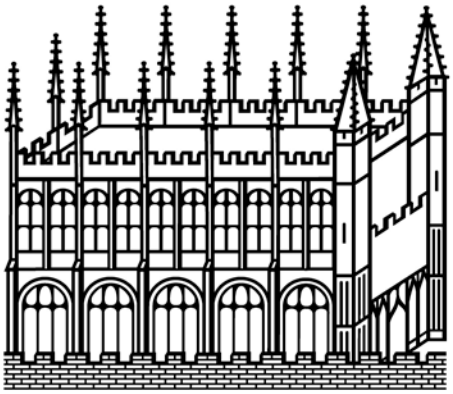




ANNALS OF THE TWENTY-NINTH CENTURY.

Give me leave
To speak my mind, and I will through and through
Cleanse the foul body of the infected world,
If they will patiently receive my medicine.

MERCHANT OF VENICE.

If the contents please thee, and be for thy use, suppose the man of the moon or whom thou wilt to be the author.

BARTON.

ANNALS OF THE

TWENTY-NINTH CENTURY;

OR,

The Autobiography of the Tenth President of the World-Republic.

IN THREE VOLUMES.

VOL. II.

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ANNALS OF THE TWENTY-NINTH CENTURY.

CHAPTER I.

MY RESURRECTION.

I HURRY over the hideous horrors of the many weeks of my entombment by a single stroke of my pen. Language pigments cannot paint the darkness, dreariness, and depression which weighed like mountains on my sorrow-stricken soul. Hope after hope flickered, then languished and died. Desperation and despair rose upon me at times with maniacal fury. During sleep I was cruciated by nightmares and all the demons of dreamland, and in my waking hours I was tortured by still more dreadful realities. Now a mirage of the mind allured me with hoaxing hopes, anon the frontiers between sleep and waking were so swept away, that I was unable to distinguish apparitions from actualities.

Having only six months' provisions, I felt that that every mouthful I swallowed pushed me nearer the yawning vortex of starvation. But for the Bible I would have gone mad. Sometimes I prayed for deliverance, sometimes for death. Ships were passing over me, the lashing of whose paddles I heard with a distinctness which was the most tantalizing derision to my anxiety. Divers and swimmers and aquatic farm-workers were doubtless all around, while below I heard the underground trains. Yet here was I lost, perhaps already in my tomb. Unceasingly these reflections arose before me like scourges to my bold, perhaps proud ambition, forcing me to retreat in contrition to the only refuge and fortress of the broken-hearted —the Bible. Only in its pages I found shelter for my sorrows, and salve for my wounded soul.

But day follows day, and week week, and I am still entombed in my kingdom of thirty cubic mètres. Hermetically sealed within its iron frontiers, hope would make me trust that Heaven had immured me for a time to smother my vanity and force my spiritual growth. Jonah was three days and three nights amid the

unsavoury pulp of a whale's stomach, that his soul might be purified of its worldly dross, and here am I in the bed of the ocean, undergoing a similar chastisement, peradventure to receive a similar deliverance. At other times the twilight of doubting hope would almost darken into the night of despair, and I would dread my days were numbered, and that I was doomed to have my habitation for my coffin, my coffin for my death-bed, and my death-bed for my grave. But God ruled otherwise. My students and colleagues, with heroic devotion, had been searching for me from the very moment of my fall, and had overrun every square inch of the ocean's bed within an area of thousands of miles until they discovered my domicile, no less than 200 mètres below the surface of the ocean's bottom. Sound asleep at the time, I was awakened to unspeakable joy by those in search of me battering on my domains. I shouted and danced like a maniac in the inebriation of my gladness, and then gratefully raised my Ebenezer.

Meanwhile the joy of those who had discovered my retreat was so tempered with doubt, that none dared rejoice until it was seen

whether I was alive. A few minutes of anxious work finished the exhumation of what was dreaded might be my bier. A few minutes more, and the missile was raised to the surface of the sea, and placed on board the Mayflower, which formed the flagship of my brethren. Before an assemblage of two thousand, whose minds were agitated with an anxiety and dubiety which no words can picture, Parry McLintock now advanced to burst the urn in which I was encased, and thus unseal the suspense. At this moment, I, being aware I was now within a few mètres of my friends, resolved to break the spell of their fears by letting them know I was still alive. I therefore mustered my feeble physical forces, and struck one of my broken instruments against my prison-walls. The reverberations were so loud that they were distinctly heard by those around, who answered the signals by such a shout of joy as made me weep with delight. A few seconds afterwards the shell of the iron egg was burst, and I, its chick, was enabled to walk out, and reappear upon the world from which I had been so long estranged. My friends were overwhelmed with gladness. They told me ten weeks had elapsed

since my burial. Unutterable, therefore, were their sensations on finding my soul-inhabited tabernacle, when they so reasonably expected only my ashes. For myself, my eyes were almost overpowered by the intensity of the light of day, and my mind by the pleasure of again beholding those whom I had never hoped to behold. Exhausted by the very force of my joyful emotions, I sank into the arms of my friends. Anxiously they pressed around me, wondering at my safety, but distressed to find my visage so cadaverous and my frame so shattered. Want of sun had blanched my skin, want of food had attenuated my buxom muscles into wizened filaments, and my rounded and plump figure into a mere skin-bound skeleton. My face was furrowed with the ploughshare of affliction. Miseries had bleached my raven hair ; suspense, that hell of hells, had heaped upon me the tribulations of years, and crowned the shoulders of youthful vigour with the badges of senility.

To Santa Cruz, our nearest port, we now hastened, that the joyful tidings might circumspread the globe, and we be the sooner empowered to return to our several avocations.

I was meanwhile supplied with the news of the world's onward march during my imprisonment; of the intellectual territories it had invaded, and the victories it had gained. While my mental powers had been manacled, and while I had been segregated from mankind and from usefulness, I was delighted to find the world had thus gloriously been advancing in the great millennial highway.

At Santa Cruz we received a great ovation. Thereafter we were supplied with tube carriages, with which we were in a few minutes blown to our several homes. The tidings of my safety were, at the same time, published throughout the earth, an operation for which a few minutes sufficed. The joy generated by the news was unbounded. Delight flashed from soul to soul, until the whole heartdom of the world was fired with the flame of heavenly exultation. Gratitude the while rose from each soul-altar as an incense to heaven.

Next morning I found the world's newspaper heavily laden with pæans over my deliverance, and speculations upon the prospects of ultra-aërial travelling. It was a rich recompense for my woes and trials, to find that my cause

and my misfortunes had kindled a sympathy so wide and so warm.

With undiminished indomitability, I, as early as I had regained my health, returned to toil in that vocation to which my soul had been so long espoused. Antæus-like, every occasion in which I had been tossed back upon the earth in my efforts to reach the moon had been the means of supplying nutriment to my energy and courage. On this occasion my colleagues and I resumed the work with such enlarged hopes and strengthened assiduity, that in two months we had completed preparations to make another supreme attempt to cross the mundo-lunar ferry. The error of the last voyage discounted the infallibility of our present tactics. Our precautions were almost ultra-prudent, our preliminary tests almost hyper-crucial. The trial trips were made half way to the moon and back under the new system, each of which was conducted with undiluted success. The possibility of failure was reduced to an impossibility.

CHAPTER II.

I REACH THE MOON.

THE time-keeper of history pointed to the date August 1, 2838, when 200,000,000 souls were echaloned on Everest to witness my next attempt to invade the moon. The scene was the embodiment of sublimity. Were a description of its grandeur attempted the most skilful word-painting would only distort what it meant to embellish.

The prospect inspired me—the David of this Elah—with confidence and strength. Surely, thought I, this superb meeting is symbolical of the heavenly approval of my mission. I entered my iron cage with a triumphant step, assured that ere I again cast my eyes upon my fellow-men, or my fellow-men cast their eyes upon me, the realms of Diana would be in our possession. Next moment the bullet in which I was billeted was pressed home, and ere my brain had time

to generate a single thought, the mines of explosive under me had hurled me to a point where the world appeared but a moon, and where man and his mightiest works were dwarfed into invisibility. During the entire flight I was imbued with sanguine expectations. Every instrument was working perfectly and every incident boded triumph. My soul was infused with heroic intrepidity. With equanimity I looked out from the loop-holes in my vessel's prow and stern to view the two globes between which I was journeying, wondering the while that the quiescence in which I was enshrined was consistent with a motion so amazing. At length the bomb nears the point at which it is necessary for me to have it burst. Lashing myself, therefore, to my seat, and watching the celerity meter, I at the proper moment nervously pull the trigger. Instantly the iron shell is noiselessly burst. Oh, terrible moment! Do you bring me life or death—the moon or a grave? For a second I am held in the clutches of suspense. But delight soon succeeds when I find myself firmly seated in my car, and the broken fragments of my bomb all around. Not a single fibre of my heart

having betrayed the slightest dismay in this importance fraught moment, I, with a soul already tasting the fruits of victory, applied my electric engines, and steered towards the world's great serenader. In twenty minutes I reach the frontiers where the gravitation of the earth and moon are neutralized. For a few minutes the course of my vessel is unsteady. It reels and flounders, and then topples over. Joy of my life's joys—triumph of my life's triumphs; my ascent is now changed into a descent. The moon is now my loadstone. The moon is the earth to which my fealty is due, and the earth which maintains supremacy over my movements. I am now essentially a lunarian. I am the first among mankind who has left the world without crossing death's dread river. Billows of emotions sweep through my mind on this awful occasion. My feelings are heated up to my soul's boiling-point. My victory, thought I, is now gained after unnumbered obstacles and heart-rending defeats. After the sweats of travail I earn the sweets of fortune. At the outlay of incalculable pain and pains, I have achieved such a conquest as Alexander of Macedonia vainly envied.

Newton, when he made his greatest discovery was so dazzled by its brilliancy, that another had to finish his calculations. I, when about to achieve the greatest victory ere won by science, was paralyzed with gladness. With feelings unutterable I saw the outlines of the lunar mountains, valleys, and plains become so sharp that I began to discern plantations, ravines, and other details of scenery. The colourless map-like scene became pictorial and chromatic; clearer and clearer grew the wondrous picture. To the equatorial meridian I naturally steered, for there was one of the moon's richest plains. The woods, and hills, and valleys, and streams were meanwhile assuming their respective hues. Soon my wonder was out-wondered on beholding amazingly lustrous patches of colour, sprinkled like iridescent jewels over the face of the strange panorama. My mind was racked for some minutes through the force of the puzzle, but it at length arrived at the judgment that the colour was peculiar to the moon. New transports of joy seized my soul over the discovery, for no hue on earth could rival its beauty and richness. By the aid of my telescope I soon

ascertained that the spots were small clumps of trees, and towards one, situated at the very centre of the moon-face, I piloted my car. I at first supposed that the dot I had noticed comprised a few roods, but, behold, as I approached, it widened into square kilomètres.

Time and my chariot flew on so quickly, that I soon saw the lineaments of the wonderful trees by my instruments. I beheld their branches waving, birds flying about them, and below them flocks grazing. I was so captivated by one lovely lawn in the midst of the beautiful plantation, that I resolved to make it the site wherein the moon's human history should find its cradle. Examining the spectacle more accurately, my mind, already overgorged with wonder, was glutted with more on beholding the lunar Fauna and Flora so different from those of the earth. I now reached the coasts of the lunar atmosphere. With great anxiety amid the current of my joys, I doffed my trans-aërial breathing equipments to test its air with the naked mouth. My first breath reassured me, for lunar air proved alike wholesome, refreshing, and pure. Now within the genial pale of this atmosphere, a crowd of

diurnal beauties burst upon my vision, while the nocturnal beauties vanished. The colours in the moon below become more lustrous. The scenery, before like a brilliantly illuminated panorama in a dark starlit room, is now a world enveloped by an azure firmament, from which the stars are excluded. In a few moments after entering into this glorious welkin, I am amazed and amused to behold great flocks of birds flying towards me, and flitting around my balloon—nay, perching upon my very shoulders and head. My emotions on approaching the lunar garden of Eden, where I, the moon's Adam, am about to alight, are fanned into flame as I receive this welcome from the denizens of Diana. I feel that the incident consummates my installation as Lord of the Manor of Cynthia. A few more heavings of my o'er-pent heart, and my bark touches the moon. I am now so deeply moved that I throw myself upon its virgin soil, and give way to a torrent of the most intense suscitations which ever stormed the citadel of my soul. Prayers are my only utterances, and tears my thanksgiving. The moon is thus baptised by the waters of gratitude which my eyes

weep. Cynthia, mused I, is now the earth's. The first step has been taken in man's capability to soar through the skies. The history of the earth shall now swell and embrace that of the moon. We hasten towards the time when the historical rivers of the individual planets shall converge into the oceanic history of the solar system. As if imbued with prophetic instinct, I think I catch glimpses of the brilliant unopened pages of lunar history. Unlike that of the sinful world from which I have come, it shall be unsullied by the blood of murder-trading nations. No despotic kingcraft shall taint its rule; no ambitious priestcraft, under a religious guise, shall crowd its annals with crime. God shall be its ruler; the Bible shall be its statute-book, saints its citizens, and religious progress its politics. No Cains shall stain the preface of its history; no impious ambition of its inhabitants shall lead to the curse of a division of tongues; no spiritual arrogance of its members shall induce the greater curse of a division of sects; no Sodoms or Gomorrahs shall require deletion from its geography; no deluge shall be required to sweep its people into the jaws of

death. All the immeasurable horrors of war shall be unknown; its soil shall be unsoiled by bloodshed; crimes and all the machinery of misanthropy shall be contraband; taxes, poverty, intrigues, monetary systems, and all the stings of devil-craft, shall here find no residence; the curses of outraged nature shall be as thoroughly expunged as the curses of outraged politics; pestilences and plagues shall gain no footing. In the language of inspiration,—"Violence shall not be heard in thy land, wasting nor destruction within thy bounds, but thou shalt call thy walls salvation, and thy gates praise."

While in this pleasing reverie, I was aroused by a beautiful sheep-like animal licking my cheek. With a soul inundated with a tide of emotions, I looked up and beheld myself surrounded by myriads of animals, which, as a rule, were of more gigantic growth than those of the world, and possessed greater powers of agility. Many of the mammalia were larger than elephants, many taller than giraffes. Some of the birds were three times larger than condors, many of the insects bigger than sparrows. I noticed moths as large as crows,

and midges as huge as blackbirds. The peculiarities of the Fauna were innumerable. Some were bipeds, some tripeds, some quadrupeds, and some multipeds; some were bi-winged, some tri-winged, and some multi-winged; some were unicorns, some duocorns, and some multicorns. Stranger than all this, was their tameness. My presence only excited their curiosity. Innocent themselves, they looked for innocence in me. They frisked around me, and in loving emulation sought to lick my hands, body, feet, and even my face—greetings which I viewed as tokens of the allegiance of the lunar residents to the majesty of man. Happy country, the felicity reigning among your creatures shows how peace is natural to brutes! It must have been a fall which brought them as well as man in our parent world from a state of innocence, and instilled into them jealousies and cruelties. Yours, oh, lunar animals, are not the fierce looks with which artists of past ages represent untamed beasts, for a disobedience and a fall never rendered you savage! Even now, I am another Adam in another world, giving names to an unfallen Fauna.

After my first outbursts of feeling I arose.

This single and simple movement impressed me with the sensation of my amazing buoyancy and alertness. I at once remembered this was because the small gravitation powers of the moon rendered me only one-fifth of my weight on earth. The least exertion made me leap like an automaton, or sent me sprawling on the grass. If I wished to walk, I performed capers which might have shamed acrobats. I was not master of my own motions. I was perpetually overshooting my mark, and coming into collision with trees and rocks. My legs so revolted against my will, that I believe I would have broken them had it not been for my moon-acquired lightness and my tardy velocity in falling. My extravagant posturings whirled my senses into a vortex of dizziness. At length I hit upon the expedient of poising myself by means of ballast, searching for which opened my eyes to the levity of all things lunary. Tall trees, under whose burden houses in the nether world might have groaned, I could raise and carry with ease. Rocks I could lift as if their composition had been cork. To me this circumstance was destined to prove a mighty advantage, as thereby I was capable of accom-

plishing feats with ease which in the world would have baffled a Samson.

Meantime I had tied huge stones to my body, in order that I might with the greater freedom maintain my equilibrium. But I was still unreconciled to the physical laws of the moon, and it was long ere my will could master my motions. My every action was a travestie of my wish. If I desired to go one mètre, I so miscalculated the necessary muscular force as to leap five. If I wished to step upon a rock, I often overleaped it altogether. Making such a poor attempt at walking, in spite of ballast, I donned my electric wings, and tried flying. With great delight I found that I could soar with a celerity and ease of which the world below could have no conception. While thus engaged, I was astonished to behold that I was performing my unintentional antics before a company of thousands of animals. So interested was this strange audience, that whatever I did they watched me, wherever I went they followed me, and whenever I stopped they crowded around me. Meanwhile, as a commission agent engaged on behalf of all the various sciences, I was busily storing up a vast

compendium of miscellaneous information and discoveries. In this work I was ever escorted by feelings of amazement. Every eyeload of sights piled upon my memory new phenomena. Even my ears, charmed with the vocal music of the sylvan choristers, accompanied by the instrumental orchestra of the sighing trees and the purling brooks, administered joy-forage to my soul. My five senses were each channels bearing to my brain-haven argosies of surprising wonders and wondrous surprises. As Midas was in the midst of gold, I was in the midst of marvels. No man had ever had his amazedness stretched so far a length or for so long a time. I was in a great plain, affluent in vegetation, and palisaded by a noble perspective of mountain peaks, while above I had not only the rising sun to cheer me, but the world in the zenith shining like another sun. There it was, ceaselessly gyrating and endlessly varying in its phases, yet anchored in the heavens despite its incessant rollings, and at rest amid its changes—the emblem of active stability and busy steadfastness.

By this time I had realized that hunger is as keen an appetite in the moon as in my

parent world. Having noticed the relish with which some of the animals around me had partaken of certain plants, I followed their example. A most refreshing repast was this, the first meal tasted by man on lunar soil. Not the less interest it had to me when, on analysis, I found that my viands contained the proper ingredients of nutrition in their proper ratio.

My next ambition was to supply myself with a habitation. Pursuant of this end, I took the electric engines out of my balloon, and, having extemporised them into wood-cutting apparatus, I felled some trees, carved them into shape, and, ere the sun had advanced half a degree, I had erected the moon's first domicile.

Most lovely and suitable was the situation. Resting on the bosom of a beautiful lawn, sheltered by woods and flanked by a sparkling brook, I thought I might have searched forty moons ere I had found a site more pleasant. Battling single-handed the while, I found my engines of infinite use, and in themselves a host. Never had any man placed in solitude been more fortunate. I was in a region where things were amazingly imponderous, and I possessed

machinery which was the heritage of thousands of mechanists and *savants*. I was the beneficiary of a legion of the world's scientific benefactors. My single electric engine could claim to be the child of two hundred and ten inventor parents. Above all, I did not require to fortify myself against wild animals, including man, the wildest of all. Nay, I found in the brute creation my helpmates and companions. One most beautiful animal, like a zebra, which I afterwards dubbed Rocket, was an especial favourite. I resolved, indeed, at the risk of its displeasure, to mount it and make it my prime minister. With somewhat tremulous feelings I led it out, and threw myself upon its back. Already aware of the astonishing swiftness of lunar animals, I felt it might be difficult to keep my seat. But all went well. Though swifter than a gazelle, I found Rocket gentle as a lamb. Its agility, no doubt, at first inspired me with considerable alarm, its every leap, when urged to full gallop, covering as much as fifty mètres. Craters, mighty defiles, and trees, were no obstacle, in its way, for they were vaulted over with as much ease as thorough-bred horses would have leaped a three-bar gate. While thus scouring

the country, I was surprised to find thousands of animals galloping at my heels. When I drew up they halted, and when I again moved on they followed. I was delighted with my daring ride and my imposing retinue. In my ecstasy I spurned on my charger, and tested its powers of endurance and speed to the uttermost. With unsweating skin and unhurried breathing, it flew at a pace five times that of those roulette-horses which in the nineteenth century were made to whirl round the wheels of fortune on those gambling fields called the turf. Yet I did not outstrip my escort, for the quicker I rode the more fleetly they pursued. Was ever king, thought I, honoured with such a noble cavalcade? Did the fox-chasers of old ever witness such spirited racing? Did all the cattle exhibitors of the nether world ever display such magnificent stock? I realized in the incidents of the adventure that I was monarch of moonland, and possessed the most obedient subjects in its Fauna. In my royal tour I reviewed my realms over a tract of 360 kilomètres,—a tour which showed me that my house was the humble capital of a mighty rugose scraggy plain, begirt with mighty mountains and yawning caves—

a plain possessing a rich Fauna and Flora, and great mineralogical wealth. During my jaunt I had naturally made great accessions to my body-guards. By some hidden fascination my presence seemed to magnetize the denizens of Diana. Meantime I crossed fords, ascended hills, rode through the most luxuriant forests, and amid the most lovely valleys and downs. Every square mètre pictured magnificence. A few hours' acquaintance with moonland taught me its beauty, its riches, and its adaptability as a world colony.

Returning to my palace, my kingly duties were supplanted by the menial operations of the kitchen. The moon's Prometheus, I now made a fire. I eagerly watched the gleams of the element as they burst out for the first time in its history, and I was interested more on beholding the curiosity with which the animals around viewed the same scene. But fatigued by this time with the labours of the day, and observing that my animal satellites had already ensconced themselves under trees, in order to sleep, I thought it time to follow their example.

My diary will now suffice to narrate my

adventures, and it may perchance possess an adventitious interest, as it forms the maiden moonland literary production.

Anno Lunæ dies 1. To the creator of the boundless heavens, among which the world and its satellite may be said to be two grains of sand upon the sea-shore of infinity, praise and honour be accorded. To man's possessions he has added a new earth. I, His humble instrument to receive the offering, and claim it as man's, have made tears of gratitude my oblation over the rich gift. Never to be forgotten was my entrance into this promised land. From above I beheld that on the east of the meridian all was daylight and spring, and on the west darkness and winter. The meridian was a striking borderland of chiaroscuro, in which light was seen to invade darkness by aid of the peaks, and darkness to advance into the territories of light under shelter of the valleys. To this strange day-night frontier, where it was crossed by the equator, I steered my course.

Arrived on this foreign world, I, alone and prostrated before heaven, rejoiced in the emancipation of man from his 8,000 years' captivity to his pigmy stellar tenement. My first breath

in this new world wafted thanksgiving to the Most High.

After reconnoitering my position, I, the moon's king, erected my palace, an humble domicile, of three hours' labour. I then commenced the great harvest of research in the fields of lunar science—a harvest so rich and so extensive, that years shall run ere its fruits are all garnered. How incompetent is my poor brain for a work which would necessitate so many millions, laziness might well have suggested; but my intrepidity scrupled not to face the greatest store of unknown and unwitnessed phenomena ever presented to man.

Made a short exploration to the south. Ascended to the height of three miles to study the configuration of the moon, and to make an ordnance-sculpture-photographic sketch of the surrounding country. The peaks of the country—now a mere aggregation of choked-up cosmical flues—carried my mind back to those times when the moon's ten thousand furnaces were in full blaze. Such had been the heat of the now cooled lunar kilns, that I found they had eructed many rich metals from the moon's interior. I came upon great rocks

of gold, pyramids of silver, and huge blocks of all the noble metals. Nevertheless, the charms of lunar natural history seduced my attention more than those riches. I found every pool an aquarium, every tree an aviary, and every cave a menagerie. When naturalists in the sublunary sphere leap with ecstasy over the discovery of an undescribed insect, to what extent must my delight be forced, who am in the midst of thousands of unknown genera of animals and vegetables, and who cannot take a step without trampling on the most curious botanical specimens, nor lift my eyelids without noticing the most astonishing wonders of animal life? The nuncio, not of one, but twenty sciences, I am surfeited with my discoveries. What treasures of unknown phenomena are waiting to be unsealed! Oh, for a host of workers to roam these Elysian fields of research!

Though in the moon, I am adhering to earthly customs. Though its day is as long as fifteen mundane days, I am eating and sleeping at my wonted hours. Our world forms a noble clock in the lunar firmament. By its volutions I can mark the very minutes. Just now the sun's youthful beams fall aslant, and I

will therefore have the satisfaction of spending ten earthly days ere the moon's evening.

To the sun and my native world I have repeatedly turned my eyes. What heavenly jewels they are in the azure casket of the moon's firmament! Even Terra, with a disc visually thirteen times that of the sun, appears no mean consort to the great orb of day. Yet I view it with tears. It is the planet of sin, and the city of, perhaps, the only race of sinners in the universe. I feel humiliated to think I am formed of its sin-polluted dust. Yet my cloudy vexations are fringed by golden joys when I consider this world has been the residence of millions of human beings, the meanest of whom God has gifted with a soul worth more than the world itself. I felt proud when I considered that Christ had done more for it than he required to do for all the systems in God's boundless realms. He died for the redemption of its race. He conquered the devil in the devil's own star, and outshone the glare of hell by the sunshine of grace.

After the exertion of some hours, I took my balloon-bed into my house, and, raising an altar of gratitude for God's favours, I retired to

rest. The angels then for the first time guarded the soul of a poor sinner in this new world, and guided his slumbers into realms of joy. Sweet, therefore, were my dreams and refreshing was my rest.

Second day. Explored the land from my home to the lunar Apennines on the back of Rocket, accompanied by my animal army. In these sojournings I encountered various adventures, and took upwards of five hundred bas-relief sketches with my pocket photographic apparatus. The ultra-worldly wildness of the mountain scenery made my soul giddy with admiration. Occasionally I looked down upon caverns in whose capacious mouths Etnas would have been morsels. In them the awful was married to the beautiful, for, bursting out amid the stupendous chasms, were spots of luxuriant vegetation, chafed with mountain jewellery—rocks of quartz, amethysts, carbuncles, and huge boulders of gold and silver. Again I viewed sun-lying valleys, carpeted below by millions of grasses and flowers, embroidered by lines and clumps of trees, and embraced by great mountain chains, on whose shoulders were borne roaring cataracts, dismal

chasms, and frowning precipices. Now I saw a hoary-headed peak of Teneriffe, sitting in lonely majesty upon plains loaded with luxuriance. Anon I saw a circle of hills, which, like a geographical fortification, encircled a great plain. Sights fantastic and sights romantic, sights gorgeous and sights grotesque, sights earthly and sights infernal, were all gleaned in one sweep of the eye. The sun having scaled only a few degrees above the horizon, the scenes were the more striking through the bold contrasts caused by the commixture of spring and winter, light and shade. While the shoulders of the mountain were bathed in a flood of sunshine, their feet on the shaded side were still blanketed in a bed of darkness. The uplands and plains were clothed in the brilliant vestures of summer, while the caverns were naked in their wintry couches. Below, the cataracts were still glaciers—above, the glaciers had thawed into cataracts; below, the streams were ice-locked—above, they were purling on, rejoicing in their freedom.

