CHAPTER II.

THE FIRST HALF HOUR.

What had taken place within the Projectile? What effect had been produced by the frightful concussion? Had Barbican's ingenuity been attended with a fortunate result? Had the shock been sufficiently deadened by the springs, the buffers, the water layers, and the partitions so readily ruptured? Had their combined effect succeeded in counteracting the tremendous violence of a velocity of 12,000 yards a second, actually sufficient to carry them from London to New York in six minutes? These, and a hundred other questions of a similar nature were asked that night by the millions who had been watching the explosion from the base of Stony Hill. Themselves they forgot altogether for the moment; they forgot everything in their absorbing anxiety regarding the fate of the daring travellers. Had one among them, our friend Marston, for instance, been favored with a glimpse at the interior of the projectile, what would he have seen?

Nothing at all at first, on account of the darkness; except that the walls had solidly resisted the frightful shock. Not a crack, nor a bend, nor a dent could be perceived; not even the slightest injury had the admirably constructed piece of mechanical workmanship endured. It had not yielded an inch to the enormous pressure, and, far from melting and falling back to earth, as had been so seriously apprehended, in showers of blazing aluminium, it was still as strong in every respect as it had

been on the very day that it left the Cold Spring Iron Works, glittering like a silver dollar.

Of real damage there was actually none, and even the disorder into which things had been thrown in the interior by the violent shock was comparatively slight. A few small objects lying around loose had been furiously hurled against the ceiling, but the others appeared not to have suffered the slightest injury. The straps that fastened them up were unfrayed, and the fixtures that held them down were uncracked.

The partitions beneath the disc having been ruptured, and the water having escaped, the false floor had been dashed with tremendous violence against the bottom of the Projectile, and on this disc at this moment three human bodies could be seen lying perfectly still and motionless.

Were they three corpses? Had the Projectile suddenly become a great metallic coffin bearing its ghastly contents through the air with the rapidity of a lightning flash?

In a very few minutes after the shock, one of the bodies stirred a little, the arms moved, the eyes opened, the head rose and tried to look around; finally, with some difficulty, the body managed to get on its knees. It was the Frenchman! He held his head tightly squeezed between his hands for some time as if to keep it from splitting. Then he felt himself rapidly all over, cleared his throat with a vigorous "hem!" listened to the sound critically for an instant, and then said to himself in a relieved tone, but in his native tongue:

"One man all right! Call the roll for the others!"

He tried to rise, but the effort was too great for his strength. He fell back again, his brain swimming, his eyes bursting, his head splitting. His state very much resembled that of a young man waking up in the morning after his first tremendous "spree."

"Br--rr!" he muttered to himself, still talking French; "this reminds me of one of my wild nights long ago in the Quartier Latin, only decidedly more so!"

Lying quietly on his back for a while, he could soon feel that the circulation of his blood, so suddenly and violently arrested by the terrific shock, was gradually recovering its regular flow; his heart grew more normal in its action; his head became clearer, and the pain less distracting.

"Time to call that roll," he at last exclaimed in a voice with some pretensions to firmness; "Barbican! MacNicholl!"

He listens anxiously for a reply. None comes. A snow-wrapt grave at midnight is not more silent. In vain does he try to catch even the faintest sound of breathing, though he listens intently enough to hear the beating of their hearts; but he hears only his own.

"Call that roll again!" he mutters in a voice far less assured than

before; "Barbican! MacNicholl!"

The same fearful unearthly stillness.

"The thing is getting decidedly monotonous!" he exclaimed, still speaking French. Then rapidly recovering his consciousness as the full horror of the situation began to break on his mind, he went on muttering audibly: "Have they really hopped the twig? Bah! Fudge! what has not been able to knock the life out of one little Frenchman can't have killed two Americans! They're all right! But first and foremost, let us enlighten the situation!"

So saying, he contrived without much difficulty to get on his feet. Balancing himself then for a moment, he began groping about for the gas. But he stopped suddenly.

"Hold on a minute!" he cried; "before lighting this match, let us see if the gas has been escaping. Setting fire to a mixture of air and hydrogen would make a pretty how-do-you-do! Such an explosion would infallibly burst the Projectile, which so far seems all right, though I'm blest if I can tell whether we're moving or not."

