

CHAPTER XIX.

IN EVERY FIGHT, THE IMPOSSIBLE WINS.

No matter what we have been accustomed to, it is sad to bid it farewell forever. The glimpse of the Moon's wondrous world imparted to Barbican and his companions had been, like that of the Promised Land to Moses on Mount Pisgah, only a distant and a dark one, yet it was with inexpressibly mournful eyes that, silent and thoughtful, they now watched her fading away slowly from their view, the conviction impressing itself deeper and deeper in their souls that, slight as their acquaintance had been, it was never to be renewed again. All doubt on the subject was removed by the position gradually, but decidedly, assumed by the Projectile. Its base was turning away slowly and steadily from the Moon, and pointing surely and unmistakably towards the Earth.

Barbican had been long carefully noticing this modification, but without being able to explain it. That the Projectile should withdraw a long distance from the Moon and still be her satellite, he could understand; but, being her satellite, why not present towards her its heaviest segment, as the Moon does towards the Earth? That was the point which he could not readily clear up.

By carefully noting its path, he thought he could see that the Projectile, though now decidedly leaving the Moon, still followed a curve exactly analogous to that by which it had approached her. It must

therefore be describing a very elongated ellipse, which might possibly extend even to the neutral point where the lunar and terrestrial attractions were mutually overcome.

With this surmise of Barbican's, his companions appeared rather disposed to agree, though, of course, it gave rise to new questions.

"Suppose we reach this dead point," asked Ardan; "what then is to become of us?"

"Can't tell!" was Barbican's unsatisfactory reply.

"But you can form a few hypotheses?"

"Yes, two!"

"Let us have them."

"The velocity will be either sufficient to carry us past the dead point, or it will not: sufficient, we shall keep on, just as we are now, gravitating forever around the Moon--"

--"Hypothesis number two will have at least one point in its favor," interrupted as usual the incorrigible Ardan; "it can't be worse than hypothesis number one!"

--"Insufficient," continued Barbican, laying down the law, "we shall

rest forever motionless on the dead point of the mutually neutralizing attractions."

"A pleasant prospect!" observed Ardan: "from the worst possible to no better! Isn't it, Barbican?"

"Nothing to say," was Barbican's only reply.

"Have you nothing to say either, Captain?" asked Ardan, beginning to be a little vexed at the apparent apathy of his companions.

"Nothing whatever," replied M'Nicholl, giving point to his words by a despairing shake of his head.

"You don't mean surely that we're going to sit here, like bumps on a log, doing nothing until it will be too late to attempt anything?"

"Nothing whatever can be done," said Barbican gloomily. "It is vain to struggle against the impossible."

"Impossible! Where did you get that word? I thought the American schoolboys had cut it out of their dictionaries!"

"That must have been since my time," said Barbican smiling grimly.

"It still sticks in a few old copies anyhow," drawled M'Nicholl drily, as he carefully wiped his glasses.

"Well! it has no business here!" said Ardan. "What! A pair of live Yankees and a Frenchman, of the nineteenth century too, recoil before an old fashioned word that hardly scared our grandfathers!"

"What can we do?"

"Correct the movement that's now running away with us!"

"Correct it?"

"Certainly, correct it! or modify it! or clap brakes on it! or take some advantage of it that will be in our favor! What matters the exact term so you comprehend me?"

"Easy talking!"

"As easy doing!"

"Doing what? Doing how?"

"The what, and the how, is your business, not mine! What kind of an artillery man is he who can't master his bullets? The gunner who cannot command his own gun should be rammed into it head foremost himself and blown from its mouth! A nice pair of savants you are! There you sit as helpless as a couple of babies, after having inveigled me--"

"Inveigled!!" cried Barbican and M'Nicholl starting to their feet in an instant; "WHAT!!!"

"Come, come!" went on Ardan, not giving his indignant friends time to utter a syllable; "I don't want any recrimination! I'm not the one to complain! I'll even let up a little if you consider the expression too strong! I'll even withdraw it altogether, and assert that the trip delights me! that the Projectile is a thing after my own heart! that I was never in better spirits than at the present moment! I don't complain, I only appeal to your own good sense, and call upon you with all my voice to do everything possible, so that we may go somewhere, since it appears we can't get to the Moon!"

"But that's exactly what we want to do ourselves, friend Ardan," said Barbican, endeavoring to give an example of calmness to the impatient M'Nicholl; "the only trouble is that we have not the means to do it."

"Can't we modify the Projectile's movement?"

"No."

"Nor diminish its velocity?"

"No."

"Not even by lightening it, as a heavily laden ship is lightened, by throwing cargo overboard?"