My adventures for the day culminated when I rode as far west as Copernicus. On Rocket I managed to scale one of the passes on the

south side of the mountain; but intent to ascend to its snow-crowned top, I was, through the difficulties of the way, forced to leave my horse behind, and make the journey alone. Partly by my wings, partly by my feet, and partly by my hands, I clambered up the ice-corniced escarpments. I had to tread a path more torn with crevasses, more battlemented with precipitous cliffs, and more barricaded with spurs and aiguilles, than the Alps in those times when fools raffled their lives upon them for a bravado, yet, owing to my wings and the laxity of the lunar laws of gravitation, I incurred no risk soever. Once, on moving along the narrow ice-edged blade of a precipice, I slipped and fell. Frightened at first, I was re-assured on feeling how slowly I was falling. Thanks to the meagre velocity demanded by the moon's gravitation, that which would have been a downfall on the earth was here but a gentle, harmless, feather-like subsidence. In short, it took so many seconds for me to drop half the depth of the abyss, that I had time to use my wings and remount to the spot from which I had tumbled. Shortly after this, in going up an inclined plane, the snow sank below me,

and an avalanche resulted. In the circumstances, I merely took to wing and flew to a point of safety. Further on I escaped another accident. I noticed an avalanche brush down from a spot a kilomètre overhead, which would have buried me in its icy grasp had my pinions not purchased my safety.

At length I reached the summit. To my delight and wonder, I beheld a crater-saucer, several miles in diameter, filled with ice, and in its centre a mighty inverted cup mountain. The inner sides of the mountainous chalice were composed of most magnificent concentric terraces, which, like flights of stairs, led down to the great blue ice blocks. I at once saw that in daytime this Mer de Glace was a lake, and this central hill an island. Having flown to this mountain tongue in the mountain's mouth, I took out my instruments, and forthwith pursued investigations in the interests of twenty different sciences. After three hours' labour, I returned to where I had left Rocket, and found that the faithful animal had not budged from the spot. Unfortunately, in flying down, I broke one of my wings upon a

crag, a misfortune which, at the moment, I did not fully realize.

Now on the top of a pass in the Copernican range, with daylight on the one side and darkness on the other, I lit my electric lamp, remounted Rocket, and descended into the night-invested west, that I might study the glaciers. In a few minutes I had travelled from morning into the depths of night, so that in place of the sun my sky was now presided over by countless stellar sentries of the hosts of heaven. Their brightness and beauty almost beguiled my attention from my work. After a few hours I unriddled to my satisfaction that here the glaciers were powerful files, which ground down the ribs of mountains; and that here moraines, those deltas of icy rivers, presented the same phenomena as they used to do in the earth.

Shortly after this I became entangled in a labyrinth of ice-veneered gorges, ravines, and ridges. My course would have been difficult at noonday; but dipping down into regions where night slumbered, and where winter had laid its slippery snares, I felt that any moment might have plunged me headlong over some precipice.

For a time I considered my life in jeopardy, for fly to safety I could not, inasmuch as I had damaged my wings. In the exigency I trusted my life to the sagacity of my steed. So far from apprehending danger, it bounded, chamois-like, from ledge to ledge, with such cool precipitancy and such unhesitating daring, as made me feel that I was in safe company. But my apprehensions were rekindled, when, as my steed was scudding along at a speed which rendered the objects I passed to appear on my retina an illegible scrawl of fleeting images, I discovered I was rushing along the brink of a mighty precipice. Halting as soon as I could, what was my horror to find, on my left hand, a cavern which, to my eyes, appeared a bottomless pit. Now, keenly alive to the danger of journeying into the valleys, I desisted from my scientific hunt, and at length found a pass by which I was enabled to escape from my perplexities, and regain the regions of daylight I had so daringly forsaken.

Leaving this highland district, to which the wildest scenery of the nether world was tame, I returned home by a route to whose luxuriance the tropical riches of the world were poor.

"Beautiful world," said I, in my exuberance, "thy landscapes are worthy of a paradise. With thy flowers angels might love to adorn themselves: thy perfumes are ambrosial; thy air is purity itself. Delight expands my soul as I behold thy animal and vegetable creation, with their chains of orders and sub-orders intact. How unlike the sub-lunary sphere, where the cruel sports and bloodthirstiness of past ages have so mutilated the symmetry of Nature's peerless plan, and wrenched so many links from the chains of botanical and zoological continuity!"

In my peregrinations to-day, I came upon two of the balls that had been fired from the Mount Everest cannon. One was plunged about forty feet into the earth, and the other had been dashed to pieces upon a rock.

Third day. Conducted still bolder explorations. Having embarked in my aërial car, I journeyed as far eastward as Theophilus; flew over mountains of amazing height, valleys of astounding depth, and meadows of the most lavish verdure. All the while I noted the minute structure of the Fauna and Flora by means of my microscopic and telescopic appa-

ratus. The symmetry and beauty of both were to me sermons preached with an eloquence which wrapt my soul in devotion.

Returned by another route, and viewed a changing panorama of landscapes, new types of animals and vegetables, and new strata of minerals. By the time I had reached home I had taken 1,000 sculpture-photographic sketches, and loaded my vessel with nearly 500 chemical and mineralogical specimens.

Dismounting from my aërial equipage, I, the moon's monarch, marched into my metropolis and palace, haunted by the strange sensation that my little hut was the only habitation in this world, and I the only human inhabitant. Yet, though a quarter of a million of miles from a fellow-man, why should I feel the pangs of loneliness? Is there not more solitude among a billion of men, when estranged from God, than here alone, with God for my guardian? Though my communications are cut off from the world, they are not so with heaven. Alone, I am not lonely, for, like Enoch of old, I can walk with God. My journey has been the grandest schooling I was ever vouchsafed. It has sifted from my mind

much of its earthly dross; it throws me from the arms of the world more than ever in my life-pilgrimage into the arms of Providence.

I am becoming naturalized to my position. Custom has thus early empowered me to run about on lunar soil without ballast. The gravitation of Luna being so small, I can skip about with the agility of a squirrel. I can thus sweat through five times the amount of physical work I could overtake in the sub-lunary sphere.

Fourth day. On Rocket I made sundry journeys, attended by my usual stately retinue. I spent some hours inquiring into the nature of the moon's cuticle. The electrical engines of my balloon I extemporized into a boring-engine. By its means I made eighty different artesian wells of great depth, in eighty different localities. Clear and great was the insight these undertakings afforded me of the anatomy of the lunar rind. I learned that though the moon's crust had in pre-Adamite ages been more toasted with heat than that of the earth, it was now cooled to a greater depth.

In going home I discovered a great cave; fantastically overhung by a great nose of rock. Having anchored my air-barque, I took out

my wings, lit my electric lamp, and flew into its interior. To my amazement I wandered five miles, and found no end to the labyrinth. Unfortunately, time only permitted me to make a few observations, and take a few sculpture-photographs of several of the scenes. Among its attractions were great veins of pure gold, a mighty chamber of pure alabaster, a magnificent fountain, and a small lake.

I now returned home, with my cavalcade laden with eighty tons of mineralogical and geological specimens, some of which I had taken from as great a depth as 1,000 mètres. In arranging and classifying this material I was engaged during the remainder of the day. At the close of the work I saw that I had amassed such a mammoth museum as necessitated the enlargement of my house.

Owing to the sun's protracted reign in the firmament, the weather has now become intensely warm. I tremble when I think that the heat will continue to increase for a few days. The luxuriance of lunar vegetation is now displayed even in those valleys and on those mountains which but two days ago were blanketed by glaciers and veiled in wintry

gloom. Under the continued beams of the cloudless sun, the growth of plants is such as would be considered supernatural in the lower world. In length, some of the leaves are already five mètres; in height many lunarian plants are already ten mètres.

Fifth day. This is the moon's first Sunday. My presence in this world hallows this day, for till now it never knew Sabbath. Therefore it is that, being the first human occupant of the moon, I introduce into its realms this most sacred of all sacred institutions. In my devotions I prayed earnestly for the neighbouring world from which I had come, and of whose dust I am made, and from which the prayers of millions of souls are now arising to the throne of the Most High—that great throne of which this solar archipelago is but a footstool jewel.

Sixth day. Enlarged my house this morning according to worldly time, or afternoon according to the sun's declination on my portion of the moon. Highly pleased with my masonic achievements. Thanks to my knowledge of chemistry, I was likewise enabled to supply myself this day with heat and light. In two

hours I constructed an electrical gas-work, and in half-an-hour an electric furnace. As for my culinary arrangements, lunar fruits are so delicious, that I do not trouble myself with cooking that which I consider Nature has sufficiently cooked. The climate is now tropical. When I arrived here it was the moon's morning, and the heat, which has been and is still amazing, through the agency of an unclouded sun, would be intolerable but for the shallow atmosphere and the genial breezes. I had now in a great measure mastered the meteorology of the moon. I saw that every lunar day comprised a summer, and that every lunar night embraced a winter. I saw that the moon's morning was a spring time, its mid-day midsummer, and its afternoon an autumn. Thus the moon in the course of a year is blessed with as many as twelve summers, twelve winters, and twelve harvests. Through the protracted heat, I saw that the vegetation is goaded on to prodigious feats in growth. The sun-stimulus is, moreover, powerfully seconded by the amazing force of the lunar capillary attraction. Some leaves I thought large when four mètres: I now behold many

nearly double that size. Not an hour passes but adds to their sensible growth.

I also noted that the moon has trade-winds. These blow continually towards the west, owing to the rarefaction of the air caused by the sun. Benign is their influence. They moderated the climate by carrying away the warm air towards the cold region, and transporting from the west cool breezes in lieu of the intense heat. I wrestled hard before I wrested from Nature these climatic secrets.

To-day I studied lunar ornithology, and I found that the migrations of the birds corresponded to the periods of night and day. In the lunar evening they left for the other hemisphere, to enjoy summer and daylight on the sunward side of the moon; and when it had again revolved and re-introduced lunar morning in this region, they returned to their former quarters.

Seventh day. For some days I have been planning a circum-lunar journey. I have resolved to be the moon's Cook as well as its Columbus. Besides, the approach of lunar night tells me that I should be removing towards scenes where I may escape the rigours of a lunar winter.

Engaged to-day in studying lunar ichthyology. Equipped with sub-marine accoutrements, I explored many rivers and lakes. The former mysteries of classification are now so unriddled, that it is easy for me to arrange the genera, species, orders, and sub-orders in a few minutes.

Eighth day. Amid a flow of solemn emotions, I bade adieu to my lunar Garden of Eden, and embarked in my balloon. Flying on at the rate of thirty miles per hour, I sculpturegraphed all the country I over-passed, and noted its Fauna, Flora, and Geology. I also took notes of the latitude and longitude, reckoning my metropolis as the lunar Greenwich. I journey by the poles, to study to better advantage the meteorology of Luna.

At bed-time I descended from my aërial course to *Luna firma*. Again I was welcomed by hosts of animals, which rushed around me in living streams. What a strange sight to behold creatures as large as the mammoth and as tall as the giraffe pressing around me, dancing their peculiar gambols, and nearly killing their smaller brethren with their rude fawning.

Ninth day. Arrived at Aristillus. Bivouacked in one of its ravines. Around my balloon camp are great mountain galleries, by whose massive grandeur even the eye of wonder is dazzled. Great caverns bespeckle the scene, whose ruggedness is strangely toned down by their deep mouths being overhung by luxuriant mustachios of trees. Yet how all these rude splendours pale before the cultivated scenery in which our world now rejoices! Nature, in its solitary and bleak bachelordom, is wild and uncouth. Not till it is married to lovely art is it attired in its full array of beauty. Many past poets, in their stunted pedantry, vaunted of the fire kindled within them at the sight of wild scenery, and viewed aught artificial as heterodox to true poetry. They realized not that up to the twentieth century the world was a rugged, ragged beggar, unclad with vegetation over a large portion of his body, and misclad with weeds, marshes, jungles, prairies, and pathless forests in other portions. They considered not that Nature, untamed and left to itself, became a reprobate, and produced a sanious pestilential vegetation, which putrefied the air it should have purified. They imagined

not that the time would come when the whole globe would be apparelled in the peerless embellishments of art.

Yet while I could not fail to see how the hands and brains of man could adorn the moon's beauties, comb down its asperities, and add elegance to its majesty, Nature's rude and crude grandeur filled my mind with emotion.

But Aristillus had for me an additional interest. It is now more than a thousand years since it was so christened. This was a time when the moon itself stood in naked sterility in the third day of its creation—a time when its waters were glaciers, its valleys barren, its plains unpopulated, and its Fauna and Flora still in the womb of Time. How little reason had the astronomers of the nineteenth century to believe that in the course of a millennium the moon would see the week of its creation completed, and its territories furnished with all the comforts of a habitable world.

To-day I beheld for the first time a lunar autumn. The oppressive heat is moderating. The leaves are becoming tinged with all the hues of Iris. The trees have their boughs bent with the burden of their fruits. The fields are

laden with grain. Nature is being delivered of the abundance with which it has been so long pregnant. But, alas! only the dumb denizens of the wood are here to enjoy the bountiful harvest.

Tenth day. The sun, after its unclouded journey of a fortnight in the moon's firmament, is now setting. How I am to evade the long lunar night I have already considered. I am just three days' journey from the north pole, arrived at which, I will be in the antipodes, and again in the realms of day.

Night overtook me about 3 P.M. earthly time, and after such a long day I keenly felt the change. Darkness brooded over my soul as well as my senses. Yet Nature, with its genial compensating power, no sooner hid the sun, than the world assumed a wondrous lustre, —the zodiacal light irradiated the firmament, meteors sparkled incessantly in all parts of the heaven, while the aurora borealis began to play its part in the concert of nightly phenomena with a brilliancy I had never seen equalled on earth. The sky appeared like a huge kaleidoscope of variegated fire.

Yet sadly do I muse as night envelopes me

for the first time in her mantle and frost in its callous embrace. With eyes anchored in the heavens, I view the moon's moon—to wit, the world. The steadfast, immovable features of the face of mother earth contrasted strongly with the ever-varying atmospheric toilette with which she was draped. So quickly were her cloud-garbs changed, and so inexhaustible were her vapoury wardrobes, that every hour saw her furnished with new raiment. Now she was arrayed in golden, silvery, or coppery fringed robes, anon lightly veiled with gossamer haze gauze. Now she was muffled up in coarse nimbus doublets, anon bedight with fleecy trimmings. Now her face was helmeted in mists, anon she threw off her cloudy vizor.

What a wondrous laboratory, mused I, is the world's aërial chaplet. It is the distillery of the seas. It gives wings to the ocean, and carries it into the interior of the largest continents, and to the tops of the highest peaks. It is the ocean of man and all other air-fish. It is the exchequer to which the sun lends heat and light, and enjoys the usury of reflection, refraction, and diffraction.

Oft I affectionately watched the volutions of

the terranean whirligig beneath this aërial vesicle. Unlike Luna, with its nose ever earthwards, there was the earth, like a huge teetotum, spinning eternally in the firmament. Europe, Asia, Africa, Australia, and America are all in their succession presented to my view. Their familiar outlines have a strange significance seen at such a distance. They are mementos of home. They make my soul bridge the gulf of twenty myriads of miles. Up to this forenoon I had been noting the world's phases from new to half and half to full earth. In nearly its full glory I beheld it this evening. Its atmosphere so beautifully irradiated the stars within its fringe, that the earth appeared like a huge sun, surrounded by a gold-bespangled halo. Not only was it thirteen times larger than the earth's moon, its lustre, owing to the artistic acumen of modern times, by which cities are now but mighty tiaras and aigrettes of diamonds, rubies, pearls, and opals, was infinitely more bright. Had I been a Hume, a Paine, or a Hegel, I would have been so flooded with awe, that I would have damned free-thinking, cursed my own murderous attacks upon truth, and rushed to the

refuge of religious faith. To me it would have spoken as irresistibly as did the light that changed a Saul into a Paul. As I gazed upon it in devout admiration, my mind drifted into a maze of sad musings. I mourned that so glorious a globe had so sad a history. Oh, what a fermentation of infamous passions had occurred on the surface of that planetar vat! What an amalgam of arrogance and ignorance has ever been found in the hearts of its people! Had they immigrated here, how it would have suffocated their pride to find the world, though absolutely great, was relatively only a syllable in the volume of eternity,—the moon's lantern, and a mere atom in that solar system, which forms but a drop in the ocean of infinity!

What, then, is man, oh Lord, that thou art mindful of him, or the son of man, that thou visitest him? How visible is his littleness seen from the platform of contemplation. In my eyes the world is but the sepulchre of a fallen race. It is the cage of the contentious, featherless bipeds. Enviously I survey Jupiter, Mars, Venus, and the other planets, whose Adams tasted not forbidden fruits, and in which the devil has found no footing. Oh, unhappy earth,

but for Christ you would have been a hell, and your inhabitants devils! But when I reflect upon the great scheme of redemption, how the atmosphere of my thoughts is illuminated! From the very ashes of the world's sinful history, behold how Divine grace has blazed forth our great millennium! The reign of religion is now universal. Art's cornucopia has strewn abundance from pole to pole. The once semi-nude, tawdry, scraggy, untrimmed world is now completely arrayed in a luxuriant attire of vegetation—an attire woven by agriculture from millions of plants, and embroidered by horticulture with millions of flowers. A million marvellous agencies once unknown are now its arms and hands. Peace and plenty go hand in hand. Above all, the world, no longer sundered into petty kingdoms and nations founded on the pedestals of selfishness, nor ruled by man-exterminating monarchs, wielding not sceptres, but swords and daggers, is knit by the cords of Christian unity into one great commonwealth. What Philip II. of Spain said of Belgium, I might say of the world, —"This is one great town." Its every road is a street. Country and town are an emulsion.

At sunset I began to study Venus and Mercury. Man never having possessed the advantage of viewing them from so suitable a position, I, with trembling hands, adjusted my instruments, feeling that the doings of the subsequent few seconds might be emblazoned for ever in the volume of human annals. Scarcely had I rested my eyes upon the two stars, when I saw that Mercury possessed a satellite—a satellite which, being the sun's nearest neighbour, had hitherto eluded the eye of human research. But this only formed the initial of a long index of discoveries—discoveries which so flooded my telescope and inundated my vision, that I was surfeited with my success. I was annoyed that into my eyes should be deluged such a monopoly of unseen sights and unknown phenomena.

Eleventh day. Plodding on, with my native world and the aurora borealis for my lamps. The icy grasp of winter is so tightening its hold, that I require to shut myself up in my balloon during sleep. Still studying the wondrous phenomena of a lunar night.

CHAPTER III.

A JOURNEY ROUND THE MOON.

Twelfth day. This day of rest brings strength to my wearied soul. Though the firmament of nature is dark, the firmament of my soul is resplendent with heavenly light. During the whole day I have been locked up in the balloon, and have supplied myself with heat by means of the electric engines.

Thirteenth day. So majestically did the world reign over the commonwealth of lunar stars, that with sorrow I, in turning round the moon's polar rim in the afternoon, saw it sink below my horizon. Happily, I had to take farewell with the world, only to bid all hail to the glorious sun. Welcome was the change after my long imprisonment in the cold cell of night.

Having ascertained the exact position of the moon's north pole, I erected a pillar on this

astronomical pivot. I then hied along by the antipodes of Cynthia, rejoicing, as I went, in the soul-stimulating influence of my old friend the sun.

My enthusiasm in my work swells now that I am upon that side of the moon hitherto concealed from human eye. In my trans-aërial travels I am, for the first time, out of sight of the world.

Fourteenth day. Discovered thousands of unknown animals, vegetables, and minerals. Arrived in the evening at a large lake, or rather sea, across which my aërial steed sped in three hours. Its bosom is adorned with a great many islets, on some of which I landed. The scenery reminds me of my sea-clad mother-world.

How calm and serene are the elements here! Gentle Zephyr is not browbeaten by blustering Boreas. A fall never necessitated the presence in Diana of those roistering demons from the cave of Æolus,—siroccos, whirlwinds, and tornadoes. In this world the language of nature speaks with dulcet softness. Its voice assumes no deafening emphasis like thunder, nor breathes out poisonous effluvia by means of simoons or harmattans.

Fifteenth day. This morning a great victory was achieved in my life's campaign. While I was leisurely surveying the firmament, I noticed a speck in the zenith. The sight whelmed me with surprise. Wonder-struck, my eyes for the nonce were untrustworthy; my judgment almost disclaimed their evidence; I thought it unaccountable that there should be an object in the sky so distinct and so large. I at once appealed the case to my telescope, when, lo! what did I behold but a small world! After a most difficult series of calculations, I at length saw it was the moon's moon. I found that this microcosm revolved round its own axis in so short a time as eighteen hours, and that its superficies was equal to the Iceland peninsula. Its position I found to be always in the zenith of the moon's equatorial meridian in this hemisphere. Its course, consequently, was parallel to the moon. While it was thus a satellite of the world, it continually hid itself from its mistress planet behind the cover of Cynthia. From its jagged, naked, and rugged aspect, I knew it had no atmosphere.

Onward I am pursuing my solitary journey. Birds whistle around me, horses neigh, sheep

bleat; and these voices from the creation are, in my ears, the echoes of God's own voice. They cheer me, and dispel clouds from my mind's atmosphere.

Sixteenth day. On and on I proceed, transacting sixty seconds' work every minute. When the machinery of mind and body is in order, how sweet is our life's voyage, and how well work clears the rust from the wheels of life!

In the forenoon I came upon a lofty extinct volcano, whose funnel, to my astonishment, was not sealed up like the others I had inspected in the moon. Having anchored my aërial craft, I, to defeat emergencies, armed myself with wings, an electric lamp, and my aërifier, supplied each with force to last two days, and then flew down the throat of the crater. Downwards I plunged without any adventure, until, at the depth of two miles, I reached a chamber larger than the parliament-hall, which was literally floored, walled, and roofed with a mosaic of precious stones. Just while venting my admiration of the millions of reflections with which the brilliants on all sides paid homage to my lamp, a thundering

noise ensued, and hundreds, perhaps thousands, of huge bat-like animals flew out of their jewelled homes. Before I had time to escape, I was knocked down and immersed in darkness. I lay until the noise subsided, and then stealthily crawled out of this huge gallery into a recess. On lighting my lamp, what was my horror to find that the force-supply of my wings had escaped! The thought was so awful, that it did not strike my heart with the sharp pangs of anguish, but benumbed it with the chloroform of despair. At length this stupefying influence left, and the stings of pain roused me to cling to hope. I called on my mind to find a means of rescue. That my abstractions might be unimpeded, I extinguished my lamp. Desperation now goaded my brain to solve an almost insoluble enigma. For hours my mind strained after its object. The wild friction of my ideas seemed to make my very blood boil. At length I jumped up, and cried out, "I am saved!" Reluming my lamp, I, with almost maniacal fury, sprung down a huge gallery in search of lower depths, for there I knew I would find heat with which I would be enabled to feed my wings with the

requisite dynamical force. The downward course was difficult. But for my levity and agility, through the small size of the moon, my task would have been futile or fatal. Happily, by dint of great gymnastic feats, in which I took some leaps downwards of 100 feet, I reached a spot in which I found heat sufficient for my purpose. After an hour in this *inferno*, I bottled enough power to carry me six miles. I now re-adjusted my flying habiliments. By dint of great care I successfully ran the blockade through the bats' chamber, and soon afterwards arrived at the lips of the crater. Need I say that, when I again saw the light of the sun, I felt I was completely insolvent in heavenly gratitude?

From my present lofty position I noticed a specially towering peak to the south. Towards it I now steered my air-ship. As I sailed on, its importance swelled in my estimation. From the first I thought it the Tycho of this hemisphere, but I soon saw that it was the highest mountain in the moon. Seven miles in height, the ascent cost me much difficulty. With my balloon I could only rise to the altitude of five miles; but the journey over its brawny shoulders

to its head I effected by the aid of my wings and my breathing apparatus. From this Pisgah I had a delectable view. I saw that, unlike the other hemisphere, with its peak-spattered surface, the country here comprised corduroy ranges, with luxuriant intervening valleys. To the south I joyed to behold a great ocean. The landscape altogether inspired me with admiration.

I saw around me shrines for the poets of the future. Time, mused I, will yet render classic the unknown and unsung ground on which I tread. Every stream will yet be a Tiber, every hall a Tempe, and every hill a Parnassus.

Seventeenth day. Toiling at my lonely avocations. A charm lies in solitude. It is the helpmate of laborious research. All great inventions and mental marvels have been the work of solitary brains in the shrines of solitude. It is the soil in which are reared the richest products of the mind. The grand jewels of thought which will sparkle for ever in the coronet of literature have come from the recesses of the closet. The researches of Newton, the steam-engine of Watt, the loom of Jacquard, the ideas of Luther, yea, alike the fabrications

of the poet, the inventions of the machinist, the doctrines of the Reformer, and all the emanations of mind, which, like Divine springs irrigated the fields of human annals, were generated in the presence of God alone. When alone before Him, the steel of heavenly inspiration most frequently strikes sparks from our flinty souls.

How salutary to the intellect—that health of the mind, and to godliness—that health of the soul, that we should consecrate a portion of our time daily in the cathedral of retirement, in which, through the wings of holiness, we may invade the regions of religious sublimity! Is not the closet the precinct nearest heaven?—and is it not when alone we have most fellowship with the world above? I feel that the moon is to me a great cloister.

A thousand years ago to-day an important seed was sown in the fields of history in the opening of the world's first great railway. A thousand years this same month another good seed was sown in the first voyage across the Atlantic by a steam-ship. Then were cradled the great schemes by which the prejudices of peoples were overthrown, and by which

were obliterated those imaginary lines called boundaries, on the one side of which rags of certain colours and shape fluttered on poles, and on the other rags of other colours and shape also fluttered on poles; and which rags and poles, if by chance they found their way to the wrong side of those supposed lines, the owners of these toys at once gave orders for an international game at manslaughter, which seldom ended without thousands being massacred and tens of thousands being made mourners. Alas! in what a wretched plight was the world in pre-railway ages. Religion was splintered with disruptions; politics saw all its senates, houses divided against themselves. Mother earth saw all her children, nations armed to the teeth to devour each other. The art of depopulation was viewed everywhere as the noblest of professions. Mankind groaned under the bloody enormities of bellicose monarchies or despotisms. The few republics which existed, though commendable attempts after a good form of government, were but flimsy stucco draughts of the golden archetype. They were only counterfeit republicans, who essayed to solder the principles of Liberty, Equality, and

Fraternity by the corrupt cement of Atheism. Few realized that the only pure, durable, and genuine government was a democracy, moulded by religion, and trusting its existence, not to human wisdom or human laws, but to Divine precepts and Divine guidance.

Eighteenth day. Passed a region which may well be called the Switzerland of Cynthia. During the day I inspected fourteen mountains higher than Cotopaxi, and ten lakes larger than Ontario. I beheld fourteen waterfalls more massive than the ancient Niagara, and eighteen caves more gigantic than that of Kentucky. Fondly could I have dwelt upon numberless beauties unfolded to my eyes, but I was forbidden by duty.

Nineteenth day. Thankful for this day of rest, because my efforts to master the great outlines of lunar science are entailing too much pressure on my only human machinery.

As a spiritual recreation I donned my microscopic spectacles, and read a few of my microscopic books.

Twentieth day. Have arrived at the equator. I flew over scenery whose magnificence the

world of our day surpasses, but not the uncultivated world of the ancients.

The sun being near its zenith at the district in which I am at present, the heat is becoming intense.

