A Journey in Other Worlds

by

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Jupiter

Jupiter--the magnificent planet with a diameter of 86,500 miles, having 119 times the surface and 1,300 times the volume of the earth--lay beneath them.

They had often seen it in the terrestrial sky, emitting its strong, steady ray, and had thought of that far-away planet, about which till recently so little had been known, and a burning desire had possessed them to go to it and explore its mysteries. Now, thanks to APERGY, the force whose existence the ancients suspected, but of which they knew so little, all things were possible.

Ayrault manipulated the silk-covered glass handles, and the Callisto moved on slowly in comparison with its recent speed, and all remained glued to their telescopes as they peered through the rushing clouds, now forming and now dissolving before their eyes. What transports of delight, what ecstatic bliss, was theirs! Men had discovered and mastered the secret of apergy, and now, "little lower than the angels," they could soar through space, leaving even planets and comets behind.

"Is it not strange," said Dr. Cortlandt, "that though it has been known for over a century that bodies charged with unlike electricities attract one another, and those charged with like repel, no one thought of utilizing the counterpart of gravitation? In the nineteenth century, savants and Indian jugglers performed experiments with their disciples and masses of inert matter, by causing them to remain without visible support at some distance from the ground; and while many of these, of course, were quacks, some were on the right track, though they did not push their research."

President Bearwarden and Ayrault assented. They were steering for an apparently hard part of the planet's surface, about a degree and a half north of its equator.

"Since Jupiter's axis is almost at right angles to the plane of its orbit," said the doctor, "being inclined only about one degree and a half, instead of twenty-three and a half, as was the earth's till nearly so recently, it will be possible for us to have any climate we wish, from constantly warm at the equator to constantly cool or cold as we approach the poles, without being troubled by extremes of winter and summer."

Until the Callisto entered the planet's atmosphere, its five moons appeared like silver shields against the black sky, but now things were looking more terrestrial, and they began to feel at home. Bearwarden put down his note-book, and Ayrault returned a photograph to his pocket, while all three gazed at their new abode. Beneath them was a vast continent variegated by chains of lakes and rivers stretching away in all directions except toward the equator, where lay a placid ocean as far as their telescopes could pierce. To the eastward were towering and massive mountains, and along the southern border of the continent smoking volcanoes, while toward the west they saw forests, gently rolling plains, and table-lands that would have satisfied a poet or set an agriculturist's heart at rest. "How I should like to mine those hills for copper, or drain the

swamps to the south!" exclaimed Col. Bearwarden. "The Lake Superior mines and the reclamation of the Florida Everglades would be nothing to this."

"Any inhabitants we may find here have so much land at their disposal that they will not need to drain swamps on account of pressure of population for some time," put in the doctor.

"I hope we may find some four-legged inhabitants," said Ayrault, thinking of their explosive magazine rifles. "If Jupiter is passing through its Jurassic or Mesozoic period, there must be any amount of some kind of game." Just then a quiver shook the Callisto, and glancing to the right they noticed one of the volcanoes in violent eruption. Smoke filled the air in clouds, hot stones and then floods of lava poured from the crater, while even the walls of the hermetically sealed Callisto could not arrest the thunderous crashes that made the interior of the car resound.

"Had we not better move on?" said Bearwarden, and accordingly they went toward the woods they had first seen. Finding a firm strip of land between the forest and an arm of the sea, they gently grounded the Callisto, and not being altogether sure how the atmosphere of their new abode would suit terrestrial lungs, or what its pressure to the square inch might be, they cautiously opened a port-hole a crack, retaining their hold upon it with its screw. Instantly there was a rush and a whistling sound as of escaping steam, while in a few moments their barometer stood at thirty-six inches, whereupon they closed the opening.

"I fancy," said Dr. Cortlandt, "we had better wait now till we become accustomed to this pressure. I do not believe it will go much higher, for the window made but little resistance when we shut it."

