CHAPTER XV.

GLIMPSES AT THE INVISIBLE.

In spite of the dreadful condition in which the three friends now found themselves, and the still more dreadful future that awaited them, it must be acknowledged that Ardan bravely kept up his spirits. And his companions were just as cheerful. Their philosophy was quite simple and perfectly intelligible. What they could bear, they bore without murmuring. When it became unbearable, they only complained, if complaining would do any good. Imprisoned in an iron shroud, flying through profound darkness into the infinite abysses of space, nearly a quarter million of miles distant from all human aid, freezing with the icy cold, their little stock not only of gas but of air rapidly running lower and lower, a near future of the most impenetrable obscurity looming up before them, they never once thought of wasting time in asking such useless questions as where they were going, or what fate was about to befall them. Knowing that no good could possibly result from inaction or despair, they carefully kept their wits about them, making their experiments and recording their observations as calmly and as deliberately as if they were working at home in the quiet retirement of their own cabinets.

Any other course of action, however, would have been perfectly absurd on their part, and this no one knew better than themselves. Even if desirous to act otherwise, what could they have done? As powerless over

the Projectile as a baby over a locomotive, they could neither clap brakes to its movement nor switch off its direction. A sailor can turn his ship's head at pleasure; an aeronaut has little trouble, by means of his ballast and his throttle-valve, in giving a vertical movement to his balloon. But nothing of this kind could our travellers attempt. No helm, or ballast, or throttle-valve could avail them now. Nothing in the world could be done to prevent things from following their own course to the bitter end.

If these three men would permit themselves to hazard an expression at all on the subject, which they didn't, each could have done it by his own favorite motto, so admirably expressive of his individual nature. "Donnez tête baissée!" (Go it baldheaded!) showed Ardan's uncalculating impetuosity and his Celtic blood. "Fata quocunque vocant!" (To its logical consequence!) revealed Barbican's imperturbable stoicism, culture hardening rather than loosening the original British phlegm. Whilst M'Nicholl's "Screw down the valve and let her rip!" betrayed at once his unconquerable Yankee coolness and his old experiences as a Western steamboat captain.

Where were they now, at eight o'clock in the morning of the day called in America the sixth of December? Near the Moon, very certainly; near enough, in fact, for them to perceive easily in the dark the great round screen which she formed between themselves and the Projectile on one side, and the Earth, Sun, and stars on the other. But as to the exact distance at which she lay from them--they had no possible means of calculating it. The Projectile, impelled and maintained by forces

inexplicable and even incomprehensible, had come within less than thirty miles from the Moon's north pole. But during those two hours of immersion in the dark shadow, had this distance been increased or diminished? There was evidently no stand-point whereby to estimate either the Projectile's direction or its velocity. Perhaps, moving rapidly away from the Moon, it would be soon out of her shadow altogether. Perhaps, on the contrary, gradually approaching her surface, it might come into contact at any moment with some sharp invisible peak of the Lunar mountains--a catastrophe sure to put a sudden end to the trip, and the travellers too.

An excited discussion on this subject soon sprang up, in which all naturally took part. Ardan's imagination as usual getting the better of his reason, he maintained very warmly that the Projectile, caught and retained by the Moon's attraction, could not help falling on her surface, just as an aerolite cannot help falling on our Earth.

"Softly, dear boy, softly," replied Barbican; "aerolites can help falling on the Earth, and the proof is, that few of them do fall--most of them don't. Therefore, even granting that we had already assumed the nature of an aerolite, it does not necessarily follow that we should fall on the Moon."

"But," objected Ardan, "if we approach only near enough, I don't see how we can help--"

"You don't see, it may be," said Barbican, "but you can see, if you only

reflect a moment. Have you not often seen the November meteors, for instance, streaking the skies, thousands at a time?"

"Yes; on several occasions I was so fortunate."

"Well, did you ever see any of them strike the Earth's surface?" asked Barbican.

