

CHAPTER II.

THE FIRST HALF-HOUR.

What had happened? What was the effect of the frightful shock? Had the ingenuity of the constructors of the projectile been attended by a happy result? Was the effect of the shock deadened, thanks to the springs, the four buffers, the water-cushions, and the movable partitions? Had they triumphed over the frightful impulsion of the initial velocity of 11,000 metres a second? This was evidently the question the thousands of witnesses of the exciting scene asked themselves. They forgot the object of the journey, and only thought of the travellers! Suppose one of them--J.T. Maston, for instance--had been able to get a glimpse of the interior of the projectile, what would he have seen?

Nothing then. The obscurity was profound in the bullet. Its cylindro-conical sides had resisted perfectly. There was not a break, a crack, or a dint in them. The admirable projectile was not hurt by the intense deflagration of the powders, instead of being liquefied, as it was feared, into a shower of aluminium.

In the interior there was very little disorder on the whole. A few objects had been violently hurled up to the roof, but the most important did not seem to have suffered from the shock. Their fastenings were intact.

On the movable disc, crushed down to the bottom by the smashing of the partitions and the escape of the water, three bodies lay motionless. Did Barbicane, Nicholl, and Michel Ardan still breathe? Was the projectile nothing but a metal coffin carrying three corpses into space?

A few minutes after the departure of the bullet one of these bodies moved, stretched out its arms, lifted up its head, and succeeded in getting upon its knees. It was Michel Ardan. He felt himself, uttered a sonorous "Hum," then said--

"Michel Ardan, complete. Now for the others!"

The courageous Frenchman wanted to get up, but he could not stand. His head vacillated; his blood, violently sent up to his head, blinded him. He felt like a drunken man.

"Brrr!" said he. "I feel as though I had been drinking two bottles of Corton, only that was not so agreeable to swallow!"

Then passing his hand across his forehead several times, and rubbing his temples, he called out in a firm voice--

"Nicholl! Barbicane!"

He waited anxiously. No answer. Not even a sigh to indicate that the

hearts of his companions still beat. He reiterated his call. Same silence.

"The devil!" said he. "They seem as though they had fallen from the fifth story upon their heads! Bah!" he added with the imperturbable confidence that nothing could shake, "if a Frenchman can get upon his knees, two Americans will have no difficulty in getting upon their feet. But, first of all, let us have a light on the subject."

Ardan felt life come back to him in streams. His blood became calm, and resumed its ordinary circulation. Fresh efforts restored his equilibrium. He succeeded in getting up, took a match out of his pocket, and struck it; then putting it to the burner he lighted the gas. The meter was not in the least damaged. The gas had not escaped. Besides, the smell would have betrayed it, and had this been the case, Michel Ardan could not with impunity have lighted a match in a medium filled with hydrogen. The gas, mixed in the air, would have produced a detonating mixture, and an explosion would have finished what a shock had perhaps begun.

As soon as the gas was lighted Ardan bent down over his two companions. Their bodies were thrown one upon the other, Nicholl on the top, Barbicane underneath.

Ardan raised the captain, propped him up against a divan, and rubbed him vigorously. This friction, administered skilfully, reanimated Nicholl,

who opened his eyes, instantly recovered his presence of mind, seized Ardan's hand, and then looking round him--

"And Barbicane?" he asked.

"Each in turn," answered Michel Ardan tranquilly. "I began with you, Nicholl, because you were on the top. Now I'll go to Barbicane."

That said, Ardan and Nicholl raised the president of the Gun Club and put him on a divan. Barbicane seemed to have suffered more than his companions. He was bleeding, but Nicholl was glad to find that the hemorrhage only came from a slight wound in his shoulder. It was a simple scratch, which he carefully closed.

Nevertheless, Barbicane was some time before he came to himself, which frightened his two friends, who did not spare their friction.

"He is breathing, however," said Nicholl, putting his ear to the breast of the wounded man.

"Yes," answered Ardan, "he is breathing like a man who is in the habit of doing it daily. Rub, Nicholl, rub with all your might."

And the two improvised practitioners set to work with such a will and managed so well that Barbicane at last came to his senses. He opened his eyes, sat up, took the hands of his two friends, and his first words

were--

"Nicholl, are we going on?"

Nicholl and Ardan looked at one another. They had not yet thought about the projectile. Their first anxiety had been for the travellers, not for the vehicle.

"Well, really, are we going on?" repeated Michel Ardan.

"Or are we tranquilly resting on the soil of Florida?" asked Nicholl.

"Or at the bottom of the Gulf of Mexico?" added Michel Ardan.

"Impossible!" cried President Barbicane.

This double hypothesis suggested by his two friends immediately recalled him to life and energy.