Arrived at another sea at mid-day, whose breadth is so great that I am still out of the sight of land. I am a prisoner in space, whereof the walls are the boundless concave firmament above, and the mighty convex of water below. If but one of the ten thousand intricacies of my machine break, I shall be precipitated into the sea.

At mid-day I beheld, for the first time, a rainbow in this world. My soul swelled with emotion as I viewed in this strange land God's beauteous prism-seal stamped upon the heavens in token of the covenant made with Noah.

While reclining at leisure in my air-barque as it flitted along the ocean's surface, I was suddenly drenched by a great body of water. Looking over the bulwarks of my craft, my wonder was magnified when I saw a huge whale below squirting such volumes of brine, that it reminded me of a water-spout. I soon saw that the animal belonged to a school each

of whose members was twice larger than the largest of the world's Cetacea. I followed them for an hour, to watch their majestic gambols and the play of their blow-hole water engines. The leviathan, mused I, which poets, peering through their imagination-lenses, caricatured, not described, is here, for the first time, viewed by the naked eye.

During the remainder of the night I was surcharged with novel wonders. I saw sharks as large as whales, dolphins as large as sharks, cod and haddock as large as dolphins. I saw that here sea as well as land animals were huger than in my mother-world. I almost thought that nature had told me that the size of animals and plants were in the inverse ratio of the size of the world they inhabited.

Twenty-first day. Not till this morning did I espy land, so that I have lost a night's sleep. My unwearied labours are undermining my strength. Travelling nearly a thousand kilomètres daily under a broiling sun, and sculpturing and eleographing every inch of territory I overpass, taking specimens of interesting geological strata, studying the moon's Fauna aud Flora,—all this has been too much for the frail powers

of flesh and blood. Distress now condemns my over-zeal.

For sickness alike of body and soul what a panacea is the Bible! Stationed on this unearthly world with it as my guide-book, I feel that though tens of thousands of leagues from my friends I am not unfriended. Within the precious volume I can conjure the society of Christ, the prophets, the apostles, and the saints. Oh, great fountain-head of literature, thy streams of truth flow with perennial freshness from heaven, bearing comfort to every troubled soul and refreshment to every wearied pilgrim.

Twenty-second day. The sun is now setting, and autumn therefore burdens the earth with its fruits. I am at present making a forced march to escape the enemy darkness, which is so fleetly pursuing the rear-guard of Phœbus.

I am spending my time diligently, and therefore happily. To God's glory and to man's advance my whole time is consecrated. I occupy the minimum of time in sleep and the maximum in intellectual labour. Explorations abroad consume twelve hours daily, but I always reserve two hours, which I devote to the literary work upon which I have spent the spare

moments of the last twenty years, and which I intend to style "The Three Aorists."

The leeward side is assuredly the ruddy side of this terranean peach. It is the eastern hemisphere of the junior world. I grieve, therefore, to see that nature is now divesting itself of its rich day costumes, preparatory to donning the night-dress of winter.

Twenty-third day. Darkness overtook me during the night. The new scenes which it has unfolded are an ample recompense for the discomforts of cold. Diurnal phenomena have vanished only to make way for nocturnal wonders. Night had scarcely shut the windows of day when it disembogued into my mind a stream of surprises. Four comets adorned the sky; the moon's moon shone with brilliancy, and a continual play of meteoric pyrotechny illuminated the singular scene. I at once saw that the moon being nearer the sun-pivot of the meteoric and cometic revolutions, the night firmament here was, therefore, richer in astronomical interest.

Despite these spectacles, my soul is invested with sadness.

Twenty-fourth day. To-day my mind has

burst the shackles of dejection, and I have been enjoying the eloquent silence of the language of night. What volumes of sermons are to be read in a skyscape!

In daytime we are shortsighted, and behold only the clouds of our own earth, and at the farthest our nearest luminary. But with darkness we find that sunshine has been a veil which has hid from us the boundless fields of eternity pregnant with crops of stars. Welcome, then, oh night, that openeth the curtains of infinity! To night I joyed when I beheld in the distance the venerable head of Mount Tycho. The face of the country I traversed to-day is covered with hill-pustules, crater pock-pits, and rocky wrinkles. I beheld thousands of craters and millions of craterules, in many of which were quarries of blue ice where two days ago were ponds of limpid water.

Twenty-fifth day. Arrived this forenoon at the South Pole. In the morning I was in the regions of darkness and grim winter; at midday I arrived at the territories of twilight and spring; and in the evening I bivouacked in the regions of sunshine and summer. Such a singular journey, and such wondrous vicissitudes

of weather. How amazing a world is this, where only a few hundreds of kilomètres intervene between the lands of night and day, and between the realms of summer and winter.

During the day I passed numerous forests of those strange coloured trees which so amazed me when I arrived in Luna. The sun-rise and world-rise, or rather my rise to their altitude, were to me unspeakably joyful incidents. With tearful eyes I looked at both, curious to know to which I was most indebted, and thinking of my Father who made and ruled both.

Yet though under the genial rays of my mother world and the sun, and though roaming amid nature's plentitude, I felt world-sick all day.

Knowing there would be an eclipse of the sun to-morrow at Hainzel, I to-night proceeded thither.

Twenty-sixth day. Spent this Sabbath in thanksgiving and prayer. Devotion I view as the great crane for the unloading of misery from our souls.

In the afternoon my devotions received an adventitious solemnity on account of the eclipse of the sun. Singular it was to behold the

two orbs meet and coalesce, then part. To the eye it appeared as if there would be a mighty collision. To the senses, the wonder was that the two spheres were not crushed to pieces. For two hours the moon was veiled in darkness, and the stars burst out in their full effulgence, as if to be witnesses of the rencontre of the sun and earth. Nature itself was impressed with the phenomenon. The temperature fell, a chill breeze whistled sadly through the trees, while the animal creation cowered under the cover of caves. The birds ceased to chirp, and flew to their nests. The sheep ceased to bleat, and hid under trees. For the time all the denizens of moonland seemed to covet repose. Only the winds of heaven dared to make themselves heard. At length, when the eclipse had ended, and the sun had returned in its full glory, nature regained its wonted cheerfulness. The temperature increased, the wind fell, and the animal creation resumed their pleasures.

Twenty-seventh day. An unfortunate accident befell me this forenoon. One of the valves of my engine broke, and, like a pigeon which had been shot, my mechanical bird fell

fluttering to the ground. Happily it alighted in a beautiful valley, and on a bed of foliage of such softness, that no further harm ensued. This misfortune distresses me deeply, for what could prove a sadder disaster than the loss of time? Without spending a moment, however, in ineffectual repinings, I commenced to mend my machine. But I must spend my time not in pencraft, but handicraft.

Twenty-eighth day. While toiling at the repairs, I have been besieged by my lunarian friends, who have mustered around my fallen banners with a fidelity and affection which bid me take consolation.

Twenty-ninth day. My hopes alternately tower and cower. Anxiety now macerates my soul, and anon faith whispers to me patience, perseverance, and time are the architects of the fairest constructions of success. Now despondence asks what blow could be more crushing than the loss of these precious hours—hours that, despite the ceaseless sweating of my brow, and the overburdened beating of my heart, scarce leave a single fruit? Anon expectation tells me that by trust in Providence on the part of my soul, and painstaking on the

part of my body, I am sure to bridge, or at least abridge my difficulties.

Thirtieth day. Labours without reward, experiments without result, and hopes without prospect of fruition, form the sad summary of to-day's history.

The sun is setting, the autumn is approaching, the fruits of the earth are ripening, the birds of the air are preparing to migrate, but for me I am chained to my misfortunes. I am, Ixion-like, tied to the wheel of affliction.

In my sadness I have mused on the vanity of wealth. Compared to me, Solomon and Crœsus were beggars. Their riches could be compassed within the areas of a kingdom, but for me, I am the owner of a whole world. Yet where are the joys of riches? Though I am the possessor of a whole cosmos, my hands can grasp nothing larger than a shrub. Though possessing the harvests accruing from millions of acres, I can only eat a handful of fruit. If riches were not a phantom and an empty name, how is it that, though I be the proprietor of the moon, I am at present helpless, and stranded among difficulties? He only is rich who can command sympathy.

Thirty-first day. Only God's kindness is pure, for gratitude is the only payment He asks for His bullion. Oh, then, my soul, now in receipt of heavenly bounties, defray thy most fervent thanks as an acknowledgment! Through the goodness of Providence, this day's mental labour has emancipated me from weeks of manual bondage and weeks of bitter anguish. It has furnished me with an invention by which I completed in a few minutes the repairs which otherwise would have occupied many days. Amid a flow of gratitude which welled pure from my heart-springs, I stored my aërial chariot with dynamical force, and bade a joyful farewell to my mammoth camp of animals, that had made me and my balloon their head-quarters. As I soared aloft, the mammalia watched me with snortings and with uplifted heads, while the birds, favoured with their wings, like Ruth, made me their Naomi. Singing gaily, they fluttered around my vehicle, and accompanied me until I halted in the evening.

Thirty-second day. I have to-day scarce time to realize that I am a solitary human occupant of this world. Where I am it is

now midsummer. The rapidity with which the seasons alternate, stamps my mind with a deep impression of the evanescence of things lunary. No sooner does winter seem banished, than we are in the depths of harvest. Every hour seems to tinge the crops more deeply with the attributes of age.

Thirty-third day. Sabbath. Prayers are the only merchandise which is imported to heaven. Oh, then, my soul, deal diligently in this devotional commerce! Hurry on thy thanksgiving and petitions to Heaven, that Heaven in return may refund thee its richest blessings.

Thirty-fourth day. Having arrived this forenoon at Mount Tycho, I forthwith ascended to its summit, and saw the glorious spectacle it commanded. Like a Saul, the monarch mount towered above all its fellows. It looked down upon hundreds of peaks, with their gaping crater mouths. I doubted whether such a gnarled, rugous, fistulous, punctured tract of country could be found in the whole solar system. Having thereafter made my way to the tongue jutting out in the crater's mouth, and having ascended to its top, I was astonished to find an amazing method in the very irregularities of

the scene. The moon appeared to me a cosmical wheel, whereof Tycho formed the axle, its radiating mountains the spokes, and the perspective of peaks the hoop. The crater, as eye of the great ring, formed a wonderful object. So symmetrically were its basaltic terraces sculptured, that it might have formed an amphitheatre for the giants. I was humbled, as I felt how small a figure I cut in the midst of this Cyclopean hippodrome of nature.

In the afternoon I descended to the valleys, where I found the scenery so lovely, and the Fauna and Flora so interesting, that I resolved to prolong my stay in this district. I write little because I have worked much.

Thirty-fifth to fortieth day. Spell-bound by the charms of this romantic country, I have all this while remained under the venerable shade of Tycho. I have made the acquaintance of lakes, rivers, and meadows all anonymous, but whose names shall erewhile be household words.

Forty-first day. To-day I discovered, on a lake here, the largest herb I ever beheld; like the Victoria Regia, its flower floated on the water. Astonished at its appearance as seen

from the bank, I swam over to one of the blossoms, and scrambled over its sides into its interior. To my surprise I found it a floral boat, with a diameter of five mètres, with petals and sepals as large as the sails of a skiff, with a pistil like a mast, with an ovary like a small cabin, and with a host of stamina-poles as cargo. Cutting its stalk-painter, and seizing a stamen for an oar, I found it a most admirable jolly-boat, with which I was enabled to paddle my way to the shore.

Forty-second day. Still amassing amazing facts,—facts which might astonish men, but for me I am so surfeited with wonders, that I am well-nigh callous to the sensations of surprise.

In the woods, birds, those choristers of God's sylvan choir, dispense me music which enravishes my soul with divine delight. What could I call these strains but the anthems of the creation? They refreshed my wearied soul as much as did the ravens the hungering Elijah.

Forty-third day. Having now wandered from the moon's Dan to its Beersheba, I to-day hied to my lunar home. As I shall be so far from the regions of summer when I am

overtaken by darkness, I have resolved to spend the winter at my lunar residence. Though it shall prove an uncomfortable fortnight, it will enable me to behold the book of nature opened in some pages to which men are total strangers.

Though anxious to reach my home ere night, I am afraid that the syren pleasures of the scenery have beguiled me too long to permit the realization of my wishes.

Forty-fourth day. Strove to reach home ere sunset; but, alas! the chariot-horses of Phœbus were in the stables of Thetis when I was still fifty kilomètres from home. Obstinate determination hurrying me on, heedless of precautions, my machine was suddenly crashed upon a mountain peak. Even in this earth, where, through the paltry gravitation assessments, collisions are robbed of their usual corollaries, wrack, wreck, and ruin, and falls of their wonted precipitate virulence, the shock was such as to render my air-vessel a shipwreck and me a sufferer. When I emerged from the gloom of insensibility, I found myself prostrate among the remains of my balloon, at the bottom of a precipice four hundred mètres in height.

Viewing my shattered ship, and reflecting on my still more shattered hopes, I thought death itself could not have been so merciless. Oh, miserable wretch, mused I, to be thus wrecked at a place of whose bearings I am ignorant, and at a time when it is a fortnight till the dawn of the moon's day! But for the bright rays of a full world in the zenith, I think I would have sunk under my sufferings.

I now examined myself, and found, at the expense of increased vexation, that my right arm was broken. Though my heart itself had received the injury, I could not have groaned more sorrowfully under the load of distress. I saw before me a wide and bleak desert of sorrow and anguish. I was now a captive, with a world for a jail. My retreat to the world was cut. It might be months ere I was delivered from my durance. The disaster of one moment has defeated the almost unchequered success of a month. On the eve of completing my circuit of the moon, and about to project my world-bound voyage—a voyage in which I would have had the glory of being laden with the richest stores of researches a single man had ever reaped—yea, just when within a few degrees of the zenith

of success, I am precipitated into the nadir of despair. Human plans, alas! are but straws before Fate's storms. Ambition's fabrications are only the footballs of destiny. Mustering the broken elements of my courage, I checked the doleful current of my thoughts, panoplied my feelings with religious consolation, and bandaged my arm. I then framed a tent of the wreck of my vessel, to shield myself from the increasing cold, and having extemporized a bed in its interior, I sought slumber and found nothing but chafing inquietudes.

Forty-fifth day. After weird hallucinations I rose from my couch. The weaker the body the stronger are the longings for kindred and home. For me such desires were the more powerful, because at present hopeless. My unappeasable longings for an atmosphere of human sympathy amounted almost to agony. I strove to throw off my Laocoon solicitudes by concocting plans to reach my lunar mansion. Seeking for my instruments to allow me to strike the proper direction, I found, to my unutterable mortification, they were all broken. I was rescued from my distress by an animal like a rein-deer fawning upon me and licking

my face. These caresses were to me what the blade of grass was to Mungo Park in the dreary desert. They delivered me from an inundation of vexation; they stimulated me to rise and work as best I could with my fractured arm. After bundling together the most essential articles of travel, I harnessed the animal by which I had been accosted. The world's position in the firmament being a typographical guide, and its light no mean lamp, I plucked up courage, made a strict scrutiny of my situation, mounted my charger, and rode to the top of a neighbouring mountain. Uncomfortable was the ride, for the cold was already intense. But this inconvenience was but a breath compared to the vexation tempest which burst upon me when, on reaching the desired peak, I saw no outlines of the hills which skirted my Cynthian estate. So humble was my mansion, that it was completely hidden amid the rugosities of the country. Like a Hagar I journeyed on, vainly seeking for what I longed. The frost and the dreary prospect were alike forgotten. All minor afflictions were swallowed up by the idea that if I reached not a place of refuge I would fall a victim to starvation.

While thus impaled by the swords of such cruel reflections, I was joined by a great muster of Hyperborean animals. I would have been surprised at this, but that I am now surprised at nothing. I learned, moreover, that while diurnal animals here wandered from hemisphere to hemisphere, according as Phœbus kissed the one cheek of Phœbe or the other, there were also nocturnal animals whose migrations ever kept them within the bournes of night. The company of these myrmidons was to me the regeneration of my prospects and the re-illumination of my hopes. With augmented courage I proceeded onwards. Pacing over the crisp leaf-strewn ground, and through the frosty air, Borealis gleams of joy shot across the firmament of my sorrow-clouded soul. At length I needed repose. Finding a cave which afforded me sufficient shelter, I retired into its recesses and prepared myself a bed. As I performed this simple work, I beheld the hundreds of thousands of the denizens of the field en camping before my temporary habitation.

CHAPTER IV.

WINTER IN THE MOON.

FORTY-SIXTH DAY. When I arose this morning, my large Brumal army, from its centre to circumference, was under the sway of sleep. The noise I made awoke those nearest, and, the sound spreading centrifugally, new hosts of animals jumped to their feet, shook their tails, snorted pleasure, and gambolled in their delight. The signal for rising, therefore, which I had given in my own example, was in a few seconds responded to by my whole army. The scene glowed with enchantment. The ruddy moonlight of the earth imbued it with poetic fascinations, which soothed the soul as they pleased the eye. My retina, too, now so long accustomed to the darkness, could distinguish the scenery around as vividly as if it had been twilight.

Intent to discover my lunar mansion, I

mounted the same charger as yesterday, and with my troops I commenced the day's march. All day long I continued the nightly sojournings. As hours flew on and the cold increased, sadness and sickness cruelly scourged my heart. With a broken arm, and a well-nigh broken heart, what has kept me in the land of the living but the bountiful hand of Providence?

Living in the gloomy atmosphere of misfortunes, I am still the recipient of ultra-calculable bounties. If the tide of success is at its ebb, that of hope is flowing; and if the sun is absent, the world is reigning as its agent. Thanks be to Heaven for earth-shine. Its genial radiance silverizes the scenery, and lights up with a smile the features of the landscape. When I look, too, at the stars, I am dissolved in devotional rapture, for the eye of piety views them as altars in the cathedral of infinity—altars upon each of which are millions of worshippers. Does not the dome of night, with its stellar lamps, its candelabra constellations, its borealis and zodiacal illuminations, its cometic and meteoric fireworks, proclaim the wondrous workmanship of the Almighty architect? Never did man view a skyscape without

his malignities and passions being for the time precipitated. The mind insensibly imbibes the serenity which imbues the scene.

Hour after hour meanwhile had passed, bringing to me a stronger frost and deeper perplexities. Where I now was I knew not, and had no means of accurately knowing. My mind was the scene of a riot of conjectures. Now I imagined I had passed my home by many kilomètres, anon I dreaded I had all the while been travelling in a contrary direction. Now I hoped I was nearing my goal, and again I feared my success was becoming more uncertain. At length, just when about to desist from further search for this day, my joy's temperature was raised to its boiling point. I had recognized, forsooth, the knolls which skirted the north of my home. This was the door of my escape from a furnace of anguish. With a new energy I galloped my steed along. My mind was elated with the joy of a Eureka sweeter than that of the philosopher of old. My Eureka was life, my deliverance was from the threatening jaws of death. The exuberance of my exultation was such that I cannot express the delight I now

had in the pomp and grandeur of my march towards my home. The hundreds of thousands of animals which had never known bit nor bridle nor saddle, and which formed my body-guard, constituted a procession in vastness and beauty such as the world itself could not have displayed.

I soon reached home. The bleak spectacle it now presented drifted me into an eddy of sad musings. Leaving it when bedecked with the rich toilette of autumn, I now found it naked, dark, and dismal. The trees were skeletons. The plants had retreated within the barricades of the frost. The choristers had migrated. Vegetation was asleep, and blanketed by ice. The voices of the denizens of summer were hushed. While surveying the dreary scene, my Rocket, to my great joy, issued from a cave, and rushed towards me with an affection I could scarcely have expected from a brute. When I dismounted it followed me, and it would verily have entered my chamber, had the door been large enough.

Now at home, but invested by such hyemal terrors, I at once set my electric works and

furnaces in order, and supplied myself with light and heat.

Forty-seventh day. Sabbath is the oasis in the week's desert in which the weary soul is rested and refreshed. How bountiful are its blessings!

It is now forty-seven days since I arrived in this strange world, but though the commencement of my stay was so triumphant, to what an abyss of sorrow am I now plunged! Anxiously I have been speculating whether man has discovered my disaster. Probably not, for it is not yet new moon. It may be long, therefore, ere I am delivered from my snare. Oh, me! I feel the torments of a famine—a famine, not of food or water, but Christian patience. Oh, harder than the pangs of hunger and thirst are those of an impatient soul! Grant, me, oh Heaven, the requisite resignation. Teach me to ask myself why I should mourn over my captivity, when Christ was nearly as long in the dreary wilderness as I have been in this beautiful world, and when His was a period of unmitigated misery and ceaseless temptation.

Forty-eighth day. Determined that the

enemy leisure should not capture from me the jewels of time, I have to-day, despite my broken arm, arranged my papers, and made a compilation of my investigations.

On account of the long night, I am becoming quite nocturnal in my proclivities; and in consequence of my exposure to the cold, I am getting naturalized to the frosty climate. I see and work in the darkness as naturally as an owl. I walk about in the cold air with as much immunity as the surrounding Brumal animals. How mighty are man's powers of adaptation! Custom, conjoined to scientific appliances, could make him live in a freezing mixture or swim in molten metal.

Forty-ninth day. Taxing to the utmost my head, my two legs, and my one useful hand; yet how provokingly slow is my work.

I am endeavouring to find a key to the language of the lunar animals. I can already sufficiently understand the neighing of Rocket to discern his meaning when he wishes refreshment, or when on his back he desires to inform me the roads which are of easiest access. On the other hand, my charger is beginning to comprehend my various orders. This is ex-

tremely convenient, for I have but to say the word, when he performs such commissions as bringing me fuel from the woods or ice from the brook.

When all is ready for the sickle of research, it is hard to think that, through the flux of my misfortunes, I have lost the rich harvest of so many days. To what important discoveries they might have given birth had I and my instruments been uninjured.

The stream-tide of my exertions being directed to invent the means to send a message to my mother-earth for deliverance, I this forenoon resolved to make a cannon whose bullet I could fill with bulletins. Seeing the position of our world amid the changes of the lunar heavens is unchangeable, a mortar after the Everest type would have suited, but as gun-metal here is lighter than cork in the earth, my ambition would be pleased with nothing short of a breech-loader on a suitable carriage. To carry out my plans, I mounted my steed, braved the bitter cold, and rode to the ruins of my balloon, to supply myself with my engine's shattered remains, intent as I was to heal up its wounds and imbue it with new life. Arrived at the scene, I could

not stem the flow of a fresh tide of tears at the sight of the wreck of that once beautiful aërial machine whose wondrous powers had borne me around the moon. Having loaded my escort with the lumber, and having returned home, I assorted my luggage in my court, and commenced to repair the electric engines. Framed of adamantised alloys, they had happily sustained little damage. Their repair was, therefore, an easy and a short task. I now stripped the metal from my Montgolfier; but finding it insufficient to make such a cannon as I desired, I set out at the head of an expedition of eighty mammoth animals, and returned with a large store of lunar metals. Doubt, like a jealous sentinel, blocks the path to every great goal, and in this case it suggested that the amalgam might be unsuitable. Experimenting, however, on a small scale, my anticipations about its adaptability were satisfactorily confirmed. I closed the work of the day by choosing as a site for the great work the side of a large rock behind my home, because the rock itself would suit as a pedestal for the ordnance, and the soil around would suit for the purposes of moulding.

Fiftieth day. To-day I found my broken

bone all but whole. How speedy has been the cure, though my left arm has been the surgeon of my right. A week's hygiene has done what in ancient times would have entailed a month's surgical piddling and diddling, dabbling and dawdling. Blessed with the use of my two arms, I at once commenced my task. Having replenished my electrical engines with hydraulic power from the brook, and having transmuted them into a boring lathe, I in a few hours sunk a shaft, fifty mètres deep and two in diameter. This I made the mould for the cannon. I then modified the function of my engines into a fusion apparatus, and gradually melted into a homogeneous mass the world's and the moon's metals previously collected, praying the while that the coalescence might prove symbolical of the political union of the two spheres. Anxiously I watched the molten stream of the mundo-lunar alloy as it was dissolved and ran into its bed. Gladly I at length saw the capacious womb of the mould filled. By convection tubes I next subtracted the enormous heat from the fused mass. This great force I changed into electricity, and re-transferred to the bunkers of my engine.

So well did I manage matters, that the force lost did not amount to one per cent. I now tested the work and found it perfect. The gun was ugly in shape, because I had sacrificed ornamentation for facility of facture. I next prepared a carriage for the culverin—a work which saw strength united to clumsiness, and mathematic completeness to barbarous inelegance. It was now bedtime; and fatigued as I was by the great toils of the day, I retired, to find a bodily relaxation on my couch, and a spiritual refreshment in my Bible.

Fifty-first day. After receiving due succour from sleep, I resumed my work. There was the ordnance in its mould, but such was its massiveness that I shuddered before the idea how I should get it into position. Would it be like Crusoe's boat, mused I, complete and ready for use, but too unwieldy for removal to its proper element?

Resolution forcing me forwards in spite of the rasping and friction of such doubts, I raised a great platform, on which I erected powerful extempore machines, pulleys, screws, and levers, to facilitate the adjustment of the mighty casting. I then brought the rigging of the balloon

into requisition, so that in a few hours I had the weight and fulcrum, and only wanted the power.

Had Samson himself been here, his physical strength would have been outwitted. The gates of Gaza must have been toys to my astronomical mortar: the pulling down of the temple of the Philistines would have been a trifling exploit to the raising of my petard. What would have baffled his strength, however, did not outreach the knowledge which our century confers upon its sons. By means of my scientific strategies, my machinery, and my animals, I had little doubt but I would escalade the summit of my purpose. My devices were not unworthy of their author. I harnessed 200 of my most powerful brutes to the ropes, and applied my 800 horse-power electric engines, extemporized as a lever to the breech of the culverin—operations which occupied so much grudged time, that I was forced to postpone the traction till to-morrow.

Fifty-second day. This morning I marshalled the 200 harnessed animals and yoked them to the ropes of the cannon. I also supplied

my machine with its full quota of power. Having completed every arrangement and put on the engines, I, with my 200 in hand, gave the order to move. In a moment the brawny muscles of my cavalcade were on the stretch; the cordage creaked and tightened as if itself composed of vital thews and sinews. Another nervous effort was made by my noble pack, and the ground was convulsed by the tremendous tension. This paroxysm of force thrilled my heart with agonizing suspense lest it might be the index of failure. While it lasted I saw the great cast gradually delivered from its clayey womb. Up, up, it went, in all its vast massiveness, inspiring me with delight mingled with terror, lest I should suffer the afflictions of a Tantalus. Almost ere I had time to muster my senses, the vast cylinder had reached the due position of its carriage. Trying crisis! On my hand and eye now depended all. Nervously I caught the occasion by its forelock, reined my steeds, stopped my engines, and, springing up, levered my howitzer into its socket. Oh, memorable moment! Your success has cast a halo of joy over the whole day! Proudly I stand surveying the implement, so

majestic in its rudeness, and so striking in its rugged massiveness. But for my brain with its few grammes of matter, this mighty Titanic ordnance with its tonnes of metals could never have reached the realms of reality. How the majesty of mind reigns over the dominions of matter! Am I not a conqueror to-day, and do the circumstances not supply me with a pardonable prerogative to exult and rejoice? Was Hannibal at Cannæ, Miltiades at Marathon, Möltke at Sedan, as proud in the hour of triumph as I? They were not entitled to be, for they were in the focus of butchery, in which hell alone had joy, while I was in the midst of innocent achievements and unalloyed successes, which the very angels of heaven viewed with delight.