"I can't say I ever did," was the candid reply, "but--"

"Well, these shooting stars," continued Barbican, "or rather these wandering particles of matter, shine only from being inflamed by the friction of the atmosphere. Therefore they can never be at a greater distance from the Earth than 30 or 40 miles at furthest, and yet they seldom fall on it. So with our Projectile. It may go very close to the Moon without falling into it."

"But our roving Projectile must pull up somewhere in the long run," replied Ardan, "and I should like to know where that somewhere can be, if not in the Moon."

"Softly again, dear boy," said Barbican; "how do you know that our Projectile must pull up somewhere?"

"It's self-evident," replied Ardan; "it can't keep moving for ever."

"Whether it can or it can't depends altogether on which one of two

mathematical curves it has followed in describing its course. According to the velocity with which it was endowed at a certain moment, it must follow either the one or the other; but this velocity I do not consider myself just now able to calculate."

"Exactly so," chimed in M'Nicholl; "it must describe and keep on describing either a parabola or a hyperbola."

"Precisely," said Barbican; "at a certain velocity it would take a parabolic curve; with a velocity considerably greater it should describe a hyperbolic curve."

"I always did like nice corpulent words," said Ardan, trying to laugh; "bloated and unwieldy, they express in a neat handy way exactly what you mean. Of course, I know all about the high--high--those high curves, and those low curves. No matter. Explain them to me all the same. Consider me most deplorably ignorant on the nature of these curves."

"Well," said the Captain, a little bumptiously, "a parabola is a curve of the second order, formed by the intersection of a cone by a plane parallel to one of its sides."

"You don't say so!" cried Ardan, with mouth agape. "Do tell!"

"It is pretty nearly the path taken by a shell shot from a mortar."

"Well now!" observed Ardan, apparently much surprised; "who'd have

thought it? Now for the high--high--bully old curve!"

"The hyperbola," continued the Captain, not minding Ardan's antics, "the hyperbola is a curve of the second order, formed from the intersection of a cone by a plane parallel to its axis, or rather parallel to its two generatrices, constituting two separate branches, extending indefinitely in both directions."

"Oh, what an accomplished scientist I'm going to turn out, if only left long enough at your feet, illustrious maestro!" cried Ardan, with effusion. "Only figure it to yourselves, boys; before the Captain's lucid explanations, I fully expected to hear something about the high curves and the low curves in the back of an Ancient Thomas! Oh, Michael, Michael, why didn't you know the Captain earlier?"

But the Captain was now too deeply interested in a hot discussion with Barbican to notice that the Frenchman was only funning him. Which of the two curves had been the one most probably taken by the Projectile? Barbican maintained it was the parabolic; M'Nicholl insisted that it was the hyperbolic. Their tempers were not improved by the severe cold, and both became rather excited in the dispute. They drew so many lines on the table, and crossed them so often with others, that nothing was left at last but a great blot. They covered bits of paper with x's and y's, which they read out like so many classic passages, shouting them, declaiming them, drawing attention to the strong points by gesticulation so forcible and voice so loud that neither of the disputants could hear a word that the other said. Possibly the very great difference in

temperature between the external air in contact with their skin and the blood coursing through their veins, had given rise to magnetic currents as potential in their effects as a superabundant supply of oxygen. At all events, the language they soon began to employ in the enforcement of their arguments fairly made the Frenchman's hair stand on end.

"You probably forget the important difference between a directrix and an axis," hotly observed Barbican.

"I know what an abscissa is, any how!" cried the Captain. "Can you say as much?"

"Did you ever understand what is meant by a double ordinate?" asked Barbican, trying to keep cool.

"More than you ever did about a transverse and a conjugate!" replied the Captain, with much asperity.

"Any one not convinced at a glance that this eccentricity is equal to unity, must be blind as a bat!" exclaimed Barbican, fast losing his ordinary urbanity.

"Less than unity, you mean! If you want spectacles, here are mine!" shouted the Captain, angrily tearing them off and offering them to his adversary.

"Dear boys!" interposed Ardan--

--"The eccentricity is equal to unity!" cried Barbican.

--"The eccentricity is less than unity!" screamed M'Nicholl.

"Talking of eccentricity--" put in Ardan.

--"Therefore it's a parabola, and must be!" cried Barbican, triumphantly.