They could not yet decide the question. The apparent immovability of the bullet and the want of communication with the exterior prevented them finding it out. Perhaps the projectile was falling through space.

Perhaps after rising a short distance it had fallen upon the earth, or even into the Gulf of Mexico, a fall which the narrowness of the Floridian peninsula rendered possible.

The case was grave, the problem interesting. It was necessary to solve it as soon as possible. Barbicane, excited, and by his moral energy triumphing over his physical weakness, stood up and listened. A profound silence reigned outside. But the thick padding was sufficient to shut out all the noises on earth; However, one circumstance struck Barbicane. The temperature in the interior of the projectile was singularly high. The president drew out a thermometer from the envelope that protected it and consulted it. The instrument showed 81° Fahr.

"Yes!" he then exclaimed--"yes, we are moving! This stifling heat oozes through the sides of our projectile. It is produced by friction against the atmosphere. It will soon diminish; because we are already moving in space, and after being almost suffocated we shall endure intense cold."

"What!" asked Michel Ardan, "do you mean to say that we are already beyond the terrestrial atmosphere?"

"Without the slightest doubt, Michel. Listen to me. It now wants but five minutes to eleven. It is already eight minutes since we started. Now, if our initial velocity has not been diminished by friction, six seconds would be enough for us to pass the sixteen leagues of atmosphere which surround our spheroid."

"Just so," answered Nicholl; "but in what proportion do you reckon the diminution of speed by friction?"

"In the proportion of one-third," answered Barbicane. "This diminution is considerable, but it is so much according to my calculations. If, therefore, we have had an initial velocity of 11,000 metres, when we get past the atmosphere it will be reduced to 7,332 metres. However that may be, we have already cleared that space, and--"

"And then," said Michel Ardan, "friend Nicholl has lost his two bets--four thousand dollars because the Columbiad has not burst, five thousand dollars because the projectile has risen to a greater height than six miles; therefore, Nicholl, shell out."

"We must prove it first," answered the captain, "and pay afterwards. It is quite possible that Barbicane's calculations are exact, and that I have lost my nine thousand dollars. But another hypothesis has come into my mind, and it may cancel the wager."

"What is that?" asked Barbicane quickly.

"The supposition that for some reason or other the powder did not catch fire, and we have not started."

"Good heavens! captain," cried Michel Ardan, "that is a supposition worthy of me! It is not serious! Have we not been half stunned by the shock? Did I not bring you back to life? Does not the president's shoulder still bleed from the blow?"

"Agreed, Michel," replied Nicholl, "but allow me to ask one question."

"Ask it, captain."

"Did you hear the detonation, which must certainly have been formidable?"

"No," answered Ardan, much surprised, "I certainly did not hear it."

"And you, Barbicane?"

"I did not either."

"What do you make of that?" asked Nicholl.

"What indeed!" murmured the president; "why did we not hear the detonation?"

The three friends looked at one another rather disconcertedly. Here was an inexplicable phenomenon. The projectile had been fired, however, and there must have been a detonation.

"We must know first where we are," said Barbicane, "so let us open the panel."

This simple operation was immediately accomplished. The screws that

fastened the bolts on the outer plates of the right-hand skylight yielded to the coach-wrench. These bolts were driven outside, and obturators wadded with indiarubber corked up the hole that let them through. The exterior plate immediately fell back upon its hinges like a port-hole, and the lenticular glass that covered the hole appeared. An identical light-port had been made in the other side of the projectile, another in the dome, and a fourth in the bottom. The firmament could therefore be observed in four opposite directions--the firmament through the lateral windows, and the earth or the moon more directly through the upper or lower opening of the bullet.

Barbicané and his companions immediately rushed to the uncovered port-hole. No ray of light illuminated it. Profound darkness surrounded the projectile. This darkness did not prevent Barbicané exclaiming--

"No, my friends, we have not fallen on the earth again! No, we are not immersed at the bottom of the Gulf of Mexico! Yes, we are going up through space! Look at those stars that are shining in the darkness, and the impenetrable darkness that lies between the earth and us!"

"Hurrah! hurrah!" cried Michel Ardan and Nicholl with one voice.

In fact, the thick darkness proved that the projectile had left the earth, for the ground, then brilliantly lighted by the moon, would have appeared before the eyes of the travellers if they had been resting upon it. This darkness proved also that the projectile had passed beyond the

atmosphere, for the diffused light in the air would have been reflected on the metallic sides of the projectile, which reflection was also wanting. This light would have shone upon the glass of the light-port, and that glass was in darkness. Doubt was no longer possible. The travellers had quitted the earth.

"I have lost." said Nicholl.

"I congratulate you upon it," answered Ardan.

"Here are nine thousand dollars," said the captain, taking a bundle of notes out of his pocket.

"Will you have a receipt?" asked Barbicane as he took the money.