Unharnessing my animals, I straightway devised a scheme to make the fulminates and bomb shells by which I would be enabled to rain bulletins upon the earth. It was a puzzle to me what kind of apparatus I should use as the envelopes of my missives. If I made them of iron, it would be to wage war against mankind—it would be to bombard the world with lethal missiles. The chances were some-

thing like one to a billion that I might sacrifice human life, and a billion to one that I would damage property. On the other hand, if I made the balls of soft material, they would not carry. After a keen wrestling of ideas before the judgment-seat of my mind, I at length invented a species of bomb which I believed would explode when it percussed on the earth's atmosphere, and would fall in such a way thereafter, as would neither endanger life nor property. I accordingly translated the theory of my idea into practice.

CHAPTER V.

THE MOON BEGINS TO BE POPULATED.

FIFTY-THIRD DAY. Factured twenty bombs according to the form I invented last night. Performed the work with conscientious qualms, for it is possible that they may prove dangerous to the world below despite my precautionary adaptations. I next filled these iron bags with duplicate oleographic sketches of sights in moonland, leaves of those trees whose colour is as yet unknown on earth, and microscopic messages imploring deliverance, and detailing that my lunar residence had become a captivity. Thinking it unlikely that all the bombs would be discovered, I sent in each a message to the world's David, in which I, the moon's Joab, exhorted him to come hither and share the honour of gaining men their new inheritance. But the most important information that I sent to the world

was my discovery of the moon's moon. This news had necessarily attached to it great practical importance, as it would put man on his guard of the danger of firing bombs wide of the moon, seeing that thereby they might come into collision with this body, and thus be wrecked. Studying as I did the particulars as to its course, its position, and its phenomena, I was fortunately enabled to inform them of the requisite precautions. I now prepared the fulminates, a task so difficult that it ran up a heavy bill of bodily sweat and mental toil. After storming some further quandaries, I deftly loaded my ordnance. Adjusting my aim, I, with a prayer on my lips and anxiety on my soul, touched the electro-trigger. A loud roar, a brilliant flash, and the spewing of a mountainous cloud of smoke, heralded the departure of the moon's first message to the earth. I continued the cannonade until I had exhausted my ammunition and my strength. No marvel I was a prey to fatigue, for a Briareus with a hundred hands could not have performed a more wondrous day's work. But I estimate my prostration as a cheap price for my rich reward. Labour is verily always

prolific. Perseverance is the moon which controls the tide of our fortune.

Fifty-fourth day. I spend this Sabbath devoutly, and therefore happily. Ere this the world knows my mishap. Perchance my deliverance is already planned.

Fifty-fifth day. Enlarging the scope of my explorations, made numerous borings and artesian wells in the moon's crust. Despite the excessive cold, I later in the day resolved to leave my home and strike eastward, that I may the sooner be entertained with the beauties and bounties of daylight and vernal pleasures. Having equipped myself with my wings, and having bottled into their force-depository 28,300 units of electricity, to suit me alike as dynamical power and as heat to keep me warm, I mounted Rocket, and, accompanied by my great hibernal body-guard, left my domicile. A detachment of lunar nightingales meantime serenaded us from the skies, so that we advanced to the strains of our winged band. In two hours I rode 300 miles. What splendid running! It exceeded the fabled feats of the most famed horses of the past. Even the nineteenth century, with all its fox

policemen and its horse-fanciers, could not have believed in the possibility of such a performance, still less that the moon would be the scene of such horsemanship. Yet the imposing character of the light-footed procession which I headed formed the most remarkable feature of my excursion. Around me, for some square kilomètres, scudded along, with ultra-earthly swiftness, flocks of the fantastic breeds of Luna. The mammoth animals did not toddle and hobble with the sedate steps of their analogues in the world, but bounded like antelopes, while the smaller creatures scoured along by dint of such insect-like leaps as made their motions cause only a mazy daub upon my retina. The flowing manes, tossing tails, mercurial limbs of the multitudes of the multiformed herds, comprised a picture to which pencil, far less pen, can never do justice. Daring and bold, moreover, was our tour. Now we were skirting mountains, anon piercing through deep defiles,—now we were dashing along downs and over dales, and anon, goat-like, leaping over horrid ravines and crevasses,—now we were running in Indian file along the blade of a rocky range, anon we were fording

in column the ice-bridged rivers. Ultimately I had to withhold for the day. I therefore retired into a cave, and under the cover of my wings, and under the influence of the heat I tapped from them, I was soon asleep.

Fifty-sixth day. Remounted Rocket as soon as I arose, and pursued my sunwards flight. In the afternoon I arrived at the frontiers between the darkness and dawn. Up to this point I was escorted by an army of hundreds of thousands of the inhabitants of the fields, who were marching on to the music of an orchestra of winged minstrels, when suddenly I was deserted by the whole array. Great as was their fealty, they refused to invade the territories of light, towards which I was approaching. A streak in the east warned them of the sunrise, and instinct at once caused a glorious stampede westwards. The clattering and pattering on the ice-cramped earth's skin of ten thousands of hoofs, the churning of the clear air by the flapping of thousands of wings, and their gradual cadence into silence, struck me with amazement. I, on my Rocket, before the centre of a world of animation, now surveyed an uninhabited wilderness, while my

ears suffered a dearth of sound. The circumstance urged me to run over the alphabet of the phenomena of lunar migrations. As the sun, even along his longest and swiftest lunar beat, by the equator, posts only at the pace of ten miles per hour, I saw that the lunar animals had no difficulty either in keeping apace or ahead of his chariot. Moreover, winter here being the legatee of autumn, and being able to preserve its inherited riches with safety in its icy larders, and its lap being thus ever loaded with profusion, I saw there was ever a bountiful provision for the hibernal animals. I also noted that the little water evaporated by the atmosphere did not return to the earth as rain, but was condensed by the mountains and borne down to the meads and wolds by brooks. Meantime I was riding on alone. Just as my journey had made the world to sink from its empyrean throne almost to the rim of the western horizon, there burst out of the east the sun. With an emotion-crowded heart I welcomed the infant rays of the great metropolis of our solar system, our courtly gyrations around which dispense us the pleasing vicissitudes of day and night, and the seasons. I

was soon accompanied by many diurnal animals, and the recruiting went on so swiftly, that I had shortly a huge army. In the evening I pierced further east, so that I am now a guest of hospitable spring. The concerts of the sylvan choristers are commencing. The sheep and lambs are frolicking in the fields. Vegetation is opening her wardrobes and bureaux, and unlocking her coffers. Rocks whose faces were bare two days ago are now bristling with a herbaceous beard. Now that I am on the illuminated portion of what is to the world the "new moon," I made signals of distress. At the close of the day I fixed upon a tree as my bed-room, and one of its leaves for my hammock. At present I am writing in my foliaceous bower.

Fifty-seventh day. After a most cosy night in my umbrageous hotel, I this morning set out to accompany the sun westwards. I proceeded slowly to glean more researches. My baggage of specimens is this evening so bulky that it loads the backs of forty of my cavalcade. To-night I am deeply impressed with the secretions of my diligence. Perseverance, patience, earnestness, and firmness, are

assuredly the spokes of fortune's wheels. To-night I sleep in the soft blankets of a palm-like leaf-bud.

Spying the world this morning, I, with a heart turgid with delight, beheld on the verge of America a fiery representation of an anchor. To me, a Hagar in the moon's desert, this was a well of joy, for I interpreted the symbol as a token my deliverance was already planned. Still wandering and wondering. Each hour sees me surveying new acres, and each minute replenishes my memory and note-book with fresh acquisitions. While keeping apace of the sun's vanguard beams I moved southwards, so that in the afternoon I was enabled to study the leopard-spot configuration of this lunar territory. I occupied the rump of the day on the night-day selvedge studying the phenomena connected with the melting of the gelid and jellied streams.

Fifty-eighth day. Reached home at mid-day. Having left it three days ago mantled with the desolation of winter, I now returned to behold it adorned with the garments of spring.

In stocking my mansion with the scientific

pelf I had collected, I found that my premises were too small. I therefore, by dint of my machine and my animals, added a wing to my palace in two hours.

Before bed-time I despatched another series of bulletins to the world, mentioning I had beheld the fiery anchor.

Fifty-ninth day. Set out eastwards this morning, anxiously surveying the horizon the while, in the hope I may espy a vessel for my rescue. Having reached a beautiful mountain, I chanced to be reconnoitering the district, when I beheld thousands of my zoological army crowding around some object. My curiosity was at once aflame. Like Moses when he saw the burning bush, I felt I could say, "I will turn aside and view this great sight." I plunged at once into the dense mob of the denizens of Diana. In their courtesy, those at the circumference made a lane for me, but on arriving at closer quarters, I found I could not burst through the swarming throng. Having left my electrical wings at home, I had no other alternative than to vault to the top of one of these mammoth beasts, and run over the backs of a great host of others, to reach the vortex of the scrimmage.

I found myself at this point on the back of a lunar giraffe. Climbing its neck, therefore, and arriving at its head, I from this strange observatory ascertained the cause of such strange effects. My feelings were dumbfounded on seeing a newspaper on the grass, and the animals playing over it in a way somewhat similar to cats over valerian. Seeing this, I slid down the neck of the giraffe, jumped on the back of an elephant, and, slipping down its trunk, reached the prized document, nearly smothered meanwhile with the fawnings of the mammoth amimals. Seizing the welcome message, I hastily thrust it into my pocket. My head now reeled, partly with the excitement of finding an earthly newspaper in the moon, and partly through the exertion I made for its possession. After a keen struggle among the cyclopean legs of the brutes by which I was encompassed, I scrambled up the tail of one of them, got on its back, and, skipping over those of others, I at length got astride Rocket. Fighting my way to the outskirts of my myrmidons of satellites, I galloped to a tree, with all my forces flocking around. In order to secure quietness, I clam-

bered to its top; but even here I was invaded: cat-like animals rushed after me, and invested me on all sides, so far had instinct taught these dumb creatures that there was something unmoonly in this newspaper.

Having rid myself of these animals, and having gained a position of comparative security, I took out the inestimable, though transitory treasure from my pocket. Delight was heaped upon my delight when I saw it consisted of the 8 A.M. edition of the world's *Times* of yesterday's date. Crusoe, on beholding the mark of a human foot on his island, was not so overwhelmed as I when I beheld an earthly newspaper in this Fernandez in the firmament. It was my ticket-of-leave from my lunar banishment. It told me I was no longer *the* man of the moon. Eager to learn the history of the mother-world whose parental wings I had left, I could have wished to have been an Argus with a hundred eyes, to have read a hundred different paragraphs simultaneously. I was news-thirsty to greediness. It was dissonant to my impatience that I had only a pair of eyes to master so much type. Never before did I read aught but the Bible with so much satisfaction.

Here are articles upon mundo-lunar travelling, and the measures that had been taken for my relief. Here, indeed, are the names of my liberators. It makes my heart bound with the fulness of joy to see they are the honoured names of S. Watt, A. Newton, and G. Cobbett. Here, too, are the messages I sent to the world, —descriptions of the specimens I remitted man, and copies of my lunar sculpturegraphs.

But deeply anxious to learn if there was any risk in firing my bombs to the earth, I scanned the contents of the paper, and was greatly relieved to find that the system I had invented was remarkably though not entirely free from danger. One bomb had fallen upon a house in Edinburgh, and penetrated its roof, to the great alarm and amazement of the inmates. Fear, however, was displaced by ecstatic delight when the mystery was solved. The tidings flooded the news-bearing streams of the telegraph, and its current had soon swept its way into the soul of every human being. Another missive struck a balloon in Persia, and so deranged its machinery that it fluttered and fell, to the great consternation of its passengers, who fortunately escaped from injury. Thus

apprehensions necessarily changed to exultation when they ascertained the joyful cause of the accident. Quickly the world's ambient electrical mesh, with its billions of dials at billions of different localities, delivered the cheering intelligence to mankind. In a few minutes thousands, and in a few hours millions, had arrived at the spot to sate their almost insatiable curiosity. Another ball was picked up by a party who were reaping marine crops at the bottom of the Atlantic; another ball came into collision with a vessel in the Pacific; while another damaged the ornamentation of a steeple in New York. But the most interesting of the twenty missives was that which hit the Lyceum. Parliament was sitting at the moment, and the protocol from me, the chief magistrate of the moon, to the chief magistrate of the earth, was at once taken to the senate, that the contents might be published. The news was flashed instantly over our globe's net-work of wires, so that in a few minutes the senate, and the stations of the acoustical tubes in connexion with it, were beset with anxious listeners. Superlative joy filled the hearts and loud acclamations the mouths of all on

hearing the message read, for up to this moment the world had been engulfed in anxiety over my fate. Men wondered at my astounding adventures and misadventures, while they rejoiced that, like the spies of Israel, I had proved the promised land of the moon overflowed with milk and honey.

In another paragraph of the paper I was gratified to find long dissertations by the earth's greatest philosophers upon the new colour which I had discovered. Like me, they had come to the conclusion that it was one of those tints in the spectrum which had hitherto been undiscovered. I likewise found numerous treatises on other lunar subjects, all of which were written with laudable discrimination and judgment. My mind was saturated with delight as it beheld the interest excited by my investigations and the sympathy elicited by my hardships. But I rejoiced most over the announcement that scientific armaments were being formed to make several huge cannon for the purpose of mundo-lunar travelling, which it was resolved to station at equal distances around the earth's tropical zone.

Thus I read on and on until I had noted

every item on the present pages of the earth's day-book.

Remounting my steed, I encouraged my attendants to seek for further traces of my fellow-men. I soon found they were hounds, keen in their power to scent any document of unmoonly origin. It was, therefore, but a large hunting party I conducted. Another tussle ensued among my animals, and when I reached the spot and flung myself over the backs of the crowding myriads, I found another newspaper. More desirous for another prize than to lose time in reading this issue, I renewed the chase. So fortunate was I, that my hounds soon discovered a huge piece of paper, prominently nailed on a prominent tree. On going up I found the following message:—

"Father of moonland, we have come to your relief, and are journeying towards your lunar home.

"S. WATT.
"A. NEWTON.
"G. COBBETT."

Bent on beholding my fellow-men ere I should draw down the curtains of my eyes in

sleep, I forthwith made a forced flight to my lunar mansion. Nobly did my steed and my retinue answer to my call. Hour after hour they flew on, betraying neither signs of weariness nor dissatisfaction. Now we galloped over glades, anon forced our way through tangled copses,—now we were scouring through bosky dells, anon leaping over craggy ridges,—now we were swimming through rivers, anon insinuating our course through precipitous defiles.

Eventually I noticed some evidences of restiveness among my animals. Some were snorting, others were neighing,—some were tossing about their manes and tails, others pricking their ears, and all behaving in a manner altogether unaccountable. I could not divine the cause of such performances until I observed a speck almost on the outskirts of my ken. The sight intoxicated me with delight, for I knew this was the balloon of my liberators. Pouring out my thanks to Heaven for its merciful, nay, unmeasurable, bounties, I rushed on towards my friends. As we approached each other, the frolics of my cavalcade became more exuberant. Soon I could see my friends waving a signal. My large

retinue had, in fact, attracted their attention, and they had discovered me at their head by means of their telescopes. An aureole of joy, not unmingled with vanity, invested me, when thus espied for the first time in moonland in my regal capacity as a lord over its brute creation. Did ever king, thought I, head such noble steeds, or did ever the best horses of turf-gamblers or fox-chasers scamper over ground at such a terrific speed? Meanwhile I could see that huge flocks of the denizens of the air were flying around my deliverers like an escort, while below them were also great droves of quadrupeds, sextipeds, and multipeds.

In a few minutes their aërial car had descended at my feet. Almost immediately it was surrounded by my retinue, so that it was with the utmost difficulty I pierced through the dense throng. I had to jump from my charger and run over the backs of the animals that blocked my way ere I could reach the arms of my dear friends. But silence alone is seemly where description is powerless.

Joining my friends in their balloon, we then ascended, viewing with interest the extravagant gambols of the myrmidons below.

On the smooth rails of our conversation the minutes now seemed to fly like seconds. We had reached home before we had finished our mutual congratulations.

Overjoyed to be back to my old policies in such precious society, I, with pardonable pride, showed my friends the work I had accomplished single-handed during the last sixty days. Justly they were surprised at the products of my perseverance, but more particularly at the difficulties I had conquered in the facture of my cannon.

Wearied with the fatigue of so eventful a day, but grateful for the bounties it had seen us vouchsafed, we raised our Ebenezer and retired to rest.

CHAPTER VI.

I RETURN TO THE WORLD.

SIXTIETH DAY. We, the four inhabitants of moonland, occupied our forenoon in building new erections. Thanks to the levity of substances on this world, our work proceeded with magical rapidity. What was a solitary house in the morning was the nucleus of a street at mid-day. Our two engines at full pressure felling trees and cutting them into shape, and our animals forwarding us new material, formed a most interesting tableau. The very realities of the scene seemed so unreal, and our labours so unique and unworldly, that the spectacle we presented this day as builders must ever stand prominent in the picture-galleries of our memory. Relieved from the heavy exactions of an atmosphere and gravitation forces such as those found in the lunar world, we leaped about our work like grasshoppers, and bore

burdens so much larger than ourselves as to remind us of ants carrying their eggs. To see each other, therefore, performing such seemingly wonderful saltatory and athletic feats appeared as anomalous as to behold brain-labourers and senators and *savants* like my friends working as masons.

Artisans in the forenoon, we were *dilettanti* in the afternoon.

In the evening we again changed our employment, and factured some bombs and fulminates. We closed the work of the day by preparing despatches, the terms of which were thus:—"The inhabitants of the moon to the inhabitants of the world.—Yesterday the mission of deliverance to Diogenes Milton was successfully consummated. To-day we are reviewing the whole range of lunar science, the untrodden paths of which are replete with wonders. On with your measures to populate this beautiful and bountiful land. Hasten the framing of your monster cannon and rain down upon the moon showers of mankind."

Sixty-first day, Sabbath. To-day S. Watt, A. Newton, G. Cobbett, and I, the complete list of lunarians, formed ourselves into

the moon's first congregation, and in that capacity conducted public worship.

Sixty-second day. While battling this morning amid the details of lunar science, our joy was awakened on observing a balloon in the distance, with a new detachment of Cynthian immigrants, consisting of Pliny Lesseps, Copernicus Galileo, and Cuvier Buffon.

They brought us a great fund of microscopic despatches. Among the rest, some specially to myself, from my own family, in which I am implored to return to the earth after my ardent and arduous labours and severe accident. My answer, while couched in the warmest affection of a husband and a father, was that of Nehemiah:—"I am engaged in a great work, and cannot come down." Not till some days hence, I explained, could I think of leaving moonland, as I had resolved not to leave my present post until the leading outlines of lunar science had been deciphered.

In consequence of the large increase of colonists, we to-day built more mansions. After completing this task, we were overjoyed when Stephenson Watt, who happened to be looking out with his telescope, exclaimed that

he saw in the zenith no fewer than ten specks. Directing our instruments towards those dots, we discovered they were astronomical balls still unexploded, but presumably importing new cargoes of humanity into moonland. In our joy we hoisted the flag on our mansions, rushed out, and quickly assembled hundreds of thousands of our animal attendants, not so much to give our visitors a royal welcome, as to form a spectacle which might catch their eye, and thus lead them to discern our head-quarters. The ten heralds swelled upon our vision until the gravitation frontiers were reached, when we witnessed the bursting of the foremost rocket. Strange transformation, the conical dot broke, and from it emerged a balloon, which was inflated almost in the twinkling of an eye. The other missiles having burst in succession, in place of balls we now viewed balloons. In a short time we learned that our signalling had been noticed, for the course of the pioneer air-ship suddenly changed in our direction, and the other members of the fleet followed in its track. In a few minutes more the travellers had arrived.

The lunar population supped with me to-night in the moon's primitive erection.

From one of the despatches brought this afternoon, we learned Arkwright had invented an improved bomb-shell for astronomical travelling. I was almost as terpsichorean in my movements as David of old, on ascertaining this implement would afford accommodation for thirty voyagers.

Sixty-third day. With thirty-seven great workers how quickly the harvest of lunar science is being reaped! So many and so great are the discoveries which are being basketed hourly, that I am loth to leave this world, in which but a week ago I was so loth to stay.

To-night, after a solemn meeting of all the inhabitants of the moon, our forces were separated for the purposes of research. Nine different parties, each consisting of four souls, were formed, which were respectively headed by P. Faraday, Copernicus Galileo, G. Cobbett, Linnæus Lindley, and Mercator Humboldt. Armed with all the necessary equipments to resist a lunar winter, and with all the requisite instruments for philosophical inquiry,

they took diverse directions, with the view of exploring different tracks of country.

I alone was left to welcome the further reinforcement of the itinerants expected in a few hours.

Sixty-fourth day. This morning thirty missionaries of science arrived on the great mission field of Cynthia. They brought with them newspapers, in which I was delighted to see sketches, copied from our despatches, illustrative of a great variety of scenes in moonland, including our mansions, the meeting of my deliverers with myself, my cannon, and Mount Tycho.

No sooner had my friends arrived, than I taught them what experience had taught myself as to the equipments necessary to reap researches in the fields of lunar research. Accordingly, ere evening, six further expeditions set out, which were severally led by Napier, Maupertuis, Swammerdam, Huygens, Liebnitz, and Maury. The remaining six remained with me, and found work enough in thrashing and winnowing the unsorted researches already stacked.

Sixty-fifth day. This morning thirty-six

lieges were added to the lunar kingdom. Furnished with this important reinforcement, eight further exploring caravans set out this evening.

To-night the census of the moon stands as follows:—Inhabitants abroad, 89; at home, 14. Total, 103.

Sixty-sixth day. To-day only twenty-one additions were registered to the population. There ought to have been thirty-six, for the parties which have arrived mention that this number left the earth to-day. Fifteen of our friends are thus missing. In the darkness they must have failed to notice our town. So deep is our alarm, that in our despatches to the world detailing the sad occurrence, we have desired a suspension of the firing until we have been assured of the safety of the lost wayfarers. Meantime we are taking every precaution to enable them to descend safely, or, if descended, to have them directed to head-quarters. With this view twenty-four members of our forces manned illuminated balloons, and took different directions. Caxton Arkwright and I alone are left to superintend the home rule.

Sixty-seventh day. When I arose this morning my soul was clouded anew with dejection at finding no intelligence of the missing travellers. Could it be that my friends were martyrs to the great cause which I had so long cherished in my soul's inmost core? Was Heaven determined still to awe man by those ancient scourges,—accidents?

In the evening, Caxton Arkwright and I sent various microscopic despatches to the world.

Sixty-eighth day. An anxious Sabbath. Arkwright and I, in solitary sadness, conducted the services of the day. Last Lord's-day the moon's first church was established, and comprised four members. To-day, we trust, there are one hundred and thirty-nine worshippers in this world.

Sixty-ninth day. Heaven be thanked, when I awoke this morning the lost wanderers were at my bed-side. Eagerly I embraced them, rejoicing not only in their deliverance, but in the circumstance that the safety of mundo-lunar travelling had been more established than ever. It seems our lost friends had, through a slight accident, simply alighted upon the moon 600 miles eastwards, at a point

where the moon was bathed in darkness and mantled with winter. This error necessarily exposed them to hardships for which their foresight had made no defence. Stormed by the rigours of a lunar night, they were forced to expend all their ingenuity in the construction of a place of shelter. But escaped from one dilemma, they fell into another. Their food-supplies were exhausted, and they had not the means of replenishing their store. Happily, at the critical juncture, when their doubts were condensing into blank despair, they were found by one of the exploring expeditions.

We immediately despatched these glad tidings to the world, and ordered the renewal of the astronomical artillery fire.

With wonderful speed the summons was obeyed, for in the evening there arrived thirty-nine passengers. The moon's muster-roll is, therefore, increased to one hundred and seventy-eight.

An electric printing-press was among the luggage brought to-night. We accordingly started a newspaper this afternoon, which we styled the *Lunar Times*. Its first issue we pre-

pared in a few hours—a very creditable brevity, considering the magnitude of the work, and seeing there were only thirty brains at the operation. We struck off twenty thousand copies, all of which we despatched to the lower world.

Such was the birth of the *Lunar Times*. On that day its only readers in moonland were its publishers, but in a few years afterwards it was destined to be read by millions of lunary readers. There were also imported to-day a great many lunar chronometers. In adjusting these, we were highly interested in the unearthly slowness of the oscillations of the pendulums and the gyrations of the wheels, owing to the moon not incurring the heavy penalties which the law of gravitation exacted in the nether world. When we finished our task, these instruments proclaimed the lunar time of day to be twenty-five minutes past 312 o'clock.

Such, then, is the work of the last day of my first stay in the moon. To bid its scenes a farewell costs me a bitter pang, for the associations of the last sixty-nine days shall ever remain enshrined in the cloisters of my memory. Though I have only been an inmate of this

world for two months, I now behold its third sunset and its third harvest. The fruits of the earth are ripe, the leaves emblazoned with the richest tints, and flocks of birds are congregating, preparatory to their migration to the antipodes.

Having amassed the investigations of my friends and myself, together with a large quantity of specimens, photographs, and lunar curiosities, and having loaded the balloon with which I was supplied, I met the inhabitants of the lunar metropolis, and resigned my vice-regency of the moon. S. Watt was thereupon appointed my successor. Amid many tears—tears of the commingled ingredients of joy and sorrow,—I bade farewell to the aborigines of moonland. Walking out with my friends, my feelings were suddenly shunted into a new channel on beholding my Rocket pressing forward to pay me recognition, an incident with which I was much touched. Embracing my friends once more, I then entered my ship, and was immediately swerving earthwards. I was accompanied by a large flock of birds, but on coming to the frontiers of the atmosphere their progress was checked. Some

attempted to fly beyond their element, but fell back upon it like fishes that had jumped out of the water. With sadness I received these last evidences of the new world, but with feelings magnetic towards home my thoughts flowed on before me towards the friends to whom I was returning. Unutterable were my feelings on looking up and beholding the large moon-like earth in the zenith. My senses shuddered before the idea that in my small vessel I had to travel thither unaided and unaccompanied. The feat seemed impossible, yet what staggered the gullible senses gratified my reason; what my eye declared to be the zenith, my judgment declared to be the nadir; what was above was in reality below; what seemed an ascent was actually a descent.

An ascension of some hundreds of miles to the gravitation frontiers, and a descension of nearly two hundred thousand miles, are the items of my journey. It is the first that has ever been attempted with any certainty of success between the two worlds in an air-ship.

Though embarked on a longer cruise than ever mariner of the past had or could have

attempted—longer, forsooth, than the limited area of the world could have allowed, and though on the great embassy of conveying the sovereignty of a new world to mankind, so free is the present from the fripperies of display, that I am arrayed with no insignia, invested with not the slightest shadow of pomp, and unaccompanied by a single functionary.

