## CHAPTER XIV.

## A NIGHT OF FIFTEEN DAYS.

The Projectile being not quite 30 miles from the Moon's north pole when the startling phenomenon, recorded in our last chapter, took place, a few seconds were quite sufficient to launch it at once from the brightest day into the unknown realms of night. The transition was so abrupt, so unexpected, without the slightest shading off, from dazzling effulgence to Cimmerian gloom, that the Moon seemed to have been suddenly extinguished like a lamp when the gas is turned off.

"Where's the Moon?" cried Ardan in amazement.

"It appears as if she had been wiped out of creation!" cried M'Nicholl.

Barbican said nothing, but observed carefully. Not a particle, however, could he see of the disc that had glittered so resplendently before his eyes a few moments ago. Not a shadow, not a gleam, not the slightest vestige could he trace of its existence. The darkness being profound, the dazzling splendor of the stars only gave a deeper blackness to the pitchy sky. No wonder. The travellers found themselves now in a night that had plenty of time not only to become black itself, but to steep everything connected with it in palpable blackness. This was the night 354-1/4 hours long, during which the invisible face of the Moon is turned away from the Sun. In this black darkness the Projectile now

fully participated. Having plunged into the Moon's shadow, it was as effectually cut off from the action of the solar rays as was every point on the invisible lunar surface itself.

The travellers being no longer able to see each other, it was proposed to light the gas, though such an unexpected demand on a commodity at once so scarce and so valuable was certainly disquieting. The gas, it will be remembered, had been intended for heating alone, not illumination, of which both Sun and Moon had promised a never ending supply. But here both Sun and Moon, in a single instant vanished from before their eyes and left them in Stygian darkness.

"It's all the Sun's fault!" cried Ardan, angrily trying to throw the blame on something, and, like every angry man in such circumstances, bound to be rather nonsensical.

"Put the saddle on the right horse, Ardan," said M'Nicholl patronizingly, always delighted at an opportunity of counting a point off the Frenchman. "You mean it's all the Moon's fault, don't you, in setting herself like a screen between us and the Sun?"

"No, I don't!" cried Ardan, not at all soothed by his friend's patronizing tone, and sticking like a man to his first assertion right or wrong. "I know what I say! It will be all the Sun's fault if we use up our gas!"

"Nonsense!" said M'Nicholl. "It's the Moon, who by her interposition has

cut off the Sun's light."

"The Sun had no business to allow it to be cut off," said Ardan, still angry and therefore decidedly loose in his assertions.

Before M'Nicholl could reply, Barbican interposed, and his even voice was soon heard pouring balm on the troubled waters.

"Dear friends," he observed, "a little reflection on either side would convince you that our present situation is neither the Moon's fault nor the Sun's fault. If anything is to be blamed for it, it is our Projectile which, instead of rigidly following its allotted course, has awkwardly contrived to deviate from it. However, strict justice must acquit even the Projectile. It only obeyed a great law of nature in shifting its course as soon as it came within the sphere of that inopportune bolide's influence."

"All right!" said Ardan, as usual in the best of humor after Barbican had laid down the law. "I have no doubt it is exactly as you say; and, now that all is settled, suppose we take breakfast. After such a hard night spent in work, a little refreshment would not be out of place!"

Such a proposition being too reasonable even for M'Nicholl to oppose, Ardan turned on the gas, and had everything ready for the meal in a few minutes. But, this time, breakfast was consumed in absolute silence. No toasts were offered, no hurrahs were uttered. A painful uneasiness had seized the hearts of the daring travellers. The darkness into which

they were so suddenly plunged, told decidedly on their spirits. They felt almost as if they had been suddenly deprived of their sight. That thick, dismal savage blackness, which Victor Hugo's pen is so fond of occasionally revelling in, surrounded them on all sides and crushed them like an iron shroud.

It was felt worse than ever when, breakfast being over, Ardan carefully turned off the gas, and everything within the Projectile was as dark as without. However, though they could not see each other's faces, they could hear each other's voices, and therefore they soon began to talk. The most natural subject of conversation was this terrible night 354 hours long, which the laws of nature have imposed on the Lunar inhabitants. Barbican undertook to give his friends some explanation regarding the cause of the startling phenomenon, and the consequences resulting from it.