"If you do not mind," answered Nicholl; "it is more regular."

And as seriously and phlegmatically as if he had been in his counting-house, President Barbicane drew out his memorandum-book and tore out a clear page, wrote a receipt in pencil, dated it, signed it, and gave it to the captain, who put it carefully into his pocket-book.

Michel Ardan took off his hat and bowed to his two companions without speaking a word. Such formality under such circumstances took away his power of speech. He had never seen anything so American.

Once their business over, Barbicane and Nicholl went back to the light-port and looked at the constellations. The stars stood out clearly upon the dark background of the sky. But from this side the moon could not be seen, as she moves from east to west, rising gradually to the zenith. Her absence made Ardan say--

"And the moon? Is she going to fail us?"

"Do not frighten yourself," answered Barbicane, "Our spheroid is at her post, but we cannot see her from this side. We must open the opposite light-port."

At the very moment when Barbicane was going to abandon one window to set clear the opposite one, his attention was attracted by the approach of a shining object. It was an enormous disc the colossal dimensions of which could not be estimated. Its face turned towards the earth was brilliantly lighted. It looked like a small moon reflecting the light of the large one. It advanced at prodigious speed, and seemed to describe round the earth an orbit right across the passage of the projectile. To the movement of translation of this object was added a movement of rotation upon itself. It was therefore behaving like all celestial bodies abandoned in space.

"Eh!" cried Michel Ardan. "Whatever is that? Another projectile?"

Barbicane did not answer. The apparition of this enormous body surprised

him and made him uneasy. A collision was possible which would have had deplorable results, either by making the projectile deviate from its route and fall back upon the earth, or be caught up by the attractive power of the asteroid.

President Barbicane had rapidly seized the consequences of these three hypotheses, which in one way or other would fatally prevent the success of his attempt. His companions were silently watching the object, which grew prodigiously larger as it approached, and through a certain optical illusion it seemed as if the projectile were rushing upon it.

"Ye gods!" cried Michel Ardan; "there will be a collision on the line!"

The three travellers instinctively drew back. Their terror was extreme, but it did not last long, hardly a few seconds. The asteroid passed at a distance of a few hundred yards from the projectile and disappeared, not so much on account of the rapidity of its course, but because its side opposite to the moon was suddenly confounded with the absolute darkness of space.

"A good journey to you!" cried Michel Ardan, uttering a sigh of satisfaction. "Is not infinitude large enough to allow a poor little bullet to go about without fear? What was that pretentious globe which nearly knocked against us?"

"I know!" answered Barbicane.

"Of course! you know everything."

"It is a simple asteroid," said Barbicane; "but so large that the attraction of the earth has kept it in the state of a satellite."

"Is it possible!" exclaimed Michel Ardan. "Then the earth has two moons like Neptune?"

"Yes, my friend, two moons, though she is generally supposed to have but one. But this second moon is so small and her speed so great that the inhabitants of the earth cannot perceive her. It was by taking into account certain perturbations that a French astronomer, M. Petit, was able to determine the existence of this second satellite and calculate its elements. According to his observations, this asteroid accomplishes its revolution round the earth in three hours and twenty minutes only. That implies prodigious speed."

"Do all astronomers admit the existence of this satellite?" asked Nicholl.

"No," answered Barbicane; "but if they had met it like we have they could not doubt any longer. By-the-by, this asteroid, which would have much embarrassed us had it knocked against us, allows us to determine our position in space."

"How?" said Ardan.

"Because its distance is known, and where we met it we were exactly at 8,140 kilometres from the surface of the terrestrial globe."

"More than 2,000 leagues!" cried Michel Ardan. "That beats the express trains of the pitiable globe called the earth!"

"I should think it did," answered Nicholl, consulting his chronometer; "it is eleven o'clock, only thirteen minutes since we left the American continent."

"Only thirteen minutes?" said Barbicane.

"That is all," answered Nicholl; "and if our initial velocity were constant we should make nearly 10,000 leagues an hour."

"That is all very well, my friends," said the president; "but one insoluble question still remains--why did we not hear the detonation of the Columbiad?"

For want of an answer the conversation stopped, and Barbicane, still reflecting, occupied himself with lowering the covering of the second lateral light-port. His operation succeeded, and through the glass the moon filled the interior of the projectile with brilliant light.

Nicholl, like an economical man, put out the gas that was thus rendered

useless, and the brilliance of which obstructed the observation of planetary space.

The lunar disc then shone with incomparable purity. Her rays, no longer filtered by the vapoury atmosphere of the terrestrial globe, shone clearly through the glass and saturated the interior air of the projectile with silvery reflections. The black curtain of the firmament really doubled the brilliancy of the moon, which in this void of ether unfavourable to diffusion did not eclipse the neighbouring stars. The sky, thus seen, presented quite a different aspect--one that no human eye could imagine.