--"Therefore it's hyperbola and nothing shorter!" was the Captain's quite as confident reply.

"For gracious sake!--" resumed Ardan.

"Then produce your asymptote!" exclaimed Barbican, with an angry sneer.

"Let us see the symmetrical point!" roared the Captain, quite savagely.

"Dear boys! old fellows!--" cried Ardan, as loud as his lungs would let him.

"It's useless to argue with a Mississippi steamboat Captain," ejaculated Barbican; "he never gives in till he blows up!"

"Never try to convince a Yankee schoolmaster," replied M'Nicholl; "he has one book by heart and don't believe in any other!"

"Here, friend Michael, get me a cord, won't you? It's the only way to convince him!" cried Barbican, hastily turning to the Frenchman.

"Hand me over that ruler, Ardan!" yelled the Captain. "The heavy one! It's the only way now left to bring him to reason!"

"Look here, Barbican and M'Nicholl!" cried Ardan, at last making himself heard, and keeping a tight hold both on the cord and the ruler. "This thing has gone far enough! Come. Stop your talk, and answer me a few questions. What do you want of this cord, Barbican?"

"To describe a parabolic curve!"

"And what are you going to do with the ruler, M'Nicholl!"

"To help draw a true hyperbola!"

"Promise me, Barbican, that you're not going to lasso the Captain!"

"Lasso the Captain! Ha! ha! ha!"

"You promise, M'Nicholl, that you're not going to brain the President!"

"I brain the President! Ho! ho! ho!"

"I want merely to convince him that it is a parabola!"

"I only want to make it clear as day that it is hyperbola!"

"Does it make any real difference whether it is one or the other?" yelled Ardan.

"The greatest possible difference--in the Eye of Science."

"A radical and incontrovertible difference--in the Eye of Science!"

"Oh! Hang the Eye of Science--will either curve take us to the Moon?"

"No!"

"Will either take us back to the Earth?"

"No!"

"Will either take us anywhere that you know of?"

"No!"

"Why not?"

"Because they are both open curves, and therefore can never end!"

"Is it of the slightest possible importance which of the two curves controls the Projectile?"

"Not the slightest--except in the Eye of Science!"

"Then let the Eye of Science and her parabolas and hyperbolas, and conjugates, and asymptotes, and the rest of the confounded nonsensical farrago, all go to pot! What's the use of bothering your heads about them here! Have you not enough to trouble you otherwise? A nice pair of scientists you are? 'Stanislow' scientists, probably. Do real scientists lose their tempers for a trifle? Am I ever to see my ideal of a true scientific man in the flesh? Barbican came very near realizing my idea perfectly; but I see that Science just has as little effect as Culture in driving the Old Adam out of us! The idea of the only simpleton in the lot having to lecture the others on propriety of deportment! I thought they were going to tear each other's eyes out! Ha! Ha! Ha! It's impayable! Give me that cord, Michael! Hand me the heavy ruler, Ardan! It's the only way to bring him to reason! Ho! Ho! Ho! It's too good! I shall never get over it!" and he laughed till his sides ached and his cheeks streamed.

His laughter was so contagious, and his merriment so genuine, that there was really no resisting it, and the next few minutes witnessed nothing but laughing, and handshaking and rib-punching in the Projectile--though Heaven knows there was very little for the poor fellows to be merry about. As they could neither reach the Moon nor return to the Earth,

what was to befall them? The immediate outlook was the very reverse of exhilarating. If they did not die of hunger, if they did not die of thirst, the reason would simply be that, in a few days, as soon as their gas was exhausted, they would die for want of air, unless indeed the icy cold had killed them beforehand!

By this time, in fact, the temperature had become so exceedingly cold that a further encroachment on their little stock of gas could be put off no longer. The light, of course, they could manage to do without; but a little heat was absolutely necessary to prevent them from freezing to death. Fortunately, however, the caloric developed by the Reiset and Regnault process for purifying the air, raised the internal temperature of the Projectile a little, so that, with an expenditure of gas much less than they had expected, our travellers were able to maintain it at a degree capable of sustaining human life.