He began sniffing and smelling to discover if possible the odor of escaped gas. He could not detect the slightest sign of anything of the kind. This gave him great courage. He knew of course that his senses were not yet in good order, still he thought he might trust them so far as to be certain that the gas had not escaped and that consequently all

the other receptacles were uninjured.

At the touch of the match, the gas burst into light and burned with a steady flame. Ardan immediately bent anxiously over the prostrate bodies of his friends. They lay on each other like inert masses, M'Nicholl stretched across Barbican.

Ardan first lifted up the Captain, laid him on the sofa, opened his clenched hands, rubbed them, and slapped the palms vigorously. Then he went all over the body carefully, kneading it, rubbing it, and gently patting it. In such intelligent efforts to restore suspended circulation, he seemed perfectly at home, and after a few minutes his patience was rewarded by seeing the Captain's pallid face gradually recover its natural color, and by feeling his heart gradually beat with a firm pulsation.

At last M'Nicholl opened his eyes, stared at Ardan for an instant, pressed his hand, looked around searchingly and anxiously, and at last whispered in a faint voice:

"How's Barbican?"

"Barbican is all right, Captain," answered Ardan quietly, but still speaking French. "I'll attend to him in a jiffy. He had to wait for his turn. I began with you because you were the top man. We'll see in a minute what we can do for dear old Barby (ce cher Barbican)!"

In less than thirty seconds more, the Captain not only was able to sit up himself, but he even insisted on helping Ardan to lift Barbican, and deposit him gently on the sofa.

The poor President had evidently suffered more from the concussion than either of his companions. As they took off his coat they were at first terribly shocked at the sight of a great patch of blood staining his shirt bosom, but they were inexpressibly relieved at finding that it proceeded from a slight contusion of the shoulder, little more than skin deep.

Every approved operation that Ardan had performed for the Captain, both now repeated for Barbican, but for a long time with nothing like a favorable result.

Ardan at first tried to encourage the Captain by whispers of a lively and hopeful nature, but not yet understanding why M'Nicholl did not deign to make a single reply, he grew reserved by degrees and at last would not speak a single word. He worked at Barbican, however, just as before.

M'Nicholl interrupted himself every moment to lay his ear on the breast of the unconscious man. At first he had shaken his head quite despondingly, but by degrees he found himself more and more encouraged to persist.

"He breathes!" he whispered at last.

"Yes, he has been breathing for some time," replied Ardan, quietly, still unconsciously speaking French. "A little more rubbing and pulling and pounding will make him as spry as a young grasshopper."

They worked at him, in fact, so vigorously, intelligently and perseveringly, that, after what they considered a long hour's labor, they had the delight of seeing the pale face assume a healthy hue, the inert limbs give signs of returning animation, and the breathing become strong and regular.

At last, Barbican suddenly opened his eyes, started into an upright position on the sofa, took his friends by the hands, and, in a voice showing complete consciousness, demanded eagerly:

"Ardan, M'Nicholl, are we moving?"

His friends looked at each other, a little amused, but more perplexed. In their anxiety regarding their own and their friend's recovery, they had never thought of asking such a question. His words recalled them at once to a full sense of their situation.

"Moving? Blessed if I can tell!" said Ardan, still speaking French.

"We may be lying fifty feet deep in a Florida marsh, for all I know," observed M'Nicholl.

"Or, likely as not, in the bottom of the Gulf of Mexico," suggested Ardan, still in French.

"Suppose we find out," observed Barbican, jumping up to try, his voice as clear and his step as firm as ever.

But trying is one thing, and finding out another. Having no means of comparing themselves with external objects, they could not possibly tell whether they were moving, or at an absolute stand-still. Though our Earth is whirling us continually around the Sun at the tremendous speed of 500 miles a minute, its inhabitants are totally unconscious of the slightest motion. It was the same with our travellers. Through their own personal consciousness they could tell absolutely nothing. Were they shooting through space like a meteor? They could not tell. Had they fallen back and buried themselves deep in the sandy soil of Florida, or, still more likely, hundreds of fathoms deep beneath the waters of the Gulf of Mexico? They could not form the slightest idea.