Here my lunar diary ends, and here it leaves me, like Mahomet's coffin, hanging between heaven and earth. My voyage, happily, was unchequered by the interest of any adventures, and untinctured with the romance of any mishaps. My progress, until I reached the gravitation boundaries, was necessarily slow and tedious; all the more so, that I took an indirect course, to save myself from coming into collision with any of the moon-bound bombs. However, when I at length came within the grasp of earth's attraction, my speed was such that compared to it a Vulcan's descent must have been snail-paced. At this stage the silvery moon-like earth began to grow dark, while the earth-like moon gradually donned its sheen. Turning towards my native world, I beheld its huge body slowly spinning round its

axis, and showing its succession of seas and lands. Now, America was the bull's-eye of my vision, and anon Europe. Now, the Pacific lay before me, and anon the Atlantic. Huge clouds here and there curtained lands and seas, but only to embellish the prospect. With great eagerness I watched Mount Everest, when faced by the Eastern hemisphere. With my telescope I was enabled to behold the firing. Its bombs whiffed past me much nearer than I relished; but I found afterwards there was no cause for my concern, as my little barque had been noticed by the astronomical artillerists. At other times I employed my leisure in reading my microscopic books, or in making scientific investigations. My momentum meantime was increasing enormously from hour to hour, so that I was at length afraid to retire to rest, lest sleeping too long I should never awake.

My craft having been all the while under the watch of the astronomical sentinels, mankind had prepared me a reception. By my telescope I saw an armada of aërial armadas flying towards the earth's metropolis, and rising towards the verge of the atmosphere.

At the proper stage I reversed my engines and applied my drag. So well did I judge the time, that I drew up just a kilomètre beyond the environs of the earth's ether. While here, I had leisure to take a bird's-eye view of the unparalleled muster by which I was awaited. Artificial nebulous scenery had been introduced, burnished with the most glowing colours, built according to most lovely shapes, and changing from form to form, and hue to hue, with a never-ending succession of kaleidoscopic beauties. Here clouds, kilomètres in length, had been formed into mirrors to reflect the surrounding scenes; there were superb specimens of perihelia and anthelia. In number the balloons that lay anchored in such gorgeous cloudy roads were countless, in gaiety indescribable. In the highest rank were huge vessels burning with garniture, in which were the members of Congress. Arranged in circles, the central vessel contained the world's Cabinet and its President. To this focus I steered. Amid a thunder-storm of cheers, our balloons met, and, jumping on board theirs, I embraced Shakspeare-Socrates. I then saluted him as the first among men that had gained the title of the

President of the world and moon. Calvin Wesley and Knox Erskine now conducted the imposing religious services, after which the rejoicings commenced to the strains of music, which saturated the skies for leagues around. Then ensued an aërial regatta. The various symmetrical tortuosities, methodical eccentricities, and striking mazes of the various figures and gyrations in mid-air, together with the brilliant convolutions and curvetting of the etherial terpsichorean art, performed on the background of a sky so magnificently adorned with iridescent colours and lovely forms, formed such a spectacular display as shall be rivetted to my memory as long as I have an appreciation of the beautiful.

Led by the stately senatorial vessels, the aërostatic procession, forty kilomètres in length, now descended to the world. Such, I think, was the inventory of the celestial cavalcade:—

The Parliamentary air-ships.
Huge aërial vessel with band of music.
1,000 small aërial crafts, ten abreast, with scientific congress.

Aërial machine driven by doves, and containing the one thousand clergymen in the world.

20,000 electricians, 100 deep, with electric wings.

80 mammoth etherial steeds, with the world's veteran chemists.

An aërial Pyramid, drawn by 100,000 crows, 200,000 swallows, and half a million of miscellaneous birds.

Balloon containing the world's bicentenarians.

80,000 of the world's youths on eagle back.

1,000 large steam locomotives and trains laden with ladies.

Miscellaneous balloons, driven by electricity and steam.

Unfitted for the turbulence of such ceremonies through my long solitude in the moon, my feelings were intoxicated with the wine of applause. Myself the sight viewed by millions of sightseers, I was a straw in a whirlpool of excitation. The music, the feats, the illuminations, the great meeting in Parliament, were to me the additions of superfluities to a surfeit.

It was not till I rose from my seat in the Senate that I could burst the bonds of my agitation. Necessity then roused me, and urged me to pour out my heart's most fervid sentiments through the channels of millions of ears into the cores of millions of sympathetic souls. This was the only occasion in my life in which I could say I was eloquent. No wonder. My heart was never so wealthy in emotional power, and never so completely enslaved my tongue. On all the night-mantled portions of the world there were, meanwhile, great illuminations in honour of man having founded his first colony in the firmament. Meteorologists caused a most brilliant artificial display of meteors and northern lights, while pyrotechnists enriched and varied the effects.

During the whole syllabus of the ovations, it was but natural that I should be oppressed by the sensations of the great change in my levity and agility since leaving the moon. Though burdened by naught but my garments, I felt as if oppressed by a great weight. Such was the force of six weeks' residence in another world, that for a few days I groaned under the heavy gravitation assessments of my

mother earth. As the moon commands the ocean's tide, I found that the moon's affairs now completely swayed the currents of man's zeal.

The preparations to work the mundo-lunar ferries were progressing with unprecedented despatch. Ten breech-loading cannon were being built around the world's equatorial zone, upon which were concentrated the talent of sixty million of brains. By means of this formidable artillery man would soon be enabled to maintain an unceasing bombardment of human-tenanted rockets at the moon. More than this what could my sanguine soul desire? Could it have dreamed of such mighty steps but a month ago, when I was a solitary exile in Cynthia?

Shortly after this, Caxton Arkwright's missile was tested, and found capable of accommodating thirty travellers. It was supplemented by a device by which the bomb in bursting would not be shattered in pieces, and the broken fragments precipitated in dangerous volleys upon the earth, but simply open like a bivalve shell.

So certain was mankind of the infallibility of these inventions, that several thousands volunteered to occupy the trial bombs. Amid

great excitement the cannonade with the new projectiles commenced, and before the moon drifted beyond our range we had fired thirty shots. This unexampled bombmanship sent 900 souls, not into the grave, like the cannon of old, but into the moon. The band of lunar argonauts comprised an admixture of leaders of every science and art. It was an embassy of sappers and miners to prepare Cynthia for colonization. There was Liebig Bell, with three hundred doctors and licenciates of agriculture, to superintend the farming department. There was Brunel Russell to lead the engineers, and Wheatstone Oerstedt to plan a telegraph system. There were architects to plan cities, masons to build them, scientific men to amass the details of lunar science, printers to publish the investigations and circulate intelligence, and Nestors to aid all parties by their counsel and experience.

Meanwhile, the course of the rockets conveying these parties was eagerly watched, and with delight each was noticed to burst, and with its living freight to descend in safety on lunar soil.

The following evening a new element was

introduced into these inter-mundane voyages, in the shape of two bombfuls of ladies. These Eves of the moon as they entered the missiles were applauded most lustily by the millions who had congregated to witness the sight. Braver than the bravest of Amazons, greater than all the heroines of antiquity, the grandeur of their courage in following their husbands to the moon knew no parallel in history. It was one of the most majestic spectacles of female heroism ever beheld on the stage of Time. Themselves the great desideratum in moonland, nobly did they obey the call of duty and love. The distance of 225,000 miles dissolved before the warmth of their devotion and affection. Such noble conduct did not fail to excite the admiration of the stronger sex, as their numbers and enthusiasm upon this occasion so abundantly testified. But the scene was not destitute of rather odd speculations. Few failed to observe that some of the voyagers appeared as if candidates for the honour of being mothers of the first native of moonland.

Our ideas were correct, for the next lunar mail brought the announcement that one of these females had been delivered of a fine boy

mid-way between the two worlds. The case gave rise to a mighty crop of jokes, seeing he had no specified birthplace, and inasmuch as he belonged to no particular world. Equally interesting was the circumstance that another of these fair dames, just when alighting upon lunar soil, gave birth to a daughter.

So mighty was the impulse given to the lunar invasion by the new inventions, that, in the course of six weeks, the passenger-traffic to the moon was increased forty-fold. Before the force of the increased population, the secrets of the topography of our junior world were speedily unsealed. Soon possessed of an Ordnance Survey of its entire superficies, the genius of the world at once addressed itself to arrange for its equipment with all the engineering and architectural essentials of the age. Its first city, the designs of which entailed the concentrated intellect of 10,000 rich brains, was now being founded. The ancients said Rome was not built in one day, but lunar Paradise may be said to have been. Grander than the grandest cities of the grandest ages in ancient times, it was reared, not in years, but in weeks. Its streets, its palaces, and its archi-

tectural wonders, rose as if by magic. Aladdin's lamp could not have performed more astounding achievements.

Another commission of 180,000 heads, under Smeaton Rennie, were preparing a plan to level the mountains, fill up the ravines and defiles of the moon, and establish cities, canals, workshops, and observatories. This mighty brain-force, concentrated upon these objects, resulted in the beautiful and symmetrical aggregation of devices which shall stand for ever as a monument of artistic taste. Combining every element of beauty and splendour, and every ingredient of convenience and ingenuity, blended as if by the hand of harmony, it was destined to make Cynthia an elysium. Comprising millions of different details, the most massive and sublime ever sketched, it was yet the work of only a few months. That its execution might be equally remarkable for its brevity, it was at once referred to a lunar embassy, with the view of practical operations being commenced without delay.

A third commission, almost equally powerful, was appointed to construct railways, tubeways, and telegraphs, and to develope lunar and astro-

nomical postal systems. Happily the moon enjoyed many advantages for the prosecution of these several schemes. Owing to its small gravitation, bridges could be made with such amazingly large spans that the eye wondered why they did not fall. Steeples and towers could be reared to such a height that they seemed perfectly unstable and insecure; and small tapering metallic columns could be made to support such mountain-loads, that their appearance duped the senses as if by magic.

A fourth army of 10,000 souls, under Arago Halley, was appointed to equalize the temperature, to mitigate the fierce heat in summer, and to moderate the excessive coldness during winter. Hitherto the rigours of the lunar night had rendered it necessary for the inhabitants to evacuate those regions upon which it brooded. In consequence of the continual migrations thus necessitated, the labours of the lunarians were sadly hampered. Most difficult was the task to which this commission addressed their energies, and long and dreary was their journey to success. For months there were exertions without accomplishment, and experiments without issue. Yet onward

they pursued the barrier-blocked path of their duty. Storming the barricades of many difficulties and surrendering before none, we saw that time would ere long enable them to extirpate the horrors of Styx from the moon.

Onward and onward meantime rushed the floodtide of progress. Daily the current of man's capabilities was strengthened by new tributaries of inventions. From this reason the Mount Everest cannon was soon enabled to pitch 2,000 voyagers daily from the sub-lunary to the lunary sphere. This was effected by a peculiar apparatus in the bomb, which gave it whatever bias was desired, and by which missiles could be cast into the moon, even when the muzzle of the gun was at an angle of 80 degrees from the mark.

But so much firing had its drawback. The fulminates fouled the air with smoke, dust, and poisonous gases. For this awkward inconvenience, we had hitherto only the awkward remedies of artificial showers and clarifying re-agents. For this reason man hailed the announcement that Scheele Boyle had invented the means by which the atmospheric air itself could be used as a substitute for the fulminates.

By great ingenuity he condensed as much as a square mile of air into a solid block of a few cubic mètres. One of these compressed aërial cartridges he placed in the gun, and, by applying a strong electrical power, he disengaged its mighty budget of blasts—a process so sudden and forcible as to render the blocks most powerful explosive agents.

After a few experiments, it was found that the new system, while it kept the atmosphere pure, caused no appreciable aërial disturbance, and otherwise suited so well, that it was thought superfluous to look for its improvement.

At this stage an expedition, consisting of Pascal Descartes, Leibnitz Encke, Burnet Woodward, and myself, was formed to explore the moon's moon. A specially framed astronomical bomb was chartered as our vehicle. Having been supplied with food, air, and water for two months, and the other requirements necessary for our researches, we took our seats in our astronomical carriage. It was then pressed into the great loaded culverin, when we were straightway launched into vacuity. Exactly as our plans dictated, we were driven over and past the moon to the

frontiers of the moonule's area of gravitation. Arrived there we burst our bomb, and by the balloon in its interior descended towards our haven. At first a small dark object, it soon grew upon our vision into a world. But the gloom in which it was enveloped inspired us with anxiety. The nearer we approached the less we relished its appearance. The effulgence of the sun did not extirpate its darkness. Through its want of an atmosphere it was relegated from the bounties of refraction, reflection, and vegetation.

Ere long we reached the dismal shores of this world. Dark and dreary was the situation, even though it was noontide. It was a daytime without daylight. Wanting atmospheric vestments, the globe's nakedness exposed it to all the gloom of a chaos, and all the rigour of a hyperborean winter. Its firmament in daytime was a dark canopy, in which the sun, moon, earth, and stars shone without the power of illuminating. The earth was a bier only bearing death, whereof the dark canopy of heaven was the pall. In the circumstances, we at once metamorphosed our balloon into a movable habitation, and supplied it with all the

comforts needful in such an icebound world. In consequence of the speedy revolutions of the moonule, we witnessed its sunset only two and a half hours after its noon. The transition was so abrupt, that the gloom in which we were suddenly immersed loaded us with awe. Lighting our electric lamp, it seemed only a rushlight. Its brilliancy was almost totally absorbed by the unspeakable darkness. These circumstances so prejudiced us against the moonule, that we thought it no better than a colony of chaos. Encke facetiously, but factiously, declared it was a world without daylight and delight. But five hours afterwards, the sunrise not only tended to illuminate the sky, but to disperse the disquiets from our minds. "Why should we hurl our anathemas against this earthule," asked Pascal Descartes, "simply because it knows no atmosphere, no Fauna, and no Flora? Why condemn it to be obliterated from the map of the solar system, when its faults are only negative, and when they are curable? Supply it with an artificial ether, till its soil, carpet it with vegetation, furnish it with animals, and shall it not be worthy of colonization?"

These arguments thawed our icy doubts, nay, boiling raptures bubbled up within us when, on telescopizing the skies, we discovered thirty comets gyrating round the sun-spindle. For a week we were decoyed by the syren-charms of the phenomena connected with the axle of the solar system, and the wondrous trochilics of the solar machine. During this time we, by the keys of labour and experiment, unlocked many of the unopened presses of nature. But a sense of duty now shunted us into the main line of our mission. Accordingly we now spent our time in investigating the geography and mineralogy of this worldule. To our satisfaction we found it had water, a soil capable of rearing crops, and hills gorged with an abundance of valuable minerals.

Strange were our sensations in circumballooning this world, and unnatural was the life to which we were subjected. From its small size, we were taxed with so little gravitation, that we had almost the feeling of volitation. Only with the greatest difficulty could we maintain our equilibrium. There was no air, no sound, no odour, and no daylight, so that we had to live ever equipped with our artificial

breathing and trans-aërial acoustical accoutrements. The scenes of which we were spectators were equally foreign. The short intervals between day and night and night and day, and daily eclipses of the sun, imbued us with increasing wonder and awe. The mountains around raised their heads, naked and barren. The plains lay bleak and blasted. The valleys knew no verdure. The streams were congealed. The lakes were icebergs. Chasms dark and gloomy, defiles diabolical in their darkness and caves with sepulchral mouths interspersed all, telling only the tale of desolation and death.

During our peregrinations we one evening bivouacked at the earthule's North Pole. Here, notwithstanding the absence of an atmosphere, we were surprised to witness a very brilliant borealis display. Little incidents are, to observant minds, frequently the levers to raise mighty discoveries. In this case, the study of the northern lights excited Pascal Descartes to make his brilliant investigations to show that the needle points to the north, and the borealis shoots from the north, because in that direction lies the great focus of infinity. Beautifully he

proved that the heaven of heavens enthralled the magnetic needle, and that the auroræ were emanations from the supreme central force of the universe—rays from the seventh heaven.

But the chief interest of the island arose from its position as man's nearest possession to the Sun, Mercury, and Venus. Accordingly, its great use to man would be as an astronomical station.

Having fully reconnoitered the moonule, we refitted our habitation into its former use as an air-ship. Though the moon was our nearest station, we journeyed directly to the earth, that mankind might be the earlier in full possession of our report.

Having boarded the world at Mexico, we were at once blown by tube to the Lyceum. Having narrated our experiences, it was resolved to make the new world a cosmical observatory as soon as man would be able to spare an army sufficient to undertake the great work.

At this interesting stage I made a circuit of the globe, to view the ten breech-loading world-moon cannon, at present in course of facture.

At each I found millionaire armies of workers, and Cyclopean arsenals of machinery.

Such was the hugeness of the undertakings, that had it not been for the removal of the mountains, and the consequent discovery of so much hidden ore, there would not have been sufficient material for their construction. The carriages of the ordnance were already completed—carriages which of themselves were engineering epics. Stationed on mountain peaks, they were annealed to their position by pegs driven into the earth two kilomètres deep. Contiguous were engines to work the guns, together with foundries for the moulding of the bombs, and chemical laboratories for the condensation of the air for the ascension force.

At this time S. Watt mooted his scheme for quick mundane travelling. To enable him to translate his theories into practice, I was appointed to relieve him as vice-regent of the moon. To our astronomical province I therefore repaired. How different my present entry from the last! Then I was alone, and had but the beasts of the field to accord me a welcome; now I was accompanied by my family and welcomed by thousands of my fellow-men.

Then I descended upon an unknown earth; now I visited a world furnished with cities, railways, tubeways, and tramways. The survey of the kingdom was to me a feast of felicity. I found it already well stamped with the seal of art. Many arrogant, useless crags were now prostrate in the valleys. The pustulous face of the moon was quickly being smoothed. Its pock-pit caverns were being filled up, and where were barren topographical warts there now grew luxuriant locks of vegetation. The area of barrenness had been greatly abridged, and the agrarian realms amplified. The inequalities of temperature under the labours of the comptrollers of the weather had been greatly mitigated by the overplus of the warmth during the day being made to balance its deficit during the night. The waters, which used to be kneaded by frost fourteen days out of the month, now ripple and flow for ever in fluid liberty. So successful were these measures that it was now unnecessary for lunarians to migrate from hemisphere to hemisphere as night ensued.

Now, President of the moon, I, with all my lights, conducted the measures for its coloni-

zation. This work proceeded with amazing momentum. Alpha, the lunar paradise, became a city of magnificence with a speed never equalled in the senior world. Net-works of railways, tubeways, and telegraphs were woven by the loom of art with a haste which almost insulted time. Daily the nuclei of new cities were formed, and daily the old became coated with increments. Every obstacle was only the signal for a new conquest. Difficulties were only straws before the fire of our intrepidity. Toiling under the sovereign direction of the greatest geniuses, and with the most powerful machinery man ever manned; and, above all, labouring in a world only burdened by one-fifth of the gravitation duties leviable by the earth,—every hour saw the moon enriched with new beauties and scientific resources.

Meanwhile, the christening of the new-born cities was conducted by a commission under Johnson D'Alembert. Unlike the meaningless geographical nomenclature of the senior world, lunar designations were redolent with symbolic signification. The moon's map was rendered a lexicon in which each appellation found its alphabetic situation. Like chemistry, lunar

geography enjoyed a notation. Each cognomen was mnemonic. The name of any place supplied in one word its geological characteristics, its longitude, latitude, and altitude.

Our next step was the construction of four huge cannon to make return voyages to the earth. To prevent any collisions, we simultaneously framed a code of inter-mundane navigation laws. As a further rung up the ladder of progress, a system of astronomical commerce was planned. Physiological inventions were also perfected, to enable brutes to be carried through a non-aërial medium,—thus affording us the key to a traffic in live stock between the two worlds. This formed the preface to a new page in the volume of natural history. Lunar animals were now acclimatized to the world, and terranean animals to the moon. Eggs laid in the one world were hatched in the other. Spawn from lunar streams was transferred to sublunary streams. But the most salient of our advances were the marriages of moonly and earthly animals, and the breeding and rearing of the famed mundo-lunar hybrids. Vegetables were likewise transplanted from world to world. The wonderfully coloured trees of Luna were

imported in great quantities into Terra, and pigments extracted therefrom, which were used by artists for an immensity of purposes. By these means the Fauna and Flora of both worlds were interchanged, and new blood instilled into the animal and vegetable kingdoms of both spheres.

The lunarians rapidly changed from pioneers into citizens. Many lunar cities were now more redolent with the glories of architecture than Athens in the age of Pericles, and more happy in facility of transit and postal communication than the London of the nineteenth century. The lunar newspaper was now supplied to every inhabitant, and railway trains could now circum-roll the zone of Diana in a single day. Marriages and births were incidents of hourly occurrence, and, thanks to heaven! there had hitherto been no deaths. Everywhere had arisen crops of manufactories, foundries, scientific arsenals, and agricultural camps. The entire macrocosm bounded with commercial vitality.

I had ruled man's junior world two years, when I was called to witness the trial shooting of the ten breech-loading mundo-lunar ferry cannon. When I entered upon the governorship its cities

had increased from one to fifty, and the length of railways from 4,000 to 280,000 kilomètres. Its population, from paucity, had swollen to 5,000,000, a host which had sprung from the prolific belly of the Mount Everest cannon. Arrived at my father-world, I found mankind animated with the most intense enthusiasm over the moon's affairs. All other business stood still, that due prominence might be attached to the mighty events which had so eclipsed all the past data of history. Arrangements were made to fire the mundo-lunar guns consecutively, and enable as many of mankind as possible to view the trial shooting. These were so satisfactory, that the whole series of cannon were tested successively in presence of the immeasurable multitude of multitudes which were borne on during the course of the night from battery to battery. When the Himalayan ordnance was reached, mankind had the pleasure of witnessing the gigantic scheme of S. Watt tested. The amazing feats now performed left even our imaginations at their utmost tension greatly astern of the realities. A solid projectile was first placed into the loaded culverin. To this was joined,

by cobalt chains, a string of ten large bombs, which lay on the outside, each of which contained one hundred passengers. All being in readiness, the pulsion force was so graduated, and the gradient so altered, that a train might be despatched into Australia. Amid deep excitement the gun was fired. A terrific report rent the air, when, lo! the chain-shot train vanished. The scene was one of those brilliant theatric strokes which ever and anon enliven the various acts in the drama of history. The magical metamorphosis endued us with awe. We thought how a thousand eventful lives were in these importance-fraught moments flying round the globe at a speed only second to the pneumatic tubes. Our minds shuddered before such startling realities. The mighty assembly for a few moments after the explosion was mute. Astonishment robbed man of his power to cheer or applaud.

The cannon's muzzle being then changed, and the ascensional power re-adjusted, another string of shells, with another thousand passengers, was in a few minutes pitched into North America. The ordnance was thereupon adapted successively to China, Iceland, and

South America, to each of which lands bands of one thousand men were despatched.

No sooner had these mighty deeds been accomplished, than tubegrams and telegrams arrived from those several places, announcing the safe descent of the various bomb-trains. Such was the prelude to this compound system —a system which formed the missing link between the swift pneumatic tubes and the snail-paced railways.

These experiments closed the work of the day—a day which shall ever sparkle as one of the most brilliant in history's coronet. It had seen the maiden shots of the first great astronomical battery. It had introduced a plan which empowered man to establish a passenger traffic to the moon of 200,000 souls daily, or 50,000 tons of luggage. It had rendered a voyage to the moon easier and more expeditious than a voyage across the Dover Straits in ancient times.

In the midst of these palmy days of science, I, along with a thousand other travellers, went, by means of the superterranean system, to New Zealand. When suspended sixty miles above our destination, the bomb-pilots liberated

the parachutes. The massive train then descended as lightly upon mother earth as a covey of doves. Having visited Shakspeare Socrates and the leading members of congress here, I thereafter tubed to the Himalayan gun, where I entered an astronomical rocket, and was immediately pitched to the moon.

To hasten the development of its architectural, engineering, and mechanical schemes, Parliament had resolved that a continual cannonade should be kept up at the moon until it was supplied with its full complement of inhabitants, in addition to a surplus population of 100,000,000. Our object being to render this mighty invasion of human argonauts as speedy as safety would allow, rigid laws were framed to regulate the firing, and to insure accuracy with rapidity. Heaven be thanked, our labours were the easier, seeing we had no storms to encounter nor rocks to evade in the great etherial ocean we were about to navigate.

Upon S. Watt devolved the measures for the embarkation of the astronomical emigrants, while upon me fell the management of their importation into moonland, and their distribu-

tion through its territories. The first few days of the unexampled bombardment saw both worlds agitated with a fever of anxiety. Could our fears be smothered when every hour rained into our sphere an army of ten thousand invaders? Could the vigilant eyes of our solicitude be blinded when day and night there flowed in upon us from the skies an increasing stream of humanity? The world was to us a revolving battery, and our orb the stronghold it stormed. All our philosophy could not at first save us from a panic of apprehension for the safety of a system involving such an intricacy of precautions, and such an immensity of tactics. Happily, the harmony of our arrangements rendered them peril-proof. When even small carriages in past ages could not be driven many miles on solid earth with impunity, how it awakens joy that travelling can be conducted through the silent, dark ether to another world with such security! Wondrous has been man's triumph in taming the wild artillery monsters of war, and in making them the ministers and servants of peace. In the times when balls were put into men, instead of men into balls, the human race was justly

punished with the penalties which ever attend crime and ignorance; the ages of war were, therefore, ages of calamities, casualties, catastrophes, and collisions.

Month after month S. Watt laboured with faithful sedulity to effectuate the exodus from the sub-lunary sphere, and I the influx into the lunary. These efforts were all the while being more and more facilitated by the briarding of new inventions. Wollaston Ferguson was fortunate enough to immortalize his name by supplying us with astronomical bombs capable of accommodating twice the former number of passengers. But the greatest conquest in our campaign of scientific progression was the adaptation of S. Watt's compound bomb system to mundo-lunar travelling. We were thus enabled to jaculate not single balls into the moon, but a species of grape-shot, consisting of a train of ten balls, each laden with three hundred passengers, or luggage proportionally. This crowning victory left hope scarcely any further advance in this direction for which to hope.

The moon accordingly, being soon supplied with an abundance of men, cities, mushroom-

like, arose daily. When the first tumultuous flurry of colonization had subsided, terra-lunar commerce received its first impetus. Those metals rare on earth were pitched down to the world by thousands of tonnes each week. An inter-mundane postal system was established, and the newspapers of both worlds were interchanged.

On January 10, 2840, the congresses temporarily changed their head-quarters to the junior world, to superintend the inauguration of its underground railways, and the levelling of its superfluous mountains. By this time the moon was stocked, not only with its full complement of inhabitants, but with the surplus population of the hundred millions of machinists, engineers, and *savants* whom Parliament had sent thither to supply it the earlier with its needful resources. It had, therefore, a larger population per square mile than its mother-world had ever possessed. The removal of the senates from one world to the other was so unique, that it afforded the occasion for great rejoicings. Their grandeur and simplicity were refreshing to my soul, delighted as it always is to see the past

eclipsed by the present. I looked back upon the meaningless pageants in days of yore, and compared them with the intellectual ovations of our day. Senseless fanfares, inflated ceremonies, processions with flags fluttering above, and fools strutting below,—a reckless waste of fuel, combustibles, gunpowder, and crimson cloth—a heedless and headlong indulgence in feasting and flattery, inebriating drinks and intoxicating language, comprised the curriculum of those jubilations. The multitude, catching the subtle infection of foolery to which their ignorance predisposed them, roared and vociferated, though the occasion might be the celebration of kingly triumphs, but public calamities. Such a difference between the nineteenth and twenty-ninth centuries! Rejoicings are now made only over *fête*-worthy objects, and while they are grand and imposing, the cause always merits the effect.