By this time, also, all observations through the windows had become exceedingly difficult. The internal moisture condensed so thick and congealed so hard on the glass that nothing short of continued friction could keep up its transparency. But this friction, however laborious they might regard it at other times, they thought very little of just now, when observation had become far more interesting and important than ever.

If the Moon had any atmosphere, our travellers were near enough now to strike any meteor that might be rushing through it. If the Projectile itself were floating in it, as was possible, would not such a good

conductor of sound convey to their ears the reflexion of some lunar echo, the roar of some storm raging among the mountains, the rattling of some plunging avalanche, or the detonations of some eructating volcano? And suppose some lunar Etna or Vesuvius was flashing out its fires, was it not even possible that their eye could catch a glimpse of the lurid gleam? One or two facts of this kind, well attested, would singularly elucidate the vexatious question of a lunar atmosphere, which is still so far from being decided. Full of such thoughts and intensely interested in them, Barbican, M'Nicholl and Ardan, patient as astronomers at a transit of Venus, watched steadily at their windows, and allowed nothing worth noticing to escape their searching gaze.

Ardan's patience first gave out. He showed it by an observation natural enough, for that matter, to a mind unaccustomed to long stretches of careful thought:

"This darkness is absolutely killing! If we ever take this trip again, it must be about the time of the New Moon!"

"There I agree with you, Ardan," observed the Captain. "That would be just the time to start. The Moon herself, I grant, would be lost in the solar rays and therefore invisible all the time of our trip, but in compensation, we should have the Full Earth in full view. Besides--and this is your chief point, no doubt, Ardan--if we should happen to be drawn round the Moon, just as we are at the present moment, we should enjoy the inestimable advantage of beholding her invisible side magnificently illuminated!"

"My idea exactly, Captain," said Ardan. "What is your opinion on this point, Barbican?"

"My opinion is as follows:" answered Barbican, gravely. "If we ever repeat this journey, we shall start precisely at the same time and under precisely the same circumstances. You forget that our only object is to reach the Moon. Now suppose we had really landed there, as we expected to do yesterday, would it not have been much more agreeable to behold the lunar continents enjoying the full light of day than to find them plunged in the dismal obscurity of night? Would not our first installation of discovery have been under circumstances decidedly extremely favorable? Your silence shows that you agree with me. As to the invisible side, once landed, we should have the power to visit it when we pleased, and therefore we could always choose whatever time would best suit our purpose. Therefore, if we wanted to land in the Moon, the period of the Full Moon was the best period to select. The period was well chosen, the time was well calculated, the force was well applied, the Projectile was well aimed, but missing our way spoiled everything."

"That's sound logic, no doubt," said Ardan; "still I can't help thinking that all for want of a little light we are losing, probably forever, a splendid opportunity of seeing the Moon's invisible side. How about the other planets, Barbican? Do you think that their inhabitants are as ignorant regarding their satellites as we are regarding ours?"

"On that subject," observed M'Nicholl, "I could venture an answer myself, though, of course, without pretending to speak dogmatically on any such open question. The satellites of the other planets, by their comparative proximity, must be much easier to study than our Moon. The Saturnians, the Uranians, the Jovians, cannot have had very serious difficulty in effecting some communication with their satellites. Jupiter's four moons, for instance, though on an average actually 2-1/2 times farther from their planet's centre than the Moon is from us, are comparatively four times nearer to him on account of his radius being eleven times greater than the Earth's. With Saturn's eight moons, the case is almost precisely similar. Their average distance is nearly three times greater than that of our Moon; but as Saturn's diameter is about 9 times greater than the Earth's, his bodyguards are really between 3 and 4 times nearer to their principal than ours is to us. As to Uranus, his first satellite, Ariel, half as far from him as our Moon is from the Earth, is comparatively, though not actually, eight times nearer."

"Therefore," said Barbican, now taking up the subject, "an experiment analogous to ours, starting from either of these three planets, would have encountered fewer difficulties. But the whole question resolves itself into this. If the Jovians and the rest have been able to quit their planets, they have probably succeeded in discovering the invisible sides of their satellites. But if they have not been able to do so, why, they're not a bit wiser than ourselves--But what's the matter with the Projectile? It's certainly shifting!"

