ACROSS THE ZODIAC:

The Story of a Wrecked Record

DECIPHERED, TRANSLATED AND EDITED

BY

PERCY GREG

AUTHOR OF "THE DEVIL'S ADVOCATE" ETC.

"Thoughts he sends to each planet,
Uranus, Venus, and Mars;
Soars to the Centre to span it,
Numbers the infinite Stars."
Courthope's Paradise of Birds.

VOL. I.

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ACROSS THE ZODIAC.

CHAPTER I.

SHIPWRECK.

ONCE only, in the occasional travelling of thirty years, did I lose any important article of luggage; and that loss occurred, not under the haphazard, devil-take-the-hindmost confusion of English, or the elaborate misrule of Continental journeys, but through the absolute perfection and democratic despotism of the American system. I had to give up a visit to the scenery of Cooper's best Indian novels—no slight sacrifice—and hasten at once to New York to repair the loss. This incident brought me, on an evening near the middle of September 1874, on board a river steamboat starting from Albany, the capital of the State, for the Empire City. The banks of the lower Hudson are as well worth seeing as those of the Rhine itself, but even America has not yet devised means of

lighting them up at night, and consequently I had no amusement but such as I could find in the conversation of my fellow-travellers. With one of these, whose abstinence from personal questions led me to take him for an Englishman, I spoke of my visit to Niagara—the one wonder of the world that thoroughly "answers its warranty"—and to Montreal. As I spoke of the strong and general Canadian feeling of loyalty to the English Crown and connection, a Yankee bystander observed—"Wal, stranger, I reckon we could take 'em if we wanted tu!"

"Yes," I replied, "if you think them worth the price. But, if you do, you rate them even more highly than they rate themselves; and English colonists are not much behind the citizens of the model Republic in honest self-esteem."

"Wal," he said, "how much du yew calc'late we shal hev to pay?"

"Not more, perhaps, than you can afford; only California, and every Atlantic seaport from Portland to Galveston."

"Reckon yew may be about right, stranger," he said, falling back with tolerable good-humour; and, to do them justice, the bystanders seemed to think the retort no worse than the provocation deserved.

"I am sorry," said my friend, "you should have fallen in with so unpleasant a specimen of the character your countrymen ascribe with too much reason to Americans. I have been long in Eng-

land, and never met with such discourtesy from any one who recognised me as an American."

After this our conversation became less reserved; and I found that I was conversing with one of the most renowned officers of irregular cavalry in the late Confederate service—a service which, in the efficiency, brilliancy, and daring of that especial arm, has never been surpassed since Maharbal's African Light Horse were recognised by friends and foes as the finest corps in the small splendid army of Hannibal.

Colonel A—(the reader will learn why I give neither his name nor real rank) spoke with some bitterness of the inquisitiveness which rendered it impossible, he said, to trust an American with a secret, and very difficult to keep one without lying. We were presently joined by Major B—, who had been employed during the war in the conduct of many critical communications, and had shown great ingenuity in devising and unravelling ciphers. On this subject a somewhat protracted discussion arose. I inclined to the doctrine of Poe, that no cipher can be devised which cannot be detected by an experienced hand; my friends indicated simple methods of defeating the processes on which decipherers rely.

"Poe's theory," said the Major, "depends upon the frequent recurrence of certain letters, syllables, and brief words in any given language; for instance, of *e*'s and *t*'s, *tion* and *ed, a, and,* and *the* in English. Now it is perfectly easy to introduce abbreviations for each of the common short words

and terminations, and equally easy to baffle the decipherer's reliance thereon by inserting meaningless symbols to separate the words; by employing two signs for a common letter, or so arranging your cipher that no one shall without extreme difficulty know which marks stand for single and which for several combined letters, where one letter ends and another begins."

After some debate, Colonel A— wrote down and handed me two lines in a cipher whose character at once struck me as very remarkable.