Listening evidently could do no good. The profound silence proved nothing. The padded walls of the Projectile were too thick to admit any sound whether of wind, water, or human beings. Barbican, however, was soon struck forcibly by one circumstance. He felt himself to be very uncomfortably warm, and his friend's faces looked very hot and flushed. Hastily removing the cover that protected the thermometer, he closely inspected it, and in an instant uttered a joyous exclamation.

"Hurrah!" he cried. "We're moving! There's no mistake about it. The

thermometer marks 113 degrees Fahrenheit. Such a stifling heat could not come from the gas. It comes from the exterior walls of our projectile, which atmospheric friction must have made almost red hot. But this heat must soon diminish, because we are already far beyond the regions of the atmosphere, so that instead of smothering we shall be shortly in danger of freezing."

"What?" asked Ardan, much bewildered. "We are already far beyond the limits of the terrestrial atmosphere! Why do you think so?"

M'Nicholl was still too much flustered to venture a word.

"If you want me to answer your question satisfactorily, my dear Ardan," replied Barbican, with a quiet smile, "you will have the kindness to put your questions in English."

"What do you mean, Barbican!" asked Ardan, hardly believing his ears.

"Hurrah!" cried M'Nicholl, in the tone of a man who has suddenly made a welcome but most unexpected discovery.

"I don't know exactly how it is with the Captain," continued Barbican, with the utmost tranquillity, "but for my part the study of the languages never was my strong point, and though I always admired the French, and even understood it pretty well, I never could converse in it without giving myself more trouble than I always find it convenient to assume."

"You don't mean to say that I have been talking French to you all this time!" cried Ardan, horror-stricken.

"The most elegant French I ever heard, backed by the purest Parisian accent," replied Barbican, highly amused; "Don't you think so, Captain?" he added, turning to M'Nicholl, whose countenance still showed the most comical traces of bewilderment.

"Well, I swan to man!" cried the Captain, who always swore a little when his feelings got beyond his control; "Ardan, the Boss has got the rig on both of us this time, but rough as it is on you it is a darned sight more so on me. Be hanged if I did not think you were talking English the whole time, and I put the whole blame for not understanding you on the disordered state of my brain!"

Ardan only stared, and scratched his head, but Barbican actually--no, not laughed, that serene nature could not laugh. His cast-iron features puckered into a smile of the richest drollery, and his eyes twinkled with the wickedest fun; but no undignified giggle escaped the portal of those majestic lips.

"It sounds like French, I'd say to myself," continued the Captain, "but I know it's English, and by and by, when this whirring goes out of my head, I shall easily understand it."

Ardan now looked as if he was beginning to see the joke.

"The most puzzling part of the thing to me," went on M'Nicholl, giving his experience with the utmost gravity, "was why English sounded so like French. If it was simple incomprehensible gibberish, I could readily blame the state of my ears for it. But the idea that my bothered ears could turn a mere confused, muzzled, buzzing reverberation into a sweet, harmonious, articulate, though unintelligible, human language, made me sure that I was fast becoming crazy, if I was not so already."

"Ha! ha! ha!" roared Ardan, laughing till the tears came. "Now I understand why the poor Captain made me no reply all the time, and looked at me with such a hapless woe-begone expression of countenance. The fact is, Barbican, that shock was too much both for M'Nicholl and myself. You are the only man among us whose head is fire-proof, blast-proof, and powder-proof. I really believe a burglar would have greater difficulty in blowing your head-piece open than in bursting one of those famous American safes your papers make such a fuss about. A wonderful head, the Boss's, isn't it M'Nicholl?"

"Yes," said the Captain, as slowly as if every word were a gem of the profoundest thought, "the Boss has a fearful and a wonderful head!"

"But now to business!" cried the versatile Ardan, "Why do you think, Barbican, that we are at present beyond the limits of the terrestrial atmosphere?"

