marvel is always the most astonishing, and if this rate of progress is maintained I do not know how it will end. My opinion is that we shall never find such another occasion."

"Never, Conseil."

"Besides, M. Nemo, who well justifies his Latin name, is not more troublesome than if he did not exist. I therefore think a happy year would be a year which would allow us to see everything."

"To see everything, Conseil? That would perhaps take too long. But what does Ned Land think about it?"

"Ned thinks exactly the contrary to what I do," answered Conseil. "He has a positive mind and an imperious stomach. To look at fish and always eat it does not suffice him. The want of wine, bread, and meat scarcely agrees with the worthy Saxon, to whom beefsteaks are familiar, and who is not frightened at brandy or gin taken in moderation."

"For my own part, Conseil, it is not that which torments me, and I accommodate myself very well to the food on board."

"And so do I," answered Conseil, "and I think as much of remaining as Land does of taking flight. Therefore, if the year that is beginning is not a happy one for me it will be for him; or *vice versâ*. By that means some one will be satisfied. In short, to conclude, I wish monsieur anything that would please him."

"Thank you, Conseil; only I must ask you to put off the question of a New Year's present, and to accept provisionally a shake of the hand. That is all I have upon me."

"Monsieur has never been so generous."

And thereupon the worthy fellow went away.

On the 22nd of January we had made 11,340 miles, or 5,250 French leagues, from our point of departure in the Japanese seas. Before the prow of the Nautilus extended the dangerous regions of the coral sea on the N.E. coast of Australia. Our boat coasted at a distance of some miles the dangerous bank on which Captain Cook's ships were lost on June 10th, 1770. The vessel Cook was on struck on a rock, and if it did not go down it was, thanks to this circumstance, that a piece of coral, struck off by the shock, remained fixed in the half-open hull.

I should have much liked to visit this reef 360 leagues long, against which the sea, always rough there, broke with a formidable intensity and a noise like the rolling of thunder. But at that moment the inclined planes of the Nautilus dragged us down to a great depth. I could see nothing of these high coral walls. I was obliged to content myself with different specimens of fish brought in by our nets. I remarked, amongst others, germons, a species of mackerel as large as tunny-fish, with bluish sides, striped with transverse bands, which disappear with the life of the animal. These fish accompanied us in shoals, and furnished our table with excessively delicate dishes. They also took a great number of greenish gilthead, about five inches long, tasting like the dorado fish, and flying pyrapeds, real submarine swallows, which in dark nights alternately strike the air and water with their phosphorescent gleams. Amongst the molluscs and the zoophytes I found in the meshes of the net several species of alcyonarians, echini, hammers, spurs, dials, cerites, and hyalleæ. The flora was represented by beautiful seaweeds, laminariæ, and macrocystes, impregnated with the muciage that transudes through their pores, and amongst which I found an admirable *nemastoma geliniarvis* that was classed amongst the natural curiosities of the museum.

Two days after crossing the coral sea, on the 4th of January, we sighted the Papuan coasts. On this occasion Captain Nemo informed me that it was his intention to get into the Indian Ocean by Torres Straits. His communication ended there. Ned Land saw with pleasure that this route would take him nearer to the European seas.

The Torres Straits are considered no less dangerous on account of the reefs with which they bristle than because of the savage inhabitants who frequent their shores. They separate New

Holland from the large island of Papua, named also New Guinea.

Papua is 400 leagues long and 130 leagues wide, and has a surface of 40,000 geographical miles. It is situated between $0^{\circ} 19'$ and $10^{\circ} 2'$ south latitude, and between $128^{\circ} 23'$ and $146^{\circ} 15'$ longitude. At noon, whilst the mate was taking the sun's altitude, I perceived the summits of the Arfalxs mountains, rising by plains, and terminating in sharp peaks. This land, discovered in 1511 by the Portuguese Francisco Serrano, was successively visited by Don José de Meneses in 1526, by Grijalva in 1527, by the Spanish General Alvar de Saavedra in 1528, by Juigo Ortez in 1545, by the Dutchman Shouten in 1616, by Nicolas Sruick in 1753, by Tasman, Dampier, Fumel, Carteret, Edwards, Bougainville, Cook, Forrest, MacClure, by D'Entrecasteaux in 1792, by Duperrey in 1823, and by Dumont d'Urville in 1827. "It is the focus of the blacks who occupy all Malaisia," says M. de Rienzi, and I little thought that the chances of this navigation were going to bring me in presence of the formidable Andamenes.

The Nautilus then entered the most dangerous straits on the globe, those that the boldest seamen dare scarcely cross, the straits that Louis Paz de Torres affronted when returning from the South Seas, and in which, in 1840, the stranded corvettes of Dumont d'Urville were on the point of being totally wrecked. The Nautilus itself, superior to all dangers of the sea, was going, however, to make the acquaintance of its coral reefs.

The Torres Straits are about thirty-four leagues wide, but it is obstructed by an innumerable quantity of islands, reefs, and rocks, which make its navigation almost impracticable. Captain Nemo consequently took every precaution to cross it. The Nautilus, on a level with the surface of the water, moved slowly along. Its screw, like the tail of a cetacean, slowly beat the billows.

Profiting by this situation, my two companions and I took our places on the constantly-deserted platform. Before us rose the helmsman's cage, and I am very much mistaken if Captain Nemo was not there directing his Nautilus himself.

I had spread out before me the excellent charts of the Torres Straits, taken by the hydrographical engineer, Vincendon Dumoulin, and the midshipman Coupvent-Desbois—now an admiral—who made part of Dumont d'Urville's état-major during his last voyage round the world. They are, along with those of Captain King, the best charts for threading the maze of this narrow passage, and I consulted them with scrupulous attention.

Around the Nautilus the sea was furiously rough. The current

of the waves, which was bearing from S.E. to N.W. with a speed of two and a half miles, broke over the coral reefs that emerged here and there.

"An ugly sea!" said Ned Land to me.

"Detestable indeed," I answered, "and one that is not suitable to such a vessel as the Nautilus."

"That confounded captain must be very certain of his route," answered the Canadian, "for I see coral reefs which would break its keel in a thousand pieces if it only just touched them!"

The situation was indeed dangerous, but the Nautilus seemed to glide off the dangerous reefs as if by enchantment. It did not exactly follow the routes of the *Astrolabe* and *Zélée*, for they proved fatal to Dumont d'Urville. It bore more northwards, coasted the Island of Murray, and came back south-west towards Cumberland Passage. I thought it was going to enter it, when going back N.W. it went amongst a large quantity of little-known islands and islets towards Sound Island and Mauvais Canal.

I was wondering if Captain Nemo, foolishly imprudent, was going to take his vessel into that pass where Dumont d'Urville's two corvettes were stranded, when he again changed his direction, and cutting straight through to the west, he steered for the Island of Bilboa. It was then three o'clock in the afternoon. The ebb tide was just beginning. The Nautilus approached this island, which I still think I see with its remarkable border of screw-pines. We were coasting at a distance of two miles.

Suddenly a shock overthrew me. The Nautilus had just touched on a reef, and was quite still, laying lightly to port side.

When I rose I saw Captain Nemo and his second on the platform. They were examining the situation of the vessel, and talking in their incomprehensible dialect.

The situation was the following:—Two miles on the starboard appeared the Island of Gilboa, the coast of which was rounded from N. to W.; like an immense arm towards the S. and E. some heads of coral rocks were jutting, which the ebb tide left uncovered. We had run aground, and in one of the seas where the tides are very slight, an unfortunate circumstance in the floating of the Nautilus; however, the vessel had in no wise suffered, its keel was so solidly joined; but although it could neither sink nor split, it ran the risk of being for ever fastened on to these reefs, and then Captain Nemo's submarine apparatus would be done for.

I was reflecting thus, when the captain, cool and calm, always master of himself, appearing neither vexed nor moved, came up.

"An accident?" I asked.

"No, an incident," he answered.

"But an incident," I replied, "which will perhaps again force you to become an inhabitant of the land from which you flee."

Captain Nemo looked at me in a curious manner, and made a negative gesture. It was as much as to say to me that nothing would ever force him to set foot on land again. Then he said—

"Besides, M. Aronnax, the Nautilus is not lost. It will yet carry you amid the marvels of the ocean. Our voyage is only just begun, and I do not wish to deprive myself so soon of the honour of your company."

"But, Captain Nemo," I replied, without noticing the irony of his sentence, "the Nautilus ran aground at high tide. Now tides are not strong in the Pacific, and if you cannot lighten the Nautilus I do not see how it can be floated again."

"Tides are not strong in the Pacific—you are right, professor," answered Captain Nemo; "but in Torres Straits there is a difference of five feet between the level of high and low tide. To-day is the fourth of January, and in five days the moon will be at the full. Now I shall be very much astonished if this complaisant satellite does not sufficiently raise these masses of water, and render me a service which I wish to owe to her alone."

This said, Captain Nemo, followed by his second, went down again into the interior of the Nautilus. The vessel remained as immovable as if the coral polypi had already walled it up in their indestructible cement.

"Well, sir?" said Ned Land, who came to me after the departure of the captain.

"Well, friend Ned, we must wait patiently for high tide on the ninth. It appears that the moon will be kind enough to set us afloat again."

"Really?"

"Really."

"And this captain is not going to weigh anchor, to set his machine to work, or to do anything to get the vessel off?"