"I grant," said I, "that these hieroglyphics might well puzzle a more practised decipherer than myself. Still, I can point out even here a clue which might help detection. There occur, even in these two lines, three or four symbols which, from their size and complication, are evidently abbreviations. Again, the distinct forms are very few, and have obviously been made to serve for different letters by some slight alterations devised upon a fixed rule. In a word, the cipher has been constructed upon a general principle; and though it may take a long time to find out what that principle is, it affords a clue which, carefully followed out, will probably lead to detection."

"You have perceived," said Colonel A—, "a fact which it took me very long to discover. I have not deciphered all the more difficult passages of the manuscript from which I took this example; but I have ascertained the meaning of all its simple characters, and your inference is certainly correct."

Here he stopped abruptly, as if he thought he had said too much, and the subject dropped.

We reached New York early in the morning and separated, having arranged to visit that afternoon a celebrated "spiritual" medium who was then giving *séances* in the Empire City, and of whom my friend had heard and repeated to me several more or less marvellous stories. Our visit, however, was unsatisfactory; and as we came away Colonel A—said—

"Well, I suppose this experience confirms you in your disbelief?"

"No," said I. "My first visits have generally been failures, and I have more than once been told that my own temperament is most unfavourable to the success of a *séance*. Nevertheless, I have in some cases witnessed marvels perfectly inexplicable by known natural laws; and I have heard and read of others attested by evidence I certainly cannot consider inferior to my own."

"Why," he said, "I thought from your conversation last night you were a complete disbeliever."

"I believe," answered I, "in very little of what I have seen. But that little is quite sufficient to dispose of the theory of pure imposture. On the other hand, there is nothing spiritual and nothing very human in the pranks played by or in the presence of the mediums. They remind one more of the feats of traditionary goblins; mischievous, noisy, untrustworthy; insensible to ridicule, apparently delighting to make fools of men, and per-

fectly indifferent to having the tables turned upon themselves."

"But do you believe in goblins?"

"No," I replied; "no more than in table-turning ghosts, and less than in apparitions. I am not bound to find either sceptics or spiritualists in plausible explanations. But when they insist on an alternative to their respective theories, I suggest Puck as at least equally credible with Satan, Shakespare, or the parrot-cry of imposture. It is the very extravagance of illogical temper to call on me to furnish an explanation *because* I say 'we know far too little of the thing itself to guess at its causes;' but of the current guesses, imposture seems inconsistent with the evidence, and 'spiritual agency' with the character of the phenomena."

"That," replied Colonel A—, "sounds common sense, and sounds even more commonplace. And yet, no one seems really to draw a strong, clear line between non-belief and disbelief. And you are the first and only man I ever met who hesitates to affirm the impossibility of that which seems to him wildly improbable, contrary at once to received opinion and to his own experience, and contrary, moreover, to all known natural laws, and all inferences hitherto drawn from them. Your men of science dogmatise like divines, not only on things they have not seen, but on things they refuse to see; and your divines are half of them afraid of Satan, and the other half of science."

"The men of science have," I replied, "like every other class, their especial bias, their peculiar

professional temptation. The anti-religious bigotry of Positivists is quite as bitter and irrational as the theological bigotry of religious fanatics. At present the two powers countervail and balance each other. But, as three hundred years ago I should certainly have been burnt for a heretic, so fifty or a hundred years hence, could I live so long, I should be in equal apprehension of being burnt by some successor of Mr. Congreve, Mr. Harrison, or Professor Huxley, for presuming to believe in Providential government."

"The intolerance of incredulity," returned Colonel A—, "is a sore subject with me. I once witnessed a phenomenon which was to me quite as extraordinary as any of the 'spiritual' performances. I have at this moment in my possession apparently irresistible evidence of the reality of what then took place; and I am sure that there exists at a point on the earth's surface, which unluckily I cannot define, strong corroborative proof of my story. Nevertheless, the first persons who heard it utterly ridiculed it, and were disposed to treat me either as a madman, or at best as an audacious trespasser on that privilege of lying which belonged to them as mariners. I told it afterwards to three gentlemen of station, character, and intelligence, every one of whom had known me as soldier, and I hope as gentleman, for years; and in each case the result was a duel, which has silenced those who imputed to me an unworthy and purposeless falsehood, but has left a heavy burden on my conscience, and has prevented me ever since from re-

peating what I know to be true and believe to be of greater interest, and in some sense of greater importance, than any scientific discovery of the last century. Since the last occasion on which I told it seven years have elapsed, and I never have met any one but yourself to whom I have thought it possible to disclose it."