"What can we throw overboard? We have no ballast like balloon-men."

"I should like to know," interrupted M'Nicholl, "what would be the good of throwing anything at all overboard. Any one with a particle of common sense in his head, can see that the lightened Projectile should only move the quicker!"

"Slower, you mean," said Ardan.

"Quicker, I mean," replied the Captain.

"Neither quicker nor slower, dear friends," interposed Barbican, desirous to stop a quarrel; "we are floating, you know, in an absolute void, where specific gravity never counts."

"Well then, my friends," said Ardan in a resigned tone that he evidently endeavored to render calm, "since the worst is come to the worst, there is but one thing left for us to do!"

"What's that?" said the Captain, getting ready to combat some new piece of nonsense.

"To take our breakfast!" said the Frenchman curtly.

It was a resource he had often fallen back on in difficult conjunctures. Nor did it fail him now.

Though it was not a project that claimed to affect either the velocity or the direction of the Projectile, still, as it was eminently practicable and not only unattended by no inconvenience on the one hand but evidently fraught with many advantages on the other, it met with decided and instantaneous success. It was rather an early hour for breakfast, two o'clock in the morning, yet the meal was keenly relished. Ardan served it up in charming style and crowned the dessert with a few bottles of a wine especially selected for the occasion from his own private stock. It was a Tokay Imperial of 1863, the genuine Essenz, from Prince Esterhazy's own wine cellar, and the best brain stimulant and brain clearer in the world, as every connoisseur knows.

It was near four o'clock in the morning when our travellers, now well fortified physically and morally, once more resumed their observations with renewed courage and determination, and with a system of recording really perfect in its arrangements.

Around the Projectile, they could still see floating most of the objects that had been dropped out of the window. This convinced them that, during their revolution around the Moon, they had not passed through any atmosphere; had anything of the kind been encountered, it would have revealed its presence by its retarding effect on the different objects that now followed close in the wake of the Projectile. One or two that were missing had been probably struck and carried off by a fragment of the exploded bolide.

Of the Earth nothing as yet could be seen. She was only one day Old, having been New the previous evening, and two days were still to elapse before her crescent would be sufficiently cleared of the solar rays to be capable of performing her ordinary duty of serving as a time-piece for the Selenites. For, as the reflecting reader need hardly be reminded, since she rotates with perfect regularity on her axis, she can make such rotations visible to the Selenites by bringing some particular point on her surface once every twenty-four hours directly over the same lunar meridian.

Towards the Moon, the view though far less distinct, was still almost as dazzling as ever. The radiant Queen of Night still glittered in all her splendor in the midst of the starry host, whose pure white light seemed to borrow only additional purity and silvery whiteness from the gorgeous contrast. On her disc, the "seas" were already beginning to assume the ashy tint so well known to us on Earth, but the rest of her surface sparkled with all its former radiation, Tycho glowing like a sun in the midst of the general resplendence.

Barbican attempted in vain to obtain even a tolerable approximation of the velocity at which the Projectile was now moving. He had to content himself with the knowledge that it was diminishing at a uniform rate--of which indeed a little reflection on a well known law of Dynamics readily convinced him. He had not much difficulty even in explaining the matter to his friends.

"Once admitting," said he, "the Projectile to describe an orbit round

the Moon, that orbit must of necessity be an ellipse. Every moving body circulating regularly around another, describes an ellipse. Science has proved this incontestably. The satellites describe ellipses around the planets, the planets around the Sun, the Sun himself describes an ellipse around the unknown star that serves as a pivot for our whole solar system. How can our Baltimore Gun Club Projectile then escape the universal law?

"Now what is the consequence of this law? If the orbit were a circle, the satellite would always preserve the same distance from its primary, and its velocity should therefore be constant. But the orbit being an ellipse, and the attracting body always occupying one of the foci, the satellite must evidently lie nearer to this focus in one part of its orbit than in another. The Earth when nearest to the Sun, is in her perihelion; when most distant, in her aphelion. The Moon, with regard to the Earth, is similarly in her perigee, and her apogee. Analogous expressions denoting the relations of the Projectile towards the Moon, would be periselene and aposelene. At its aposelene the Projectile's velocity would have reached its minimum; at the periselene, its maximum. As it is to the former point that we are now moving, clearly the velocity must keep on diminishing until that point is reached. Then, if it does not die out altogether, it must spring up again, and even accelerate as it reapproaches the Moon. Now the great trouble is this: If the Aposelenetic point should coincide with the point of lunar attraction, our velocity must certainly become nil, and the Projectile must remain relatively motionless forever!"

