

CHAPTER IX.

A LITTLE OFF THE TRACK.

Barbican's mind was now completely at rest at least on one subject. The original force of the discharge had been great enough to send the Projectile beyond the neutral line. Therefore, there was no longer any danger of its falling back to the Earth. Therefore, there was no longer any danger of its resting eternally motionless on the point of the counteracting attractions. The next subject to engage his attention was the question: would the Projectile, under the influence of lunar attraction, succeed in reaching its destination?

The only way in which it could succeed was by falling through a space of nearly 24,000 miles and then striking the Moon's surface. A most terrific fall! Even taking the lunar attraction to be only the one-sixth of the Earth's, such a fall was simply bewildering to think of. The greatest height to which a balloon ever ascended was seven miles (Glaisher, 1862). Imagine a fall from even that distance! Then imagine a fall from a height of four thousand miles!

Yet it was for a fall of this appalling kind on the surface of the Moon that the travellers had now to prepare themselves. Instead of avoiding it, however, they eagerly desired it and would be very much disappointed if they missed it. They had taken the best precautions they could devise to guard against the terrific shock. These were mainly of

two kinds: one was intended to counteract as much as possible the fearful results to be expected the instant the Projectile touched the lunar surface; the other, to retard the velocity of the fall itself, and thereby to render it less violent.

The best arrangement of the first kind was certainly Barbican's water-contrivance for counteracting the shock at starting, which has been so fully described in our former volume. (See Baltimore Gun Club, page 353.) But unfortunately it could be no longer employed. Even if the partitions were in working order, the water--two thousand pounds in weight had been required--was no longer to be had. The little still left in the tanks was of no account for such a purpose. Besides, they had not a single drop of the precious liquid to spare, for they were as yet anything but sanguine regarding the facility of finding water on the Moon's surface.

Fortunately, however, as the gentle reader may remember, Barbican, besides using water to break the concussion, had provided the movable disc with stout pillars containing a strong buffing apparatus, intended to protect it from striking the bottom too violently after the destruction of the different partitions. These buffers were still good, and, gravity being as yet almost imperceptible, to put them once more in order and adjust them to the disc was not a difficult task.

The travellers set to work at once and soon accomplished it. The different pieces were put together readily--a mere matter of bolts and screws, with plenty of tools to manage them. In a short time the

repaired disc rested on its steel buffers, like a table on its legs, or rather like a sofa seat on its springs. The new arrangement was attended with at least one disadvantage. The bottom light being covered up, a convenient view of the Moon's surface could not be had as soon as they should begin to fall in a perpendicular descent. This, however, was only a slight matter, as the side lights would permit the adventurers to enjoy quite as favorable a view of the vast regions of the Moon as is afforded to balloon travellers when looking down on the Earth over the sides of their car.

The disc arrangement was completed in about an hour, but it was not till past twelve o'clock before things were restored to their usual order. Barbican then tried to make fresh observations regarding the inclination of the Projectile; but to his very decided chagrin he found that it had not yet turned over sufficiently to commence the perpendicular fall: on the contrary, it even seemed to be following a curve rather parallel with that of the lunar disc. The Queen of the Stars now glittered with a light more dazzling than ever, whilst from an opposite part of the sky the glorious King of Day flooded her with his fires.

The situation began to look a little serious.

"Shall we ever get there!" asked the Captain.

"Let us be prepared for getting there, any how," was Barbican's dubious reply.

"You're a pretty pair of suspenders," said Ardan cheerily (he meant of course doubting hesitators, but his fluent command of English sometimes led him into such solecisms). "Certainly we shall get there--and perhaps a little sooner than will be good for us."

This reply sharply recalled Barbican to the task he had undertaken, and he now went to work seriously, trying to combine arrangements to break the fall. The reader may perhaps remember Ardan's reply to the Captain on the day of the famous meeting in Tampa.

"Your fall would be violent enough," the Captain had urged, "to splinter you like glass into a thousand fragments."

"And what shall prevent me," had been Ardan's ready reply, "from breaking my fall by means of counteracting rockets suitably disposed, and let off at the proper time?"

The practical utility of this idea had at once impressed Barbican. It could hardly be doubted that powerful rockets, fastened on the outside to the bottom of the Projectile, could, when discharged, considerably retard the velocity of the fall by their sturdy recoil. They could burn in a vacuum by means of oxygen furnished by themselves, as powder burns in the chamber of a gun, or as the volcanoes of the Moon continue their action regardless of the absence of a lunar atmosphere.