"For a very simple reason," said Barbican, pointing to the chronometer;

"it is now more than seven minutes after 11. We must, therefore, have been in motion more than twenty minutes. Consequently, unless our initial velocity has been very much diminished by the friction, we must have long before this completely cleared the fifty miles of atmosphere enveloping the earth."

"Correct," said the Captain, cool as a cucumber, because once more in complete possession of all his senses; "but how much do you think the initial velocity to have been diminished by the friction?"

"By a third, according to my calculations," replied Barbican, "which I think are right. Supposing our initial velocity, therefore, to have been 12,000 yards per second, by the time we quitted the atmosphere it must have been reduced to 8,000 yards per second. At that rate, we must have gone by this time--"

"Then, Mac, my boy, you've lost your two bets!" interrupted Ardan. "The Columbiad has not burst, four thousand dollars; the Projectile has risen at least six miles, five thousand dollars; come, Captain, bleed!"

"Let me first be sure we're right," said the Captain, quietly. "I don't deny, you see, that friend Barbican's arguments are quite right, and, therefore, that I have lost my nine thousand dollars. But there is another view of the case possible, which might annul the bet."

"What other view?" asked Barbican, quickly.

"Suppose," said the Captain, very drily, "that the powder had not caught, and that we were still lying quietly at the bottom of the Columbiad!"

"By Jove!" laughed Ardan, "there's an idea truly worthy of my own nondescript brain! We must surely have changed heads during that concussion! No matter, there is some sense left in us yet. Come now, Captain, consider a little, if you can. Weren't we both half-killed by the shock? Didn't I rescue you from certain death with these two hands? Don't you see Barbican's shoulder still bleeding by the violence of the shock?"

"Correct, friend Michael, correct in every particular," replied the Captain, "But one little question."

"Out with it!"

"Friend Michael, you say we're moving?"

"Yes."

"In consequence of the explosion?"

"Certainly!"

"Which must have been attended with a tremendous report?"

"Of course!"

"Did you hear that report, friend Michael?"

"N--o," replied Ardan, a little disconcerted at the question. "Well, no; I can't say that I did hear any report."

"Did you, friend Barbican?"

"No," replied Barbican, promptly. "I heard no report whatever."

His answer was ready, but his look was quite as disconcerted as Ardan's.

"Well, friend Barbican and friend Michael," said the Captain, very drily as he leered wickedly at both, "put that and that together and tell me what you make of it."

"It's a fact!" exclaimed Barbican, puzzled, but not bewildered. "Why did we not hear that report?"

"Too hard for me," said Ardan. "Give it up!"

The three friends gazed at each other for a while with countenances expressive of much perplexity. Barbican appeared to be the least self-possessed of the party. It was a complete turning of the tables from the state of things a few moments ago. The problem was certainly simple enough, but for that very reason the more inexplicable. If they

were moving the explosion must have taken place; but if the explosion had taken place, why had they not heard the report?

Barbican's decision soon put an end to speculation.

"Conjecture being useless," said he, "let us have recourse to facts. First, let us see where we are. Drop the deadlights!"

This operation, simple enough in itself and being immediately undertaken by the whole three, was easily accomplished. The screws fastening the bolts by which the external plates of the deadlights were solidly pinned, readily yielded to the pressure of a powerful wrench. The bolts were then driven outwards, and the holes which had contained them were immediately filled with solid plugs of India rubber. The bolts once driven out, the external plates dropped by their own weight, turning on a hinge, like portholes, and the strong plate-glass forming the light immediately showed itself. A second light exactly similar, could be cleared away on the opposite side of the Projectile; a third, on the summit of the dome, and a fourth, in the centre of the bottom. The travellers could thus take observations in four different directions, having an opportunity of gazing at the firmament through the side lights, and at the Earth and the Moon through the lower and the upper lights of the Projectile.

Ardan and the Captain had commenced examining the floor, previous to operating on the bottom light. But Barbican was the first to get through his work at one of the side lights, and M'Nicholl and Ardan soon heard

him shouting:

"No, my friends!" he exclaimed, in tones of decided emotion; "we have not fallen back to Earth; nor are we lying in the bottom of the Gulf of Mexico. No! We are driving through space! Look at the stars glittering all around! Brighter, but smaller than we have ever seen them before! We have left the Earth and the Earth's atmosphere far behind us!"