"Since the tide will suffice," answered Conseil simply.

The Canadian looked at Conseil, then shrugged his shoulders. It was the seaman who spoke in him.

"Sir," he replied, "you may believe me when I tell you that this piece of iron will never be navigated again, either on or under the seas. It is only fit to be sold by weight. I think, then, that the moment is come to part company with Captain Nemo."

"Friend Ned," I answered, "I do not despair, like you, of this valiant Nautilus, and in four days we shall know what to think of these tides on the Pacific. Besides, the advice to us

might be opportune if we were in sight of the coasts of England or Provence, but in the Papuan regions it is another thing, and it will be quite time to resort to that extremity if the Nautilus does not succeed in getting off, which I should look upon as a grave event."

"But still we might have a taste of land," replied Ned Land. "There is an island; on that island there are trees; under those trees are terrestrial animals, bearers of cutlets and roast beef, which I should like to be able to taste."

"There friend Ned is right," said Conseil, "and I am of his opinion. Could not monsieur obtain from his friend Captain Nemo the permission to be transported to land, if it was only not to lose the habit of treading the solid parts of our planet?"

"I can ask him," I answered, "but he will refuse."

"Let monsieur risk it," said Conseil, "and then we shall know what to think about the captain's amiability."

To my great surprise Captain Nemo gave the permission I asked for, and he gave it me very courteously, without even exacting from me a promise to come back on board. But a flight across the lands of New Guinea would have been very perilous, and I should not have advised Ned Land to attempt it. It was better to be a prisoner on board the Nautilus than to fall into the hands of the natives of Papua.

The longboat was put at our disposal the next morning. I did not seek to know if Captain Nemo would accompany us. I thought even that no man of the crew would be given to us, and that Ned Land alone would have the care of directing the vessel. Besides, land was not more than two miles distant, and it was only play to the Canadian to conduct this light boat amongst the lines of reefs so fatal to large ships.

The next day, January 5th, the boat, its deck taken off, was lifted from its niche, and launched from the top of the platform. Two men sufficed for this operation. The oars were in the boat, and we had only to take our place.

At eight o'clock, armed with guns and hatchets, we descended the sides of the Nautilus. The sea was pretty calm. A slight breeze was blowing from land. Conseil and I rowed vigorously, and Ned steered in the narrow passages between the breakers. The boat was easily managed, and fled along rapidly.

Ned Land could not contain his joy. He was a prisoner escaped from prison, and did not think of the necessity of going back to it again.

"Meat!" he repeated. "We are going to eat meat, and what meat! Real game!—no bread, though! I don't say that fish is not a good thing, but you can have too much of it, and a piece

of fresh venison, grilled over burning coals, would be an agreeable variation to our ordinary fare."

"Gourmand!" said Conseil. "He makes the water come into my mouth!"

"You do not know yet," I said, "if there is any game in these forests, or if the game will not hunt the hunter himself."

"Well, M. Aronnax," replied the Canadian, whose teeth seemed sharpened like the edge of a hatchet, "but I will eat tiger—a loin of tiger—if there is no other quadruped on this island."

"Friend Ned is alarming," answered Conseil.

"Whatever animal it is," replied Ned Land, "whether it is one with four paws and no feathers or two paws and feathers, it will be saluted by my first shot."

"Good," I replied; "you are already beginning to be imprudent."

"Never fear, M. Aronnax," answered the Canadian; "row along; I only ask twenty-five minutes to offer you a dish of my sort."

At half-past eight the boat of the Nautilus ran softly aground on a strand of sand, after having happily cleared the coral reef which surrounds the Island of Gilboa.

CHAPTER XXI.

SOME DAYS ON LAND.



TOUCHING land again made a great impression on me. Ned Land struck the ground with his foot as if to take possession of it. Yet we had only been, according to Captain Nemo's expression, the "passengers of the Nautilus" for two months—that is to say, in reality, we had only been the captain's prisoners for two months.

In a very short time we were within a gunshot of the coast. The soil was almost entirely madreporic, but certain dried-up beds of streams, strewed with granitic *debris*, demonstrated that this island was owing to a primordial formation. All the horizon was hidden by a curtain of admirable forests. Enormous trees, some 200 feet high, with garlands of creepers joining their branches, were real natural hammocks, which were rocked in the slight breeze. They were mimosas, ficus, casuarinas, teak-trees, hibiscus, pendanus, palm-trees, mixed in profusion; and under the shelter of their verdant vault, at the foot of their gigantic stype, grew orchids, leguminous plants, and ferns.

But without noticing all these fine specimens of Papuan flora,

the Canadian abandoned the agreeable for the useful. He perceived a cocoa-nut tree, brought down some nuts, broke them, and we drank their milk and ate their kernel with a relish that protested against the ordinary fare of the Nautilus.

"Excellent!" said Ned Land.

"Exquisite!" answered Conseil.

"I do not think," said the Canadian, "that your Nemo would object to our taking back a cargo of cocoa-nuts on board."

"I do not think so," I answered, "but he would not taste them himself."

"So much the worse for him," said Conseil.

"And so much the better for us," replied Ned Land; "there will be more left."

"One word only, Land," I said to the harpooner, who was beginning to ravage another cocoa-nut tree. "Cocoa-nuts are good things, but before filling the boat with them I think it would be wise to see if the island does not produce some substance no less useful. Fresh vegetables would be well received in the kitchen of the Nautilus."

"Monsieur is right," answered Conseil, "and I propose to reserve three places in our boat—one for fruit, another for vegetables, and the third for venison, of which I have not seen the slightest sample yet."

"We should not despair of anything, Conseil," answered the Canadian.

"Let us go on with our excursion," I replied, "and keep a sharp look-out. Although the island appears to be inhabited, it might contain individuals who would be easier to please than we on the nature of the game."

"Ha! ha!" said Ned Land, with a very significant movement of the jaw.

"What is it, Ned?" cried Conseil.

"I am beginning to understand the charms of cannibalism," answered the Canadian.

"What are you talking about, Ned?" replied Conseil. "If you are a cannibal, I shall no longer feel safe with you in the same cabin! Shall I wake one day and find myself half devoured?"

"Friend Conseil, I like you very much, but not enough to eat you, unless I am obliged."

"I do not trust to it," answered Conseil. "Well, let us start; we must really bring down some game to satisfy this cannibal, or one of these fine mornings monsieur will only find pieces of a servant to serve him."

In such-like conversation we penetrated the sombre vaults of

the forest, and for two hours walked about it in every direction.

Fortune favoured us in this search after edibles, and one of the most useful products of tropical zones furnished us with a valuable article of food which was wanting on board—I mean the bread-tree, which is very abundant in the Island of Gilboa, and I remarked there principally that variety destitute of seeds which bears in Malaysian the name of “Rima.” This tree was distinguished from others by its straight trunk forty feet high; its summit, gracefully rounded and formed of large multi-lobed leaves, designated sufficiently to the eyes of a naturalist the artocarpus, which has been very happily naturalised in the Mascareigne Islands. From its mass of verdure stood out large globular fruit two and a-half inches wide, with a rough skin in an hexagonal pattern—a useful vegetable, with which Nature has gratified the regions in which wheat is wanting, and which, without exacting any culture, gives fruit for eight months in the year. Ned Land knew this fruit well; he had eaten it before in his numerous voyages, and he knew how to prepare its edible substance. The sight of it excited his appetite, and he could contain himself no longer.

“Sir,” he said to me, “may I die if I don’t taste a little of that bread-fruit!”

“Taste, friend Ned—taste as much as you like. We are here to make experiments; let us make them.”

“It will not take long,” answered the Canadian; and with a burning-glass he lighted a fire of dead wood which crackled joyously.

During this time Conseil and I chose the best fruits of the artocarpus. Some were not ripe enough, and their thick skin covered a white but slightly fibrous pulp. There were a great number of others, yellow and gelatinous, ready for gathering.

There was no kernel in this fruit. Conseil took a dozen to Ned Land, who placed them on a fire of cinders, after having cut them into thin slices, during which he kept saying—

“You will see, sir, how good this bread is!”

“Especially when one has been deprived of it for so long, Conseil.”

“It is better than bread,” added the Canadian; “it is like delicate pastry. Have you never eaten any, sir?”

“No, Ned.”

“Well, then, prepare for something very good. If you don’t return to the charge I am no longer the king of harpooners.”

In a short time the side exposed to the fire was quite black. In the interior appeared a white paste and a sort of tender crumb, with a taste something like that of an artichoke.

It must be acknowledged this bread was excellent, and I ate it with great pleasure.

"Unfortunately," I said, "such paste will not keep fresh; and it appears useless to me to make any provision for the vessel."

"Why, sir," cried Ned Land, "you speak like a naturalist, but I am going to act like a baker. Gather some of the fruit, Conseil; we will take it on our return."

"And how do you prepare it?" I asked.

"By making a fermented paste with its pulp, which will keep any length of time. When I wish to use it I will have it cooked in the kitchen on board; and, notwithstanding its slightly acid taste, you will find it excellent."

"Then, Ned, I see that nothing is wanting to this bread."

"Yes, professor," answered the Canadian; "we want fruit, or at least vegetables."

"Let us seek the fruit and vegetables."