"Yes, startling is the word for it," observed Barbican, replying to a remark of Ardan's; "and still more so when we reflect that not only are both lunar hemispheres deprived, by turns, of sun light for nearly 15 days, but that also the particular hemisphere over which we are at this moment floating is all that long night completely deprived of earth-light. In other words, it is only one side of the Moon's disc that ever receives any light from the Earth. From nearly every portion of one side of the Moon, the Earth is always as completely absent as the Sun is from us at midnight. Suppose an analogous case existed on the Earth; suppose, for instance, that neither in Europe, Asia or North America was the Moon ever visible--that, in fact, it was to be seen only at our

antipodes. With what astonishment should we contemplate her for the first time on our arrival in Australia or New Zealand!"

"Every man of us would pack off to Australia to see her!" cried Ardan.

"Yes," said M'Nicholl sententiously; "for a visit to the South Sea a Turk would willingly forego Mecca; and a Bostonian would prefer Sidney even to Paris."

"Well," resumed Barbican, "this interesting marvel is reserved for the Selenite that inhabits the side of the Moon which is always turned away from our globe."

"And which," added the Captain, "we should have had the unspeakable satisfaction of contemplating if we had only arrived at the period when the Sun and the Earth are not at the same side of the Moon--that is, 15 days sooner or later than now."

"For my part, however," continued Barbican, not heeding these interruptions, "I must confess that, notwithstanding the magnificent splendor of the spectacle when viewed for the first time by the Selenite who inhabits the dark side of the Moon, I should prefer to be a resident on the illuminated side. The former, when his long, blazing, roasting, dazzling day is over, has a night 354 hours long, whose darkness, like that, just now surrounding us, is ever unrelieved save by the cold cheerless rays of the stars. But the latter has hardly seen his fiery sun sinking on one horizon when he beholds rising on the opposite one an

orb, milder, paler, and colder indeed than the Sun, but fully as large as thirteen of our full Moons, and therefore shedding thirteen times as much light. This would be our Earth. It would pass through all its phases too, exactly like our Satellite. The Selenites would have their New Earth, Full Earth, and Last Quarter. At midnight, grandly illuminated, it would shine with the greatest glory. But that is almost as much as can be said for it. Its futile heat would but poorly compensate for its superior radiance. All the calorie accumulated in the lunar soil during the 354 hours day would have by this time radiated completely into space. An intensity of cold would prevail, in comparison to which a Greenland winter is tropical. The temperature of interstellar space, 250° below zero, would be reached. Our Selenite, heartily tired of the cold pale Earth, would gladly see her sink towards the horizon, waning as she sank, till at last she appeared no more than half full. Then suddenly a faint rim of the solar orb reveals itself on the edge of the opposite sky. Slowly, more than 14 times more slowly than with us, does the Sun lift himself above the lunar horizon. In half an hour, only half his disc is revealed, but that is more than enough to flood the lunar landscape with a dazzling intensity of light, of which we have no counterpart on Earth. No atmosphere refracts it, no hazy screen softens it, no enveloping vapor absorbs it, no obstructing medium colors it. It breaks on the eye, harsh, white, dazzling, blinding, like the electric light seen a few yards off. As the hours wear away, the more blasting becomes the glare; and the higher he rises in the black sky, but slowly, slowly. It takes him seven of our days to reach the meridian. By that time the heat has increased from an arctic temperature to double the boiling water point, from 250° below zero to 500° above it, or the point

at which tin melts. Subjected to these extremes, the glassy rocks crack, shiver and crumble away; enormous land slides occur; peaks topple over; and tons of debris, crashing down the mountains, are swallowed up forever in the yawing chasms of the bottomless craters."

"Bravo!" cried Ardan, clapping his hands softly: "our President is sublime! He reminds me of the overture of Guillaume Tell!"