The stay of the congresses in moonland hastened the gallop of lunar science, and added vigour to the eyes of lunar research. Change followed change, and improvement improvement, with a speed that made hours dash through the work of weeks. One of the first

and greatest undertakings which they supervised was the further mitigation of the inconvenience caused by the moon's day being so long as fifteen earthly days, and the rendering of all its latitudes isothermal. For a time electric lights were used as a substitute for daylight, and huge caloric works for day-warmth. The illuminating undertakings were conducted on a scale of massiveness unknown to the pyrotechny of the world below. So powerful a luminosity was induced, that the earth's firmament enjoyed the benison of a perpetual full moon. During its gradations the appearances were peculiarly whimsical, as the portion brightened by the sun had not so rich a shade of brightness as that lighted by the electrical lamps.

In another lustrum our astronomical colony had been supplied with all the machinery and resources of an advanced civilization, and accordingly its surplus population was returned to our mother-world.

On January 17, 2842, my term of service as governor of the moon ended. I therefore left for the earth after Anaxagoras Thiers had been appointed my successor. Settled once

more in my native sphere, I consecrated my head and heart, my time and talents, to whatever business with which my hands were entrusted.

Man having laid out his full capital of intellectual energy and mechanical resources in furnishing the moon, and being now in the receipt of the ample usury always attending such investments, he was empowered to raise a new expedition, to prepare the moon's moon for colonization.

On June 30, 2842, eight thousand chemists, under Scheele Boyle, left the earth, and two thousand under Maupertuis Liebnitz, left the moon for this little astronomical province. Arrived, they at once formed fifty encampments, at each of which a factory was founded to generate artificial air for the purpose of supplying it with an atmosphere. As this proved a slow process, a commission was appointed in the moon, which, by appropriating the invention of Boyle, prepared artificial air, condensed it into solid parcels, and fired them into this barren island. Day and night such bundles were jaculated at the moonule; day and night its provisional inhabitants were

liberating these gaseous stores. So ably were these projects undertaken, that at the end of a fortnight the air had filled all the valleys and ravines of the new world. Every successive day deepened the ether by a few feet. This stage of the work being so far completed, eight thousand of the chemists evacuated the moonule, leaving the management of the chemical operations in the hands of the remaining two thousand. In six weeks so much air had been generated, that the atmosphere covered the highest hills. Amazing were the consequent climatic changes. The moonule was now furnished with light, twilight, and warmth. It rejoiced in the boons of refraction and reflection. The snowy locks of a winter which had lasted for thousands of years were now shaved off by the hands of the world's first spring. The icebergs became thawed into lakes, and the glaciers into streams. A new expedition, consisting of ten thousand farmers and naturalists, was now despatched from the world and moon, supplied with the adequate machinery to enable them to prepare the land for cultivation. Having in three months swathed the naked world with the under-

clothing of well-drained alluvium, we proceeded to dress it with a luxurious shawl of vegetation. So congenial was the climate, and so excellent the husbandry, that the moonule soon rejoiced in its first spring, its first blossoms, and its first fruits.

On flowed the tide of progress until the third harvest, when the twigs having attained to be trees, and seeds having been promoted into shrubs, and when hills and valleys having become enriched with verdure, another expedition of ten thousand, under Cuvier Buffon, was fitted out, to supply the new world with animal inhabitants—a measure which they consummated in a single year.

The world's colonization then commenced. Cities were founded, railways, telegraphs, and tube systems projected, astronomical cannon framed, observatories built, and the moonlet otherwise supplied with all the requisites of the age. Most unearthly were the feelings of those who conducted those labours, and most unique was the character of their fabrications. Owing to the extremely small force of gravitation, the workers possessed a seeming agility and strength equally amazing and amusing.

It was easy for one to carry a house on his shoulders, or to raise rocks that in the world would have weighed many tonnes. From the same cause many of the bridges had single spans three kilomètres in length, whilst steeples and observatories and towers, as in the case of the moon, were built to a height and with a tenuity which seemed almost inconsistent with the idea of their stability.

CHAPTER VII.

EARTHQUAKES CURED.

WHILE this young colony was thus being rescued from the rule of chaos, there happened on the Andes the most appalling earthquake of modern times. The famous veteran detachment of the mountain army, formerly commanded by S. Watt, and consisting of 10,000,000 beasts of burden, and officered by 40,000 brains, had been engaged at Lima for several years. The magnificent discipline of this brigade had long marked it as the most efficient in the world. Its animals had been trained to a degree of sagacity and usefulness that bordered on the wonderful, while the skill and care with which they were handled had made the army one of the best schools for the cadets of practical natural history. This zoologic legion was busily at work around Lima and Callao, when was heard the opening

subterranean thunder-symphony of an earthquake. The animal labourers were immediately thrown into wild confusion. Discipline degenerated into a panic. As if aware of their danger, the poor creatures became nervous and excited, kicked against their traces, flew from their posts, and filled the skies with their ululations. A fierce and general chorus of clamour, cries, and roars followed next moment, with the hideous accompaniment of rumbling reverberations and a portentous quivering of the earth.

This shock embraced not only the lands occupied by the geographical embassy, but the encampment cities, with their population of ten millions. Happily over the whole area of the earthquake the precautions were so ample, that in three or four seconds not a single soul remained at the scene of danger. By wing and balloon all had escaped to the skies. Scarcely had they fled when dire devastation proclaimed its sway over a region outreaching the human ken. The solid steadfast mountains became the prey of instability, and angrily shook from their shoulders great cliffs and boulders. On the plains the firm earth seemed

to have liquefied. Cities were tossed like toys upon their tottering foundations. Meanwhile, above the crashing of rocks and the booming of the underground forces, arose the cries of the legions of animal victims. Some we could see vainly struggling to escape the heaving undulations, others we saw engulphed in the earth-maelstroms. In some fissures they were crushed to death, as in a vice; in others they were completely swallowed. Our buildings and machinery were but waifs on the land breakers. The earthy billows dashed about our waggons like ships in a storm, squashed our colossal engines, and clashed into revengeful ruin aught that came within the range of artifice. Here, engineering paraphernalia laboured heavily amid the rocky surf; there, buildings foundered on the land-surge.

Meantime the sea had retired to an unwonted distance, as if to seek fuel for its resentment. When it had drawn back its tide, and armed itself with the full ballistic strength, it hurled itself forwards, and, fuming and foaming with rage, struck out its great billowy chest and surfy arms, dashed headlong over Callao, and then over Lima. Onward swept

the devouring monster, staying not until it had run tilt against the mountains. The boiling sea having thus wildly thrown itself upon the bosom of the wide country, now wrestled in desperation with the heaving, groaning earth. Land and ocean for a while raged and raved in their furious fray. At length the waters succumbed. Exhausted by their infuriated paroxysms, they gradually retired, but not until they had torn the breast of the land and covered it with devastation. Destruction wallowed in excess. Not sated with the truculence of the earth, it had thus called the sea from its own bournes, and made it sweep to their doom what the earth in its surfeit of devastation had omitted to devour.

From the skies above the geographic leaders thus saw in a few minutes the annihilation of their zoological army and engineering plant. Millions, moreover, saw their cities and homes, by one master-stroke of destruction, hopelessly effaced, and the fair face of their country mangled and mutilated.

This sad occurrence excited the inquiry, whether it would not be possible to prevent

earthquakes. Man now wielded the sceptre of the weather. He could at will enrage or assuage the waves; he could excite or calm the breeze, and make it blow whithersoever he listed; he could gather or dissipate clouds, shut or open the sluices of heaven's reservoirs; but as yet he was only a prey to the caprice of the subterranean currents. So heavily did the force of this truth weigh upon man, that he at once appointed a commission to probe the earth's subcutaneous framework at Lima. Supplied with rock-proof and fire-proof panoplies, artificial breathing equipments, and the necessary boring machinery, the party lost no time in commencing their work. With the plummet, spirit-level, and compass as their guides, they descended into the untrodden depths. Ere many weeks had transpired, they discovered that the cause of the numerous modern and ancient earthquakes in Lima was the thinness of the earth's rind here, and its recumbency upon a huge lake of molten sulphur, extending in length for hundreds of kilomètres. So mighty was the pressure of this lake, that it was found to have rent the earth into millions of fissures and crannies, each of which formed new estuaries

for the inflammable material, and thus increased the probabilities of further danger. By dint of great ingenuity, our subterranean spies sounded the depth of the lake in its whole extent, traced all its shores, and discovered it was fed by eighteen different molten currents. By the expenditure of much skill, they ascertained it was from the force of the inflammable material disgorged by these rivers into the lake that the damage was caused, and that by simply occluding these currents, and abstracting sufficient heat from the sulphury sea so as to congeal it into a solid, the possibility of further damage would be stemmed.

The diagnosis being made, no time was lost in applying the remedy. A new subterrene army was raised, which descended into the earth's depths, dammed up all the sulphury rivers in connexion with the lake, robbed it of its heat, and transformed a liquid fiery hell into a solid bed of sulphur. Thus did man triumphantly prevent the recurrence of further earthquakes in this earthquake frequented country.

Steps were now taken to rid the whole globe of the dangers of such catastrophes. Every

portion of its skin was accordingly probed. In some places it was found that the eruptions depended upon the sudden extravasation of great volumes of steam into caverns below the earth's surface. Many subterranean cavities, accordingly, we found to be huge steam-boilers. One of them was so large as to contain more steam than could have been contained in all the boilers possessed by the nineteenth century. Man, in keeping with his economy, wisely, of course, appropriated its heat, which amounted to several billions of units. In other districts we discovered that the earthy convulsions had proceeded from a flatulent state of the world's bowels. Tapping these huge cosmographic wind-bags, there followed most furious eructations of compressed heated air.

By the rules of terranean physiology, earthquakes were, therefore, demonstrated to be apoplexies of subterranean water vessels, or blisters caused by heated air or heated fluids. Volcanoes, moreover, were shown to be issues which kind Nature had caused to be kept open in order to prevent cosmical inflammations, spasms, or convulsions. These diseases were not only thoroughly understood, but speedily

cured; so that before the Christian era had celebrated its 2844th anniversary, the globe was no longer troubled with cutaneous eruptions.

So successfully were these measures culminated, that they suggested to Werner Hutton his famed enterprise for the further investigation of the secret depths of man's three worlds. "Of the anatomy of the earth and moon," said he, in his great speech to mankind, "we only know the skin. The viscera of both are unknown, laden though they must be with the most valuable undiscovered elements. The average density of the earth being five-and-a-half, and its shell being so light, it follows that its kernel is composed of some extraordinarily dense untold metals, whose specific gravity must be heavier than any substance known to man; and these substances discovered and pumped to the surface of the earth, might prove the open sesames to new recesses in the sciences. Within the casket of the earth," added he, "lie such oceans of riches, as shrink into beggary the parsimonious array of resources on its crust. Below its rocky, dusty, slimy skin, is a golden heart. Within its unrevealed crypts lie stores of the great Eurekas for the

Archimedes of the future. Cosmical anatomy is in its infancy, and the pens which are to write its wondrous pages are mayhap framed."

The speech formed a current before which conviction was irresistibly drifted. Now like Niagara he thundered out his ideas with dashing declamation, anon like the Nile his streams of emotion swelled and overflowed his hearers. Even our hearts melted before the rapturous heat of his eloquence. During its course, Hutton's brain, like a sun, radiated its brilliant emanations over the millions of brains which clustered around to enjoy its light and warmth. The idea that the world and moon being once in a fluid condition, their lighter materials would float to their surfaces, while the heavier substances would sink to their kernels, was supported with such a strength of argument as disarmed all doubt. But this lavish outlay of eloquence and argument was essential, because, great as is our age, it required a mighty momentum of persuasion to induce it to embark upon such a stupendous work. Various great pioneers of progress buttressed Hutton's position. Magellan pronounced it a thorn in the side of science, that

while conversant with the world's coarse integuments, it knew not the precious textures of its heart. Another predicated that though we trod upon the earth's scalp, we wot not of the rich structure of its brain. Scheele Boyle averred that the earth's crust was the mere scum which had risen from the pre-Adamite smelting of the terranean fire-ball. For myself, the measure won my soul's strongest support; and as Hutton was one of the first to follow me to the unparalleled heights of the moon, I vowed I would accompany him to any depths into the molten bowels of mother earth.

A stone pitched into the sea changes its level—a good idea launched into the ocean of thought swells its tide. In this case, the force of Hutton's project led us to place one of the most difficult schemes ever essayed by man within the all-conquering clutches of science. The world of man was ordered to be anatomized by the scalpel of research, though the process should occupy years, and present legions of difficulties. We were cheered by the sentiment that they who descend the stream must ere long reach the ocean.

Refreshing it was that the arm of reality had

thus resolved to pierce these arcana, which imagination had so long made the favourite sphere of speculation, wonders, and horrors. Could a thousand volumes comprise all the stories told of those subterranean realms which no man had ever seen, and of which all were profoundly ignorant? Paracelsus inhabited them with creatures whose chaos was our light, whose atmosphere was our earth, and whose migrations were amid solid substances, as ours are amid aërial. Others, following cognate tracks of fantasy, peopled the earth's entrails with kingdoms and nations, or planted here the haunts of hell and the fields of heaven.

But fiction is only a pigmy mimic of giant truth. When imagination, therefore, has coined such a host of marvels in this direction, what shall the reality unfold? What a grand prize is reserved for knowledge, in the solution of the geography of the earth's interior, the mechanism of its molten currents, the phenomena of its hidden alembics, and all the economy of its arrangements. Is it all fluid, or are there islands of solid material in the ocean of its fiery solution? Is it all in a state of fusion, or are there cool unmelted lands

amid its molten main? Are there no animals or vegetables in these incandescent regions, or are they inhabited by unknown genera of salamanders? Might it not be possible so to understand cosmical physiology, as to comprehend fully not only the causes of landslips and earthquakes, but why some portions of the earth's rind have risen and others fallen? Might it not be possible for man, by the balm of knowledge, not only to prevent terranean skin eruptions, but so to command the flow of the internal currents, as at will to make lands rise or fall?—to raise lands in seas, or run seas over lands?

But why speculate when mighty truth itself shall soon tell us more than even our imaginations could warrant?

CHAPTER VIII.

THE THREE AORISTS.

WHILE man was girding his loins to achieve these great measures, I gave birth to a book whose period of mental gestation had extended over a large segment of my life's cycle, and whose pages had had their growth partly in the world, partly in the moon, partly in the moon's satelite, and partly in the trans-aërial ether. Named "The Three Aorists," it embraced the moral of the lessons of the past, an epitome of the characteristics of the present, and a speculation regarding the prognostics of the future.

The attributes of pre-millennial ages I review in succession. But let quotations unravel the skein of my sentiments.

INGRATITUDE. "The world was the taskmaster of genius, and the tyrant of virtue. Talent and worth found in human life their purgatory. Not till their possessors died were they released into the Elysian fields of fame and admiration. Those destined to be honoured with monuments when dead, were scourged with envy when living. The greatest nations of antiquity devoured their best children: their heroes were martyrs. Solon, the greatest treasure of Athens, stung with the ingratitude of his fellow-citizens, chose a voluntary exile. Demosthenes, the glory, not only of his country, but the world, not only of his own times, but all ages, was forced to an ignominious death to escape a more ignominious murder. For the offence of being a wise man, Anaxagoras was condemned to die. Herodotus and Thucydides, the fathers of history, died in exile. Socrates had to lay down his life for the cause of truth,—truth none the less pure that his philosophy was not irradiated by Biblical light, and none the less genuine that his ideas of a Divinity were an incense from the altar of his own conscience. Aristotle, under the presentiment of a similar fate, uttered the awful words, 'I will save

Athens a second crime against philosophy.' The noble Gracchi, for Rome's good, renounced their own. Scipio, the brightest jewel in Rome, was torn by his countrymen from its tiara and cast into prison. The dry eyes of callousness itself might drop a tear to hear him say, 'Ungrateful country, my very bones shall not lie with you.' Rome's once boasted 'father of the country,' Cicero, was cruelly murdered; and, oh! prodigality of butchery! his tongue derisively stuck up in the Forum, where it had been used so patriotically. The younger Cato, to save himself from being a martyr to the expiring liberties of his country, committed suicide. Seneca was put to death by his own pupil, the infamous Nero. Ovid and Plato were sacrifices on the altar of virtue. Even warriors, whose sin-fraught glories appeared so important in the eyes of a barbarous world, too often tasted a moment's popularity only as a brief preface to volumes of adversity. Aristides the Just, for his disinterested interest in Greece, was requited with ostracism and a cruel death. Cimon, the saviour of Athens, was banished. The man of Marathon was consigned to a prison, and eventually hunted

to death. Callisthenes, Parmenio, and Clitus, the pillars who helped to build the edifice of Alexander's glory, earned ingratitude for their faithfulness, cruelties for their constancy, nay, death at the hands of a master whose cause they had only supported too well. The patriotic Phocion, the great-hearted Eumenes, were forsaken by the country they did not forsake. Philopæmon, the last of the Greeks, and Hannibal, the first and the last of the Carthagenians, were forced to poison themselves to escape the malice of the world.

"Nor can justice forget the world's maltreatment of its great teachers in later ages. Tasso, Galileo, Boethius, De Foe, Bunyan, and Chaucer, were jailed. Oh! noble heroes! the captivity of your bodies could only enfranchise your souls! Locke and Wesley were expelled from the Universities. Coverdale was exiled, and Tyndale, like most of the foremost pioneers of heavenly truth, was martyred. The fire of Correggio was smothered in the chilling atmosphere of neglect. Cervantes, whose rich intellectual fruits have delighted the mental palates of so many generations, died of hunger. Lord Bacon, suffering the injuries of contem-

poraries, committed his claims to posterity. Savonarola, whose noble virtues were beaten into shape on the anvil of adversity, was executed. Ingratitude broke the leonine heart that unflinchingly buffeted millions of hoary-headed, threatening breakers, and discovered America. Though Columbus paved the way and opened the door to a new world, he finished life by not having so much as a home.

"Need we enlarge upon the banishment of Cartesius, the beggary of the rich-minded Ariosto, Dante's exile, and his being rendered homeless in a world of which he was at the time the chief ornament, the persecution of Descartes, and the malignities and indignities showered upon Montaigne; or need we expatiate on the text, 'Give the smallest coin to Belisarius'? Even Death could not shield Worth from the malice of the unworthy. Not content with wreaking rancour upon them during life, the world irreverently exhumed the ashes of Buffon, Blake, and Cromwell.

"But why multiply examples? Is man not guilty of a crime greater than the sum total of all these enormities? Did not inhuman

humanity lay murdering hands upon Divinity itself?

"Thus beat unmercifully upon the greatly good, and goodly great, the galling waves of ingratitude. Paul, in mentioning the ignominies to which such were exposed, by means of a parenthesis which thrills the heart-strings of man with a chord of emotion, refers to them as those 'of whom the world was not worthy.' The martyr Stephen, just when his murderers were viewing his departure from this world, and the angels of God were awaiting his arrival in the next, spoke the memorable words, 'Which of the prophets have not your fathers persecuted?' Oh, freezing ingratitude! thou monster of monsters! thou hast broken more hearts and wrecked more lives than would have filled a thousand churchyards! 'Worse than witchcraft, thou art the concentration and quintessence of all sins!'"

IGNORANCE. "Knowledge is the atmosphere of heaven, ignorance that of hell. Not till the hellish fumes of the latter were eradicated from the earth, could Christianity prosper. As agriculture then viewed the world as a wilderness, intelligence beheld the still sadder spectacle

of the great commonwealth of braindom an uncultivated desert. When the most learned of the past were supremely, nay, ignorantly ignorant, what trope or hyperbole can adequately characterize the darkness of those savages that formed the great mass of mankind? They carried on their shoulders mental paradises blasted into arid wastes, wastes only bearing weeds, and, if cultivated, only by Satan's husbandry. Barbarities were their customs, cruelties their virtues. Slaughter and bloodshed and sensualities were their recreation, crimes their trades, brutes, stocks, and stones their gods. Their every noble faculty was inverted and supplanted by vicious substitutes. In their mental indigence, they viewed animal strength as the richest of acquirements and requirements. Oh, drivelling ideas! Even the feats of a Samson were but as the wrestling of an insect compared to the labours of the machines of our day. Man, in the eyes of heaven, is but a microscopic animal on a microscopic world. His body is the mere draft written on clay, which represents for a while the bullion of the soul. It is the mere cradle wherein, for a few years, his immortal spirit is rocked.

"Even the self-styled enlightened nations were only stammering over the rudiments of civilization. They considered war the staple business of a country, and murder by balls, bullets, and bayonets patriotism. Despite clergymen, infidelity and false religion grew rank and rampant. Despite lawyers and police, crime stalked about with more assurance than honesty. Despite physicians, the quiver of disease was ever full, and its bow ever bent. Despite legislators, a large substratum of vice and poverty existed in every city. The whole human race were unemployed or misemployed. They were all uneducated, sub-educated, or mis-educated. Instead of all professions being learned, there were but three. The very cream of society was but milk and water. They were esteemed erudite who knew not the alphabet of science. Languages formed the staple article of education, though nature had given man one tongue, to speak one tongue. Oh, ignorant pedagogues! oh, illiterate literati! ye ignored the funds of unknown truths so worthy of interpretation and study, bound up in the sciences, knowing not that the sciences were nature's languages, whereof classifications

formed the dictionaries, and philosophic laws the grammar. Would you had cultivated these fertile fields with the same assiduity as the sterile regions of dead languages, and that your education had been irrigated with the divine springs of truth, instead of the turbid waters of paganish literature!

"In harmony with the discords of this age, science then was totally unscientific. Brummagem philosophy was smuggled into the mart of knowledge. Theories were gilded with plausibilities, and vended as sterling ware. Let us test the counterfeit confectionery which was cooked. A branch of the black art, called Spiritualism, had the assurance to don the mask of a science; and what was it when stripped of its guise but magic? and what was magic but the feats of science seen through the glass of ignorance? A species of medical sorcery, called Homœopathy, the pharmacopœia which consisted of talismans called globules, for a while found a fruitful soil in the gullibility of the semi-savages of Europe in the nineteenth century. The many apostles of scepticism also carried on a contraband trade in the royal domains of science, and blew up air-bubble

speculations, which glistened for a moment in the false light of sophistry, and then burst into nothingness. These truants from truth pretended to be cultivating philosophy when they were tilling the fungus beds of fallacy, and sowing the spawn of atheism. Most baneful and baleful were the weeds such men imported into the beds of science. Conscience, as God's herald, declared the Almighty's majesty and man's ruined condition, but those unphilosophic philosophers rebelled against this proclamation. Nay, they dethroned conscience, and bade the mind bear false witness, and commit treason against its omnipotent author.

"Thus, while the needle of conscience ever pointed to the pole-star of truth, false philosophy, blind prejudices, and aberrations in judgment, produced deviations in the doctrinal compass, causing sects to arise whose lines lay at all degrees from orthodoxy's north, to the due south of atheism. There was not a point of the compass which error did not box.

"The political economy of the times was built on the narrow and slippery ground of selfishness and petty jobbery, and not on the ample foundations of generosity and magnanimity.

It was the incarnation of wisdom on niggardly details, but the impersonation of folly upon points great and exalted. Principal had always a higher quotation than principle. To those ages, therefore, it appeared legerdemain that postage-stamps should pay well at a penny per dozen, when they paid not at prices ranging from a shilling to a crown; that telegrams should have paid well at one penny, when they did not at a shilling; and that railways should have proved good speculations at a uniform penny rate, when they did not under the penny per mile system. If the moneymongers of those times were startled when they saw such triumphs of cheapness, resulting in profit to all parties, what would their feelings have been had they foreseen our age, when we are dispensed every comfort and enjoyment without money and without price, through the blessed introduction of a community of goods?"

Social Inequalities. "On the one hand there was the social plethora of wealth, on the other the social anemia of poverty. The aristocracy had its hydrocephalic head, bloated at the expense of the other members of the national body. Its strength proceeded from its roots

being imbedded in a political soil loaded with the compost of vassalage and poverty. The process that made a Dives, made thousands Lazaruses. Politics were a coigne of vantage which the rich monopolized,—their Bourse, in which situations, titles, pensions, sinecures, had their quotations, and in which patronage and money formed the currency. They were the keyholders of the doors of promotion. Laws were made which, like fortresses, forefended the poor from crossing the frontiers of their poverty. The enchanter gold bought everything but truth, tainted everything but honesty, and corrupted everything but virtue. The attempts of many of the wealthy to quench the rising independence and the growing enlightenment of the lower classes, were the surly throes of despotism. In the icy heights of optimacy the atmosphere of human sympathy was in a condition of great rarefaction. Again and again the members of Britain's M.P. Club were called at hours when they should have been in bed, to leave their wines, their cigars, and their lounging saloons, to scuttle schemes for society's melioration. Again and again the invasion of

vinous-breathed and tobacco-perfumed senators turned awry the tide of progress, and delayed for years the blossoming of good causes. Such men were straws in the eddies of prejudice. They were Ixions tied to the chariot-wheels of bigotry. Living in an old world of intolerant dogmatism, they never dreamed that by navigating an Atlantic of progression and liberalism they would reach the shores of a new millennial world. There were obstructors to obstruct the most praiseworthy principles. Though a measure had been introduced to chain the devil himself, and though there had been all the means of consummating such a desirable object, there would have been those who, coerced by the inertia of conservatism, would have pleaded that the world had got on well enough with the devil roaming at large. The standard of reformation never advanced one step without being confronted by the barricades of blind bigotry. In the sphere of society this arctic of aristocracy was antagonized by an antarctic of democracy. In the social orchestra not one of the parts was played in harmony: all was discord and dissonance. Selfishness was the key-note, grumbling and upbraiding

the tune. Each raved upon the duties of governments, forgetful of his own. Man would not learn that by individuals taking care of themselves the world would take care of itself."

Further on its course my pen roams over the influence owned by the aristocracy of Britain one thousand years ago. "They held the rudder of the state's helm—the House of Lords. Here many men, who but for the laws of entail would have found their level among jockeys, flunkeys, and lackeys, reigned in tranquillity. Mighty were their advantages; for while it cost the Commons many hundreds of thousands of pounds to have the privilege of legislating for three or four sessions, it cost the peers nothing to legislate a lifetime. Indiscreetly the Upper House exerted this undue power. They were deer in vindicating the rights of the rich, and sloths in redressing the wrongs of the poor. They prostituted rhetoric and eloquence by entrenching them in the fastnesses of fallacy, to resist reforms. No species of toleration was so elastic as to suffer the world's programme of progression to be thus balked. The gales of public opinion, therefore, arose, and blew strong athwart the tide of these

abuses, and, after a stormy agitation, swept away a house which evinced so much lip wisdom and brain folly.

"By a remedial power in politics, the abnormal influence of the aristocracy of wealth gave way to the aristocracy of intellect. Bitter was the strife for mastery. Good measures were like Hydra's heads, which could only be cut off to give place to others. These triumphant allies, time and truth, found in every defeat only a nearer milestone to their destination, and eventually stormed the citadels of aristocratic corruption. The Alpine peaks of pride and circumstance were then thawed for ever before the genial influence of political virtue."