When our gathering was over we set out to complete this terrestrial dinner. Our search was not a vain one, and towards noon we had made an ample provision of bananas. These delicious productions of the torrid zone ripen all through the year, and the Malaysians, who have given them the name of "pisang," eat them raw. With these bananas we gathered enormous "jaks" with a very decided taste, savoury mangoes, and pineapples of an incredible size. But this gathering took up a great deal of our time, which there was no cause to regret.

Conseil watched Ned continually. The harpooner marched on in front, and during his walk across the forest he gathered with a sure hand the excellent fruit with which to complete his provisions.

"You do not want anything more, Ned, do you?"

"Hum," said the Canadian.

"Why, what have you to complain of?"

"All these vegetables cannot constitute a meal," answered Ned; "they are only good for dessert. There is the soup and the roast."

"Yes," said I. "Ned had promised us cutlets, which seemed to me very problematic."

"Sir," answered the Canadian, "our sport is not only not ended, but is not even begun. Patience! We shall end by meeting with some animal or bird, and if it is not in this place it will be in another."

"And if it is not to-day it will be to-morrow," added Conseil, "for we must not go too far away. I vote to go back to the boat now."

"What, already?" cried Ned.

"We must come back before night," I said.

"What time is it?" asked the Canadian.

"Two o'clock at least," answered Conseil.

"How the time does go on dry land!" cried Ned Land with a sigh of regret.

We came back across the forest, and completed our provision by making a razzia of palm cabbages, which we were obliged to gather at the summit of the trees, and little beans which I recognised as being the "abrou" of the Malaysians, and yams of a superior quality.

We were overburdened when we arrived at the boat, yet Ned Land did not think his provisions sufficient. But fortune favoured him. At the moment of embarking he perceived several trees from twenty-five to thirty feet high, belonging to the palm species. These trees, as precious as the artocarpus, are justly counted amongst the most useful products of Malaysia. There were sago-trees, vegetables which grow without culture, and reproduce themselves like blackberries by their shoots and seeds. Ned Land knew how to treat these trees. He took his hatchet, and, using it vigorously, he soon brought two or three sago-trees level with the ground, their ripeness being recognised by the white powder dusted over their branches.

I watched him more with the eyes of a naturalist than those of a famished man. He began by stripping the bark from each trunk, an inch thick, which covered a network of long fibres, forming inextricable knots, that a sort of gummy flour cemented. This flour was sago, an edible substance which forms the principal article of food of the Melanasi population. Ned Land was content for the time being to cut these trunks in pieces, as he would have done wood to burn, meaning to extract the flour later on, and to pass it through a cloth in order to separate it from its fibrous ligaments, to leave it to dry in the sun, and let it harden in moulds.

At last, at five o'clock in the evening, loaded with our riches, we left the shores of the island, and half an hour later reached the Nautilus. No one appeared on our arrival. The enormous iron cylinders seemed deserted. When the provisions were embarked I went down to my room. There I found my supper ready. I ate it, and then went to sleep.

The next day, January 6th, there was nothing new on board. No noise in the interior, not a sign of life. The canoe had remained alongside, in the very place where we had left it. We resolved to return to the Island of Gilboa. Ned Land hoped to be more fortunate than before from a hunting point of view, and wished to visit another part of the forest.

We set out at sunrise. The boat, carried away by the waves, which were flowing inland, reached the island in a few minutes. We landed, and thinking it was better to trust to the instinct of the Canadian, we followed Ned Land, whose long legs threatened to outdistance us. Ned Land went up the coast westward, and fording some beds of streams, he reached the high plain, bordered by the admirable forests. Some kingfishers were on the banks of the stream, but they would not let themselves be approached; their circumspection proved to me that these fowl knew what to think of bipeds of our sort, and I therefore concluded that, if the island were not inhabited, it was at least frequented by human beings. After having crossed some rich meadow land we reached the borders of a little wood, animated by the song and flight of a great number of birds.

"There are only birds yet," said Conseil.

"But some of them are good to eat," answered the harpooner.

"No, friend Ned," replied Conseil, "for I see nothing but simple parrots."

"Friend Conseil," answered Ned gravely, "a parrot is the friend of those who have nothing else to eat."

"And I may add," I said, "that this bird, well prepared, is quite worth eating."

Under the thick foliage of this wood, a whole world of parrots were flying from branch to branch, only waiting for a better education to speak the human language. At present they were screeching in company with paroquets of all colours, grave cockatoos who seemed to be meditating upon some philosophical problem, whilst the lories, of a bright red colour, passed like a morsel of stamen carried off by the breeze, amidst kalaos of noisy flight, papouas, painted with the finest shades of azure, and a whole variety of charming, but generally not edible, birds.

However, a bird peculiar to these lands, and which has never passed the islands of Arrow and the Papua Islands, was wanting to this collection. But fortune reserved me the favour of admiring it before long.

After having crossed a thicket of moderate thickness we found a plain again obstructed with bushes. I then saw a magnificent bird rise, the disposition of whose long tails forces them to fly against the wind. The undulating flight, the grace of their aerial curves, the play of their colours, attracted and charmed the eye. I had no trouble to recognise them.

"Birds of Paradise!" I cried.

"Order of sparrows, section of clystornores," answered Conseil.

"Family of partridges?" asked Ned Land.

"I do not think so, Land. Nevertheless, I count on your skill to catch one of these charming productions of tropical nature."

"I will try, professor, although I am more accustomed to handle the harpoon than the gun."

The Malays, who carry on a great trade with these birds with the Chinese, have several means of taking them which we cannot employ. Sometimes they place nets on the summits of high trees that the birds of Paradise prefer to inhabit. Sometimes they catch them with a viscous birdlime, that paralyses their movements; they even poison the fountains that the birds generally drink from. We were obliged to fire at them while flying, which gave us few chances of hitting them, and, in fact, we exhausted in vain a part of our ammunition.

About 11 a.m. we had traversed the first range of mountains that form the centre of the island, and we had killed nothing. Hunger drove us on. The hunters had relied on the products of the chase, and they had done wrong. Fortunately, Conseil, to his great surprise, made a double shot, and secured breakfast. He brought down a white and a wood pigeon, which, quickly plucked and suspended to a skewer, were roasted before a flaming fire of dead wood. Whilst these interesting animals were cooking, Ned had prepared the fruit of the "artocarpus," then the pigeons were devoured to the bones, and pronounced excellent. Nutmegs, with which they are in the habit of stuffing their crops, flavours their flesh, and makes it delicious.

"It is like the fowls that eat truffles," said Conseil.

"And now, Ned, what is there wanting?" I asked the Canadian.

"Some four-footed game, M. Aronnax," answered Ned Land. "All these pigeons are only side-dishes and mouthfuls, and until I have killed an animal with cutlets I shall not be content."

"Nor I, Ned, until I have caught a bird of Paradise."

"Let us go on with our hunting," answered Conseil, "but towards the sea. We have reached the first declivities of the mountains, and I think we had better regain the forest regions."

It was sensible advice, and was followed. After an hour's walk we reached a veritable forest of sago-trees. Some inoffensive serpents fled at the sound of our footsteps. The birds of Paradise fled at our approach, and I really despaired of getting near them, when Conseil, who was walking on in front, suddenly stooped, uttered a cry of triumph, and came back to me, carrying a magnificent bird of Paradise.

"Ah, bravo! Conseil," I exclaimed.

"Monsieur is very kind," answered Conseil.

"No, my boy, that was a master stroke, not only to take one of these birds living, but to catch it simply by hand."

"If master will examine it closely, he will see that my merit has not been great."

"Why, Conseil?"

"Because this bird is as intoxicated as a quail."

"Intoxicated?"

"Yes, intoxicated with the nutmegs he was devouring under the nutmeg-tree where I found him. See, friend Ned, see the monstrous effects of intemperance."

"You need not grudge me the gin I've drunk the last two months!" answered the Canadian.

In the meantime I examined the curious bird. Conseil was not mistaken. The bird of Paradise, intoxicated by the spirituous juice, was powerless. It could not fly, and could hardly walk. But that did not make me uneasy. I left it time to get over the effect of its nutmegs.

This bird belonged to the finest of the eight species which are counted in Papua and the neighbouring islands. It was "the large emerald," one of the rarest. It measured nine inches in length, its head was relatively small, and its eyes, placed near the opening of the beak, were small too. But its colours were admirable; it had a yellow beak, brown legs and claws, nut-coloured wings with purple borders, a pale yellow head and back of neck, emerald throat, and maroon breast. Two horned downy nets rose above the tail, that was prolonged by two very light feathers of admirable fineness, completing the effect of this marvellous bird, that the natives have poetically named "bird of the sun."

I much wished to be able to take this superb specimen back to Paris, in order that I might make a present of it to the Jardin des Plantes, which does not possess a single living one.

"Is it so rare, then?" asked the Canadian, in the tone of a hunter who does not care much for it as game.

"Very rare, my brave companion, and, above all, very difficult to take alive, and even dead these birds are the object of an important traffic. Hence the natives fabricate them as pearls and diamonds are fabricated."

"What!" cried Conseil, "they make false birds of Paradise?"

"Yes, Conseil."

"Does monsieur know how the natives set about it?"

"Perfectly. These birds, during the eastern monsoon, lose the magnificent feathers which surround their tails, and which naturalists call subulate feathers. The false coiners gather up these feathers, which they skilfully fasten on to some poor parrot previously mutilated. Then they die the suture, varnish the

bird, and send to the museums and amateurs of Europe the product of their singular industry."