"I have," I answered, "an intense interest in all occult phenomena; believing in regard to alleged magic, as the scientists say of practical science, that every one branch of such knowledge throws light on others; and if there be nothing in your story which it is personally painful to relate, you need not be silenced by any apprehension of discourteous criticism on my part."

"I assure you," he said, "I have no such wish now to tell the story as I had at first. It is now associated with the most painful incident of my life, and I have lost altogether that natural desire for sympathy and human interest in a matter deeply interesting to myself, which, like every one else, I felt at first, and which is, I suppose, the motive that prompts us all to relate often and early any occurrence that has keenly affected us, in whatever manner. But I think that I have no right to suppress so remarkable a fact, if by telling it I can place it effectually on record for the benefit of men sensible enough to believe that it may have occurred, especially since somewhere in the world there must yet exist proof that it did occur. If you will come to my rooms in—Street to-morrow, Number 999, I will not promise, but

I think that I shall have made up my mind to tell you what I have to tell, and to place in your hands that portion of the evidence which is still at my command—evidence that has a significance of its own, to which my experience is merely episodical."

I spent that evening with the family of a friend, one of several former officers of the Confederacy, whose friendship is the one permanent and valuable result of my American tour. I mentioned the Colonel's name, and my friend, the head of the family, having served with him through the Virginian campaigns, expressed the highest confidence in his character, the highest opinion of his honour and veracity; but spoke with bitter regret and pain of the duels in which he had been engaged, especially of one which had been fatal; remarking that the motive in each instance remained unknown even to the seconds. "I am sure," he said, "that they were not, could not have been, fought for the one cause that would justify them and explain the secrecy of the quarrel—some question involving female honour or reputation. I can hardly conceive that any one of his adversaries could have called in question in any way the personal loyalty of Colonel A—; and, as you remarked of General M—, it is too absurd for a man who had faced over and over again the fire of a whole brigade, who had led charges against fourfold numbers, to prove his personal courage with sword or pistol, or to think that any one would have doubted either his spirit or his nerve had he refused to fight, what-

ever the provocation. Moreover, in each case he was the challenger."

"Then these duels have injured him in Southern opinion, and have probably tended to isolate him from society?"

"No," he replied. "Deeply as they were regretted and disapproved, his services during the war were so brilliant, and his personal character stands so high, that nothing could have induced his fellow-soldiers to put any social stigma upon him. To me he must know that he would be most welcome. Yet, though we have lived in the same city for five years, I have only encountered him three or four times in the street, and then he has passed with the fewest possible words, and has neither given me his address nor accepted my urgent invitations to visit us here. I think that there is something in the story of those duels that will never be known, certainly something that has never been guessed yet. And I think that either the circumstances in which they must have had their origin, or the duels themselves, have so weighed upon his spirits, perhaps upon his conscience, that he has chosen to avoid his former friends, most of them also the friends of his antagonists. Though the war ruined him as utterly as any of the thousands of Southern gentlemen whom it has reduced from wealth to absolute poverty, he has refused every employment which would bring him before the public eye."

"Is there," I asked, "any point of honour on which you could suppose him to be so exception-

ally sensitive that he would think it necessary to take the life of a man who touched him on that point, though afterwards his regret, if not repentance, might be keen enough to crush his spirit or break his heart?"

The General paused for a moment, and his son then interposed—

"I have heard it said that Colonel A— was in general the least quarrelsome of Confederate officers; but that on more than one occasion, where his statement upon some point of fact had been challenged by a comrade, who did not intend to question his veracity but simply the accuracy of his observation, their brother officers had much trouble in preventing a serious difficulty."

The next day I called as agreed upon my new-found friend, and with some reluctance he commenced his story.