It will be readily understood with what interest these audacious men contemplated the moon, the supreme goal of their journey. The earth's satellite, in her movement of translation, insensibly neared the zenith, a mathematical point which she was to reach about ninety-six hours later. Her mountains and plains, or any object in relief, were not seen more plainly than from the earth; but her light across the void was developed with incomparable intensity. The disc shone like a platinum mirror. The travellers had already forgotten all about the earth which was flying beneath their feet.

It was Captain Nicholl who first drew attention to the vanished globe.

"Yes!" answered Michel Ardan. "We must not be ungrateful to it. As we are leaving our country let our last looks reach it. I want to see the

earth before it disappears completely from our eyes!"

Barbicané, to satisfy the desires of his companion, occupied himself with clearing the window at the bottom of the projectile, the one through which they could observe the earth directly. The movable floor which the force of projection had sent to the bottom was taken to pieces, not without difficulty; its pieces, carefully placed against the sides, might still be of use. Then appeared a circular bay window, half a yard wide, cut in the lower part of the bullet. It was filled with glass five inches thick, strengthened with brass settings. Under it was an aluminium plate, held down by bolts. The screws taken out and the bolts withdrawn, the plate fell back, and visual communication was established between interior and exterior.

Michel Ardan knelt upon the glass. It was dark, and seemed opaque.

"Well," cried he, "but where's the earth?"

"There it is," said Barbicané.

"What!" cried Ardan, "that thin streak, that silvery crescent?"

"Certainly, Michel. In four days' time, when the moon is full, at the very minute we shall reach her, the earth will be new. She will only appear to us under the form of a slender crescent, which will soon disappear, and then she will be buried for some days in impenetrable

darkness."

"That the earth!" repeated Michel Ardan, staring at the thin slice of his natal planet.

The explanation given by President Barbicane was correct. The earth, looked at from the projectile, was entering her last quarter. She was in her octant, and her crescent was clearly outlined on the dark background of the sky. Her light, made bluish by the thickness of her atmosphere, was less intense than that of the lunar crescent. This crescent then showed itself under considerable dimensions. It looked like an enormous arch stretched across the firmament. Some points, more vividly lighted, especially in its concave part, announced the presence of high mountains; but they disappeared sometimes under black spots, which are never seen on the surface of the lunar disc. They were rings of clouds placed concentrically round the terrestrial spheroid.

However, by dint of a natural phenomenon, identical with that produced on the moon when she is in her octants, the contour of the terrestrial globe could be traced. Its entire disc appeared slightly visible through an effect of pale light, less appreciable than that of the moon. The reason of this lessened intensity is easy to understand. When this reflection is produced on the moon it is caused by the solar rays which the earth reflects upon her satellite. Here it was caused by the solar rays reflected from the moon upon the earth. Now terrestrial light is thirteen times more intense than lunar light on account of the

difference of volume in the two bodies. Hence it follows that in the phenomenon of the pale light the dark part of the earth's disc is less clearly outlined than that of the moon's disc, because the intensity of the phenomenon is in proportion to the lighting power of the two stars. It must be added that the terrestrial crescent seems to form a more elongated curve than that of the disc--a pure effect of irradiation.

Whilst the travellers were trying to pierce the profound darkness of space, a brilliant shower of falling stars shone before their eyes. Hundreds of meteors, inflamed by contact with the atmosphere, streaked the darkness with luminous trails, and lined the cloudy part of the disc with their fire. At that epoch the earth was in her perihelion, and the month of December is so propitious to these shooting stars that astronomers have counted as many as 24,000 an hour. But Michel Ardan, disdainng scientific reasoning, preferred to believe that the earth was saluting with her finest fireworks the departure of her three children.

This was all they saw of the globe lost in the darkness, an inferior star of the solar world, which for the grand planets rises or sets as a simple morning or evening star! Imperceptible point in space, it was now only a fugitive crescent, this globe where they had left all their affections.

For a long time the three friends, not speaking, yet united in heart, watched while the projectile went on with uniformly decreasing velocity. Then irresistible sleep took possession of them. Was it fatigue of body

and mind? Doubtless, for after the excitement of the last hours passed upon earth, reaction must inevitably set in.

"Well," said Michel, "as we must sleep, let us go to sleep."

Stretched upon their beds, all three were soon buried in profound slumber.

But they had not been unconscious for more than a quarter of an hour when Barbicane suddenly rose, and, waking his companions, in a loud voice cried--

"I've found it!"

"What have you found?" asked Michel Ardan, jumping out of bed.

"The reason we did not hear the detonation of the Columbiad!"

"Well?" said Nicholl.

"It was because our projectile went quicker than sound."