"Good!" said Ned Land; "if they have not the bird they at least have its feathers, and as they don't want to eat it, I see no harm!"

But if my desires were satisfied by the possession of the bird of Paradise, the Canadian's were not yet. Happily, about two o'clock Ned Land killed a magnificent hog, one of those the natives call "bari-outang." The animal came in time to give us real quadruped meat, and it was well received. Ned Land was very proud of his shot. The hog, struck by the electric bullet, had fallen stone dead.

The Canadian soon skinned and prepared it after having cut out half-a-dozen cutlets to furnish us with grilled meat for our evening meal. Then we went on with the chase that was again to be marked by Ned and Conseil's exploits.

The two friends, by beating the bushes, roused a herd of kangaroos that fled away bounding on their elastic paws. But these animals did not take flight too rapidly for the electric capsule to stop them in their course.

"Ah, professor," cried Ned Land, excited by the pleasure of hunting, "what excellent game, especially stewed! What provisions for the Nautilus! Two, three, five down! And when I think that we shall eat all that meat, and that those imbeciles on board will not have a mouthful!"

I think that in his delight the Canadian, if he had not talked so much, would have slaughtered the whole herd! But he contented himself with a dozen of these interesting marsupians, which, as Conseil informed us, form the first order of agreeable mammalia.

These animals were small. They belong to a species of kangaroo "rabbits" that live habitually in the hollow of trees, and that are of extraordinary speed; but although they are of middling size, they, at least, furnish excellent meat.

We were very much satisfied with the result of our hunt. The delighted Ned proposed to return the next day to this enchanted island, which he wanted to clear of all its edible quadrupeds. But he reckoned without circumstances.

At 6 p.m. we returned to the shore. Our boat was stranded in its place. The Nautilus, like a long rock, emerged from the waves two miles from the island. Ned Land, without more delay, began to prepare the dinner. He understood all about cooking well. The cutlets "bari-outang," grilled on the cinders, soon scented the air with a delicious odour.

But here I perceive that I am walking in the footsteps of the

Canadian in delight before grilled pork. May I be pardoned as I have pardoned Ned Land and from the same motives? In short, the dinner was excellent. Two wood-pigeons completed this extraordinary bill of fare. The sago paste, the artocarpus bread, mangoes, half-a-dozen pineapples, and the fermented liquor of some cocoa-nuts delighted us. I even think that the ideas of my worthy companions were not so clear as they might be.

"Suppose we do not return to the Nautilus this evening," said Conseil.

"Suppose we never return," added Ned Land.

Just then a stone fell at our feet and cut short the harpooner's proposition.

CHAPTER XXII.

CAPTAIN NEMO'S THUNDERBOLT.



E looked towards the forest without rising, my hand stopping in its movement towards my mouth, Ned Land's completing its office.

"A stone does not fall from the sky," said Conseil, "without deserving the name of *acrolite*."

A second stone, carefully rounded, which struck out of Conseil's hand a savoury pigeon's leg, gave still more weight to his observations.

We all three rose and shouldered our guns, ready to reply to any attack.

"Can they be monkeys?" asked Ned Land.

"Something like them," answered Conseil; "they are savages."

"The boat," said I, making for the sea. In fact, we were obliged to beat a retreat, for about twenty natives, armed with bows and slings, appeared on the skirts of the thicket that hid the horizon one hundred steps off.

Our boat was anchored at about sixty feet from us.

The savages approached us, not running, making most hostile demonstrations. It rained stones and arrows.

Ned Land did not wish to leave his provisions, notwithstanding the imminence of the danger. He went on tolerably fast with his pig on one side and his kangaroos on the other.

In two minutes we were on shore. It was the affair of an instant to land the boat with the provisions and arms, to push it into the sea, and to take the two oars. We had not gone two cables' length when a hundred savages, howling and gesticulating, entered the water up to their waists. I watched to see if their

appearance would not attract some men from the Nautilus on to the platform.

But no. The enormous machine, lying off, seemed absolutely deserted. Twenty minutes after we ascended the sides; the panels were open. After we had made the boat fast we re-entered the interior of the Nautilus.

I went to the saloon, from whence I heard some chords. Captain Nemo was there, bending over his organ, and plunged into a musical ecstasy.

"Captain," I said to him.

He did not hear me.

"Captain," I repeated, touching his hand.

He shuddered and turned.

"Ha, it is you, professor?" he said to me. "Well, have you had good sport? Have you botanised successfully?"

"Yes, captain," answered I, "but we have, unfortunately, brought back a troop of bipeds, whose neighbourhood appears to me dangerous."

"What bipeds?"

"Savages."

"Savages?" answered Captain Nemo in an ironical tone. "And you are astonished, professor, that having set foot on one of the lands of this globe, you find savages there? Where are there no savages? Besides, those you call savages, are they worse than others?"

"But, captain——"

"For my part, sir, I have met with some everywhere."

"Well," I answered, "if you do not wish to receive any on board the Nautilus, you will do well to take some precautions."

"Make yourself easy, professor; there is nothing worth troubling about."

"But these natives are numerous."

"How many did you count?"

"A hundred at least."

"M. Aronnax," answered Captain Nemo, who had again placed his fingers on the organ keys, "if all the natives of Papua were gathered together on that shore, the Nautilus would have nothing to fear from their attacks."

The captain's fingers were then running over the keys of the instrument, and I noticed that he only struck the black keys, which gave to his melodies an essentially Scotch character. He had soon forgotten my presence, and was plunged into a reverie that I did not seek to dissipate.

I went up again on to the platform. Night had already come, for in this low latitude the sun sets rapidly, and there is no twi-

light. I could only see the island indistinctly. But the numerous fires lighted on the beach showed that the natives did not dream of leaving it.

I remained thus alone for several hours, sometimes thinking about the natives, but not otherwise anxious about them, for the imperturbable confidence of the captain gained upon me, sometimes forgetting them to admire the splendours of the tropical night. My thoughts fled to France in the wake of the zodiacal stars which in a few hours would shine there. The moon shone brilliantly amidst the constellations of the zenith. I then thought that this faithful and complaisant satellite would come back to-morrow to the same place to draw the waves and tear away the Nautilus from its coral bed. About midnight, seeing that all was tranquil on the dark waves, as well as under the trees on the shore, I went down to my cabin and went peacefully to sleep.

The night passed without misadventure. The Papuans were, doubtless, frightened by the very sight of the monster stranded in the bay, for the open panels would have given them easy access to the interior of the Nautilus.

At 6 a.m., on January 8th, I went up on the platform. The morning was breaking. The island soon appeared through the rising mists, its shores first, then its summits.

The natives were still there, more numerous than the day before, perhaps five or six hundred strong. Some of them, taking advantage of the low tide, had come on to the coral heads at less than two cables' length from the Nautilus. I easily recognised them. They were real Papuans of athletic stature, men of fine breed, with wide high foreheads, large, but not broad, and flat noses, and white teeth. Their woolly hair, dyed red, showed off their bodies, black and shining like those of the Nubians. From the cut and distended lobes of their ears hung bone chaplets. These savages were generally naked. Amongst them I remarked some women, dressed from the hips to the knees in a veritable criuoline of herbs, which hung to a vegetable waistband. Some of the chiefs had ornamented their necks with a crescent and collar of red and white glass beads. Nearly all were armed with bows, arrows, and shields, carrying on their shoulders a sort of net, containing the rounded stones which they threw with great skill from their slings.

One of these chiefs, rather near the Nautilus, was examining it attentively. He must have been a "mado" of high rank, for he was draped in a plaited garment of banana-leaves, scalloped at the edges, and set off with brilliant colours. I could easily have shot this native, who was within short range, but I thought it better to wait for really hostile demonstrations. Between

Europeans and savages it is better that the savages should make the attack.

During the whole time of low water these natives roamed about near the Nautilus, but they were not noisy. I heard them frequently repeat the word "Assai," and from their gestures I understood that they invited me to land, an invitation that I thought it better to decline.

So on that day the boat did not leave the vessel, to the great displeasure of Ned Land, who could not complete his provisions. This skilful Canadian employed his time in preparing the meat and farinaceous substances he had brought from the Island of Gilboa. As to the savages, they returned to land about 11 a.m., as soon as the heads of coral began to disappear under the waves of the rising tide. But I saw their number considerably increase on the shore. It was probable that they came from the neighbouring islands, or from Papua proper. However, I had not seen a single native pirogue.

Having nothing better to do, I thought of dragging these limpid waters, under which was a profusion of shells, zoophytes, and marine plants. It was, moreover, the last day the Nautilus was to pass in these seas if it was set afloat the next day, according to Captain Nemo's promise.

I therefore called Conseil, who brought me a small light drag, something like those used in the oyster-fisheries.

"What about these savages?" Conseil asked me. "They do not seem to me to be very cruel."

"They are cannibals, however, my boy."

"It is possible to be a cannibal and an honest man," answered Conseil, "as it is possible to be a gourmand and honest. One does not exclude the other."

"Good, Conseil! I grant you there are honest cannibals, and that they honestly devour their prisoners. But as I do not care about being eaten, even honestly, I shall take care what I am about, for the commander of the Nautilus does not appear to be taking any precaution. And now to work."

For two hours our dragging went on actively, but without bringing up any rarity. The drag was filled with Midas-ears, harps, melames, and, particularly, the finest hammers I ever saw. We also took some holothurias, pearl oysters, and a dozen small turtles, which were kept for the pantry on board.