"During the last campaign, in February 1865, I was sent by General Lee with despatches for Kirby Smith, then commanding beyond the Mississippi. I was unable to return before the surrender, and, for reasons into which I need not enter, I believed myself to be marked out by the Federal Government for vengeance. If I had remained within their reach, I might have shared the fate of Wirz and other victims of calumnies which, once put in circulation during the war, their official authors dared not retract at its close. Now I and others, who, if captured in 1865, might probably have been hanged, are neither molested nor even suspected of any other offence than that

of fighting, as our opponents fought, for the State to which our allegiance was due. However, I thought it necessary to escape before the final surrender of our forces beyond the Mississippi. I made my way to Mexico, and, like one or two Southern officers of greater distinction than myself, entered the service of the Emperor Maximilian, not as mere soldiers of fortune, but because, knowing better than any but her Southern neighbours knew it the miserable anarchy of Mexico under the Republic, we regarded conquest as the one chance of regeneration for that country, and the Emperor Maximilian as a hero who had devoted himself to a task heroic at once in its danger and difficulty —the restoration of a people with whom his house had a certain historical connection to a place among the nations of the civilised world. After his fall, I should certainly have been shot had I been caught by the Juarists in pursuit of me. I gained the Pacific coast, and got on board an English vessel, whose captain—loading for San Francisco—generously weighed anchor and sailed with but half a cargo to give me a chance of safety. He transferred me a few days afterwards to a Dutch vessel bound for Brisbane, for at that time I thought of settling in Queensland. The crew was weakhanded, and consisted chiefly of Lascars, Malays, and two or three European desperadoes of all languages and of no country. Her master was barely competent to the ordinary duties of his command; and it was no surprise to me when the first storm that we encountered drove us

completely out of our course, nor was I much astonished that the captain was for some days, partly from fright and partly from drink, incapable of using his sextant to ascertain the position of the ship. One night we were awakened by a tremendous shock; and, to spare you the details of a shipwreck, which have nothing to do with my story, we found ourselves when day broke fast on a coral reef, about a mile from an island of no great size, and out of sight of all other land. The sextant having been broken to pieces, I had no means of ascertaining the position of this island, nor do I know anything of it except that it lay, in the month of August, within the region of the south-east trade winds. We pulled on shore, but, after exploring the island, it was found to yield nothing attractive to seamen except cocoa-nuts, with which our crew had soon supplied themselves as largely as they wished, and fish, which were abundant and easily caught, and of which they were soon tired. The captain, therefore, when he had recovered his sobriety and his courage, had no great difficulty in inducing them to return to the ship, and endeavour either to get her off or construct from her timbers a raft which, following the course of the winds, might, it was thought, bring them into the track of vessels. This would take some time, and I meanwhile was allowed to remain (my own wish) on *terra firma*; the noise, dirt, and foul smells of the vessel being, especially in that climate, intolerable.

"About ten o'clock in the morning of the

25th August 1867, I was lying towards the southern end of the island, on a little hillock tolerably clear of trees, and facing a sort of glade or avenue, covered only with brush and young trees, which allowed me to see the sky within perhaps twenty degrees of the horizon. Suddenly, looking up, I saw what appeared at first like a brilliant star considerably higher than the sun. It increased in size with amazing rapidity, till, in a very few seconds after its first appearance, it had a very perceptible disc. For an instant it obscured the sun. In another moment a tremendous shock temporarily deprived me of my senses, and I think that more than an hour had elapsed before I recovered them. Sitting up, somewhat confused, and looking around me, I became aware that some strange accident had occurred. In every direction I saw such traces of havoc as I had witnessed more than once when a Confederate force holding an impenetrable woodland had been shelled at random for some hours with the largest guns that the enemy could bring into the field. Trees were torn and broken, branches scattered in all directions, fragments of stone, earth, and coral rock flung all around. Particularly I remember that a piece of metal of considerable size had cut off the tops of two or three trees, and fixed itself at last on what was now the summit of one about a third of whose length had been broken off and lay on the ground. I soon perceived that this miraculous bombardment had proceeded from a point to the north-eastward, the direction in which at that season and hour the sun