"Hurrah! Hurrah!" cried M'Nicholl and Ardan, feeling as if electric shocks were coursing through them, though they could see nothing, looking down from the side light, but the blackest and profoundest obscurity.

Barbican soon convinced them that this pitchy blackness proved that they were not, and could not be, reposing on the surface of the Earth, where at that moment, everything was illuminated by the bright moonlight; also that they had passed the different layers of the atmosphere, where the diffused and refracted rays would be also sure to reveal themselves through the lights of the Projectile. They were, therefore, certainly moving. No doubt was longer possible.

"It's a fact!" observed the Captain, now quite convinced. "Then I've lost!"

"Let me congratulate you!" cried Ardan, shaking his hand.

"Here is your nine thousand dollars, friend Barbican," said the Captain, taking a roll of greenbacks of high denomination out of his porte-monnaie.

"You want a receipt, don't you, Captain?" asked Barbican, counting the money.

"Yes, I should prefer one, if it is not too much trouble," answered M'Nicholl; "it saves dispute."

Coolly and mechanically, as if seated at his desk, in his office, Barbican opened his memorandum book, wrote a receipt on a blank page, dated, signed and sealed it, and then handed it to the Captain, who put it away carefully among the other papers of his portfolio.

Ardan, taking off his hat, made a profound bow to both of his companions, without saying a word. Such formality, under such extraordinary circumstances, actually paralysed his tongue for the moment. No wonder that he could not understand those Americans. Even Indians would have surprised him by an exhibition of such stoicism. After indulging in silent wonder for a minute or two, he joined his companions who were now busy looking out at the starry sky.

"Where is the Moon?" he asked. "How is it that we cannot see her?"

"The fact of our not seeing her," answered Barbican, "gives me very great satisfaction in one respect; it shows that our Projectile was shot

so rapidly out of the Columbiad that it had not time to be impressed with the slightest revolving motion--for us a most fortunate matter. As for the rest--see, there is Cassiopeia, a little to the left is Andromeda, further down is the great square of Pegasus, and to the southwest Fomalhaut can be easily seen swallowing the Cascade. All this shows we are looking west and consequently cannot see the Moon, which is approaching the zenith from the east. Open the other light--But hold on! Look here! What can this be?"

The three travellers, looking westwardly in the direction of Alpherat, saw a brilliant object rapidly approaching them. At a distance, it looked like a dusky moon, but the side turned towards the Earth blazed with a bright light, which every moment became more intense. It came towards them with prodigious velocity and, what was worse, its path lay so directly in the course of the Projectile that a collision seemed inevitable. As it moved onward, from west to east, they could easily see that it rotated on its axis, like all heavenly bodies; in fact, it somewhat resembled a Moon on a small scale, describing its regular orbit around the Earth.

"Mille tonerres!" cried Ardan, greatly excited; "what is that? Can it be another projectile?" M'Nicholl, wiping his spectacles, looked again, but made no reply. Barbican looked puzzled and uneasy. A collision was quite possible, and the results, even if not frightful in the highest degree, must be extremely deplorable. The Projectile, if not absolutely dashed to pieces, would be diverted from its own course and dragged along in a new one in obedience to the irresistible attraction of this

furious asteroid.

Barbican fully realized that either alternative involved the complete failure of their enterprise. He kept perfectly still, but, never losing his presence of mind, he curiously looked on the approaching object with a gladiatorial eye, as if seeking to detect some unguarded point in his terrible adversary. The Captain was equally silent; he looked like a man who had fully made up his mind to regard every possible contingency with the most stoical indifference. But Ardan's tongue, more fluent than ever, rattled away incessantly.

"Look! Look!" he exclaimed, in tones so perfectly expressive of his rapidly alternating feelings as to render the medium of words totally unnecessary. "How rapidly the cursed thing is nearing us! Plague take your ugly phiz, the more I know you, the less I like you! Every second she doubles in size! Come, Madame Projectile! Stir your stumps a little livelier, old lady! He's making for you as straight as an arrow! We're going right in his way, or he's coming in ours, I can't say which. It's taking a mean advantage of us either way. As for ourselves--what can we do! Before such a monster as that we are as helpless as three men in a little skiff shooting down the rapids to the brink of Niagara! Now for it!"