But at the very moment when I expected it least I put my hand on a marvel—I ought to say on a natural deformity—very rarely met with. Conseil had just brought up the drag full of ordinary shells when all at once he saw me thrust my hand into the net, draw out a shell, and utter a conchological cry—

that is to say, the most piercing cry that human throat can utter.

"Eh? what is the matter with monsieur?" asked Conseil, much surprised. "Has monsieur been bitten?"

"No, my boy; and yet I would willingly have paid for my discovery with the loss of a finger."

"What discovery?"

"This shell," I said, showing the object of my triumph.

"It is simply an olive porphyry, genus olive, order of the pectini-branchidæ, class of gasteropods, sub-class of molluscs——"

"Yes, Conseil, but instead of this spiral being from right to left this olive turns from left to right!"

"Is it possible?" cried Conseil.

"Yes, my boy; it is a sinister shell."

"A sinister shell!" repeated Conseil with a palpitating heart.

"Look at its spiral."

"Ah, monsieur may believe me," said Conseil, taking the precious shell with a trembling hand, "I have never felt a like emotion!"

And there was cause for emotion! It is well known, as the naturalists have caused to be remarked, that dextrality is a law of Nature. The stars and their satellites in their rotatory movements go from right to left. Man oftener uses his right than his left hand, and consequently his instruments, apparatus, staircases, locks, watchsprings, &c., are put together so as to be used from right to left. Nature has generally followed the same law in the spiral of its shells; they are all dexter, with rare exceptions, and when it happens that their spiral is sinister amateurs pay their weight in gold.

Conseil and I were plunged in the contemplation of our treasure, and I was promising myself to enrich the museum with it, when a stone, untowardly hurled by a native, broke the precious object in Conseil's hand.

I uttered a cry of despair! Conseil seized my gun, and aimed at a savage who was swinging his sling in the air about ten yards from him. I wished to stop him, but he had fired and broken the bracelet of amulets which hung upon the arm of the native.

"Conseil!" I cried—"Conseil!"

"What, does not monsieur see that this cannibal began the attack?"

"A shell is not worth a man's life," I said.

"Ah, the rascal!" cried Conseil; "I would rather he had broken my arm!"

Conseil was sincere, but I was not of his opinion. However, the situation had changed during the last few minutes, and we

had not perceived it. About twenty pirogues then surrounded the Nautilus. These pirogues, hollowed in the trunks of trees, long, narrow, and well calculated for speed, were kept in equilibrium by means of double balances of bamboo, which floated on the surface of the water. They were worked by skilful paddlers, half-naked, and their approach made me uneasy. It was evident that these Papuans had already had some relations with Europeans, and knew their ships. But what must they have thought of this long iron cylinder, without either masts or funnel? Nothing good, but they kept first at a respectful distance. However, seeing it did not move, they regained confidence by degrees and tried to familiarise themselves with it. Now it was precisely this familiarity which it was necessary to prevent. Our arms, which made no noise, could only produce an indifferent effect on these natives, who only respect noisy weapons. A thunderbolt without the rolling of thunder would not much frighten men, although the danger exists in the lightning and not in the noise.

At that moment the pirogues approached nearer the Nautilus, and a shower of arrows fell upon it.

"Why, it hails," said Conseil, "and perhaps poisoned hail."

"I must tell Captain Nemo," said I, going through the panel.

I went down to the saloon. I found no one there. I ventured to knock at the door of the captain's room.

A "Come in!" answered me.

I entered, and found Captain Nemo occupied with a calculation where x and other algebraical signs were plentiful.

"I fear I am disturbing you," said I.

"Yes, M. Aronnax," answered the captain, "but I think you must have serious reasons for seeing me."

"Very serious; we are surrounded by the pirogues of the natives, and in a few minutes we shall certainly be assailed by several hundreds of savages."

"Ah," said Captain Nemo, tranquilly, "so they are here with their pirogues?"

"Yes."

"Well, all we have to do is to shut the panels."

"Precisely, and I came to tell you."

"Nothing is easier," said Captain Nemo.

Pressing an electric bell he transmitted an order to the crew's quarters.

"That's done, sir," said he after a few minutes; "the boat is in its place, and the panels are shut. You do not fear, I imagine, that these gentlemen can break in walls which the balls from your frigate could not touch?"

"No, captain, but there exists another danger."

"What is that, sir?"

"It is that to-morrow, at the same time, you will be obliged to open the panels to renew the air of the Nautilus."

"Certainly, sir, as our vessel breathes like the cetaceans do."

"Now, if at that moment the Papuans occupied the platform, I do not know how you could prevent them entering."

"Then you believe they will get up on the vessel?"

"I am certain of it."

"Well, let them. I see no reason for preventing them. These Papuans are poor devils, and I will not let my visit to Gilboa cost the life of one poor wretch."

That said, I was going to withdraw, but Captain Nemo retained me, and invited me to take a seat near him. He questioned me with interest about our excursions on land and our sport, and he did not seem to understand the need for meat that impassioned the Canadian. Then the conversation touched upon divers subjects, and without being more communicative, Captain Nemo showed himself more amiable.

Amongst other things we spoke of the present position of the Nautilus, abandoned precisely in this strait, where Dumont d'Urville was nearly lost.

"He was one of your great seamen," said the captain, "one of your intelligent navigators, this D'Urville! He was the French Captain Cook. Unfortunate *savant!* after having braved the southern ice-banks, the coral reefs of Oceania, and the cannibals of the Pacific, to perish miserably in a railway train! If that energetic man could think during the last seconds of his existence, you imagine what must have been his last thoughts!"

Whilst speaking thus Captain Nemo seemed moved, and I put this emotion to his credit.

Then, map in hand, we looked over again the works of the French navigator, his voyages of circumnavigation, his double attempt to reach the South Pole that led to the discovery of Adélie and Louis Philippe Lands; lastly, his hydrographical surveys of the principal Oceanian islands.

"What your D'Urville did on the surface I have done in the interior of the ocean," said Captain Nemo, "and more easily and completely than he. The *Astrolabe* and the *Zélée*, continually tossed about by the waves, could not be so good as the Nautilus, for it is a quiet study and really sedentary in the midst of the waters!"

"However, captain." I said, "there is one point of resemblance between the corvettes of Dumont d'Urville and the Nautilus."

"What is that, sir?"

"The Nautilus is stranded like them."

"The Nautilus is not stranded," replied Captain Nemo coldly. "The Nautilus is made to repose on the bed of the waters, and the difficult work, the manœuvres that D'Urville was obliged to have recourse to, to get his corvettes afloat again, I shall not undertake. The *Astrolabe* and *Zélée* nearly perished, but the Nautilus runs no risk. To-morrow, at the said day and hour, the tide will quietly raise it, and it will recommence its navigation through the seas."

"Captain," I said, "I do not doubt."

"To-morrow," added the captain, rising—"to-morrow at 2.40 p.m. the Nautilus will be afloat again, and I will leave without damage Torres Straits."

These words pronounced in a very curt tone, Captain Nemo bowed slightly. It was my dismissal, and I went back to my room.

There I found Conseil, who desired to know the result of my interview with the captain.

"My boy," I replied, "when I seemed to think that his Nautilus was threatened by the natives of Papua, the captain answered me very ironically: I have, therefore, only one thing to say to you—have confidence in him, and go to sleep in peace."

"Does monsieur require my services?"

"No, my friend. What is Ned Land doing?"

"He is making a kangaroo pasty that will be a marvel!"

I was left alone. I went to bed, but slept badly. I heard the savages stamping about on the platform making a deafening noise. The night passed thus without the crew seeming to come out of their habitual inertia. They were not more anxious about the presence of these cannibals than the soldiers of an ironclad fortress would be about the ants that crawl over the iron.

I rose at 6 a.m. The panels had not been opened. The air, therefore, had not been renewed in the interior, but the reservoirs, filled ready for any event, sent some cubic yards of oxygen into the impoverished atmosphere of the Nautilus.

I worked in my room till noon without seeing Captain Nemo, even for an instant. There seemed to be no preparation for departure made on board.

I waited for some time longer, and then went into the saloon. The clock was at half-past two. In ten minutes the tide would be at its maximum, and if Captain Nemo had not made a boasting promise the Nautilus would be immediately set free. If not, many months would pass before it would leave its coral bed.

In the meantime several shocks were felt in the hull of the

vessel. I heard its sides grate against the calcareous asperities of the coral.

At 2.35 p.m. Captain Nemo appeared in the saloon.

"We are going to start," said he.

"Ah!" I said.

"I have given orders to have the panels opened."

"What about the Papuans?"

"The Papuans?" answered Captain Nemo, slightly raising his shoulders.

"Will they not penetrate into the interior of the Nautilus?"

"How can they?"

"Through the panels you have had opened."

"M. Aronnax," answered Captain Nemo tranquilly, "it is not so easy to enter the Nautilus through its panels, even when they are opened."

I looked at the captain.

"You do not understand?" he asked.

"Not at all."

"Well, come, and you will see."

I went towards the central staircase. There Ned Land and Conseil, much puzzled, were looking at some of the crew, who were opening the panels, whilst cries of rage and fearful vociferations resounded outside.