"What do you mean by 'relatively motionless'?" asked M'Nicholl, who was carefully studying the situation.

"I mean, of course, not absolutely motionless," answered Barbican; "absolute immobility is, as you are well aware, altogether impossible, but motionless with regard to the Earth and the--"

"By Mahomet's jackass!" interrupted Ardan hastily, "I must say we're a precious set of imbéciles!"

"I don't deny it, dear friend," said Barbican quietly, notwithstanding the unceremonious interruption; "but why do you say so just now?"

"Because though we are possessed of the power of retarding the velocity that takes us from the Moon, we have never thought of employing it!"

"What do you mean?"

"Do you forget the rockets?"

"It's a fact!" cried M'Nicholl. "How have we forgotten them?"

"I'm sure I can't tell," answered Barbican, "unless, perhaps, because we had too many other things to think about. Your thought, my dear friend, is a most happy one, and, of course, we shall utilize it."

"When? How soon?"

"At the first favorable opportunity, not sooner. For you can see for yourselves, dear friends," he went on explaining, "that with the present obliquity of the Projectile with regard to the lunar disc, a discharge of our rockets would be more likely to send us away from the Moon than towards her. Of course, you are both still desirous of reaching the Moon?"

"Most emphatically so!"

"Then by reserving our rockets for the last chance, we may possibly get there after all. In consequence of some force, to me utterly inexplicable, the Projectile still seems disposed to turn its base towards the Earth. In fact, it is likely enough that at the neutral point its cone will point vertically to the Moon. That being the moment when its velocity will most probably be nil, it will also be the moment for us to discharge our rockets, and the possibility is that we may force a direct fall on the lunar disc."

"Good!" cried Ardan, clapping hands.

"Why didn't we execute this grand manoeuvre the first time we reached the neutral point?" asked M'Nicholl a little crustily.

"It would be useless," answered Barbican; "the Projectile's velocity at that time, as you no doubt remember, not only did not need rockets, but was actually too great to be affected by them."

"True!" chimed in Ardan; "a wind of four miles an hour is very little use to a steamer going ten."

"That assertion," cried M'Nicholl, "I am rather dis--"

--"Dear friends," interposed Barbican, his pale face beaming and his clear voice ringing with the new excitement; "let us just now waste no time in mere words. We have one more chance, perhaps a great one. Let us not throw it away! We have been on the brink of despair--"

--"Beyond it!" cried Ardan.

--"But I now begin to see a possibility, nay, a very decided probability, of our being able to attain the great end at last!"

"Bravo!" cried Ardan.

"Hurrah!" cried M'Nicholl.

"Yes! my brave boys!" cried Barbican as enthusiastically as his companions; "all's not over yet by a long shot!"

What had brought about this great revulsion in the spirits of our bold adventurers? The breakfast? Prince Esterhazy's Tokay? The latter, most probably. What had become of the resolutions they had discussed so ably and passed so decidedly a few hours before? Was the Moon inhabited? No!

Was the Moon habitable? No! Yet in the face of all this--or rather as coolly as if such subjects had never been alluded to--here were the reckless scientists actually thinking of nothing but how to work heaven and earth in order to get there!

One question more remained to be answered before they played their last trump, namely: "At what precise moment would the Projectile reach the neutral point?"

To this Barbican had very little trouble in finding an answer. The time spent in proceeding from the south pole to the dead point being evidently equal to the time previously spent in proceeding from the dead point to the north pole--to ascertain the former, he had only to calculate the latter. This was easily done. To refer to his notes, to check off the different rates of velocity at which they had readied the different parallels, and to turn these rates into time, required only a very few minutes careful calculation. The Projectile then was to reach the point of neutral attraction at one o'clock in the morning of December 8th. At the present time, it was five o'clock in the morning of the 7th; therefore, if nothing unforeseen should occur in the meantime, their great and final effort was to be made about twenty hours later.

The rockets, so often alluded to as an idea of Ardan's and already fully described, had been originally provided to break the violence of the Projectile's fall on the lunar surface; but now the dauntless travellers were about to employ them for a purpose precisely the reverse. In any case, having been put in proper order for immediate use, nothing more

now remained to be done till the moment should come for firing them off.

"Now then, friends," said M'Nicholl, rubbing his eyes but hardly able to keep them open, "I'm not over fond of talking, but this time I think I may offer a slight proposition."

"We shall be most happy to entertain it, my dear Captain," said Barbican.

"I propose we lie down and take a good nap."

"Good gracious!" protested Ardan; "What next?"

"We have not had a blessed wink for forty hours," continued the Captain; "a little sleep would recuperate us wonderfully."