Barbican had therefore provided himself with rockets enclosed in strong steel gun barrels, grooved on the outside so that they could be screwed

into corresponding holes already made with much care in the bottom of the Projectile. They were just long enough, when flush with the floor inside, to project outside by about six inches. They were twenty in number, and formed two concentric circles around the dead light. Small holes in the disc gave admission to the wires by which each of the rockets was to be discharged externally by electricity. The whole effect was therefore to be confined to the outside. The mixtures having been already carefully deposited in each barrel, nothing further need be done than to take away the metallic plugs which had been screwed into the bottom of the Projectile, and replace them by the rockets, every one of which was found to fit its grooved chamber with rigid exactness.

This evidently should have been all done before the disc had been finally laid on its springs. But as this had to be lifted up again in order to reach the bottom of the Projectile, more work was to be done than was strictly necessary. Though the labor was not very hard, considering that gravity had as yet scarcely made itself felt, M'Nicholl and Ardan were not sorry to have their little joke at Barbican's expense. The Frenchman began humming

"Aliquandoque bonus dormitat Homerus,"

to a tune from *Orphée aux Enfers*, and the Captain said something about the Philadelphia Highway Commissioners who pave a street one day, and tear it up the next to lay the gas pipes. But his friends' humor was all lost on Barbican, who was so wrapped up in his work that he probably never heard a word they said.

Towards three o'clock every preparation was made, every possible precaution taken, and now our bold adventurers had nothing more to do than watch and wait.

The Projectile was certainly approaching the Moon. It had by this time turned over considerably under the influence of attraction, but its own original motion still followed a decidedly oblique direction. The consequence of these two forces might possibly be a tangent, line approaching the edge of the Moon's disc. One thing was certain: the Projectile had not yet commenced to fall directly towards her surface; its base, in which its centre of gravity lay, was still turned away considerably from the perpendicular.

Barbican's countenance soon showed perplexity and even alarm. His Projectile was proving intractable to the laws of gravitation. The unknown was opening out dimly before him, the great boundless unknown of the starry plains. In his pride and confidence as a scientist, he had flattered himself with having sounded the consequence of every possible hypothesis regarding the Projectile's ultimate fate: the return to the Earth; the arrival at the Moon; and the motionless dead stop at the neutral point. But here, a new and incomprehensible fourth hypothesis, big with the terrors of the mystic infinite, rose up before his disturbed mind, like a grim and hollow ghost. After a few seconds, however, he looked at it straight in the face without wincing. His companions showed themselves just as firm. Whether it was science that emboldened Barbican, his phlegmatic stoicism that propped up the

Captain, or his enthusiastic vivacity that cheered the irrepressible Ardan, I cannot exactly say. But certainly they were all soon talking over the matter as calmly as you or I would discuss the advisability of taking a sail on the lake some beautiful evening in July.

Their first remarks were decidedly peculiar and quite characteristic. Other men would have asked themselves where the Projectile was taking them to. Do you think such a question ever occurred to them? Not a bit of it. They simply began asking each other what could have been the cause of this new and strange state of things.

"Off the track, it appears," observed Ardan. "How's that?"

"My opinion is," answered the Captain, "that the Projectile was not aimed true. Every possible precaution had been taken, I am well aware, but we all know that an inch, a line, even the tenth part of a hair's breadth wrong at the start would have sent us thousands of miles off our course by this time."

"What have you to say to that, Barbican?" asked Ardan.

"I don't think there was any error at the start," was the confident reply; "not even so much as a line! We took too many tests proving the absolute perpendicularity of the Columbiad, to entertain the slightest doubt on that subject. Its direction towards the zenith being incontestable, I don't see why we should not reach the Moon when she comes to the zenith."

"Perhaps we're behind time," suggested Ardan.

"What have you to say to that, Barbican?" asked the Captain. "You know the Cambridge men said the journey had to be done in 97 hours 13 minutes and 20 seconds. That's as much as to say that if we're not up to time we shall miss the Moon."

"Correct," said Barbican. "But we can't be behind time. We started, you know, on December 1st, at 13 minutes and 20 seconds before 11 o'clock, and we were to arrive four days later at midnight precisely. To-day is December 5th Gentlemen, please examine your watches. It is now half past three in the afternoon. Eight hours and a half are sufficient to take us to our journey's end. Why should we not arrive there?"

"How about being ahead of time?" asked the Captain.

"Just so!" said Ardan. "You know we have discovered the initial velocity to have been greater than was expected."