The lids were opened on the outside. Seventy horrible faces appeared. But the first of the natives who put his hand on the balustrade, thrown backwards by some invisible force, fled, howling and making extraordinary gambols.

Ten of his companions succeeded him. Ten had the same fate.

Conseil was in ecstasies. Ned Land, carried away by his violent instincts, sprang up the staircase. But as soon as he had seized the hand-rail with both hands he was overthrown in his turn.

"Malediction!" he cried. "I am thunderstruck."

That word explained it all to me. It was no longer a hand-rail but a metal cable, charged with electricity. Whoever touched it felt a formidable shock, and that shock would have been mortal if Captain Nemo had thrown all the current of his apparatus into this conductor. It may be truly said that between his assailants and himself he had hung an electric barrier that no one could cross with impunity.

In the meantime the frightened Papuans had beaten a retreat, maddened with terror. We, half-laughing, consoled and frictioned the unfortunate Ned Land, who was swearing like one possessed.

But at that moment the Nautilus, raised by the last tidal waves, rose to the surface, and the captain, his eyes fixed at that fortieth minute exactly fixed by the screw, saw the waves with majestic slowness. Its speed increased by degrees, and the Nautilus, the ocean, it left safe and sound the dangerous passage of Torres Straits.

CHAPTER XXIII

ÆGRI SOMNIA.



THE following day, the 10th of January, the Nautilus resumed its course under the water, but at a remarkable speed, which I could not estimate at less than thirty-five miles an hour. The rapidity of its screw was such that I could neither follow its turns nor count them.

When I thought that this marvellous electric agent, after having given movement, warmth, and light to the Nautilus, protected it likewise from exterior attacks, and transformed it into a holy ark, which no profane person could touch without being thunderstruck, my admiration was unbounded, and from the apparatus it ascended to the engineer who had created it.

We were speeding directly westward, and on January 11th we doubled Cape Wessel, situated in 135° long. and 10° north lat., which forms the eastern point of the Gulf of Carpentaria. The reefs were still numerous, but farther apart, and marked on the chart with extreme precision. The Nautilus easily avoided the Money Reefs on the larboard, and the Victoria Reefs on the starboard, situated in 130° long., and in the 10th parallel we were rigorously following.

The 13th of January Captain Nemo arrived in the sea of Timor and sighted the island of that name in longitude 122°. This island, the surface of which measures 16,255 square leagues, is governed by radjahs. These princes call themselves sons of crocodiles—that is to say, issues of the highest origin to which a human being can pretend. Their scaly ancestors swarm in the rivers of the island, and are the objects of particular veneration. They are protected, spoiled, worshipped, fed, young girls are offered to them for pasture, and woe to the stranger who lays hands on one of these sacred lizards.

But the Nautilus had nothing to do with these ugly animals. Timor was only visible for an instant at noon, whilst the first officer took our bearings. I likewise only caught a glimpse of Kitti Island that forms a part of the group, and of which the

women have a well-established reputation for beauty in Malay-
sian markets.

From this point the direction of the Nautilus' latitude was bent south-west. The prow of the vessel for the Indian Ocean. Where was Captain Nemo's caprice going to take us to? Would we go up towards the coasts of Asia, or approach the shores of Europe? Both hardly probable resolutions for a man to take who was flying from inhabited continents. Would he then go down south? Would he double the Cape of Good Hope, then Cape Horn, and push on to the Antarctic Pole? Would he afterwards return to the seas of the Pacific, where his Nautilus would find easy and independent navigation? The future would show us.

After coasting the reefs of Cartier, Hibernia, Seringapatam, and Scott, the last efforts of the solid element against the liquid element, on the 14th of January we were beyond all land. The speed of the Nautilus was singularly slackened, and very capricious in its movements; sometimes it swam amidst the waters, sometimes floated on their surface.

During this period of the voyage Captain Nemo made interesting experiments on the different temperatures of the sea at different depths. In ordinary conditions these experiments are only made by means of complicated instruments, and are often doubtful, whether made by thermometric sounding lines, the glasses of which often break under the pressure of the water, or by apparatus based on the variation of resistance in metals to electric currents. The results thus obtained cannot be sufficiently controlled. On the contrary, Captain Nemo went himself to seek the temperature in the different depths, and his thermometer put into communication with the different liquid sheets gave him immediately and surely the degree he sought.

It was thus that, either by filling its reservoirs or descending obliquely by its inclined planes, the Nautilus successfully reached depths of three, four, five, seven, nine, and ten thousand metres, and the definitive result of these experiments was that the sea presented a permanent temperature of four and a half degrees at a depth of one thousand metres under all latitudes.

I followed these experiments with the most lively interest. Captain Nemo studied them with passion. I often asked myself to what end he made these observations. Was it for the good of his fellow-creatures? It was not probable, for one day his work must perish with him in some unknown sea unless he destined the results of his experiments for me. But that was to admit that my strange voyage would have a term, and this term I did not yet perceive.

However that may be, Captain Nemo told me of different calculations obtained by him which established the different evidence about the density of water in the principal seas of the globe. From that communication I drew some personal information which was not at all scientific.

It was during the morning of the 15th of January. The captain, with whom I was walking on the platform, asked me if I knew the different densities of sea-water. I answered in the negative, and added that rigorous observations were wanting to science on this subject.

"I have made those observations," he said to me, "and I can affirm that they are correct."

"That may be," I answered, "but the Nautilus is a world in itself, and the secrets of its *savants* do not reach the earth."

"You are right, professor," he answered after a short silence; "it is a world in itself. It is as much a stranger to the world as those planets that accompany this globe round the sun, and the world will never know the work of the *savants* in Jupiter and Saturn. Still, as chance has united our two lives, I give you the result of my observations."

"I shall be glad to hear it, captain."

"You know, professor, that sea-water is denser than fresh water, but that its density is not uniform. In fact, if I represent by one the density of fresh water, I find a twenty-eight-thousandth for the waters of the Atlantic, a twenty-six-thousandth for those of the Pacific, a thirty-thousandth for those of the Mediterranean—"

"Ah," thought I, "he adventures into the Mediterranean."

"An eighteen-thousandth for the waters of the Ionian Sea, and a twenty-thousandth for those of the Adriatic."

Decidedly the Nautilus did not avoid the frequented seas of Europe, and I hence concluded that it would take us—perhaps before long—towards more civilised lands. I thought that Ned Land would learn this detail with very natural satisfaction.

We passed several days in making all sorts of experiments on the saltness of the sea at different depths, on its electrification, coloration, transparency, and in all of them Captain Nemo displayed an ingenuity which was only equalled by his kindness towards me. Then, for some days, I saw him no longer, and again remained isolated on board.

On the 16th of January the Nautilus seemed to be sleeping at some yards only below the surface of the waves. Its electric apparatus was idle, and its immovable screw let it be rocked at the will of the currents. I supposed that the crew was occupied with interior reparations necessitated by the violence of the mechanical movements of the machine.

My companions and I were then witnesses of a curious spectacle. The panels of the saloon were open, and as the electric lantern of the Nautilus was not lighted, a vague obscurity reigned in the midst of the waters. The sky, which was stormy, and covered with thick clouds, only gave an insufficient light to the first depths of the ocean.

I was looking at the state of the sea under these conditions, and the largest fish only looked to me like half-formed shadows, when all at once the Nautilus was in broad light. I thought at first that the lantern had been relighted, and was projecting its electric brilliancy upon the liquid mass. I was mistaken, and after a rapid observation saw my error.

The Nautilus was floating amidst a phosphorescent layer, which in such obscurity became dazzling. It was produced by myriads of luminous animalculæ, the light of which was increased by being reflected against the metallic hull of the vessel. I then saw sheets of lightning amidst these luminous layers, like molten lead melted in a furnace, or metallic masses heated red hot, in such a manner that by opposition certain luminous portions made a shadow in this ignited medium, from which all shadow seemed as though it ought to be banished. Not it was not the calm irradiation of our habitual light. There was an unwonted vigour and movement in it. We felt that the light was living.

In fact, it was an infinite agglomeration of infusoria, of miliary "noctiluques," globules of diaphanous jelly, furnished with a filiform tentacle, of which 25,000 have been counted in 30 cubic centimetres of water. And their light was doubled by gleams peculiar to medusæ, asteriæ, and aureliæ, pholodestalles, and other phosphorescent zoophytes, impregnated with the greasy quality of organic matters decomposed by the sea, and perhaps by the mucus secreted by the fish.

During several hours the Nautilus floated among those brilliant sheets of water, and our admiration increased at seeing the large marine animals play among them like salamanders. I saw there amidst their fire that does not burn, elegant and rapid porpoises, indefatigable clowns of the sea, and istiophores three yards long, intelligent precursor of storms, the formidable sword of which struck against the glass of the saloon; and then appeared smaller fish, scombers, and others, which streaked the luminous atmosphere in their course.

This dazzling spectacle was enchanting! Perhaps some atmospheric condition augmented the intensity of the phenomenon. Perhaps some storm was going on above the waves, but at that depth of a few yards the Nautilus did not feel its

fury, and was peacefully balancing itself amidst the tranquil waters.

Thus we went on our way, incessantly charmed by some new marvel. Conseil observed and classified his zoophytes, his articulates, his molluscs, and his fish. The days fled rapidly away, and I counted them no longer. Ned, according to his custom, tried to vary the fare on board. Veritable snails, we had become accustomed to our shell, and I affirmed that it is easy to become a perfect snail. This existence, then, appeared to us easy and natural, and we no longer thought of the different life that existed on the surface of the terrestrial globe, when an event happened to recall to us the strangeness of our situation.