"No sleep now!" exclaimed Ardan.

"Every man to his taste!" said M'Nicholl; "mine at present is certainly to turn in!" and suiting the action to the word, he coiled himself on the sofa, and in a few minutes his deep regular breathing showed his slumber to be as tranquil as an infant's.

Barbican looked at him in a kindly way, but only for a very short time; his eyes grew so filmy that he could not keep them open any longer. "The Captain," he said, "may not be without his little faults, but for good practical sense he is worth a ship-load like you and me, Ardan. By Jove,

I'm going to imitate him, and, friend Michael, you might do worse!"

In a short time he was as unconscious as the Captain.

Ardan gazed on the pair for a few minutes, and then began to feel quite lonely. Even his animals were fast asleep. He tried to look out, but observing without having anybody to listen to your observations, is dull work. He looked again at the sleeping pair, and then he gave in.

"It can't be denied," he muttered, slowly nodding his head, "that even your practical men sometimes stumble on a good idea."

Then curling up his long legs, and folding his arms under his head, his restless brain was soon forming fantastic shapes for itself in the mysterious land of dreams.

But his slumbers were too much disturbed to last long. After an uneasy, restless, unrefreshing attempt at repose, he sat up at about half-past seven o'clock, and began stretching himself, when he found his companions already awake and discussing the situation in whispers.

The Projectile, they were remarking, was still pursuing its way from the Moon, and turning its conical point more and more in her direction. This latter phenomenon, though as puzzling as ever, Barbican regarded with decided pleasure: the more directly the conical summit pointed to the Moon at the exact moment, the more directly towards her surface would the rockets communicate their reactionary motion.

Nearly seventeen hours, however, were still to elapse before that moment, that all important moment, would arrive.

The time began to drag. The excitement produced by the Moon's vicinity had died out. Our travellers, though as daring and as confident as ever, could not help feeling a certain sinking of heart at the approach of the moment for deciding either alternative of their doom in this world--their fall to the Moon, or their eternal imprisonment in a changeless orbit. Barbican and M'Nicholl tried to kill time by revising their calculations and putting their notes in order; Ardan, by feverishly walking back and forth from window to window, and stopping for a second or two to throw a nervous glance at the cold, silent and impassive Moon.

Now and then reminiscences of our lower world would flit across their brains. Visions of the famous Gun Club rose up before them the oftenest, with their dear friend Marston always the central figure. What was his bustling, honest, good-natured, impetuous heart at now? Most probably he was standing bravely at his post on the Rocky Mountains, his eye glued to the great Telescope, his whole soul peering through its tube. Had he seen the Projectile before it vanished behind the Moon's north pole? Could he have caught a glimpse of it at its reappearance? If so, could he have concluded it to be the satellite of a satellite! Could Belfast have announced to the world such a startling piece of intelligence? Was that all the Earth was ever to know of their great enterprise? What were the speculations of the Scientific World upon the subject? etc., etc.

In listless questions and desultory conversation of this kind the day slowly wore away, without the occurrence of any incident whatever to relieve its weary monotony. Midnight arrived, December the seventh was dead. As Ardan said: "Le Sept Decembre est mort; vive le Huit!" In one hour more, the neutral point would be reached. At what velocity was the Projectile now moving? Barbican could not exactly tell, but he felt quite certain that no serious error had slipped into his calculations. At one o'clock that night, nil the velocity was to be, and nil it would be!

Another phenomenon, in any case, was to mark the arrival of the exact moment. At the dead point, the two attractions, terrestrial and lunar, would again exactly counterbalance each other. For a few seconds, objects would no longer possess the slightest weight. This curious circumstance, which had so much surprised and amused the travellers at its first occurrence, was now to appear again as soon as the conditions should become identical. During these few seconds then would come the moment for striking the decisive blow.

They could soon notice the gradual approach of this important instant. Objects began to weigh sensibly lighter. The conical point of the Projectile had become almost directly under the centre of the lunar surface. This gladdened the hearts of the bold adventurers. The recoil of the rockets losing none of its power by oblique action, the chances pronounced decidedly in their favor. Now, only supposing the Projectile's velocity to be absolutely annihilated at the dead point,

the slightest force directing it towards the Moon would be certain to cause it finally to fall on her surface.

Supposing!--but supposing the contrary!

--Even these brave adventurers had not the courage to suppose the contrary!

"Five minutes to one o'clock," said M'Nicholl, his eyes never quitting his watch.

"Ready?" asked Barbican of Ardan.

"Ay, ay, sir!" was Ardan's reply, as he made sure that the electric apparatus to discharge the rockets was in perfect working order.