was visible. Proceeding thitherward, the evidences of destruction became every minute more marked, I might say more universal. Trees had been thrown down, torn up by the roots, hurled against one another; rocks broken and flung to great distances, some even thrown up in the air, and so reversed in falling that, while again half buried in the soil, they exposed what had been their undermost surface. In a word, before I had gone two miles I saw that the island had sustained a shock which might have been that of an earthquake, which certainly equalled that of the most violent Central American earthquakes in severity, but which had none of the special peculiarities of that kind of natural convulsion. Presently I came upon fragments of a shining pale yellow metal, generally small, but in one or two cases of remarkable size and shape, apparently torn from some sheet of great thickness. In one case I found embedded between two such jagged fragments a piece of remarkably hard impenetrable cement. At last I came to a point from which through the destruction of the trees the sea was visible in the direction in which the ship had lain; but the ship, as in a few moments I satisfied myself, had utterly disappeared. Reaching the beach, I found that the shock had driven the sea far up upon the land; fishes lying fifty yards inland, and everything drenched in salt water. At last, guided by the signs of ever-increasing devastation, I reached the point whence the mischief had proceeded. I can give no idea in words of what I there found. The

earth had been torn open, rooted up as if by a gigantic explosion. In some places sharp-pointed fragments of the coral rock, which at a depth of several feet formed the bed of the island, were discernible far below the actual surface. At others, the surface itself was raised several feet by *débris* of every kind. What I may call the crater—though it was no actual hole, but rather a cavity torn and then filled up by falling fragments—was two or three hundred feet in circumference; and in this space I found considerable masses of the same metallic substance, attached generally to pieces of the cement. After examining and puzzling myself over this strange scene for some time, my next care was to seek traces of the ship and of her crew; and before long I saw just outside the coral reef what had been fixed into the deep water outside, where she must have sunk immediately, and had broken her spars. No traces of her crew were to be seen. They had probably been stunned at the same time that they were thrown into deep water; and before I came in sight of the point where she had perished, whatever animal bodies were to be found must have been devoured by the sharks, which abounded in that neighbourhood. Dismay, perplexity, and horror prevented my doing anything to solve my doubts or relieve my astonishment before the sun went down; and during the night my sleep was broken by snatches of horrible dreams and intervals of waking, during which I marvelled over what I had seen, scarcely crediting my memory or my senses. In the morning, I went

back to the crater, and with some tools that had been left on shore contrived to dig somewhat deeply among the *débris* with which it was filled. I found very little that could enlighten me except pieces of glass, of various metals, of wood, some of which seemed apparently to have been portions of furniture; and one damaged but still entire relic, which I preserved and brought away with me."

Here the Colonel removed a newspaper which had covered a portion of his table, and showed me a metallic case, beaten out of all shape, but apparently of what had been a silvery colour, very little rusted, though much soiled. This he opened, and I saw at once that it was of enormous thickness and solidity, to which and to favouring circumstances it owed its preservation in the general ruin he described. That it had undergone some severe and violent shock there could be no question. Beside the box lay a less damaged though still seriously injured object, in which I recognised the resemblance of a book of considerable thickness, and bound in metal like that of the case. This I afterwards ascertained beyond doubt to be a metalloid alloy whereof the principal ingredient was aluminium, or some substance so closely resembling it as not to be distinguishable from it by simple chemical tests. A friend to whom I submitted a small portion broken off from the rest expressed no doubt that it was a kind of aluminium bronze, but inclined to believe that it contained no inconsiderable proportion of a metal with which chemists are as yet imperfectly acquaint-

ed; perhaps, he said, silicon; certainly something which had given to the alloy a hardness and tenacity unknown to any familiar metallurgical compound.