Finding they were not inconvenienced by a pressure but little greater than that of a deep coal-mine, they again opened the port, whereupon their barometer showed a further rise to forty-two, and then remained stationary. Finding also that the chemical composition of the air suited them, and that they had no difficulty in breathing, the pressure being the same as that sustained by a diver in fourteen feet of water, they opened a door and emerged. They knew fairly well what to expect, and were not disturbed by their new conditions. Though they had apparently gained a good deal in weight as a result of their ethereal journey, this did not incommode them; for though Jupiter's volume is thirteen hundred times that of the earth, on account of its lesser specific gravity, it has but three hundred times the mass--i. e., it would weigh but three hundred times as much. Further, although a cubic foot of water or anything else weighs 2.5 as much as on earth, objects near the equator, on account of Jupiter's rapid rotation, weigh one fifth less than they do at the poles, by reason of the centrifugal force. Influenced by this fact, and also because they were 483,000,000 miles from the sun, instead of 92,000,000 as on earth, they had steered for the northern limit of Jupiter's tropics. And, in addition to this, they could easily apply the apergetic power in any degree to themselves when beyond the limits of the Callisto, and so be attracted to any extent, from twice the pull they receive from gravitation on earth to almost nothing.

Bearwarden and Ayrault shouldered their rifles, while Dr. Cortlandt took a repeating shot-gun with No. 4 shot, and, having also some hunting-knives and a sextant, all three set out in a northwesterly direction. The ground was rather soft, and a warm vapor seemed to rise from it. To the east the sky was veiled by dense clouds of smoke from the towering volcanoes, while on their left the forest seemed to extend without limit. Clumps of huge ferns were scattered about, and the ground was covered with curious tracks.

"Jupiter is evidently passing through a Carboniferous or Devonian period such as existed on earth, though, if consistent with its size, it should be on a vastly larger scale," said the doctor. "I never believed in the theory," he continued, "that the larger the planet the smaller should be its inhabitants, and always considered it a makeshift, put forward in the absence of definite knowledge, the idea being apparently that the weight of very large creatures would be too great for their strength. Of the fact that mastodons and creatures far larger than any now living on earth existed there, we have absolute proof, though gravitation must have been practically the same then as now."

Just here they came upon a number of huge bones, evidently the remains of some saurian, and many times the size of a grown crocodile. On passing a growth of most luxuriant vegetation, they saw a half-dozen sacklike objects, and drawing nearer noticed that the tops began to swell, and at the same time became lighter in colour. Just as the doctor was about to investigate one of them with his duck-shot, the enormously inflated tops of the creatures collapsed with a loud report, and the entire group soared away. When about to alight, forty yards off, they distended membranous folds in the manner of wings, which checked their descent, and on touching the ground remained where they were without rebound.

"We expected to find all kinds of reptiles and birds," exclaimed the doctor. "But I do not know how we should class those creatures. They seem to have pneumatic feet and legs, for their motion was certainly not produced like that of frogs."

When the party came up with them the heads again began to swell.

"I will perforate the air-chamber of one," said Col. Bearwarden, withdrawing the explosive cartridge from the barrel of his rifle and substituting one with a solid ball. "This will doubtless disable one so that we can examine it."

Just as they were about to rise, he shot the largest through the neck. All but the wounded one, soared off, while Bearwarden, Ayrault, and Cortlandt approached to examine it more closely.

"You see," said Cortlandt, "this vertebrate--for that is as definitely as we can yet describe it--forces a great pressure of air into its head and neck, which, by the action of valves, it must allow to rush into its very rudimentary lower extremities, distending them with such violence that the body is shot upward and forward. You may have noticed the tightly inflated portion underneath as they left the ground."

While speaking he had moved rather near, when suddenly a partially concealed mouth opened, showing the unmistakable tongue and fangs of a serpent. It emitted a hissing sound, and the small eyes gleamed maliciously.

"Do you believe it is a poisonous species?" asked Ayrault.

"I suspect it is," replied the doctor; "for, though it is doubtless able to leap with great accuracy upon its prey, we saw it took some time to recharge the upper air-chamber, so that, were it not armed with poison glands, it would fall an easy victim to its more powerful and swifter contemporaries, and would soon become extinct."

"As it will be unable to spring for some time," said Bearwarden, "we might as well save it the disappointment of trying," and, snapping the used shell from his rifle, he fired an explosive ball into the reptile, whereupon about half the body disappeared, while a sickening odour arose. Although the sun was still far above the horizon, the rapidity with which it was descending showed that the short night of less than five hours would soon be upon them; and though short it might be very dark, for they were in the tropics, and the sun, going down perpendicularly, must also pass completely around the globe, instead of, as in northern latitudes on earth in summer, approaching the horizon obliquely, and not going far below it. A slight and diffused sound here seemed to rise from the ground all about them, for which they could not account. Presently it became louder, and as the sun touched the horizon, it poured forth in prolonged strains. The large trumpet-shaped lilies, reeds, and heliotropes seemed fairly to throb as they raised their anthem to the sky and the setting sun, while the air grew dark with clouds of birds that gradually alighted on the ground, until, as the chorus grew fainter and gradually ceased, they flew back to their nests. The three companions had stood astonished while this act was played. The doctor then spoke:

"This is the most marvellous development of Nature I have seen, for its wonderful divergence from, and yet analogy to, what takes place on earth. You know our flowers offer honey, as it were, as bait to insects, that in eating or collecting it they may catch the pollen on their legs and so carry it to other flowers, perhaps of the opposite sex. Here flowers evidently appeal to the sense of hearing instead of taste, and make use of birds, of which there are enormous numbers, instead of winged insects, of which I have seen none, one being perhaps the natural result of the other. The flowers have become singers by long practice, or else, those that were most musical having had the best chance to reproduce, we have a neat illustration of the 'survival of the fittest.' The sound is doubtless produced by a shrinking of the fibres as the sun withdraws its heat, in which case we may expect another song at sunrise, when the same result will be effected by their expanding."

Searching for a camping-place in which to pass the coming hours, they saw lights flitting about like will-o'-the-wisps, but brighter and intermittent.

"They seem to be as bright as sixteen-candle-power lamps, but the light is yellower, and appears to emanate from a comparatively large surface, certainly nine or ten inches square," said the doctor.

They soon gave up the chase, however, for the lights were continually moving and frequently went out. While groping in the growing darkness, they came upon a brown object about the size of a small dog and close to the ground. It flew off with a humming insect sound, and as it did so it showed the brilliant phosphorescent glow they had observed.

"That is a good-sized fire-fly," said Bearwarden. "Evidently the insects here are on the same scale as everything else. They are like the fire-flies in Cuba, which the Cubans are said to put into a glass box and get light enough from to read by. Here they would need only one, if it could be induced to give its light continuously." Having found an open space on high ground, they sat down, and Bearwarden struck his repeater, which, for convenience, had been arranged for Jupiter time, dividing the day into ten hours, beginning at noon, midnight being therefore five o'clock.

"Twenty minutes past four," said he, "which would correspond to about a quarter to eleven on earth. As the sun rises at half-past seven, it will be dark about three hours, for the time between dawn and daylight will, of course, be as short as that we have just experienced between sunset and night."

"If we stay here long," said the doctor, "I suppose we shall become accustomed, like sailors, to taking our four, or in this case five, hours on duty, and five hours off."

"Or," added Ayrault, "we can sleep ten consecutive hours and take the next ten for exploring and hunting, having the sun for one half the time and the moons for the other."

Bearwarden and Cortlandt now rolled themselves in their blankets and were soon asleep, while Ayrault, whose turn it was to watch till the moons rose--for they had not yet enough confidence in their new domain to sleep in darkness simultaneously--leaned his back against a rock and lighted his pipe. In the distance he saw the torrents of fiery lava from the volcanoes reflected in the sky, and faintly heard their thunderous crashes, while the fire-flies twinkled unconcernedly in the hollow, and the night winds swayed the fernlike branches. Then he gazed at the earth, which, but little above the horizon, shone with a faint but steady ray, and his mind's eye ran beyond his natural vision while he pictured to himself the girl of his heart, wishing that by some communion of spirits he might convey his thoughts to her, and receive hers. It was now the first week of January on earth. He could almost see her house and the snow-clad trees in the park, and knew that at that hour she was dressing for dinner, and hoped and believed that he was in her heart. While he thus mused, one moon after another rose, each at a different phase, till three were at once in the sky. Adjusting the electric protection- wires that were to paralyze any creature that attempted to come within the circle, and would arouse them by ringing a bell, he knocked the ashes from his pipe, rolled himself in a blanket, and was soon asleep beside his friends.

Antecedental

"Come in!" sounded a voice, as Dr. Cortlandt and Dick Ayrault tapped at the door of the President of the Terrestrial Axis Straightening Company's private office on the morning of the 21st of June, A. D. 2000. Col. Bearwarden sat at his capacious desk, the shadows passing over his face as April clouds flit across the sun. He was a handsome man, and young for the important post he filled--being scarcely forty--a graduate of West Point, with great executive ability, and a wonderful engineer. "Sit down, chappies," said he; "we have still a half hour before I begin to read the report I am to make to the stockholders and representatives of all the governments, which is now ready. I know YOU smoke," passing a box of Havanas to the professor.