"Souvenir de Marston!" growled M'Nicholl.

"These phenomena," continued Barbican, heedless of interruption and his voice betraying a slight glow of excitement, "these phenomena going on without interruption from month to month, from year to year, from age to age, from eon to eon, have finally convinced me that--what?" he asked his hearers, interrupting himself suddenly.

--"That the existence at the present time--" answered M'Nicholl.

--"Of either animal or vegetable life--" interrupted Ardan.

--"In the Moon is hardly possible!" cried both in one voice.

"Besides?" asked Barbican: "even if there is any life--?"

--"That to live on the dark side would be much more inconvenient than on the light side!" cried M'Nicholl promptly.

--"That there is no choice between them!" cried Ardan just as ready. "For my part, I should think a residence on Mt. Erebus or in Grinnell Land a terrestrial paradise in comparison to either. The Earth shine might illuminate the light side of the Moon a little during the long night, but for any practical advantage towards heat or life, it would be perfectly useless!"

"But there is another serious difference between the two sides," said Barbican, "in addition to those enumerated. The dark side is actually more troubled with excessive variations of temperature than the light one."

"That assertion of our worthy President," interrupted Ardan, "with all possible respect for his superior knowledge, I am disposed to question."

"It's as clear as day!" said Barbican.

"As clear as mud, you mean, Mr. President;" interrupted Ardan, "the temperature of the light side is excited by two objects at the same time, the Earth and the Sun, whereas--"

--"I beg your pardon, Ardan--" said Barbican.

--"Granted, dear boy--granted with the utmost pleasure!" interrupted the Frenchman.

"I shall probably have to direct my observations altogether to you,

Captain," continued Barbican; "friend Michael interrupts me so often that I'm afraid he can hardly understand my remarks."

"I always admired your candor, Barbican," said Ardan; "it's a noble quality, a grand quality!"

"Don't mention it," replied Barbican, turning towards M'Nicholl, still in the dark, and addressing him exclusively; "You see, my dear Captain, the period at which the Moon's invisible side receives at once its light and heat is exactly the period of her conjunction, that is to say, when she is lying between the Earth and the Sun. In comparison therefore with the place which she had occupied at her opposition, or when her visible side was fully illuminated, she is nearer to the Sun by double her distance from the Earth, or nearly 480 thousand miles. Therefore, my dear Captain, you can see how when the invisible side of the Moon is turned towards the Sun, she is nearly half a million of miles nearer to him than she had been before. Therefore, her heat should be so much the greater."

"I see it at a glance," said the Captain.

"Whereas--" continued Barbican.

"One moment!" cried Ardan.

"Another interruption!" exclaimed Barbican; "What is the meaning of it, Sir?"

"I ask my honorable friend the privilege of the floor for one moment," cried Ardan.

"What for?"

"To continue the explanation."

"Why so?"

"To show that I can understand as well as interrupt!"

"You have the floor!" exclaimed Barbican, in a voice no longer showing any traces of ill humor.

"I expected no less from the honorable gentleman's well known courtesy," replied Ardan. Then changing his manner and imitating to the life Barbican's voice, articulation, and gestures, he continued: "Whereas, you see, my dear Captain, the period at which the Moon's visible side receives at once its light and heat, is exactly the period of her opposition, that is to say, when she is lying on one side of the Earth and the Sun at the other. In comparison therefore with the point which she had occupied in conjunction, or when her invisible side was fully illuminated, she is farther from the Sun by double her distance from the Earth, or nearly 480,000 miles. Therefore, my dear Captain, you can readily see how when the Moon's invisible side is turned from the Sun, she is nearly half a million miles further from him than she had been

before. Therefore her heat should be so much the less."

"Well done, friend Ardan!" cried Barbican, clapping his hands with pleasure. "Yes, Captain, he understood it as well as either of us the whole time. Intelligence, not indifference, caused him to interrupt. Wonderful fellow!"