On the 18th of January the Nautilus was in longitude 105°, in S. lat. 15°. The weather was threatening, the sea rough. The wind was blowing a strong gale from the east. The barometer, which had been going down for some days, announced an approaching war of the elements.

I had gone up on to the platform at the moment the first officer was taking his bearings. I expected as usual to hear the daily sentence pronounced. But that day it was replaced by another phrase not less incomprehensible. Almost immediately I saw Captain Nemo appear and sweep the horizon with a telescope.

For some minutes the captain remained immovable, without leaving the point inclosed in the field of his object-glass. Then he lowered his telescope and exchanged about ten words with his officer, who seemed to be a prey to an emotion that he tried in vain to suppress.

Captain Nemo, more master of himself, remained calm. He appeared, besides, to make certain objections, to which the officer answered by formal assurances—at least, I understood them thus by the difference of their tone and gestures.

I looked carefully in the direction they were observing without perceiving anything. Sky and water mixed in a perfectly clear horizon.

In the meantime Captain Nemo walked up and down the platform without looking at me, perhaps without seeing me. His step was assured, but less regular than usual. Sometimes he stopped, folded his arms, and looked at the sea. What was he seeking in that immense space? The Nautilus was then some hundreds of miles from the nearest coast.

The first officer had taken up his telescope again, and was obstinately interrogating the horizon, going and coming, stamping, and contrasting with his chief by his nervous excitement.

This mystery must necessarily be soon cleared up, for, obeying an order of Captain Nemo's, the machine, increasing its pro-

elling power, gave a more rapid rotatory movement to the screw.

At that moment the officer again attracted the captain's attention, who stopped his walk and directed his telescope towards the point indicated. He observed it for a long time. I, feeling very curious about it, went down to the saloon and brought up an excellent telescope that I generally used. Then leaning it against the lantern cage that jutted in front of the platform, I prepared to sweep all the line of sky and sea. But I had not placed my eye to it when the instrument was quickly snatched out of my hands.

I turned. Captain Nemo was before me, but I hardly knew him. His physiognomy was transfigured. His eyes shone with sombre fire under his frowning eyebrows. His teeth glittered between his firm-set lips. His stiffened body, closed fists, and head set hard on his shoulders, showed the violent hatred breathed by his whole appearance. He did not move. My telescope, fallen from his hand, had rolled to his feet.

Had I, then, unintentionally provoked this angry attitude? Did the incomprehensible personage imagine that I had surprised some secret interdicted to the guests of the *Nautilus*?

No! I was not the object of this hatred, for he was not looking at me; his eyes remained fixed on the impenetrable point of the horizon.

At last Captain Nemo recovered his self-possession. His face, so profoundly excited, resumed its habitual calmness. He addressed some words in a foreign tongue to his officer, and then turned towards me again.

"M. Aronnax," said he in a rather imperious tone, "I require from you the fulfilment of one of the engagements that bind me to you."

"What is that, captain?"

"To let yourself be shut up—you and your companions—until I shall think proper to set you at liberty again."

"You are master here," I answered, looking at him fixedly. "But may I ask you one question?"

"No, sir, not one!"

After that I had nothing to do but obey, as all resistance would have been impossible.

I went down to the cabin occupied by Ned Land and Conseil, and I told them of the captain's determination. I leave it to be imagined how that communication was received by the Canadian. Besides, there was no time for any explanation. Four of the crew were waiting at the door, and they conducted us to the cell where we had passed our first night on board the *Nautilus*.

Ned Land wanted to expostulate, but for all answer the door was shut upon him.

"Will monsieur tell me what this means?" asked Conseil.

I related what had happened to my companions. They were as astonished as I, and not more enlightened.

I was overwhelmed with reflections, and the strange look on Captain Nemo's face would not go out of my head. I was incapable of putting two logical ideas together, and was losing myself in the most absurd hypotheses, when I was aroused by these words of Ned Land:—

"Why, they have laid dinner for us!"

In fact, the table was laid. It was evident that Captain Nemo had given this order at the same time that he caused the speed of the Nautilus to be hastened.

"Will monsieur allow me to recommend something to him?" asked Conseil.

"Yes, my boy," I replied.

"It is that monsieur should breakfast. It would be prudent, for we do not know what may happen."

"You are right, Conseil."

"Unfortunately," said Ned Land, "they have only given us the usual fare on board."

"Friend Ned," replied Conseil, "what should you say if you had had no dinner at all?"

That observation cut short the harpooner's grumbling.

We sat down to dinner. The meal was eaten in silence. I ate little. Conseil forced himself to eat for prudence sake, and Ned Land ate as usual. Then, breakfast over, we each made ourselves comfortable in a corner.

At that moment the luminous globe that had been lighting us went out and left us in profound darkness. Ned Land soon went to sleep, and, what astonished me, Conseil went off into a heavy slumber. I was asking myself what could have provoked in him so imperious a need of sleep, when I felt heaviness creep over my own brain. My eyes, which I wished to keep open, closed in spite of my efforts. I became a prey to painful hallucinations. It was evident that soporific substances had been mixed with the food we had just eaten. Imprisonment, then, was not enough to conceal Captain Nemo's projects from us; we must have sleep as well.

I heard the panels closed. The undulations of the sea, that of a slight rolling motion, ceased. Had the Nautilus, then, left the surface of the ocean? Had it again sunk to the motionless depth?

I wished to resist sleep. It was impossible. My breathing

became weaker. I felt a deathlike coldness freeze and paralyse my limbs. My eyelids fell like leaden coverings over my eyes. I could not raise them. A morbid slumber, full of hallucinations, took possession of my whole being. Then the visions disappeared and left me in complete insensibility.

CHAPTER XXIV.

THE CORAL KINGDOM.

THE next day I awoke with my faculties singularly clear. To my great surprise I was in my own room. My companions had doubtless been carried to their cabin without being more aware of it than I. They knew no more what had happened during the night than I, and to unveil the mystery I only depended on the hazards of the future.

I then thought of leaving my room. Was I once more free or a prisoner? Entirely free. I opened the door, went through the waist, and climbed the central staircase. The panels, closed the night before, were opened. I stepped on to the platform.

Ned Land and Conseil were awaiting me there. I questioned them; they knew nothing. They had slept a dreamless sleep, and had been much surprised to find themselves in their cabin on awaking.

As to the Nautilus, it appeared to us tranquil and mysterious as usual. It was floating on the surface of the waves at a moderate speed. Nothing on board seemed changed.

Ned Land watched the sea with his penetrating eyes. It was deserted. The Canadian signalled nothing fresh on the horizon—neither sail nor land. There was a stiff west breeze blowing, and the vessel was rolling under the influence of long waves raised by the wind.

The Nautilus, after its air had been renewed, was kept at an average depth of fifteen yards, so as to rise promptly, if necessary, to the surface of the waves, an operation which, contrary to custom, was performed several times during that day of January 19th. The second then went up on the platform, and the accustomed sentence was heard in the interior of the vessel.

Captain Nemo did not appear. Of the men on board I only saw the impassable steward, who served me with his usual exactitude and speechlessness.

About 2 p.m. I was in the saloon, occupied in classifying my

notes, when the captain opened the door and appeared. I bowed to him. He returned it almost imperceptibly, without uttering a word. I went on with my work, hoping he would perhaps give me some explanation of the events that had occurred the previous night. He did nothing of the kind. I looked at him. His face appeared to me fatigued; his reddened eyelids showed they had not been refreshed by sleep; his physiognomy expressed profound and real grief. He walked about, sat down, rose up, took a book at random, abandoned it immediately, consulted his instruments without making his usual notes, and did not seem able to keep an instant in peace.

At last he came towards me and said—

“Are you a doctor, M. Aronnax?”

I so little expected such a question that I looked at him for some time without answering.

“Are you a doctor?” he repeated. “Several of your colleagues have studied medicine—Gratiolet, Moquin, Sandon, and others.”

“Yes,” I said; “I am doctor and surgeon. I was in practice for several years before entering the museum.”

“That is well.”

My answer had evidently satisfied Captain Nemo, but not knowing what he wanted, I awaited fresh questions, meaning to answer according to circumstances.

“M. Aronnax,” said the captain, “will you consent to prescribe for a sick man?”

“There is some one ill on board?”

“Yes.”

“I am ready to follow you.”

“Come.”

I must acknowledge that my heart beat faster. I do not know why I saw some connection between the illness of this man of the crew and the events of the night before, and this mystery preoccupied me at least as much as the sick man.

Captain Nemo conducted me aft of the Nautilus, and made me enter a cabin situated in the crew's quarters.

There, upon a bed, a man of some forty years, with an energetic face and true Anglo-Saxon type, was reposing.

I bent over him. He was not only a sick man but a wounded one too. His head, wrapped in bandages, was resting on a double pillow. I undid the bandages, and the wounded man, looking with his large fixed eyes, let me do it without uttering a single complaint.

The wound was horrible. The skull, crushed by some blunt instrument, showed the brain, and the cerebral substance had sustained profound attrition. Clots of blood had formed in the

wound the colour of wine-dregs. There had been both contusion and effusion of the brain. The breathing of the sick man was slow, and spasmodic movements of the muscles agitated his face. The cerebral phlegmasia was complete, and caused paralysis of movement and feeling.