PHYSIOLOGICAL INCONGRUITIES. "Even in appearance men were repulsive. Many had skins as black as pitch, and all were more or less impressed with the die of ugliness. In disposition all were more or less steeped in barbarism. The most handsome were only defaced impressions of the seal of beauty. The wisest had their wisdom margined with folly.

"Sad was the tale of morbid anatomy, but sadder the story of mental pathology. Worse

than fevers and plagues were the distempers of avarice, suspicion, hate, and jealousy; and for that cancer of the mind, insanity, what evil out of hell's bounds could be more horrible? In the hearts of all men were charges of the devil's fulminates,—fury and wrath, which burst on being touched with the slightest spark of passion. Intellectual pride might be prostrated with shame, when it thinks of the thousands of mighty brains that were wrecked on the rocks of madness. Lunacy then, like the sword of Damocles, hung threateningly over the greatest minds. Scarcely less sad was the syren influence of sin, in hurling men into the hands of those harpies the acquired appetites.

"Vexations and tribulations harrowed mankind, until the river of science swept away those Augean amenities. Physiological hyssop then washed the pigment from the skin of the black, and abolished all physical abnormalities; while practical metaphysics, by dint of the heavenly curb of self-denial, blunted the force of the morbid appetites, and, by means of godliness, purified men's souls."

CHANGEABLENESS. "Man's only constancy

was his inconstancy; unchanging was his continuity of changes. His fashions and principles were fading daguerreotypes. Between his amity and enmity there was often but one step. Often, in a day's time, the world's commendation fermented into vinegary condemnation, while compliments deliquesced into complaints. The slightest passions made the milk of human kindness sour. In the cauldrons of history, whereof kingdoms and empires were the bubbles, every year welled up a new political surface."

IMPIETY. "In lieu of the gospel sunlight, the past substituted the artificial light of mythology. Infatuated times, what monsters were their divinities! Jupiter was a lustful adulterer; Juno was a shrew; Mars was a murderer and plunderer; Vulcan, a sot; Bacchus, a dissipated voluptuary; Venus, a prostitute; Mercury, a thief by habit and repute; and the whole formed an array of libertines, debauchees, and criminals, who, had they lived in mediæval ages, would have earned the gallows. Shame upon our forefathers, the pictures of their gods were caricatures of Satan!

"Deplorable was the moral condition of the

boasted Greeks and Romans. They prayed to gods that never existed, mouthed sentiments about events that never happened, and vaunted of heroes who only lived in fable. The Christian religion itself was flooded with slaveries and knaveries, and the ruffian wrongs of persecutions, inquisitions, and wars. Self and pelf were dominant. The mere inventory of the habits of the semi-heathenish Christian nations would form a dirge. Supplanting industry by vice, wasting time, and abusing or misusing talents, the social corruptions acted as a moral sirocco upon the souls of humanity. The biting north winds of scandal blew over society. Legions divided their time between evil-doing and doing nothing. Gambling and betting were fashionable, debauchery was gentlemanly, and seduction gallantry. Rank and riches, Medusæ-like, petrified their votaries into pillars of indolence. Even in this incipient stage they were victims, for men, like tops, the moment they ceased to spin in a life of useful activity, reeled in their morals and fell. Many staked their own and their families' means on the rolling of balls or the shuffling of cabalistic pieces of paper. Many overturned their for-

tunes with dice; many allowed their opulence to gallop away with horses; many played at the game of dozens of persons on horseback and a pack of hounds against a poor fox. Millions had mouths, whose chief imports were drinks, and whose staple exports were oaths. Thousands were ever under that Satanic mesmerism, drunkenness. Despising the palaces of their souls, they wallowed in the hovels of their senses. Complaining of the shortness of life, they took the means to make it shorter. Their conduct curtailed their existence in this world, and gained them hell in the next. Born to be men, they sank to the zero of brutality. But such was the craft of vice, that it shrewdly licensed many such evils, by substituting for heaven's edicts what were wrongly named the laws of honour. These were made to sanction libertinism, justify injustice, and legalize sin. By the standards and formulæ of honour, it was a heinous offence to evade even a superfluous or silly gallantry to a female of fashion, however unworthy, while it was allowable to seduce and ruin females in other circles, however virtuous. It was a breach of good breeding for a man of rank not to keep up his style,

but he had the liberty to be a gambler, gamester, and debauchee. He had no right to be familiar with his servants, but he had permission to subject them to tyranny, cruelty, and fraud. There was no call upon him to pay debts of honesty, but he was bound to discharge debts of honour. A poor tradesman's bill was worthy of the fire, but an I O U was as sacred as the Litany. He could rejoice in a claim to the title of respectable and honourable, though he was a rebel from his duty alike to God and man.

"Descending to the smaller vices, we find that the majority of the semi-barbarians of those days either made their mouths the bellows to puff in and out the noxious smoke of a certain weed, the effect of which was to divert the flow of saliva from the stomach to a spit-box; or made their nostrils the slop-dish of a filthy powder made from the same drug."

This ends my mental tour through the black pages in the volume of the world's annals, and brings me to the great crisis when a new leaf was turned over in the affairs of men. I described this great turning-point in history, when the tide of misery having reached its lowest ebb, the floodtide of progress, peace,

and intelligence swept in its argosies of benisons, and swept away all the evils of premillennial times. Arrived in this Elysium of history, I roam on with a happy step. In cheering tones I moralize that, while the polity of former times was guided by deadly showers of balls and bullets poured into the sensitive flesh of mortals, peace and love form the Magna Charta of the millennium.

Thus I refer to the borealis gleams of light which scintillated in dark ages :—

"Our age cannot but look back upon the night of society and admire those great minds which, like stars, twinkled in a dark firmament. The 'Utopia' of Moore, the 'Atlantis' of Plato, the 'Isles of Pleasure' of Fénelon, were gropings after the ideal of a millennium. That 'the Saturnian age will return,' was a hope cherished by the worthy, when our planet was but a nest of inhuman human butchers. A great teacher, imbued with prescient inspiration, said, the 'golden age which mythology has placed in the past is before us.' Noble was the sentiment of Diogenes, 'I am a citizen of the world.' Nobler still was that of Anaxogoras, who, in answer to the inquiry to what country he be-

longed, pointed to heaven. What a majestic prognostic Burns pictured when he foretold our day,—

'When men to men the world o'er,
Shall brothers be, for a' that.'

Thus were the glories of our times viewed through the telescopes of prophetic vision. Behold, now, the noble principles which percolated through the mare of ignoble ages. Many beautiful virtues lay latent amid the dross of derided institutions. In the coarse, even base, fabric of socialism, were interwoven many great principles, which were ignored simply because they were pearls cast before swinish ages. Quakerism, Wesleyanism, and Calvinism, were each unsmelted ore containing golden nuggets. The curriculum of cosmopolitanism had then only commenced, but the ideas of its devotees were maligned with that bitterness which is suffered by all noble causes in their spring-time. They were out of tune with the strains of those times because the world struck the false key-note, and they the true. As well have fed dogs on ambrosia as nourished the children of prejudice and ignorance with the bread of a matured philosophy!"

My review of the present is an applause of its political and social virtues and its public enterprise. "Religion, with its right-arm, science, is going on conquering and to conquer. The erst billowy surface of society is smooth. Man, tempest-tossed so long by error and ignorance, is settled in peace under his vine and fig-tree. Envy, avarice, and greed are now disarmed by a community of goods, and wretchedness, jealousies, and rancour by a community of virtue. Each inhabitant lives not for himself, but for his fellow-men. Public and private affairs are synonymous. Mankind sit at one family hearth, and harbour neither secrecies nor mysteries. There are no greedy monopolies. There is neither venality nor prodigality. Impious laws of trespass, once absolute, are obsolete. There are neither railings, palings, hedges, dykes, gates, safes, keys, nor locks. The world has its executive, but no bloated legislative. Every house in the world contains a plenitude of comforts. Each is furnished with acoustical tubes in connexion with the nearest church and the nearest hall, and telegraphic communication with every other house. Such is the perfection of physical eco-

nomy, that every stone, every clod, and every boulder, is appropriated, and every animal has its mission. Such is the intellectual economy, that every mental throe of every brain is utilized. The aurora of science paved the way for the sunrise of the millennium. View its Munchausen marvels. As Augustus found Rome bricks and left it marble, science has changed the world's hamlets of stone, mud, wood, and concrete into cities of diamond, gold, silver, topaz, and amethysts. The globe itself is a huge bobbin, around which are wound billions of miles of electric wire and pneumatic tubing. Its crust is honeycombed; its seas are begirt with a trellis-work of bridges, undermined by reticulations of tunnels, and laden with craft; its atmosphere teems with representatives of each of the kingdoms of nature. The earth sweats over its whole body from those pores in its skin, artesian wells. Man has even dug his way into its fiery entrails, and supplied himself with thier heat. The planet is replete with riches and glowing with beauties. Diligence animates all, economy appropriates all, and wisdom directs all.

In former ages, the stars of human intellect

were obscured by the clouds of ignorance. Each man's light now scintillates undimmed and undiminished in a cloudless firmament. Merit is unshackled. Such is the thrift of knowledge, that each worthy idea is prized and preserved; such is the frugality of philosophy, that the accumulated force of all the brains in the world is concentrated upon the advance and interests of mankind.

Upon the text of the future I say,—

"Let us view the finger-posts of history, for the present prophesies the future. Just now the womb of time is pregnant with enterprises. Events destined to eclipse the operations of the present loom in the distance. The zenith is silvern, but the horizon golden."

Speculating upon various points which circumstances predicted, I say,—

"Darkness still broods over the leeward side of the earth. Artificial lights have done much to extirpate this ingredient of chaos; but the great specific to dispense man everlasting day slumbers in the pharmacopœia of the future.

* * * * *

"Man has now taken the moon by the horns;

but this is the mere first-fruit of a harvest of glories. Our descendants shall pierce to realms into which our sight alone has travelled. The inter-planetary spaces shall be astronomical ferries, more fordable than the Atlantic in the nineteenth century. Our inhabitants shall fraternize with their brethren in every planet, and the various planetar races shall go up to our mother-world the sun, and there embrace each other as common children of the Most High. To suppose that brother-worlds shall always be unknown to each other, and that the stars shall roll on in their eternal gyrations, with their inhabitants immured in stellar prisons, is surely derogatory to the ideas of Christian progress.

* * * * *

"Behold what treasures of new knowledge shall be unsealed, when the learning of the planets shall be amassed into a universal encyclopædia. Our pigmy world is probably a mere dunce in science compared to other planets, and our race a neophyte to the Gamaliel races of other stars. But even they may only be in the rudiments of their greatness,—that greatness, forsooth, when this grand union

shall be consummated, and when great inter-planetar schemes shall animate the whole solar commonwealth. Intelligence shall then flee from star to star; small worlds of travellers shall voyage from system to system. The products of the sun shall be exported to the planets, and the products of the planets to the sun and to each other. An inter-mundane commerce shall pulsate throughout the whole solar system. But shall the arm of research then desist? No; it shall be strengthened with its conquests. The next supreme object shall be to bridge the gulf between the solar archipelago and the fixed stars. May it not be possible, from the mighty macrocosm of the sun, to make a cannon more immense than could the planets, by means of which man might be pitched from this cluster of isles in the ocean of the firmament into the sphery continent? Realities shall yet eclipse our wildest speculations. Everything which savours of progress is inevitable."

Further on I say,—

"The harvest of some sciences is past; that of others is being reaped; but that of metaphysics lies in the future. The anatomy of

matter has reached its omega. The anatomy of mind is in its alpha. Its deep, yet not inscrutable phenomena, are still unexplored and unexplained. There are heights in research immeasurably above the loftiest flights that genius has yet made. Millions of gems lie hidden in the undiscovered mines of truth. Even the sciences which lie on the frontier lines of mind and matter are still in their chrysalis state. Our age has still to say, with Hamlet,—

'There are more things in heaven and earth
Than are dreamed of in our philosophy;'

and with Newton, 'An ocean of undiscovered truth lies before us.'"

The correlation of the vital forces I suggested as a likely discovery for future physiologists.

"Could ears," I asked, "not be modified so as to see, eyes to hear, and skin to taste, see, and hear? Could the functions of the nerves not be so altered as to assume the properties of any of the five senses? A day shall certainly dawn when an enlightened neurology shall

perform on the human body an amazing series of marvels."

Paramount among the features of the future, I held there would be a loftier and nobler religion. The tendency of the times, I said, is to attach less weight to worldly objects, and thus allow man greater facilities for the development of his mind, and for his growth in grace. Science and art have now nearly finished their six days in time's hebdomad; so that soon, soon indeed, history shall enter upon its Sabbath.

CHAPTER IX.

NIGHT ABOLISHED.

I HAVE now reached that point in the dial of time when Argand Bude broached the measure to institute Cyclopean experiments to ascertain the best means to supply the sunless sides of the world and moon with artificial daylight. Convenient for our own world, such a scheme was almost indispensable for the moon, seeing its night extended over so many days. Under Bude's superintendence, mirrors and lenses, each of some acres' superficies, and telescopic aluminium stalks, several miles in length, were factured. The artificial mountain-peaks of the world suited as pedestals, and we therefore proceeded to man their tops with the optical ordnance. A Babylon of workers soon planted the first of these stalks into the Ben Nevis peak. The mirror and lenses were then properly adjusted on its top, and, after an immensity of difficulties,

raised to their full height and tested. This work necessitated the expenditure of a great amount of mechanical ingenuity. The length of the cables brought into requisition amounted to 1,000 miles; the blocks numbered 2,800; the screws 18,000; while the levers, engines, and other mechanical agencies were sufficient to appal arithmetic.

The airiness and tenuity of the flag-staff formed a strange contrast to the mighty amplitude of the specula or artificial suns on its top. It seemed like a stroke of magic to behold a filiform-rod, forty miles in length, tapering into a mere thread, and supporting such massive instruments. Millions viewed the erection of the mammoth pole. Not only did the head of the cloud-piercing mast look down over the whole of the Icelando-Britannic peninsula, its ken outstretched the channel. In France millions viewed it with distinctness. Meanwhile, the optical apparatus was duly placed in position, and everything prepared to prove the value of the sun-reflecting depot at the approach of sunset. While daylight lasted, we made a trial of the telescopic powers of the stalk. By applying the electrical tackle-engines at its

base, we dwarfed it to its minimum height in ten minutes, and on reversing the machines, we again, in an equal space of time, raised it to its full stature. These items of our programme were worthy of the millions of spectators. The facility and rapidity with which they were performed, completely cancelled our doubts. Then followed the experiments upon the light-conveying powers of the apparatus. Equally triumphant were the results. The speculum and the lens caught the smile of Phœbus when far sunk in the west, and dispersed its genial glow far and wide over the surrounding country which he had forsaken. The powers of darkness were held at bay for nearly two hours. The artificially lengthened day was hailed with unmingled satisfaction by the mighty multitudes who had assembled from all parts of the world. Even the very animal creation seemed to rejoice in the phenomena. Diurnal and nocturnal animals met each other and fraternized; the lark and nightingale soared side by side; the pheasant and owl skipped along together. All the denizens of the wood and field seemed amazed at the peculiarity of the reflected light, and

surcharged the air with the noise of their whistling, cooing, chirping, and croaking. Cocks particularly were thrown out of their reckoning, and, as if to express their dubiety, crowed in a most lugubrious tone all night.

After a thorough quest it was discovered that the range of the reflector was nearly 900 kilomètres. It thus succeeded in robbing Erebus of an immense portion of his murky domains. Long before dawn the experiments were renewed. By reversing the optical ordnance, the rise of the sun was anticipated, and its beams disseminated prematurely over the country. The Senate, proud of the golden results, ordered the organization of an army of two millions of glaziers, opticians, diamond facturers, and mechanics, for the prosecution of the scheme. Scarcely was this done, when a flood-tide of improvements rushed in, by means of which man was empowered, with one-fifth of the former labour, to make sun-mirrors of double the former strength. The system of compound specula was likewise instituted, by means of which reflections were carried from catoptric station to catoptric station, and from latitude to latitude. Optical

artillery was at the same time forged, to which the former was merely rudimentary.

The first of the improved solar lenses and reflectors was placed on the peak of Mont Blanc. The telescopic stalk, one mile in minimum height, could be drawn up to the maximum height of seventy miles. Its speculum, which was portable, and capable of being folded into a few cubic mètres, had, when fully expanded, an area of four square kilomètres. Raised above the atmosphere, it was not exposed to the inclemency of the weather nor the force of the wind. By means of its collateral periscopic apparatus, stationed on the neighbouring peaks, artificial daylight was dispensed over Switzerland, France, and Italy long after sunset, and over Germany, Austria, and part of Russia long before sunrise. The work thus auspiciously commenced was conducted throughout with all the persistent and consistent vigour of assiduity. Every diurnal revolution saw new inventions, furthering the cause, and usurping more and more the grim territories of night. Every land chimed in with the great movement, and supplied its quota of labourers,—every moun-

tain-peak was made the seat of an optical battery. On all were mustered armies of opticians and machinists, whose labours soon erected the mighty pedestals, and raised the various periscopic paraphernalia. After two years' noble exertions, we made the first universal trial of the system. To our joy, we found that night had been abridged to seventy minutes. There were hours of nocturnal sunshine before sunrise, and hours after sunset. The rays of the luminary were caught by the mirrors, and by the wondrous machinery were hurried, thousands of leagues away, to invade the regions of night, and to throw into wild retreat the powers of darkness. The march of Phœbus was anticipated in the morning by a prior occupation by his wondrous substitutes, and after his departure in the evening, his artificial vice-regents prolonged his sway for hours. Aurora and Twilight had all but joined hands. There was but a thin partition of dusk between nightfall and daybreak. Great efforts were made to exterminate this remnant of night. Hills of malleable glass, thallium, aluminium, cobalt, and palladium were brought forward, and we were reinforced with new zeal

for renewed labours. One more year's triumphant scientific campaign ensued, in which optics had never undertaken such Herculean tasks nor gained such consummate victories. The conclusion was a worthy signal to such praiseworthy exertions, for May 18, 2843, proved the last day on which darkness brooded over the face of the earth. The night following, Eventide and Dawn were married, and the world had entered upon its honeymoon of everlasting day. The genius of optics had usurped for ever the rule of night. The sun, by means of his magic glasses, now shone simultaneously on all the world.

Long ere this, Bunsen Drummond had been conducting similar operations in the moon, and so successfully and speedily, that a year previous to this its long fortnightly nights were erased from the volume of lunar phenomena. The world's night-patrol accordingly now shone incessantly in its full radiance—a circumstance which proved an advantage not so much to the dwellers in the world's air-shell as to trans-aërial mariners and the astronomical sentries. A corresponding measure was, of course, adopted in its satellite; but it entailed so

little trouble, that it excited comparatively little interest. Man's three spheres, therefore, were now but vast cushions bristling with speculum and lens-headed pins.

Mighty were the benefits of this system to the three incorporated worlds. The former expansive and expensive measures to supply them with light were rendered unnecessary, and the huge army of illuminators we formerly possessed were disbanded, that their energies might be shunted into useful channels. So simple was the present plan, that ten thousand men now regulated the machinery which supplied three worlds with everlasting light. How wonderful is this achievement! Time was, when millions were drafted from mankind as lamplighters, gasmen, and candle-makers,—millions whose success was most meagre in battling or baffling darkness.

No less satisfactory was the circumstance that the soil, now that it was perpetually under the surveillance and genial stimulus of the sun, yielded richer harvests and sweeter fruits.

Thus science triumphed over chaos. By one of its great master-strokes, it made the sun stand in Gibeon and the moon in Ajalon. Nay,

it ordained that every square inch of our world and its satellite should be a Gibeon, and that every day should see a counterpart of the mighty miracle of Joshua's time.

The next cog in the wheel of time saw Werner Hutton's measure so amplified, that the earth and the moons were ordered to be perforated in various directions, and perterranean railways formed. For some years there had been a population of engineers engaged in the work on earth equal to that of London in the nineteenth century, but we now so increased the number as to equal the population of Britain at that period. The machinery and plant were augmented in a like ratio. New inventions meanwhile flowed in, which were so numerous and so ingenious as to acclimatize the workers to the subterranean regions, and allow them to dip with greater speed and more ease into the earth's interior. Armed with fusion-proof habiliments, our exploring parties were salamanders, whose element was fire. We had the twofold object in view, the study of subterranean anatomy, and the formation of perterranean railway, telegraphic, and pneumatic-tube systems. The excessive heat in the

earth's interior undoubtedly made a laughing-stock of the scheme to the eye of scepticism; but as art and time outwit our very wits, and as the seeds of speculation ripen into the fruits of reality, it was resolved to cast our bread on the waters and trust to a kind future for a propitious result.

Our pit was sunk, as is well known, at the North Pole, because we were here some miles nearer the earth's centre than at the Equator. At its mouth we now constructed additional works to expedite the boring. We redoubled our energies, bold in the assurance that heaven would help us, who knew so well how to help ourselves. Dauntless we perforated our way through caverns, through subterranean seas, through rocks, through sand, and through seams saturated with choke-damp and poisonous fumes, down, down, down into the earth's fiery yolk. Now we laid our tunnel through bituminous seas, anon through molten metals. Our ingenuity the while empowered us to make our very enemy our ally; for, by the conversion of the caloric of these regions into stores of electricity, we were supplied with the motive force which worked our boring engines. As

we proceeded, we insulated our shaft with fire-proof bulwarks, devised hatchways for vertical railways, framed tracks for tubes, and laid down electric wires. These commissions entailed such an immensity of toil that our mining was heartlessly slow. Fortunately a tide of new inventions soon flowed in upon us, which enabled us to quicken our pace.

Our Plutonic army achieved its first victory in demonstrating there were huge cavities interspersed through the earth's rind to the depth of one hundred miles. Piercing through seas of liquid lava, we came upon isles of solidity containing mighty caverns, whose sides were formed of red-hot sulphites and sulphates, and whose interiors were filled with sulphureous vapour. More perfect representations of hells could not have been coined in the mints of the best imaginative minds. They only required to be tenanted with devils to make the picture complete. By this time our forces were undergoing the inconvenience of bearing on their shoulders the pressure of nearly fifteen atmospheres. Under this excessive burden, life would have been unbearable but for the physiological adaptations of Hunter Simpson. But

the day of palliatives was past, and necessity urged a sovereign remedy. An atmospheric lock was therefore constructed. On its inner side artificial air was purveyed, which was so sweet and pure that the health and comfort of the intra-mundane labourers were immeasurably heightened. The force of gravitation being already much decreased and that of the atmosphere removed, a tonne was to them no longer a tonne. For this reason they could perform more wonderful physical feats than those on the earth's surface. The engines, owing to a similar cause, were proportionally stronger.

Meanwhile machines were erected every few miles of the pit railway, to facilitate the working of its mighty traffic. Every hour saw thousands of tons of subterranean material raised to the earth's superficies, and allocated for a thousand different purposes. Armies of workers ascended and descended. Countless messages, telegraphic and pneumatic, were ever coming and going. The long line of operations between the base of supplies and the subterranean army was ever thrilling with activity. To nurture the intra-terranean com-

merce, ten different railway shafts were made for ordinary traffic, and eight sets of pneumatic tubes for passengers and parcels, while a score of 80,000 horse-power engines were constructed at various points in the vertical route to work these great thoroughfares.

Having surmounted many thousands of foreseen and unforeseen difficulties, we reached another island in the molten main. This proved a most important incident, for its size was immense, and its composition most interesting. After having made sundry investigations, it was resolved to establish great store-houses in this island in the caloric ocean, and to locate here barracks for the accommodation of a large garrison. To conduct these enterprises, another reinforcement of 1,000,000 men was introduced, to furnish whom with sufficient air an aërial factory was erected, while water was brought from the world above by means of a vertical brook. Of light there was abundance, as an electrical lighting apparatus was a portion of the plant of the vertical railways.

After many adventures, chequered alike with difficulties and successes, we reached the land's end of this isle, and our forces had again,

animated by the strains of music, to brave the igneous billows. By a diligent use of the refrigerators, we now pierced alternately through molten lakes of sulphur and sulphites, phosphorus and phosphites, and through islands of the same material, until we had attained the depth of 250 kilomètres, when we arrived at a cool headland within the fiery ocean. Its intricate composition formed a maze, for which science soon found a cue. Perforating its granitic crust, we discovered in its interior mountain loads of most superb gems. We found huge caverns, which were mighty cabinets of the wonders of crystallization. In ancient times a small chest could have contained all the precious stones in the world of fashion, but here we discovered Nature's own hidden caskets, containing as many brilliants as might have made mountain heaps. For brilliancy, we found many which shamed the diamond, for iridescence the opal, and for colour the ruby. Every hour delivered new wonders from the womb of time. Every day saw a lexicon of marvels published.

Having tunnelled down to the innermost shores of this isle, we halted, that we might lay here the foundations of an infernal colony,

and invent artificial means as a substitute for the comforts of life on the outside of a planet. This increased wideness of the scope of our emprise, entailed the addition of one hundred thousand recruits.

Having advanced another fifty kilomètres in our vertical route, and having safely crossed the Stygian ferry of the hellish ingredients of sulphur and phosphorus, we came upon the lands of felspar and a commixture of the compounds of chlorine, boron, magnesium, and aluminium. We then arrived at the brown seas of iodine and bromine, the depth of each of which was ten kilomètres. Having reached their further shores, we came upon the arsenical stratum.

Our researches hitherto only tended to whet the edge of our curiosity. Though we had dipped 2,000 kilomètres into the earth's viscera, we rejoiced to think that the average gravity of the strata we had passed was only two. That of the earth being five and a half, we saw that the earth's nucleus must be a mighty treasury of valuable metals, one of which at least must be much heavier than platinum.

By this time, whatever doubts remained as

to the laminated texture of the earth, and its increasing density according to depth, were now swept away before the flood of our researches. Philosophers were delighted, for it had long been a favourite conjecture of science that gravitation had arranged the earth, like an onion, in concentric coats, of which the deepest was the heaviest, and the upmost the lightest, and the others in the ratio of their depth. It now appeared that, generally speaking, the non-metallic elements formed the exterior *thecæ* of the world, and the metallic the interior, and that the earth's surface alone was exceptional, forming, as it did, the scum which had boiled up from all the other strata, and presenting accordingly, in epitome, specimens of all others, not, however, pure, but oxidized, commingled, and compounded.

Travelling now into the arsenical lamina, we knew we had arrived at the frontier lines between the metallic and the non-metallic zones. Man had naturally his eagerness stretched to its utmost tension to ascertain the anatomy of the earth's centre, after having acquired such an insight into the interesting formation of its crust. That time might not be lost, still further

scientific contingents, to the extent of 1,000,000 souls, were despatched from the deck of man's astronomical ship to the scenes of activity, 1,000 miles below its hatches.

As we anticipated, we found the arsenical lode was solid, but white-hot. Like a mighty fortification it stood as a frontier between the metals on its interior and the non-metals on its exterior. It took a month's most arduous toil to pierce this mighty fortress. When we threaded our way through the needle's eye of our purpose, and planted the standard of intellectual progress on the metallic region beyond, the cheers of the army of labourers present resounded our untold joy. A few moments more, and the outsiders of the planet were apprized of the result, and inhaled the joys of our victory.