"That's the kind of a man I am!" replied Ardan, not without some degree of complacency. Then he added simply: "Barbican, my friend, if I understand your explanations so readily, attribute it all to their astonishing lucidity. If I have any faculity, it is that of being able to scent common sense at the first glimmer. Your sentences are so steeped in it that I catch their full meaning long before you end them--hence my apparent inattention. But we're not yet done with the visible face of the Moon: it seems to me you have not yet enumerated all the advantages in which it surpasses the other side."

"Another of these advantages," continued Barbican, "is that it is from the visible side alone that eclipses of the Sun can be seen. This is self-evident, the interposition of the Earth being possible only between this visible face and the Sun. Furthermore, such eclipses of the Sun would be of a far more imposing character than anything of the kind to be witnessed from our Earth. This is chiefly for two reasons: first, when we, terrestrians, see the Sun eclipsed, we notice that, the discs of the two orbs being of about the same apparent size, one cannot hide the other except for a short time; second, as the two bodies are moving in opposite directions, the total duration of the eclipse, even under

the most favorable circumstances, can't last longer than 7 minutes. Whereas to a Selenite who sees the Earth eclipse the Sun, not only does the Earth's disc appear four times larger than the Sun's, but also, as his day is 14 times longer than ours, the two heavenly bodies must remain several hours in contact. Besides, notwithstanding the apparent superiority of the Earth's disc, the refracting power of the atmosphere will never allow the Sun to be eclipsed altogether. Even when completely screened by the Earth, he would form a beautiful circle around her of yellow, red, and crimson light, in which she would appear to float like a vast sphere of jet in a glowing sea of gold, rubies, sparkling carbuncles and garnets."

"It seems to me," said M'Nicholl, "that, taking everything into consideration, the invisible side has been rather shabbily treated."

"I know I should not stay there very long," said Ardan; "the desire of seeing such a splendid sight as that eclipse would be enough to bring me to the visible side as soon as possible."

"Yes, I have no doubt of that, friend Michael," pursued Barbican; "but to see the eclipse it would not be necessary to quit the dark hemisphere altogether. You are, of course, aware that in consequence of her librations, or noddings, or wobblings, the Moon presents to the eyes of the Earth a little more than the exact half of her disc. She has two motions, one on her path around the Earth, and the other a shifting around on her own axis by which she endeavors to keep the same side always turned towards our sphere. This she cannot always do, as while

one motion, the latter, is strictly uniform, the other being eccentric, sometimes accelerating her and sometimes retarding, she has not time to shift herself around completely and with perfect correspondence of movement. At her perigee, for instance, she moves forward quicker than she can shift, so that we detect a portion of her western border before she has time to conceal it. Similarly, at her apogee, when her rate of motion is comparatively slow, she shifts a little too quickly for her velocity, and therefore cannot help revealing a certain portion of her eastern border. She shows altogether about 8 degrees of the dark side, about 4 at the east and 4 at the west, so that, out of her 360 degrees, about 188, in other words, a little more than 57 per cent., about 4/7 of the entire surface, becomes visible to human eyes. Consequently a Selenite could catch an occasional glimpse of our Earth, without altogether quitting the dark side."

"No matter for that!" cried Ardan; "if we ever become Selenites we must inhabit the visible side. My weak point is light, and that I must have when it can be got."

"Unless, as perhaps in this case, you might be paying too dear for it," observed M'Nicholl. "How would you like to pay for your light by the loss of the atmosphere, which, according to some philosophers, is piled away on the dark side?"

"Ah! In that case I should consider a little before committing myself," replied Ardan, "I should like to hear your opinion regarding such a notion, Barbican. Hey! Do your hear? Have astronomers any valid reasons

for supposing the atmosphere to have fled to the dark side of the Moon?"

"Defer that question till some other time, Ardan," whispered M'Nicholl; "Barbican is just now thinking out something that interests him far more deeply than any empty speculation of astronomers. If you are near the window, look out through it towards the Moon. Can you see anything?"

"I can feel the window with my hand; but for all I can see, I might as well be over head and ears in a hogshead of ink."