Nearer and nearer it came, but without noise, without sparks, without a trail, though its lower part was brighter than ever. Its path lying little above them, the nearer it came the more the collision seemed inevitable. Imagine yourself caught on a narrow railroad bridge at

midnight with an express train approaching at full speed, its reflector already dazzling you with its light, the roar of the cars rattling in your ears, and you may conceive the feelings of the travellers. At last it was so near that the travellers started back in affright, with eyes shut, hair on end, and fully believing their last hour had come. Even then Ardan had his mot.

"We can neither switch off, down brakes, nor clap on more steam! Hard luck!"

In an instant all was over. The velocity of the Projectile was fortunately great enough to carry it barely above the dangerous point; and in a flash the terrible bolide disappeared rapidly several hundred yards beneath the affrighted travellers.

"Good bye! And may you never come back!" cried Ardan, hardly able to breathe. "It's perfectly outrageous! Not room enough in infinite space to let an unpretending bullet like ours move about a little without incurring the risk of being run over by such a monster as that! What is it anyhow? Do you know, Barbican?"

"I do," was the reply.

"Of course, you do! What is it that he don't know? Eh, Captain?"

"It is a simple bolide, but one of such enormous dimensions that the Earth's attraction has made it a satellite."

"What!" cried Ardan, "another satellite besides the Moon? I hope there are no more of them!"

"They are pretty numerous," replied Barbican; "but they are so small and they move with such enormous velocity that they are very seldom seen. Petit, the Director of the Observatory of Toulouse, who these last years has devoted much time and care to the observation of bolides, has calculated that the very one we have just encountered moves with such astonishing swiftness that it accomplishes its revolution around the Earth in about 3 hours and 20 minutes!"

"Whew!" whistled Ardan, "where should we be now if it had struck us!"

"You don't mean to say, Barbican," observed M'Nicholl, "that Petit has seen this very one?"

"So it appears," replied Barbican.

"And do all astronomers admit its existence?" asked the Captain.

"Well, some of them have their doubts," replied Barbican--

"If the unbelievers had been here a minute or two ago," interrupted Ardan, "they would never express a doubt again."

"If Petit's calculation is right," continued Barbican, "I can even form

a very good idea as to our distance from the Earth."

"It seems to me Barbican can do what he pleases here or elsewhere," observed Ardan to the Captain.

"Let us see, Barbican," asked M'Nicholl; "where has Petit's calculation placed us?"

"The bolide's distance being known," replied Barbican, "at the moment we met it we were a little more than 5 thousand miles from the Earth's surface."

"Five thousand miles already!" cried Ardan, "why we have only just started!"

"Let us see about that," quietly observed the Captain, looking at his chronometer, and calculating with his pencil. "It is now 10 minutes past eleven; we have therefore been 23 minutes on the road. Supposing our initial velocity of 10,000 yards or nearly seven miles a second, to have been kept up, we should by this time be about 9,000 miles from the Earth; but by allowing for friction and gravity, we can hardly be more than 5,500 miles. Yes, friend Barbican, Petit does not seem to be very wrong in his calculations."

But Barbican hardly heard the observation. He had not yet answered the puzzling question that had already presented itself to them for solution; and until he had done so he could not attend to anything else.

"That's all very well and good, Captain," he replied in an absorbed manner, "but we have not yet been able to account for a very strange phenomenon. Why didn't we hear the report?"

No one replying, the conversation came to a stand-still, and Barbican, still absorbed in his reflections, began clearing the second light of its external shutter. In a few minutes the plate dropped, and the Moon beams, flowing in, filled the interior of the Projectile with her brilliant light. The Captain immediately put out the gas, from motives of economy as well as because its glare somewhat interfered with the observation of the interplanetary regions.