Shifting it certainly was. While the path it described as it swung

blindly through the darkness, could not be laid down by any chart for want of a starting point, Barbican and his companions soon became aware of a decided modification of its relative position with regard to the Moon's surface. Instead of its side, as heretofore, it now presented its base to the Moon's disc, and its axis had become rigidly vertical to the lunar horizon. Of this new feature in their journey, Barbican had assured himself by the most undoubted proof towards four o'clock in the morning. What was the cause? Gravity, of course. The heavier portion of the Projectile gravitated towards the Moon's centre exactly as if they were falling towards her surface.

But were they falling? Were they at last, contrary to all expectations, about to reach the goal that they had been so ardently wishing for? No! A sight-point, just discovered by M'Nicholl, very soon convinced Barbican that the Projectile was as far as ever from approaching the Moon, but was moving around it in a curve pretty near concentric.

M'Nicholl's discovery, a luminous gleam flickering on the distant verge of the black disc, at once engrossed the complete attention of our travellers and set them to divining its course. It could not possibly be confounded with a star. Its glare was reddish, like that of a distant furnace on a dark night; it kept steadily increasing in size and brightness, thus showing beyond a doubt how the Projectile was moving--in the direction of the luminous point, and not vertically falling towards the Moon's surface.

"It's a volcano!" cried the Captain, in great excitement; "a volcano in full blast! An outlet of the Moon's internal fires! Therefore she can't be a burnt out cinder!"

"It certainly looks like a volcano," replied Barbican, carefully investigating this new and puzzling phenomenon with his night-glass. "If it is not one, in fact, what can it be?"

"To maintain combustion," commenced Ardan syllogistically and sententiously, "air is necessary. An undoubted case of combustion lies before us. Therefore, this part of the Moon must have an atmosphere!"

"Perhaps so," observed Barbican, "but not necessarily so. The volcano, by decomposing certain substances, gunpowder for instance, may be able to furnish its own oxygen, and thus explode in a vacuum. That blaze, in fact, seems to me to possess the intensity and the blinding glare of objects burning in pure oxygen. Let us therefore be not over hasty in jumping at the conclusion of the existence of a lunar atmosphere."

This fire mountain was situated, according to the most plausible conjecture, somewhere in the neighborhood of the 45th degree, south latitude, of the Moon's invisible side. For a little while the travellers indulged the fond hope that they were directly approaching it, but, to their great disappointment, the path described by the Projectile lay in a different direction. Its nature therefore they had no opportunity of ascertaining. It began to disappear behind the dark horizon within less than half an hour after the time that M'Nicholl had

signalled it. Still, the fact of the uncontested existence of such a phenomenon was a grand one, and of considerable importance in selenographic investigations. It proved that heat had not altogether disappeared from the lunar world; and the existence of heat once settled, who can say positively that the vegetable kingdom and even the animal kingdom have not likewise resisted so far every influence tending to destroy them? If terrestrial astronomers could only be convinced, by undoubted evidence, of the existence of this active volcano on the Moon's surface, they would certainly admit of very considerable modifications in the present doubts regarding her inhabitability.

Thoughts of this kind continued to occupy the minds of our travellers even for some time after the little spark of light had been extinguished in the black gloom. But they said very little; even Ardan was silent, and continued to look out of the window. Barbican surrendered himself up to a reverie regarding the mysterious destinies of the lunar world. Was its present condition a foreshadowing of what our Earth is to become? M'Nicholl, too, was lost in speculation. Was the Moon older or younger than the Earth in the order of Creation? Had she ever been a beautiful world of life, and color, and magnificent variety? If so, had her inhabitants--

Great Mercy, what a cry from Ardan! It sounded human, so seldom do we hear a shriek so expressive at once of surprise and horror and even terror! It brought back his startled companions to their senses in a second. Nor did they ask him for the cause of his alarm. It was only too clear. Right in their very path, a blazing ball of fire had suddenly

risen up before their eyes, the pitchy darkness all round it rendering its glare still more blinding. Its phosphoric coruscation filled the Projectile with white streams of lurid light, tinging the contents with a pallor indescribably ghastly. The travellers' faces in particular, gleamed with that peculiar livid and cadaverous tinge, blue and yellow, which magicians so readily produce by burning table salt in alcohol.