The two friends kept up a desultory conversation, but Barbican did not hear them. One fact, in particular, troubled him, and he sought in vain to account for it. Having come so near the Moon--about 30 miles--why had not the Projectile gone all the way? Had its velocity been very great, the tendency to fall could certainly be counteracted. But the velocity being undeniably very moderate, how explain such a decided resistance to Lunar attraction? Had the Projectile come within the sphere of some strange unknown influence? Did the neighborhood of some mysterious body retain it firmly imbedded in ether? That it would never reach the Moon, was now beyond all doubt; but where was it going? Nearer to her or further off? Or was it rushing resistlessly into infinity on the wings of that pitchy night? Who could tell, know, calculate--who could even guess, amid the horror of this gloomy blackness? Questions, like these, left Barbican no rest; in vain he tried to grapple with them; he felt like a child before them, baffled and almost despairing.

In fact, what could be more tantalizing? Just outside their windows,

only a few leagues off, perhaps only a few miles, lay the radiant planet of the night, but in every respect as far off from the eyes of himself and his companions as if she was hiding at the other side of Jupiter! And to their ears she was no nearer. Earthquakes of the old Titanic type might at that very moment be upheaving her surface with resistless force, crashing mountain against mountain as fiercely as wave meets wave around the storm-lashed cliffs of Cape Horn. But not the faintest far off murmur even of such a mighty tumult could break the dead brooding silence that surrounded the travellers. Nay, the Moon, realizing the weird fancy of the Arabian poet, who calls her a "giant stiffening into granite, but struggling madly against his doom," might shriek, in a spasm of agony, loudly enough to be heard in Sirius. But our travellers could not hear it. Their ears no sound could now reach. They could no more detect the rending of a continent than the falling of a feather. Air, the propagator and transmitter of sound, was absent from her surface. Her cries, her struggles, her groans, were all smothered beneath the impenetrable tomb of eternal silence!

These were some of the fanciful ideas by which Ardan tried to amuse his companions in the present unsatisfactory state of affairs. His efforts, however well meant, were not successful. M'Nicholl's growls were more savage than usual, and even Barbican's patience was decidedly giving way. The loss of the other face they could have easily borne--with most of its details they had been already familiar. But, no, it must be the dark face that now escaped their observation! The very one that for numberless reasons they were actually dying to see! They looked out of the windows once more at the black Moon beneath them.

There it lay below them, a round black spot, hiding the sweet faces of the stars, but otherwise no more distinguishable by the travellers than if they were lying in the depths of the Mammoth Cave of Kentucky. And just think. Only fifteen days before, that dark face had been splendidly illuminated by the solar beams, every crater lustrous, every peak sparkling, every streak glistening under the vertical ray. In fifteen days later, a day light the most brilliant would have replaced a midnight the most Cimmerian. But in fifteen days later, where would the Projectile be? In what direction would it have been drawn by the forces innumerable of attractions incalculable? To such a question as this, even Ardan would reply only by an ominous shake of the head.

We know already that our travellers, as well as astronomers generally, judging from that portion of the dark side occasionally revealed by the Moon's librations, were pretty certain that there is no great difference between her two sides, as far as regards their physical constitutions. This portion, about the seventh part, shows plains and mountains, circles and craters, all of precisely the same nature as those already laid down on the chart. Judging therefore from analogy, the other three-sevenths are, in all probability a world in every respect exactly like the visible face--that is, arid, desert, dead. But our travellers also knew that pretty certain is far from quite certain, and that arguing merely from analogy may enable you to give a good guess, but can never lead you to an undoubted conclusion. What if the atmosphere had really withdrawn to this dark face? And if air, why not water? Would not this be enough to infuse life into the whole

continent? Why should not vegetation flourish on its plains, fish in its seas, animals in its forests, and man in every one of its zones that were capable of sustaining life? To these interesting questions, what a satisfaction it would be to be able to answer positively one way or another! For thousands of difficult problems a mere glimpse at this hemisphere would be enough to furnish a satisfactory reply. How glorious it would be to contemplate a realm on which the eye of man has never yet rested!