The Lunar disc struck the travellers as glittering with a splendor and purity of light that they had never witnessed before. The beams, no longer strained through the misty atmosphere of the Earth, streamed copiously in through the glass and coated the interior walls of the Projectile with a brilliant silvery plating. The intense blackness of the sky enhanced the dazzling radiance of the Moon. Even the stars blazed with a new and unequalled splendor, and, in the absence of a refracting atmosphere, they flamed as bright in the close proximity of the Moon as in any other part of the sky.

You can easily conceive the interest with which these bold travellers gazed on the Starry Queen, the final object of their daring journey. She was now insensibly approaching the zenith, the mathematical point which she was to reach four days later. They presented their telescopes, but

her mountains, plains, craters and general characteristics hardly came out a particle more sharply than if they had been viewed from the Earth. Still, her light, unobstructed by air or vapor, shimmered with a lustre actually transplendent. Her disc shone like a mirror of polished platins. The travellers remained for some time absorbed in the silent contemplation of the glorious scene.

"How they're gazing at her this very moment from Stony Hill!" said the Captain at last to break the silence.

"By Jove!" cried Ardan; "It's true! Captain you're right. We were near forgetting our dear old Mother, the Earth. What ungrateful children! Let me feast my eyes once more on the blessed old creature!"

Barbican, to satisfy his companion's desire, immediately commenced to clear away the disc which covered the floor of the Projectile and prevented them from getting at the lower light. This disc, though it had been dashed to the bottom of the Projectile with great violence, was still as strong as ever, and, being made in compartments fastened by screws, to dismount it was no easy matter. Barbican, however, with the help of the others, soon had it all taken apart, and put away the pieces carefully, to serve again in case of need. A round hole about a foot and a half in diameter appeared, bored through the floor of the Projectile. It was closed by a circular pane of plate-glass, which was about six inches thick, fastened by a ring of copper. Below, on the outside, the glass was protected by an aluminium plate, kept in its place by strong bolts and nuts. The latter being unscrewed, the bolts slipped out by

their own weight, the shutter fell, and a new communication was established between the interior and the exterior.

Ardan knelt down, applied his eye to the light, and tried to look out. At first everything was quite dark and gloomy.

"I see no Earth!" he exclaimed at last.

"Don't you see a fine ribbon of light?" asked Barbican, "right beneath us? A thin, pale, silvery crescent?"

"Of course I do. Can that be the Earth?"

"Terra Mater herself, friend Ardan. That fine fillet of light, now hardly visible on her eastern border, will disappear altogether as soon as the Moon is full. Then, lying as she will be between the Sun and the Moon, her illuminated face will be turned away from us altogether, and for several days she will be involved in impenetrable darkness."

"And that's the Earth!" repeated Ardan, hardly able to believe his eyes, as he continued to gaze on the slight thread of silvery white light, somewhat resembling the appearance of the "Young May Moon" a few hours after sunset.

Barbican's explanation was quite correct. The Earth, in reference to the Moon or the Projectile, was in her last phase, or octant as it is called, and showed a sharp-horned, attenuated, but brilliant crescent

strongly relieved by the black background of the sky. Its light, rendered a little bluish by the density of the atmospheric envelopes, was not quite as brilliant as the Moon's. But the Earth's crescent, compared to the Lunar, was of dimensions much greater, being fully 4 times larger. You would have called it a vast, beautiful, but very thin bow extending over the sky. A few points, brighter than the rest, particularly in its concave part, revealed the presence of lofty mountains, probably the Himalayahs. But they disappeared every now and then under thick vapory spots, which are never seen on the Lunar disc. They were the thin concentric cloud rings that surround the terrestrial sphere.

However, the travellers' eyes were soon able to trace the rest of the Earth's surface not only with facility, but even to follow its outline with absolute delight. This was in consequence of two different phenomena, one of which they could easily account for; but the other they could not explain without Barbican's assistance. No wonder. Never before had mortal eye beheld such a sight. Let us take each in its turn.

We all know that the ashy light by means of which we perceive what is called the Old Moon in the Young Moon's arms is due to the Earth-shine, or the reflection of the solar rays from the Earth to the Moon. By a phenomenon exactly identical, the travellers could now see that portion of the Earth's surface which was unillumined by the Sun; only, as, in consequence of the different areas of the respective surfaces, the Earthlight is thirteen times more intense than the Moonlight, the dark portion of the Earth's disc appeared considerably

more adumbrated than the Old Moon.