I felt the pulse; it was intermittent. The extremities were already growing cold, and I saw that death was approaching without any possibility of my preventing it. After dressing the wound I bandaged it again, and turned towards Captain Nemo.

"How was this wound caused?" I asked.

"What does it matter?" answered the captain evasively. "A shock of the Nautilus broke one of the levers of the machine, which struck this man. But what do you think of his condition?"

I hesitated to reply.

"You may speak," said the captain; "this man does not understand French."

I looked a last time at the wounded man, then I answered—

"He will be dead in two hours."

"Can nothing save him?"

"Nothing."

Captain Nemo clenched his hand, and his eyes, which I did not think made for weeping, filled with tears.

For some time I still watched the dying man, whose life seemed gradually ebbing. He looked still paler under the electric light that bathed his deathbed. I looked at his intelligent head, furrowed with premature lines which misfortune, misery perhaps, had long ago placed there. I tried to learn the secret of his life in the last words that escaped from his mouth.

"You can go now, M. Aronnax," said Captain Nemo.

I left the captain in the room of the dying man, and went back to my room much moved by this scene. During the whole day I was agitated by sinister presentiments. I slept badly that night, and, amidst my frequently-interrupted dreams, I thought I heard distant sighs and a sound like funeral chants. Was it the prayer for the dead murmured in that language which I could not understand?

The next morning I went up on deck. Captain Nemo had preceded me there. As soon as he perceived me he came to me.

"Professor," said he, "would it suit you to make a submarine excursion to-day?"

"With my companions?" I asked.

"If they like."

"We are at your disposition, captain."

"Then please put on your diving-dresses."

Of the dying or dead there was no question. I went to Ned Land and Conseil and told them of Captain Nemo's proposal. Conseil accepted it immediately, and this time the Canadian seemed quite ready to go with us.

It was 8 a. m. At half-past we were clothed for our walk, and furnished with our breathing and lighting apparatus. The double door was opened, and accompanied by Captain Nemo, who was followed by a dozen men of the crew, we set foot at a depth of ten yards on the firm ground where the Nautilus was stationed.

A slight incline brought us to an undulated stretch of ground at about fifteen fathoms depth. This ground differed completely from any I saw during my first excursion under the waters of the Pacific Ocean. Here there was no fine sand, no submarine meadows, no seaweed forests. I immediately recognised this region of which Captain Nemo was doing the honours. It was the kingdom of coral.

In the embranchment of the zoophytes and the alcyon class, the order of gorgoneæ, isidiæ, and corollariæ are noticed. It is to the last that coral belongs—that curious substance that was by turns classified in the mineral, vegetable, and animal kingdoms. A remedy of the ancients, a jewel of modern times, it was not until 1694 that the Marseillais Peyssonnel definitively placed it in the animal kingdom.

Coral is an assemblage of animalculæ, united on a polypier of a stony and breakable nature. These polypiers have a unique generator which produces them by gemmation, and they possess an existence of their own at the same time that they participate in the common life. It is, therefore, a sort of natural socialism. I knew the result of the last works made on this strange zoophyte, which mineralises at the same time that it arborises, according to the very just observation of naturalists; and nothing could be more interesting to me than to visit one of the petrified forests that Nature has planted at the bottom of the sea.

The Ruhmkorff apparatus were set going, and we followed a coral bank in process of formation, which, helped by time, would one day close in that portion of the Indian Ocean. The route was bordered by inextricable bushes formed by the entanglement of shrubs that the little white-starred flowers covered. Sometimes, contrary to the land plants, these arborisations, rooted to the rocks, grew from top to bottom.

The light produced a thousand charming effects, playing amidst the branches that were so vividly coloured. It seemed to me as if the membranous and cylindrical tubes trembled under the undulation of the waves. I was tempted to gather their

fresh petals, ornamented with delicate tentacles, some freshly opened, others scarcely out, whilst light and rapid-swimming fish touched them slightly in passing like a flock of birds. But when my hand approached these living flowers, these animated sensitive plants, the whole colony was put on the alert. The white petals re-entered their red cases, the flowers vanished from my gaze, and the bushes changed into blocks of stony knobs.

Chance had brought me in presence of the most precious specimens of this zoophyte. This coral was as valuable as that found in the Mediterranean, on the coasts of France, Italy, and Barbary. It justified by its brilliant tints the poetic names of "Flower of Blood" and "Froth of Blood" which commerce gives to its most beautiful productions. Coral is sold as high as £10 a pound, and in this place the liquid masses covered the fortune of a world of coral-dealers. This precious matter often mixed with other polypiers, then formed the compact and inextricable compound called "macciota," on which I noticed several beautiful specimens of pink coral.

But soon the bushes contracted, and the arborisations increased. Real petrified thickets and long triforiums of fantastic architecture opened before our steps. Capain Nemo entered a dark gallery, the inclined plane of which led us down a depth of 100 yards. The light of our serpentines sometimes produced magical effects by following the rough outlines of the natural arches and pendants, like bushes, which it pricked with points of fire. Amongst the coralline shrubs I noticed other polypiers no less curious, melites and irises with articulated ramifications, also reefs of coral, some green, some red, like seaweed incrusting their calcareous salts, which naturalists, after long discussion, have definitely classified in the vegetable kingdom. But, according to the remark of a thinker, "This is perhaps the real point where life obscurely rises from its stony sleep, without altogether leaving its rude starting-point."

At last, after two hours' walking, we reached a depth of about 150 fathoms—that is to say, the extreme limit that coral begins to form itself. But there it was no longer the isolated shrub nor the modest thicket of low brushwood. It was the immense forest, the great mineral vegetations, the enormous petrified trees, united by garlands of elegant plumarias, sea-bindweed, all decked off with colours and shades. We passed freely under their high branches lost in the depths of the water above, whilst, at our feet the tubipores, meandrines, stars, fungi, and caryophyllidæ formed a carpet of flowers strewn with dazzling gems.

It was an indescribable spectacle! Ah, why could we not

communicate our sensations? Why were we imprisoned under these masks of metal and glass? Why were words between us forbidden? Why did we not at least live the life of the fish that people the liquid element, or rather that of the amphibians who, during long hours, can traverse as they like the double domain of land and water?

In the meantime Captain Nemo had stopped. My companions and I imitated him, and, turning round, I saw that his men had formed a semicircle round their chief. Looking with more attention, I noticed that four of them were carrying an object of oblong form on their shoulders.

We were then in the centre of a vast open space surrounded by high arborisations of the submarine forest. Our lamps lighted up the space with a sort of twilight which immoderately lengthened the shadows on the ground. At the limit of the open space darkness again became profound, and was only "made visible" by little sparks reflected in the projections of the coral.

Ned Land and Conseil were near me. We looked on, and the thought that I was going to assist at a strange scene came into my mind. As I looked at the ground I saw that it was raised in certain places by slight excrescences incrustated with calcareous deposits, and laid out with a regularity that betrayed the hand of man.

In the centre of the open space, on a pedestal of rocks roughly piled together, rose a coral cross, which extended its long arms, that one might have said were made of petrified blood.

Upon a sign from Captain Nemo one of his men came forward, and at some feet distance from the cross began to dig a hole with a pickaxe that he took from his belt.

I then understood it all! This space was a cemetery; this hole a grave; this oblong object the body of the man who had died during the night! Captain Nemo and his men came to inter their companion in this common resting-place in the depths of the inaccessible ocean!

My mind was never so much excited before. More impressionable ideas had never invaded my brain! I would not see what my eyes were looking at!

In the meantime the tomb was being slowly dug. Fish fled hither and thither as their retreat was troubled. I heard on the calcareous soil the ring of the iron pickaxe that sparkled when it struck some flint lost at the bottom of the sea. The hole grew larger and wider, and was soon deep enough to receive the body.

Then the bearers approached. The body, wrapped in a tissue

of white byssus, was lowered into its watery tomb. Captain Nemo, with his arms crossed on his chest, and all the friends of the man who had loved them, knelt in the attitude of prayer. My two companions and I bent religiously.

The tomb was then filled with the matter dug from the soil, and formed a slight excrescence.

When this was done Captain Nemo and his men rose; then, collecting round the torab, all knelt again, and extended their hands in sign of supreme adieu.

Then the funeral procession set out for the Nautilus again, repassing under the arcades of the forest, amidst the thickets by the side of the coral-bushes, going uphill all the way.

At last the lights on board appeared. Their luminous track guided us to the Nautilus. We were back at one o'clock.

As soon as I had changed my clothes I went up on to the platform, and, a prey to a terrible conflict of emotions, I went and seated myself near the lantern-cage.

Captain Nemo joined me there. I rose and said—

“Then, as I foresaw, that man died in the night?”

“Yes, M. Aronnax,” answered Captain Nemo.

“And now he is resting by the side of his companions in the coral cemetery?”

“Yes, forgotten by every one but us! We dig the grave, and the polypi take the trouble of sealing our dead therein for eternity?”

And hiding his face in his hands with a brusque gesture, the captain tried in vain so suppress a sob. Then he added—

“That is our peaceful cemetery, at some hundreds of feet below the surface of the waves!”

“Your dead sleep, at least, tranquil, captain, out of reach of the sharks!”

“Yes, sir,” answered Captain Nemo gravely, “of sharks and men!”