Great, therefore, as you may readily conceive, was the depression of our travellers' spirits, as they pursued their way, enveloped in a veil of darkness the most profound. Still even then Ardan, as usual, formed somewhat of an exception. Finding it impossible to see a particle of the Lunar surface, he gave it up for good, and tried to console himself by gazing at the stars, which now fairly blazed in the spangled heavens. And certainly never before had astronomer enjoyed an opportunity for gazing at the heavenly bodies under such peculiar advantages. How Fraye of Paris, Chacornac of Lyons, and Father Secchi of Rome would have envied him!

For, candidly and truly speaking, never before had mortal eye revelled on such a scene of starry splendor. The black sky sparkled with lustrous fires, like the ceiling of a vast hall of ebony encrusted with flashing diamonds. Ardan's eye could take in the whole extent in an easy sweep from the Southern Cross to the Little Bear, thus embracing within one glance not only the two polar stars of the present day, but also Campus and Vega, which, by reason of the precession of the

Equinoxes, are to be our polar stars 12,000 years hence. His imagination, as if intoxicated, reeled wildly through these sublime infinitudes and got lost in them. He forgot all about himself and all about his companions. He forgot even the strangeness of the fate that had sent them wandering through these forbidden regions, like a bewildered comet that had lost its way. With what a soft sweet light every star glowed! No matter what its magnitude, the stream that flowed from it looked calm and holy. No twinkling, no scintillation, no nictitation, disturbed their pure and lambent gleam. No atmosphere here interposed its layers of humidity or of unequal density to interrupt the stately majesty of their effulgence. The longer he gazed upon them, the more absorbing became their attraction. He felt that they were great kindly eyes looking down even yet with benevolence and protection on himself and his companions now driving wildly through space, and lost in the pathless depths of the black ocean of infinity!

He soon became aware that his friends, following his example, had interested themselves in gazing at the stars, and were now just as absorbed as himself in the contemplation of the transcendent spectacle. For a long time all three continued to feast their eyes on all the glories of the starry firmament; but, strange to say, the part that seemed to possess the strangest and weirdest fascination for their wandering glances was the spot where the vast disc of the Moon showed like an enormous round hole, black and soundless, and apparently deep enough to permit a glance into the darkest mysteries of the infinite.

A disagreeable sensation, however, against which they had been for some

time struggling, at last put an end to their contemplations, and compelled them to think of themselves. This was nothing less than a pretty sharp cold, at first somewhat endurable, but which soon covered the inside surface of the window panes with a thick coating of ice. The fact was that, the Sun's direct rays having no longer an opportunity of warming up the Projectile, the latter began to lose rapidly by radiation whatever heat it had stored away within its walls. The consequence was a very decided falling of the thermometer, and so thick a condensation of the internal moisture on the window glasses as to soon render all external observations extremely difficult, if not actually impossible.

The Captain, as the oldest man in the party, claimed the privilege of saying he could stand it no longer. Striking a light, he consulted the thermometer and cried out:

"Seventeen degrees below zero, centigrade! that is certainly low enough to make an old fellow like me feel rather chilly!"

"Just one degree and a half above zero, Fahrenheit!" observed Barbican; "I really had no idea that it was so cold."

His teeth actually chattered so much that he could hardly articulate; still he, as well as the others, disliked to entrench on their short supply of gas.

"One feature of our journey that I particularly admire," said Ardan, trying to laugh with freezing lips, "is that we can't complain of

monotony. At one time we are frying with the heat and blinded with the light, like Indians caught on a burning prairie; at another, we are freezing in the pitchy darkness of a hyperborean winter, like Sir John Franklin's merry men in the Bay of Boothia. Madame La Nature, you don't forget your devotees; on the contrary, you overwhelm us with your attentions!"

"Our external temperature may be reckoned at how much?" asked the Captain, making a desperate effort to keep up the conversation.

"The temperature outside our Projectile must be precisely the same as that of interstellar space in general," answered Barbican.

"Is not this precisely the moment then," interposed Ardan, quickly, "for making an experiment which we could never have made as long as we were in the sunshine?"