"Sacré!" cried Ardan who always spoke his own language when much excited. "What a pair of beauties you are! Say, Barbican! What thundering thing is coming at us now?"

"Another bolide," answered Barbican, his eye as calm as ever, though a faint tremor was quite perceptible in his voice.

"A bolide? Burning in vacuo? You are joking!"

"I was never more in earnest," was the President's quiet reply, as he looked through his closed fingers.

He knew exactly what he was saying. The dazzling glitter did not deceive him. Such a meteor seen from the Earth could not appear much brighter than the Full Moon, but here in the midst of the black ether and unsoftened by the veil of the atmosphere, it was absolutely blinding. These wandering bodies carry in themselves the principle of their incandescence. Oxygen is by no means necessary for their combustion. Some of them indeed often take fire as they rush through the layers of our atmosphere, and generally burn out before they strike the Earth. But

others, on the contrary, and the greater number too, follow a track through space far more distant from the Earth than the fifty miles supposed to limit our atmosphere. In October, 1844, one of these meteors had appeared in the sky at an altitude calculated to be at least 320 miles; and in August, 1841, another had vanished when it had reached the height of 450 miles. A few even of those seen from the Earth must have been several miles in diameter. The velocity with which some of them have been calculated to move, from east to west, in a direction contrary to that of the Earth, is astounding enough to exceed belief--about fifty miles in a second. Our Earth does not move quite 20 miles in a second, though it goes a thousand times quicker than the fastest locomotive.

Barbican calculated like lightning that the present object of their alarm was only about 250 miles distant from them, and could not be less than a mile and a quarter in diameter. It was coming on at the rate of more than a mile a second or about 75 miles a minute. It lay right in the path of the Projectile, and in a very few seconds indeed a terrible collision was inevitable. The enormous rate at which it grew in size, showed the terrible velocity at which it was approaching.

You can hardly imagine the situation of our poor travellers at the sight of this frightful apparition. I shall certainly not attempt to describe it. In spite of their singular courage, wonderful coolness, extraordinary fortitude, they were now breathless, motionless, almost helpless; their muscles were tightened to their utmost tension; their eyes stared out of their sockets; their faces were petrified with horror. No wonder. Their Projectile, whose course they were powerless as

children to guide, was making straight for this fiery mass, whose glare in a few seconds had become more blinding than the open vent of a reverberating furnace. Their own Projectile was carrying them headlong into a bottomless abyss of fire!

Still, even in this moment of horror, their presence of mind, or at least their consciousness, never abandoned them. Barbican had grasped each of his friends by the hand, and all three tried as well as they could to watch through half-closed eyelids the white-hot asteroid's rapid approach. They could utter no word, they could breathe no prayer. They gave themselves up for lost--in the agony of terror that partially interrupted the ordinary functions of their brains, this was absolutely all they could do! Hardly three minutes had elapsed since Ardan had caught the first glimpse of it--three ages of agony! Now it was on them! In a second--in less than a second, the terrible fireball had burst like a shell! Thousands of glittering fragments were flying around them in all directions--but with no more noise than is made by so many light flakes of thistle-down floating about some warm afternoon in summer. The blinding, blasting steely white glare of the explosion almost bereft the travellers of the use of their eyesight forever, but no more report reached their ears than if it had taken place at the bottom of the Gulf of Mexico. In an atmosphere like ours, such a crash would have burst the ear-membranes of ten thousand elephants!

In the middle of the commotion another loud cry was suddenly heard. It was the Captain who called this time. His companions rushed to his window and all looked out together in the same direction.