Prof. Cortlandt, LL. D., United States Government expert, appointed to examine the company's calculations, was about fifty, with a high forehead, greyish hair, and quick, grey eyes, a geologist and astronomer, and altogether as able a man, in his own way, as Col. Bearwarden in his. Richard Ayrault, a large stockholder and one of the honorary vice-presidents in the company, was about thirty, a university man, by nature a scientist, and engaged to one of the prettiest society girls, who was then a student at Vassar, in the beautiful town of Poughkeepsie.

"Knowing the way you carry things in your mind, and the difficulty of rattling you," said Cortlandt, "we have dropped in on our way to hear the speech that I would not miss for a fortune. Let us know if we bother you."

"Impossible, dear boy," replied the president genially. "Since I survived your official investigations, I think I deserve some of your attention informally."

"Here are my final examinations," said Cortlandt, handing Bearwarden a roll of papers. "I have been over all your figures, and testify to their accuracy in the appendix I have added."

So they sat and chatted about the enterprise that interested Cortlandt and Ayrault almost as much as Bearwarden himself. As the clock struck eleven, the president of the company put on his hat, and, saying au revoir to his friends, crossed the street to the Opera House, in which he was to read a report that would be copied in all the great journals and heard over thousands of miles of wire in every part of the globe. When he arrived, the vast building was already filled with a distinguished company, representing the greatest intelligence, wealth, and powers of the world. Bearwarden went in by the stage entrance, exchanging greetings as he did so with officers of the company and directors who had come to hear him. Cortlandt and Ayrault entered by the regular door, the former going to the Government representatives' box, the latter to join his fiancee, Sylvia Preston, who was there with her mother. Bearwarden had a roll of manuscript at hand, but so well did he know his speech that he scarcely glanced at it. After being introduced by the chairman of the meeting, and seeing that his audience was all attention, he began, holding himself erect, his clear, powerful voice making every part of the building ring.

President Bearwarden's Speech

"To the Bondholders and Stockholders of the Terrestrial Axis Straightening Company and Representatives of Earthly Governments.

"GENTLEMEN: You know that the objects of this company are, to straighten the axis of the earth, to combine the extreme heat of summer with the intense cold of winter and produce a uniform temperature for each degree of latitude the year round. At present the earth's axis--that is, the line passing through its centre and the two poles--is inclined to the ecliptic about twenty-three and a half degrees. Our summer is produced by the northern hemisphere's leaning at that angle towards the sun, and our winter by its turning that much from it. In one case the sun's rays are caused to shine more perpendicularly, and in the other more obliquely. This wabbling, like that of a top, is the sole cause of the seasons; since, owing to the eccentricity of our orbit, the earth is actually fifteen hundred thousand miles nearer the sun during our winter, in the northern hemisphere, than in summer. That there is no limit to a planet's inclination, and that inclination is not essential, we have astronomical proof. Venus's axis is inclined to the plane of her orbit seventy-five degrees, so that the arctic circle comes within fifteen degrees of the equator, and the tropics also extend to latitude seventy-five degrees, or within fifteen degrees of the poles, producing great extremes of heat and cold.

"Venus is made still more difficult of habitation by the fact that she rotates on her axis in the same time that she revolves about the sun, in the same way that the moon does about the earth, so that one side must be perpetually frozen while the other is parched.

"In Uranus we see the axis tilted still further, so that the arctic circle descends to the equator. The most varied climate must therefore prevail during its year, whose length exceeds eighty-one of ours.

The axis of Mars is inclined about twenty-eight and two thirds degrees to the plane of its orbit; consequently its seasons must be very similar to ours, the extremes of heat and cold being somewhat greater.

"In Jupiter we have an illustration of a planet whose axis is almost at right angles to the plane of its orbit, being inclined but about a degree and a half. The hypothetical inhabitants of this majestic planet must therefore have perpetual summer at the equator, eternal winter at the poles, and in the temperate regions everlasting spring. On account of the straightness of the axis, however, even the polar inhabitants--if there are any--are not oppressed by a six months' night, for all except those at the VERY pole have a sunrise and a sunset every ten hours--the exact day being nine hours, fifty five minutes, and twenty-eight seconds. The warmth of the tropics is also tempered by the high winds that must result from the rapid whirl on its axis, every object at the equator being carried around by this at the rate of 27,600 miles an hour, or over three thousand miles farther than the earth's equator moves in twenty-four hours.