"That's so!" exclaimed Barbican; "now or never! I'm glad you thought of it, Ardan. We are just now in the position to find out the temperature of space by actual experiment, and so see whose calculations are right, Fourier's or Pouillet's."

"Let's see," asked Ardan, "who was Fourier, and who was Pouillet?"

"Baron Fourier, of the French Academy, wrote a famous treatise on Heat, which I remember reading twenty years ago in Penington's book store," promptly responded the Captain; "Pouillet was an eminent

professor of Physics at the Sorbonne, where he died, last year, I think."

"Thank you, Captain," said Ardan; "the cold does not injure your memory, though it is decidedly on the advance. See how thick the ice is already on the window panes! Let it only keep on and we shall soon have our breaths falling around us in flakes of snow."

"Let us prepare a thermometer," said Barbican, who had already set himself to work in a business-like manner.

A thermometer of the usual kind, as may be readily supposed, would be of no use whatever in the experiment that was now about to be made. In an ordinary thermometer Mercury freezes hard when exposed to a temperature of 40° below zero. But Barbican had provided himself with a Minimum, self-recording thermometer, of a peculiar nature, invented by Wolferdin, a friend of Arago's, which could correctly register exceedingly low degrees of temperature. Before beginning the experiment, this instrument was tested by comparison with one of the usual kind, and then Barbican hesitated a few moments regarding the best means of employing it.

"How shall we start this experiment?" asked the Captain.

"Nothing simpler," answered Ardan, always ready to reply; "you just open your windows, and fling out your thermometer. It follows your Projectile, as a calf follows her mother. In a quarter of an hour you

put out your hand--"

"Put out your hand!" interrupted Barbican.

"Put out your hand--" continued Ardan, quietly.

"You do nothing of the kind," again interrupted Barbican; "that is, unless you prefer, instead of a hand, to pull back a frozen stump, shapeless, colorless and lifeless!"

"I prefer a hand," said Ardan, surprised and interested.

"Yes," continued Barbican, "the instant your hand left the Projectile, it would experience the same terrible sensations as is produced by cauterizing it with an iron bar white hot. For heat, whether rushing rapidly out of our bodies or rapidly entering them, is identically the same force and does the same amount of damage. Besides I am by no means certain that we are still followed by the objects that we flung out of the Projectile."

"Why not?" asked M'Nicholl; "we saw them all outside not long ago."

"But we can't see them outside now," answered Barbican; "that may be accounted for, I know, by the darkness, but it may be also by the fact of their not being there at all. In a case like this, we can't rely on uncertainties. Therefore, to make sure of not losing our thermometer, we shall fasten it with a string and easily pull it in whenever we like."

This advice being adopted, the window was opened quickly, and the instrument was thrown out at once by M'Nicholl, who held it fastened by a short stout cord so that it could be pulled in immediately. The window had hardly been open for longer than a second, yet that second had been enough to admit a terrible icy chill into the interior of the Projectile.

"Ten thousand ice-bergs!" cried Ardan, shivering all over; "it's cold enough to freeze a white bear!"

Barbican waited quietly for half an hour; that time he considered quite long enough to enable the instrument to acquire the temperature of the interstellar space. Then he gave the signal, and it was instantly pulled in.

It took him a few moments to calculate the quantity of mercury that had escaped into the little diaphragm attached to the lower part of the instrument; then he said:

"A hundred and forty degrees, centigrade, below zero!"

"Two hundred and twenty degrees, Fahrenheit, below zero!" cried M'Nicholl; "no wonder that we should feel a little chilly!"

"Pouillet is right, then," said Barbican, "and Fourier wrong."

"Another victory for Sorbonne over the Academy!" cried Ardan. "Vive la Sorbonne! Not that I'm a bit proud of finding myself in the midst of a temperature so very distingué--though it is more than three times colder than Hayes ever felt it at Humboldt Glacier or Nevenoff at Yakoutsk. If Madame the Moon becomes as cold as this every time that her surface is withdrawn from the sunlight for fourteen days, I don't think, boys, that her hospitality is much to hanker after!"