

FOUND THE MOON.

CHAPTER V.

THE CHOD OF SPACE.

This revelation came like a thunder-bolt. Who could have expected such an error in calculation! Barbicane would not believe it! Nicholl revised his figures; they were exact. As the formulae which had determined them, they could not suspect its truth; it was evident that an initiatory velocity of 17,000 yards in the first second was necessary to enable them to reach the neutral point.

"That is just like those scientific men; they never do anything else. I would give twenty pistoles if we could fall upon the Cambridge Observatory and crush it, together with the whole lot of dabblers in figures which it contains."

"Ah!" said he; it is seven o'clock in the morning; we have already been gone thirty-two hours; more than half our passage is over, and we are now falling that I am aware of."

"Barbicane did not answer, but, after a rapid glance at the Captain, took a pair of compasses wherewith to measure the angular distance of the terrestrial globe; then from the lower window he took an exact observation, and noticed that the projectile was apparently stationary. Then, with a winking of his forehead on which large drops of perspiration were standing, he put some figures on paper. Nicholl understood that the president was deducting from the terrestrial diameter the projectile's distance from the earth. He whisked his anxiously.

"No," exclaimed Barbicane, after some moments, "no, we are not falling; no, we are already more than 50,000 leagues from the earth. We have passed the point at which the projectile would have stopped if its speed had only been 19,000 yards at starting. We are still going up."

"This is evident," replied Nicholl; "and we must conclude that our initial speed, under the power of the 40,000 lbs. of gun-cotton, must have exceeded the required 19,000 yards. Now I can understand how, after thirteen minutes only, we met the second satellite, which gravitates round the earth at more than 2,000 leagues' distance."

"And this explanation is the more probable," added Barbicane, "because, in throwing off the water enclosed between its partitions, the projectile found itself lightened of a considerable weight."

"Who told you that they have never done so?" said Barbicane, seriously. "Indeed," added Nicholl, "it would be easier for them than for us, for two reasons; first, because the attraction on the moon's surface is six times less than on that of the earth, which would allow a projectile to rise more easily; secondly, because it would be enough to send such a projectile only at 8,000 instead of 80,000, which would require the force of projection to be ten times less strong."

"Then," continued Michel, "I repeat it, why have they not done it?" "I told you that they have not done it!" "When?" "Thousands of years before man appeared on earth."

"And the projectile—where is the projectile? I demand to see the projectile!" "Formerly," replied Barbicane, "it was greatly exaggerated; but now, after the calculations of Fourier, of the French Academy of Science, it is not supposed to exceed 60° centigrade below zero."

"Pooh!" said Michel, "that's nothing!" "It is very much," replied Barbicane; "the temperature which was observed in the polar regions, at Niueville Island and Fort Reliance, that is 76° Fahrenheit below zero."

"If I mistake not," said Nicholl, "M. Pouillet, another savant estimates the temperature of space at 250° Fahr. below zero. We shall, however, be able to verify these calculations for ourselves."

"Not at present; because the solar rays, being directly upon our thermometer, would give, on the contrary, a very high temperature. But, when we arrive in the moon, during its fifteen days of night at either face, we shall have leisure to make the experiment, for our satellite lies in a vacuum."

"What do you mean by a vacuum?" asked Michel. "Is it perfectly such?" "It is absolutely void of air."

"That might happen, indeed," replied Barbicane, "but the consequences of such a displacement need not be so formidable as you suppose."

"And why not?" "Because the heat and the cold would be equalized on our globe. It has been calculated that, had our earth been carried along in its course by the comet of 1801, at its perihelion, that is, its nearest approach to the sun, it would have undergone a heat 25,000 times greater than that of summer. But this heat, which is sufficient to evaporate the waters, would have formed a thick ring of cloud, which would have modified that excessive temperature; hence the compensation between the cold of the aphelion and the heat of the perihelion."

"At how many degrees," asked Nicholl, "is the temperature of the planetary spaces estimated?" "Formerly," replied Barbicane, "it was greatly exaggerated; but now, after the calculations of Fourier, of the French Academy of Science, it is not supposed to exceed 60° centigrade below zero."

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