"Not at all! not at all!" cried Barbican "A slight excess of velocity would have done no harm whatever had the direction of the Projectile been perfectly true. No. There must have been a digression. We must have been switched off!"

"Switched off? By what?" asked both his listeners in one breath.

"I can't tell," said Barbican curtly.

"Well!" said Ardan; "if Barbican can't tell, there is an end to all further talk on the subject. We're switched off--that's enough for me. What has done it? I don't care. Where are we going to? I don't care. What is the use of pestering our brains about it? We shall soon find out. We are floating around in space, and we shall end by hauling up somewhere or other."

But in this indifference Barbican was far from participating. Not that he was not prepared to meet the future with a bold and manly heart. It was his inability to answer his own question that rendered him uneasy. What had switched them off? He would have given worlds for an answer, but his brain sorely puzzled sought one in vain.

In the mean time, the Projectile continued to turn its side rather than its base towards the Moon; that is, to assume a lateral rather than a direct movement, and this movement was fully participated in by the multitude of the objects that had been thrown outside. Barbican could even convince himself by sighting several points on the lunar surface, by this time hardly more than fifteen or eighteen thousand miles distant, that the velocity of the Projectile instead of accelerating was becoming more and more uniform. This was another proof that there was no perpendicular fall. However, though the original impulsive force was still superior to the Moon's attraction, the travellers were evidently approaching the lunar disc, and there was every reason to hope that they would at last reach a point where, the lunar attraction at last having

the best of it, a decided fall should be the result.

The three friends, it need hardly be said, continued to make their observations with redoubled interest, if redoubled interest were possible. But with all their care they could as yet determine nothing regarding the topographical details of our radiant satellite. Her surface still reflected the solar rays too dazzlingly to show the relief necessary for satisfactory observation.

Our travellers kept steadily on the watch looking out of the side lights, till eight o'clock in the evening, by which time the Moon had grown so large in their eyes that she covered up fully half the sky. At this time the Projectile itself must have looked like a streak of light, reflecting, as it did, the Sun's brilliancy on the one side and the Moon's splendor on the other.

Barbican now took a careful observation and calculated that they could not be much more than 2,000 miles from the object of their journey. The velocity of the Projectile he calculated to be about 650 feet per second or 450 miles an hour. They had therefore still plenty of time to reach the Moon in about four hours. But though the bottom of the Projectile continued to turn towards the lunar surface in obedience to the law of centripetal force, the centrifugal force was still evidently strong enough to change the path which it followed into some kind of curve, the exact nature of which would be exceedingly difficult to calculate.

The careful observations that Barbican continued to take did not however

prevent him from endeavoring to solve his difficult problem. What had switched them off? The hours passed on, but brought no result. That the adventurers were approaching the Moon was evident, but it was just as evident that they should never reach her. The nearest point the Projectile could ever possibly attain would only be the result of two opposite forces, the attractive and the repulsive, which, as was now clear, influenced its motion. Therefore, to land in the Moon was an utter impossibility, and any such idea was to be given up at once and for ever.

"Quand même! What of it!" cried Ardan; after some moments' silence.

"We're not to land in the Moon! Well! let us do the next best thing--pass close enough to discover her secrets!"

But M'Nicholl could not accept the situation so coolly. On the contrary, he decidedly lost his temper, as is occasionally the case with even phlegmatic men. He muttered an oath or two, but in a voice hardly loud enough to reach Barbican's ear. At last, impatient of further restraint, he burst out:

"Who the deuce cares for her secrets? To the hangman with her secrets! We started to land in the Moon! That's what's got to be done! That I want or nothing! Confound the darned thing, I say, whatever it was, whether on the Earth or off it, that shoved us off the track!"

"On the Earth or off it!" cried Barbican, striking his head suddenly; "now I see it! You're right, Captain! Confound the bolide that we met

the first night of our journey!"

"Hey?" cried Ardan.

"What do you mean?" asked M'Nicholl.

"I mean," replied Barbican, with a voice now perfectly calm, and in a tone of quiet conviction, "that our deviation is due altogether to that wandering meteor."

"Why, it did not even graze us!" cried Ardan.

"No matter for that," replied Barbican. "Its mass, compared to ours, was enormous, and its attraction was undoubtedly sufficiently great to influence our deviation."

"Hardly enough to be appreciable," urged M'Nicholl.

"Right again, Captain," observed Barbican. "But just remember an observation of your own made this very afternoon: an inch, a line, even the tenth part of a hair's breadth wrong at the beginning, in a journey of 240 thousand miles, would be sufficient to make us miss the Moon!"