True to our expectations, we found antimony was the Dan among the metals, as arsenic was the Beersheba among the non-metals. Having pierced beyond both, we arrived at a strange region, whose constitution was at first a puzzle. Chemistry, however, soon slaked our curiosity, by telling us we had come upon the bed of the hitherto unknown metal ammonium. Upwards to the face of the earth we ordered

one thousand tonnes, in order that its strange properties might be duly noted and its uses discovered. Thus stratum after stratum was triumphantly forded, each successive day smoothing, deepening, and expediting the current of our labours, and rendering the perterrene highway a more powerful item in the agencies of the world.

On June 26, 2846, the stream of our exertions was further widened by the initiation of Gassendi Torricelli's scheme for the perforation of the earth in other directions, and the construction of fire-proof shafts upon a new principle. The diving-bell system, and an improved process of refrigeration, were here introduced, by which the pioneers were enabled to sink more rapidly into the molten main, and the advanced body of the army to construct the insulated tubeways with greater comfort and despatch. A few weeks later, Paleocapa Sommeiller catered to the delight of mankind by inventing a system by which the former tedious, slow, gimlet operations for the perforation of the earth's crust were superseded by a trephining process. To lubricate the wheels of our enterprise an army was mobilized, at

this time, to sink a subterranean tramway at the South Pole to meet that at the North Pole, while other ten armies of equal strength were commissioned to form other vertical railways into the earth's entrails in other places. The attention of mankind, however, was engrossed by the work in the Arctic shaft—this greatest of all keyholes to the subterranean wonders. As year after year performed its melody of seasons, we passed story after story of the earth's framework, and touched upon isle after isle. The world above all the while succoured us with its sympathy, and stimulated us with encouragements. The excitement assumed a deeper tint when we arrived at the Argentine seam, and discovered in it a great isle. Enfilading into its interior, we excavated 9,000 tonnes of silver, and in the mines thus formed we founded an abysmal colony. Our line of supply was now spun out to such a length, and our colonies along its course so numerous, that every few months we were necessitated to swell the ranks of our mining army. The lands of lead and mercury were next empierced, and amid great curiosity we wormed our way into the zone of gold. To our amazement we dis-

covered that the temperature now diminished, and that, as we proceeded, it steadily decreased. We at once suspected that down to the region of silicon the heat strengthened, and that from silicon to silver it was constant, while from silver to the earth's kernel it declined. Facts afterwards corroborated these views. The next tidings which were flashed to the shell of the planet, was our discovery of an isle of the mineral which was so long the king of metals, and the metal of kings. Here we had the eyes of Midas, for all we beheld was pure gold. How lame and decrepit were the fancies and fictions of El Dorados compared to this reality! After tunnelling 3,000 kilomètres into the earth's intestines, we had come upon Nature's coffers. In this isle we at once excavated huge catacombs, and eventually formed a little city, whose streets and houses were sculptured out of gold.

Having crossed the auriferous lode, we came upon platina. Curiosity had now reached its culmination. The world's known metals were now exhausted. What could be beyond? Having, amid the profound interest of the whole human family, reached the inner fron-

tiers of this lamina, we crossed the boundary line, and found ourselves in a land to which chemistry was a stranger. We had dipped into a new and unknown element. Wondrous were its properties; it was more pliable than gold, more enduring and more heavy than platina, more malleable than iron, and more lustrous than silver, and possessed the strange virtue of being as red as the ruby. This phœnix among metals, this millennial gold, was at once made the field for innumerable investigations, and men were impregnated with delight to find its uses so many, and its properties so valuable.

At this point, the interest of mankind was so stretched, and the *savants* of the world were so gluttonous to feast on the earth's subterranean secrets, that Shakspeare Socrates adjourned the sittings of the political and scientific parliaments in the Lyceum, and cited them to meet in the earth's kernel. For our use an extra supply of artificial air was generated, and lodgings prepared, purveyed with all the et-ceteras of comfort. On May 1, 2851, we had our first convocation in this amazing region. Those present can never forget the scene as the parliaments, for the first occa-

sion in time's long records, met to discuss the affairs of mankind in a spot nearly 3,000 miles from an atmosphere, and in realms where there was no sky, no vegetation, no earth, no clouds, and no sea, and where, in place of being ensconced in our usual halls, we were encased in crypts cut out of a nobler metal than silver or gold. How suggestive it was, that the human family, scattered over the skin of the planet, should be governed by its assemblies at its core. During the month of our subterrene session, each member of the senates mastered intra-mundane science. Our proceedings the while were notable for their wisdom and statesmanship. No ten parliaments in the times of kingcraft ever discharged so much work in thirty years as we did during these thirty days.

Emboldened by our successes, our salamander armies were still further augmented. The march was then continued towards greater achievements. Triumphant advances were heralded weekly. So inestimable was the mineral wealth of the earth's core seen to be that its crust was viewed as an ugly clay-and-water purse, containing illimitable treasures.

Man, indeed, justly became ashamed of the undue reverence he had paid in times past to nuggets of gold and pellets of silver, when he beheld the world itself but one mighty jewel of the noble metals, encrusted by earthen ore.

These operations, meantime, found their reflection in the moon. The work there yielded equally noble results. Cynthia's anatomy, indeed, was soon unriddled, and proved to be a counterpart of that of the earth.

Streams of indirect blessings soon flowed from these explorations. Man being now provided with such stores of noble metals, was empowered to facture much more powerful scientific instruments. Accordingly, the armies that supplied the affiliated worlds with mirrors were re-commissioned to furnish them with more effective microscopes and telescopes. The ideal towards which our astronomers strove was so to increase the human ken by means of instruments that the focus of immensity might be espied, while the pinnacle of the ambition of histologists was to discern the nature of the ultimate particles of matter. Though we expected a finality in neither direction, we

found a reward in the satisfaction that we were making headway.

Millions of other implements were ordered to be similarly enlarged and improved, so as to bring them into a position commensurate with the advances of the age. The attempts made towards amelioration were sublime, and heaven granted them the success which they merited. How unspeakable is the force of an army of educated brains when urged by the momentum of enthusiastic hearts! Supply them with a problem, and they will attain its solution, though it should be a needle in the hay-stack of intricacy. Inventions, therefore, streamed in daily, by which greater strength in apparatus was conjoined with proportionally less bulk. Strength was added to efficiency, and efficiency to strength; inconveniences were swept away, and new agencies introduced to ensure unerring results. But need I waste words in applauding that which the world has already so well applauded?

Simultaneously the Lyceum buildings underwent a great reformation. The senate-house proved the greatest of the triumphs which architecture achieved in this great

work. Its design, embodying the quintessence of masonic genius, the very spirit of the poetry of form, embraces every ocular beauty, every acoustical convenience, and every imaginable desideratum. Possessing three hundred galleries, all radiating towards the area for the senators, and affording accommodation for an audience of five millions, it still renders every occupant a witness of all to be seen within its walls, as well as a hearer of all that is said. By the compound mirrors every gallery, every corner, and every recess, is exposed to every eye. By the speakers using loquifiers, or the hearers auroscopes, every whisper can be heard in every corner. Such are the facilities for entering and departing, that the hall can be filled or emptied in three minutes. The masonry consists of transparent malleable building material, ribbed with millennial gold. The flooring is framed of aluminium, and the pillars of steeled cobalt. The roof—nay, the firmament of the building—is a marvel of artistic genius. Its central dome, rising three miles in height, has its gores made of malleable rubies, sapphires, and diamonds, chafed in millennial gold, while in the inter-

stices are the grand classical transparencies. In this cupola, large enough to have formed a cover for Mount Etna, aëronauts can fly and view the scene beneath. The structure in its great entirety sees the union of strength, endurance, and elegance. Its form embraces such a prodigality of the loveliest of curves, harmoniously commingled as renders it but one mighty piece of sculpture. Its framework, including only the most brilliant gems and the choicest of the noble metals, makes it but one stupendous piece of jewellery. Its translucency and iridescence cause it to be but a great temple crowded with chromatic and catoptric effects.

On June 10th, 2854, it was consecrated to its sacred uses amid solemn rejoicings. Senators, however, had only occupied it a month when they were temporarily summoned to the moon in order to supervise the closing operations for its perforation. One July evening, accordingly, we, along with the scientific congress, tubed to Australia, where, having entered a string of bombs in connexion with its mundo-lunar ferry, we were forthwith despatched into moonland. We alighted at the city of Tycho amid the

rejoicings of its inhabitants; remaining with them till the following morning, when we were blown to the lunar North Pole city, as being the site of the portico of one of the per-lunar shafts. Arrived here, we were welcomed by millions who had mustered from all parts of the province. We were thereupon supplied with tube carriages, by which we were in a few seconds tossed a thousand miles inwards to the moon's core. Here we found an army of one hundred thousand workers digging out great catacombs to suit as an encampment for an intra-lunar garrison. There we beheld telegraphic tramways and pneumatic stations, teeming with activity. Proceeding next to the pioneers, who were advancing towards the other shaft from the South Pole, we found they were just approaching the exact centre of the moon. Where they were at work, consequently, the force of gravitation was almost annihilated. The circumstance made us cut very ridiculous figures on joining this army. Our movements were as extravagant as if we had been automata. The least exertion made us leap to such bounds that many of us dashed our heads against the roof of the cavern. The hundreds of sober and

staid senators and centenarians were, to appearance, a host of maniacal gymnasts. But our brethren soon equipped us with the adequate agencies to enable us to walk and work in these regions in a spirit of moderation.

CHAPTER X.

PERFORATION OF THE WORLD AND MOON.

HAVING duly inspected the sub-lunar industries, we made a tour upwards to the mouth of the shaft, visiting in our course all the places of interest on the way. The isles amid the moon's molten yolk, the cantonments of sub-cynthian miners, the pneumatic and traffic railways, the various stations, and the great machinery at each, were all subjected to our scrutiny, and all administered fare to our admiration. Arrived on the face of the moon, we journeyed to the Antipodes, descended the South Pole vertical highway, and, with equal assiduity, inspected all its noteworthy wonders. We then returned to the other pit, where we resolved to remain until the way had been hewn out by which we could be enabled to pierce through the moon's heart.

Our presence acted as a cheering stimulus to the noble array of workers. Day and night

the diamond-boring engines were at work. Relay relieved relay, until our proximity to the moon's centre rendered us so unstable that it was only by the agency of compensating appliances we could maintain our equilibrium. Our interest in the work boiled into excitement. Another incident added coals to the furnace of our ardour. The workers in the opposite shaft were striving to beat us in reaching the moon's nucleus. Now we were nearer the goal than they, anon they were nearer than we. The moon above and the world below watched with enthusiasm the race of emulation, and fondly each one favoured his favourite. S. Watt, as the leader of the northern army, and P. Lesseps, as the captain of the southern, left nothing undone to rouse the zeal of their respective followers. Coquettish victory, which flirted now with the one side and anon with the other, at length showed a decided leaning towards our army. Amid the fervour of the confederated worlds we gained the apertion race to the goal of the moon's kernel. The scene of our arrival was as whimsical as triumphant. There was a total suspension of the standing orders of gravitation. We floated

about like gossamers. Our bodies were without weight. Our ponderous machines hovered about upon nothingness like thistledown. Every substance enjoyed an amnesty from the rigours of the laws of statics. Joy, applause, and hilarity were universal. It was difficult to tell whether we inhaled the more pleasure from our conquest, or from the oddities and comicalities of the occasion.

We halted not to delight in these phenomena, but pressed towards our brethren in the antartic shaft, whom we had beaten in the mining race. At present we could only be a few hundreds of mètres apart, and I therefore kept in the van-guard of our army to be ready at any moment to see the consummation of the per-lunar high-way. Eventually we heard the sounds of the music of the opposing army. Half-an-hour afterwards I noticed the breach which had opened for ever the great tunnel. Giving the signal to stop operations, I rushed towards the spot, pushed my hand through the forlorn hope, and instantly felt it grasped. It was the hand of S. Watt. Eloquent silence reigned for a few seconds, for our thoughts were then bearing our overflowing gratitude to

heaven. The engines were now allowed to widen the breach to the statutory breadth. The two armies then marched into each other's arms, fraternized, and together engaged in great thanksgiving services for the successes of their mission.

Two days afterwards the per-lunar corridor was opened by the Congresses and four millions of mankind passing through its railway, a trip which was accomplished in the space of one hour. Thereafter the Congresses and their members journeyed and re-journeyed by its pneumatic tubes. Having arrived at the close of these shuttle movements at the antarctic city, we were received by mighty multitudes. With them we had a council, in which we discussed all the affairs of moonland—its economy, its trade, its cities, its transit system, and the development of its future interests. We joyed to find it was replenished, as well as its mother world, with all the comforts of the age, and that it pulsated as strongly with the full vigour of political and commercial life. The greatest grievance it possessed was its shallow atmosphere, narrowing as it did to an inconvenient extent the highway of aërial voyagers. To

amend matters, we at once ordered the erection of huge works for the generation of sufficient air, so as to double the moon's ether. To hurry this measure we decreed that the world should export parcels of condensed air to the moon as it did formerly to the moonule.

We now bade the satellite's beautiful scenes and its happy inhabitants farewell. Amid a flow of gratulations and blessings we entered a string of bombs, and were straightway pitched to the nether world.

Immediately on our departure the great atmospheric generating factories were built, and set in operation. Mountain loads of nitrates and oxides were decomposed, and their oxygen and nitrogen respectively liberated in their due proportion. The scheme was so admirably conducted that, in process of time, the volume of artificial air induced in moonland and imported from the world dilated the lunar gaseous ocean to twice its former depth—an extension of infinite advantage to its mariners. This measure was redolent with blessings. It not only promoted the traffic of moonland, but endowed lunarians with more

brilliant sunshine, and greater refractive and reflective bounties.

The atmosphere is a bank in which Phœbus invests thermal riches, in order that his daughter Ceres may be enabled to draw upon him at will. By the amplification of this aërial treasury-box we knew that the sun would greatly enlarge his caloric and lucent deposits, and that thereby the moon would not only be swathed in thicker air-vestments, but have its surface greatly warmed, its climate rendered more salubrious, and its crops more luxuriant.

All this time the travails of the armies in the earth's per-polar lines had held a distinguished place in the ledger of public affairs. The heroes of the expeditions, by their plodding laboriousness, rendered their very drudgeries to be debited as victories, and their hammering toils to be audited as glories. The adventures of the arctic army in boring through the earth's penetralia, and their subsequent dipping upwards towards the antarctic pit, were such as kept the world in a continual ferment of excitement. As foretold by Pascal Descartes, the centre of gravity was found not in the globe's mathematical centre, but considerably

to the south, possibly on account of the central heavens having by the force of gravitation puffed up the northern cheek of the world. But an unforetold and unexpected phenomenon revealed itself at this same time. When drilling through the millennial-gold kernel of the earth, we found in its interior a huge circular vault five kilomètres in diameter. The explanation why the earth should have a hollow nucleus and not the moon, was soon seen to be owing to the fact that while in the centre of both the laws of gravitation were in abeyance, only the earth revolved with sufficient force to give its inner strata a decided centrifugal action. From this cause the hollow chamber was found to be longer equatorially than polarly. This great axial vault of the earth was, of course, immediately replenished with all the requirements of civilization, and in due time became a mighty abysmal colony. Though at present it only possessed one communication with the outer world, it was in future destined to be the junction of ten thousand per-terranean median lines and the focus of the world's traffic circulatory system.

A few months later, the first per-ter-

ranean railway was nearly completed, and the Congresses accordingly trod the same path of routine in connexion with its opening as in the case of the per-lunar tunnel. At this time the north shaft had been extended to 4,000 miles, and the south to about 2,000 miles. To the head-quarters of the army engaged in the deeper pit the senators and *savants* adjourned, with the vow that before beholding the light of day they would see the world completely transpierced, and that in going down they would not return as they went, but seek the earth's surface by coming out at the other side. As it would not suit for the meeting of the opposing armies to take place in the molten main of the earth, the south army halted after reaching an isle in the copper stratum. It was here, accordingly, the work was consummated, and here the primary rejoicings took place over our victory. Thus was the enterprise crowned which had consumed so little time, but so much toil.

The next entry into the diary of history was the completion of all the per-axial tunnel-works and the opening of their railways and tubeways. Unbounded joy was generated

on this occasion. The world was an Elysium impregnated with pæans.

The two armies formerly engaged in the per-polar passage were now distributed over the other mesial shafts in course of being sunk. The work received a great impetus not only from this cause, but from the unceasing inpouring of a concurrent tide of inventions and discoveries. Formerly crawling snail-paced along the viscous boggy paths of doubts and fears, we were now bowling dauntlessly along the smooth line of expedition. Learning that volcanoes, as the flues and vents of the cosmical furnaces, were portals leading deep into the earth's inner chambers, we henceforth appropriated many of them in making the various per-terranean hatchways.

Most interesting meanwhile were the revelations of the work as to the phenomena of sub-terrene architecture. We learned to our astonishment that the whole world was enveloped in a stratum of water as well as air, with the simple difference that in part of the earth's surface the water was super-terranean and in part sub-terranean. All the continents for this reason rested on oceans.

In the earth, moon, and moonule these labours thus triumphantly proceeded and still proceed. They had now honeycombed our astronomical colonies, while in our native world they had assigned us Asiato-American, Africo-American, Australo-European, and Chino-European tunnels. A trip through the world was now one of the most favourite and most common tours of the day. The underground railways were relieved of their overstressed traffic. The quarries and mines on the face of the earth were rendered unnecessary. The earth's skin no longer needed to be lacerated and torn for ore, nor were furnaces required to extract metal from dross. Kind mother earth had illimitable resources in her bosom, and the per-terranean railways could disgorge them on the face of the earth wherever and whenever they were wanted. The distances between the antipodes were shortened, and their mutual traffic stimulated. Those on either hemisphere could be jaculated by tube to the other, almost instantly, or by the use of the ordinary trains one million of inhabitants could be carried from one side of the earth to the other in four hours. The nature of these journeys was viewed as

most wonderful, even in this wonderful age. It seemed a master-stroke of art that one could see noon at the one terminus and midnight at the other, within the compass of a few seconds.

The next item on the programme of history was the introduction of interplanetar signalling. The spring-time of this movement commenced some years previously, and the seeds then sown were destined to be ripened in the sunshine of intellectual research earlier than the most sanguine minds could have predicted. Our telescopes had already taught us planetar geography, and had told us there were nations beyond the earth, and other races than that of Adam. Human aspirations having arisen yearly to loftier heights, it was resolved by Parliament to institute a system of signalling to our brother planets. The organization of the scientific army for this purpose and the facture of the necessary instruments were in themselves tasks for which any age but our own would have been unequal. Electricity was represented by a large army under Galvani Volta; chemistry by another under Lavoisier Davy; optics by another under Brougham Brewster; pyrotechny by another under

Bunsen Drummond, and astronomy by another under Tycho Rosse. So mighty armaments of appurtenances and apparatus were essential that the federal worlds were drafted for their fullest quota of support.

In the first signal all the figures of mathematics were made on the earth, by means of huge ranges of electric magnesium and other artificial lights. Parallel fiery lines were drawn across the Atlantic bridges. A square was made in Asia, a parallelogram in America, and a triangle with its angles respectively at Gibraltar, Hindostan, and the Cape of Good Hope.

The distribution of the Promethean forces and the illumination of the devices were performed with magical rapidity. After the completion of these arrangements the senates tubed to Teneriffe, where, ten bombs having been engaged for them, they were forthwith thrown to the moon, a journey performed that we might view the effect of the illuminations. According to plan, we arrived at the city Tycho, which we made our head-quarters. True to our expectations, we were met by millions of lunarians, who, like ourselves, were

scorched with ardour to view the expected spectacle. By our preconcerted plans, the apparatus in the nether world for the supply of reflected light was not put in operation this night, in order that the effect might be the more brilliant.

Meantime darkness was creeping over the eastern hemisphere and unveiling a spectacle which stood on the frontier lines between the grand and awful. Unfortunately mighty clouds defaced and blotted the pictures. The following night, however, meteorologists had ably surmounted this inconvenience and rendered the fiery lines so unclouded as left no scope for a fault, and caused all criticisms to be eulogies. Our anxiety now lay in the hope that the inhabitants of our brother planets would in due season reply to the signal. Our prospects of this culmination were the stronger on account of the likelihood of the attention of other planetar races being directed to our spheres, by reason of the recent changes by which continual daylight had been introduced into the three confederated worlds.

During four weeks these brilliant celestial semaphores remained. Astronomers the while

diligently scanned the faces of the other planets for the symptoms of recognition. At length, on January 20th, 2860, we noticed certain dots of flame on the face of Jupiter. The announcement threw the world into a fever of joyful excitement. Never was the news of the victory of any General received with a fraction of the enthusiasm. The cause upon which we had entered was that of man, and in its progress every member of mankind felt a personal interest. Anxiously the features of our brother planet were watched for the tokens of a brotherly salutation. Our longings were soon gratified. Thousands of telescopes in every latitude were pointed at every suitable hour towards this star. Meanwhile, its dots of flame were proving themselves to be the nuclei of fiery bands. These increased until, to his unspeakable joy, man beheld imprinted on the face of Jove a fac-simile of those figures previously displayed on the earth. But greatly were ours outstripped. Those of Jupiter were forty times larger, and almost forty times brighter. This was joy-fuel to our heart, as the Jovian illuminations were so likely to be noticed by the astronomers of other planets,

especially those in whose firmament our world holds no place. Meantime, though Jupiter was the cynosure towards which millions of telescopes were directed, the other solar members were watched by myriads of eyes more eager than those of an Argus. For a time, however, sentinel eye gleaned no further intelligence for Captain Brain.

We now changed the signals. On this occasion we made impressions of the compass, the compasses, the square, the plummet, and the mechanical powers. With remarkable ease and speed these were painted on the vestures of mother earth. In one day diagram number one was deleted, and in one week diagram number two completed. At this stage the news spread that our brother planets, Mars, Venus, Saturn, and Mercury, were answering the former signs. Movements were likewise observed in the remaining planets, which proved they, too, were preparing to fraternize. That the telegraphy might be conducted methodically, the second series of our astronomical insignia was kept blazing for two months, by which time they had been answered by every member of the solar system. Solemnly jubi-

lant, religiously triumphant, were the consequent rejoicings. Rivers of gratitude flowed to heaven, which had their source in the heart-springs of humanity. The oblectation was the deeper, seeing that the planets had superadded to what we had designed many mathematical figures. This afforded undoubted proof that the sciences in which man rejoiced were cultivated in the foreign worlds. The next picture of flame on the face of our globe was a grand conception by Cimabue Giotto. The masterpiece of this master's masterpieces, it was a wonder of artistic excellence, and showed the mighty strides which were being taken in astronomical painting. The representation, while the mirror of beauty in point of contour and elegance, was a marvel in its personifications. Its leading figure was the noblest of God's earthly works—a man. Standing in an attitude of devotion upon his globe, while rays from heaven were descending upon his head, he was shown to be lost through sin, but saved through Christ. His past and present condition, his past and present history, his fall and his restoration, his acquisition of moonland, and his present anxiety to court the friendship of

his brother races, were all portrayed. To detail, however, the full meaning focussed in the picture, would in place of a few lines consume many pages. In beauty and in design, the fiery daguerreotype was one of the greatest achievements of modern art. In every line lurked a grace,—in every touch there was a significance. Never did the skilful conjunction of a few strokes, dots, and curves, embody such volumes of import.

This lambent engraving was enriched from day to day by the introduction of differently coloured flames, until one would have imagined there was scarcely a line capable of improvement.

To view the gorgeous geographical fresco, the Senate and millions of the world's inhabitants made excursions to the moon. The traffic thither at this time was unprecedented. Cynthia became so gorged by the invasion, that temporary cities were erected, provisional observatories founded, and extemporaneous railways constructed. Such was the stress of the public interest in the signalling, that the flow of business in the senior and junior worlds was, for a time, checked. Such was the immensity of the

crowds which had assembled in Hecate, and such their enthusiasm, that one was reminded of the world's late jubilee. But the cause which had mustered us was well worthy of the mighty assemblage. Such a picture of flame encased in the firmament was a sight for the nature of whose grandeur language failed to supply an adjective.

The first reply to this great signal was from Jupiter, and it took the form of a most remarkable astronomical cartoon. Its artistic excellencies proved how lofty was the status of the Jovian fine arts, while the rapidity with which it was etched told how complete a mastery the Jovians possessed of the practical arts. Its principal feature was a representation of one of the sons of Jupiter posited on the planet, and around him four moons. The symmetry of the figure coincided with our millennial models, which proved the Jovian race had been cast in the same mould as that of Adam.

The interest of mankind fevered into intense excitement, which underwent an exacerbation when Saturn displayed a glowing delineation of a Saturnite seated upon his planet adorned with its rings and satellites. Never did the tele-

scope prove so valuable a minister of jubilation as during this halcyon period. Never did the eyes of a Galileo, a Herschel, or a Newton, beam with greater delight, even in the moments of their greatest discoveries, than those of men as they beheld the stars for the first time, not only proclaiming God's handiwork, but the handiwork of those who were God's handiwork—not only preaching heavenly wisdom, but displaying the emblems of the aspirations of the planetar inhabitants. Our joy took bolder wing as the other solar colonies severally became embellished by similar etchings, each of which possessed its own specific beauties. The stars erewhile, only talking the language of nature, were now the signal-boards of intelligent beings. The solar system, in truth, was but a great picture-gallery, and its planets for the time astronomical semaphores.

At this stage the army of sidereal pointsmen was powerfully recruited, and the sublime system of sketching daguerreotypes by pencils of flame on the canvas of the world's crust improved.

Though our road was long, thorny, and perplexing, and though ere we reached our goal

the planets had danced many gyrations in the great heavenly ballet of the solar system on the stage of infinity, our zeal never flagged, and our energies ever bore us on successwards.

To trace, however, the gradations of the inter-stellar intercourse, or to describe the growth of the emblematical language, would exhaust much patience and many volumes.

Sublime was the inter-stellar correspondence! Had it not as its consummation the fraternization of the solar worlds? When the coalescence of the scattered and seemingly heterogeneous fractions of the ruined race of Adam was a work so divine that Heaven sealed it with success, what term is worthy to be applied to the coming federation of the whole solar family? Even though the sun be at present no party to our astronomical telegraphy, it shall unquestionably, in the due time of Providence, be enabled to see through those spots in its brightness the communion which has arisen among its children, and thereafter stretch out its hand of fellowship confirmatory of its co-operation in the great movement. Compared to it we must remember that our planets are pigmies. Its glory and greatness make it the metropolis of

our system, and endue it with the physical government of our worldules, which are but its colonies.

The world, with this prognostic in view, nobly sweated day and night in urging on the measure. We believed that the confederation of the solar and planetar races was an item in the unpublished programme of prophecy, and we therefore prayed that if we might not see the fulfilment of those times, such a joy might at least be vouchsafed to our sons.

At this point, Gruithausen Zimmerman invented the means by which fire was rendered unnecessary as the pigment for sketching our astronomical hieroglyphics. By an adaptation of the world's mirrors and ranges of light, man, with infinitely less trouble, and with one-tenth of his former forces, now conducted the signalling. Man basked in the sunshine of joy over this exploit, as he had long been hampered by the excessive difficulties of procuring sufficient fire for his purpose.

END OF VOL. II.

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