But the other phenomenon had burst on them so suddenly that they uttered a cry loud enough to wake up Barbican from his problem. They had discovered a true starry ring! Around the Earth's outline, a ring, of internally well defined thickness, but somewhat hazy on the outside, could easily be traced by its surpassing brilliancy. Neither the Pleiades, the Northern Crown, the Magellanic Clouds nor the great nebulas of Orion, or of Argo, no sparkling cluster, no corona, no group of glittering star-dust that the travellers had ever gazed at, presented such attractions as the diamond ring they now saw encompassing the Earth, just as the brass meridian encompasses a terrestrial globe. The resplendency of its light enchanted them, its pure softness delighted them, its perfect regularity astonished them. What was it? they asked Barbican. In a few words he explained it. The beautiful luminous ring was simply an optical illusion, produced by the refraction of the terrestrial atmosphere. All the stars in the neighborhood of the Earth, and many actually behind it, had their rays refracted, diffused, radiated, and finally converged to a focus by the atmosphere, as if by a double convex lens of gigantic power.

Whilst the travellers were profoundly absorbed in the contemplation of this wondrous sight, a sparkling shower of shooting stars suddenly flashed over the Earth's dark surface, making it for a moment as bright as the external ring. Hundreds of bolides, catching fire from contact with the atmosphere, streaked the darkness with their luminous trails, overspreading it occasionally with sheets of electric flame. The Earth

was just then in her perihelion, and we all know that the months of November and December are so highly favorable to the appearance of these meteoric showers that at the famous display of November, 1866, astronomers counted as many as 8,000 between midnight and four o'clock.

Barbican explained the whole matter in a few words. The Earth, when nearest to the sun, occasionally plunges into a group of countless meteors travelling like comets, in eccentric orbits around the grand centre of our solar system. The atmosphere strikes the rapidly moving bodies with such violence as to set them on fire and render them visible to us in beautiful star showers. But to this simple explanation of the famous November meteors Ardan would not listen. He preferred believing that Mother Earth, feeling that her three daring children were still looking at her, though five thousand miles away, shot off her best rocket-signals to show that she still thought of them and would never let them out of her watchful eye.

For hours they continued to gaze with indescribable interest on the faintly luminous mass so easily distinguishable among the other heavenly bodies. Jupiter blazed on their right, Mars flashed his ruddy light on their left, Saturn with his rings looked like a round white spot on a black wall; even Venus they could see almost directly under them, easily recognizing her by her soft, sweetly scintillant light. But no planet or constellation possessed any attraction for the travellers, as long as their eyes could trace that shadowy, crescent-edged, diamond-girdled, meteor-furrowed spheroid, the theatre of their existence, the home of so many undying desires, the mysterious cradle of their race!

Meantime the Projectile cleaved its way upwards, rapidly, unswervingly, though with a gradually retarding velocity. As the Earth sensibly grew darker, and the travellers' eyes grew dimmer, an irresistible somnolency slowly stole over their weary frames. The extraordinary excitement they had gone through during the last four or five hours, was naturally followed by a profound reaction.

"Captain, you're nodding," said Ardan at last, after a longer silence than usual; "the fact is, Barbican is the only wake man of the party, because he is puzzling over his problem. Dum vivimus vivamus! As we are asleep let us be asleep!"

So saying he threw himself on the mattress, and his companions immediately followed the example.

They had been lying hardly a quarter of an hour, when Barbican started up with a cry so loud and sudden as instantly to awaken his companions.

The bright moonlight showed them the President sitting up in his bed, his eye blazing, his arms waving, as he shouted in a tone reminding them of the day they had found him in St. Helena wood.

"Eureka! I've got it! I know it!"

"What have you got?" cried Ardan, bouncing up and seizing him by the right hand.

"What do you know?" cried the Captain, stretching over and seizing him by the left.

"The reason why we did not hear the report!"

"Well, why did not we hear it!" asked both rapidly in the same breath.

"Because we were shot up 30 times faster than sound can travel!"