What a sight met their eyes! What pen can describe it? What pencil can reproduce the magnificence of its coloring? It was a Vesuvius at his best and wildest, at the moment just after the old cone has fallen in. Millions of luminous fragments streaked the sky with their blazing fires. All sizes and shapes of light, all colors and shades of colors, were inextricably mingled together. Irradiations in gold, scintillations in crimson, splendors in emerald, lucidities in ultramarine--a dazzling girandola of every tint and of every hue. Of the enormous fireball, an instant ago such an object of dread, nothing now remained but these glittering pieces, shooting about in all directions, each one an asteroid in its turn. Some flew out straight and gleaming like a steel sword; others rushed here and there irregularly like chips struck off a red-hot rock; and others left long trails of glittering cosmical dust behind them like the nebulous tail of Donati's comet.

These incandescent blocks crossed each other, struck each other, crushed each other into still smaller fragments, one of which, grazing the Projectile, jarred it so violently that the very window at which the travellers were standing, was cracked by the shock. Our friends felt, in fact, as if they were the objective point at which endless volleys of blazing shells were aimed, any of them powerful enough, if it only hit them fair, to make as short work of the Projectile as you could of an egg-shell. They had many hairbreadth escapes, but fortunately the cracking of the glass proved to be the only serious damage of which they could complain.

This extraordinary illumination lasted altogether only a few seconds; every one of its details was of a most singular and exciting nature--but one of its greatest wonders was yet to come. The ether, saturated with luminous matter, developed an intensity of blazing brightness unequalled by the lime light, the magnesium light, the electric light, or any other dazzling source of illumination with which we are acquainted on earth. It flashed out of these asteroids in all directions, and downwards, of course, as well as elsewhere. At one particular instant, it was so very vivid that Ardan, who happened to be looking downwards, cried out, as if in transport:

"Oh!! The Moon! Visible at last!"

And the three companions, thrilling with indescribable emotion, shot a hasty glance through the openings of the coruscating field beneath them. Did they really catch a glimpse of the mysterious invisible disc that the eye of man had never before lit upon? For a second or so they gazed with enraptured fascination at all they could see. What did they see, what could they see at a distance so uncertain that Barbican has never been able even to guess at it? Not much. Ardan was reminded of the night he had stood on the battlements of Dover Castle, a few years before, when the fitful flashes of a thunder storm gave him occasional and very uncertain glimpses of the French coast at the opposite side of the strait. Misty strips long and narrow, extending over one portion of the disc--probably cloud-scuds sustained by a highly rarefied atmosphere--permitted only a very dreamy idea of lofty mountains stretching beneath them in shapeless proportions, of smaller reliefs,

circuses, yawning craters, and the other capricious, sponge-like formations so common on the visible side. Elsewhere the watchers became aware for an instant of immense spaces, certainly not arid plains, but seas, real oceans, vast and calm, reflecting from their placid depths the dazzling fireworks of the weird and wildly flashing meteors. Farther on, but very darkly as if behind a screen, shadowy continents revealed themselves, their surfaces flecked with black cloudy masses, probably great forests, with here and there a--

Nothing more! In less than a second the illumination had come to an end, involving everything in the Moon's direction once more in pitchy darkness.

But had the impression made on the travellers' eyes been a mere vision or the result of a reality? an optical delusion or the shadow of a solid fact? Could an observation so rapid, so fleeting, so superficial, be really regarded as a genuine scientific affirmation? Could such a feeble glimmer of the invisible disc justify them in pronouncing a decided opinion on the inhabitability of the Moon? To such questions as these, rising spontaneously and simultaneously in the minds of our travellers, they could not reply at the moment; they could not reply to them long afterwards; even to this day they can give them no satisfactory answer. All they could do at the moment, they did. To every sight and sound they kept their eyes and ears open, and, by observing the most perfect silence, they sought to render their impressions too vivid to admit of deception.

There was now, however, nothing to be heard, and very little more to be seen. The few coruscations that flashed over the sky, gradually became fewer and dimmer; the asteroids sought paths further and further apart, and finally disappeared altogether. The ether resumed its original blackness. The stars, eclipsed for a moment, blazed out again on the firmament, and the invisible disc, that had flashed into view for an instant, once more relapsed forever into the impenetrable depths of night.