"Wait till I give the word," said Barbican, pulling out his chronometer.

The moment was now evidently close at hand. The objects lying around had no weight. The travellers felt their bodies to be as buoyant as a hydrogen balloon. Barbican let go his chronometer, but it kept its place as firmly in empty space before his eyes as if it had been nailed to the wall!

"One o'clock!" cried Barbican in a solemn tone.

Ardan instantly touched the discharging key of the little electric

battery. A dull, dead, distant report was immediately heard, communicated probably by the vibration of the Projectile to the internal air. But Ardan saw through the window a long thin flash, which vanished in a second. At the same moment, the three friends became instantaneously conscious of a slight shock experienced by the Projectile.

They looked at each other, speechless, breathless, for about as long as it would take you to count five: the silence so intense that they could easily hear the pulsation of their hearts. Ardan was the first to break it.

"Are we falling or are we not?" he asked in a loud whisper.

"We're not!" answered M'Nicholl, also hardly speaking above his breath.

"The base of the Projectile is still turned away as far as ever from the Moon!"

Barbican, who had been looking out of the window, now turned hastily towards his companions. His face frightened them. He was deadly pale; his eyes stared, and his lips were painfully contracted.

"We are falling!" he shrieked huskily.

"Towards the Moon?" exclaimed his companions.

"No!" was the terrible reply. "Towards the Earth!"

"Sacré!" cried Ardan, as usually letting off his excitement in French.

"Fire and fury!" cried M'Nicholl, completely startled out of his habitual sang froid.

"Thunder and lightning!" swore the usually serene Barbican, now completely stunned by the blow. "I had never expected this!"

Ardan was the first to recover from the deadening shock: his levity came to his relief.

"First impressions are always right," he muttered philosophically. "The moment I set eyes on the confounded thing, it reminded me of the Bastille; it is now proving its likeness to a worse place: easy enough to get into, but no redemption out of it!"

There was no longer any doubt possible on the subject. The terrible fall had begun. The Projectile had retained velocity enough not only to carry it beyond the dead point, but it was even able to completely overcome the feeble resistance offered by the rockets. It was all clear now. The same velocity that had carried the Projectile beyond the neutral point on its way to the Moon, was still swaying it on its return to the Earth. A well known law of motion required that, in the path which it was now about to describe, it should repass, on its return through all the points through which it had already passed during its departure.

No wonder that our friends were struck almost senseless when the fearful fall they were now about to encounter, flashed upon them in all its horror. They were to fall a clear distance of nearly 200 thousand miles! To lighten or counteract such a descent, the most powerful springs, checks, rockets, screens, deadeners, even if the whole Earth were engaged in their construction--would produce no more effect than so many spiderwebs. According to a simple law in Ballistics, the Projectile was to strike the Earth with a velocity equal to that by which it had been animated when issuing from the mouth of the Columbiad--a velocity of at least seven miles a second!

To have even a faint idea of this enormous velocity, let us make a little comparison. A body falling from the summit of a steeple a hundred and fifty feet high, dashes against the pavement with a velocity of fifty five miles an hour. Falling from the summit of St. Peter's, it strikes the earth at the rate of 300 miles an hour, or five times quicker than the rapidest express train. Falling from the neutral point, the Projectile should strike the Earth with a velocity of more than 25,000 miles an hour!

"We are lost!" said M'Nicholl gloomily, his philosophy yielding to despair.

"One consolation, boys!" cried Ardan, genial to the last. "We shall die together!"

"If we die," said Barbican calmly, but with a kind of suppressed

enthusiasm, "it will be only to remove to a more extended sphere of our investigations. In the other world, we can pursue our inquiries under far more favorable auspices. There the wonders of our great Creator, clothed in brighter light, shall be brought within a shorter range. We shall require no machine, nor projectile, nor material contrivance of any kind to be enabled to contemplate them in all their grandeur and to appreciate them fully and intelligently. Our souls, enlightened by the emanations of the Eternal Wisdom, shall revel forever in the blessed rays of Eternal Knowledge!"

"A grand view to take of it, dear friend Barbican;" replied Ardan, "and a consoling one too. The privilege of roaming at will through God's great universe should make ample amends for missing the Moon!"

M'Nicholl fixed his eyes on Barbican admiringly, feebly muttering with hardly moving lips:

"Grit to the marrow! Grit to the marrow!"

Barbican, head bowed in reverence, arms folded across his breast, meekly and uncomplainingly uttered with sublime resignation:

"Thy will be done!"

"Amen!" answered his companions, in a loud and fervent whisper.

* * * * *

They were soon falling through the boundless regions of space with inconceivable rapidity!