"This," said my friend, opening the volume, "is a manuscript which was contained in this case when I took it from among the *débris* of the crater. I should have told you that I found there what I believed to be fragments of human flesh and bone, but so crushed and mangled that I could form no positive conclusion. My next care was to escape from the island, which I felt sure lay far from the ordinary course of merchant vessels. A boat which had brought me ashore—the smaller of the two belonging to the ship—had fortunately been left on the end of the island furthest from that on which the vessel had been driven, and had, owing to its remoteness, though damaged, not been fatally injured by the shock. I repaired this, made and fixed a mast, and with no little difficulty contrived to manufacture a sort of sail from strips of bark woven together. Knowing that, even if I could sustain life on the island, life under such circumstances would not be worth having, I was perfectly willing to embark upon a voyage in which I was well aware the chances of death were at least as five to one. I caught and contrived to smoke a quantity of fish sufficient to last me for a fortnight, and filled a small cask with brackish but still drinkable water. In this vessel, thus stored, I embarked about a fortnight after the day of the mysterious shock. On the second evening of my

voyage I was caught by a gale which compelled me to lower the sail, and before which I was driven for three days and nights, in what direction I can hardly guess. On the fourth morning the wind had fallen, and by noon it was a perfect calm. I need not describe what has been described by so many shipwrecked sailors,—the sufferings of a solitary voyager in an open boat under a tropical sun. The storm had supplied me with water more than enough; so that I was spared that arch-torture of thirst which seems, in the memory of such sufferers, to absorb all others. Towards evening a slight breeze sprang up, and by morning I came in sight of a vessel, which I contrived to board. Her crew, however, and even her captain, utterly discredited such part of my strange story as I told them. On that point, however, I will say no more than this: I will place this manuscript in your hands. I will give you the key to such of its ciphers as I have been able to make out. The language, I believe, for I am no scholar, is Latin of a mediæval type; but there are words which, if I rightly decipher them, are not Latin, and hardly seem to belong to any known language; most of them, I fancy, quasi-scientific terms, invented to describe various technical devices unknown to the world when the manuscript was written. I only make it a condition that you shall not publish the story during my life; that if you show the manuscript or mention the tale in confidence to any one, you will strictly keep my secret; and that if after my death, of which

you shall be advised, you do publish it, you will afford no clue by which the donor could be confidently identified."

"I promise," said I. "But I should like to ask you one question. What do you conceive to have been the cause of the extraordinary shock you felt and of the havoc you witnessed? What, in short, the nature of the occurrence and the origin of the manuscript you entrust to my care?"

"Why need you ask me?" he returned. "You are as capable as myself of drawing a deduction from what I have told you, and I have told you everything, I believe, that could assist you. The manuscript will tell the rest."

"But," said I, "an actual eye-witness often receives from a number of little facts which he cannot remember, which are perhaps too minute to have been actually and individually noted by him, an impression which is more likely to be correct than any that could be formed by a stranger on the fullest cross-questioning, on the closest examination of what remains in the witness's memory. I should like to hear, before opening the manuscript, what you believe to have been its origin.

"I can only say," he answered, "that what must be inferred from the manuscript is what I had inferred before I opened it. That same explanation was the only one that ever occurred to me, even in the first night. It then seemed to me utterly incredible, but it is still the only conceivable explanation that my mind can suggest."

"Did you," asked I, "connect the shock and the relics, which I presume you know were not on the island before the shock, with the meteor and the strange obscuration af the sun?"

"I certainly did," he said. "Having done so, there could be but one conclusion as to the quarter from which the shock was received."

The examination and transcription of the manuscript, with all the help afforded me by my friend's previous efforts, was the work of several years. There is, as the reader will see, more than one *hiatus valde deflendus,* as the scholiasts have it, and there are passages in which, whether from the illegibility of the manuscript or the employment of technical terms unknown to me, I cannot be certain of the correctness of my translation. Such, however, as it is, I give it to the world, having fulfilled, I believe, every one of the conditions imposed upon me by my late and deeply regretted friend.

The character of the manuscript is very curious, and its translation was exceedingly difficult. The material on which it is written resembles nothing used for such purposes on Earth. It is more like a very fine linen or silken web, but it is far closer in texture, and has never been woven in any kind of loom at all like those employed in any manufacture known to history or archæology. The letters, or more properly symbols, are minute, but executed with extraordinary dearness. I should fancy that something more like a pencil than a pen, but with a finer point than that of the finest pencil,

was employed in the writing. Contractions and combinations are not merely frequent, but almost universal. There is scarcely an instance in which five consecutive letters are separately written, and there is no single line in which half a dozen contractions, often including from four to ten letters, do not occur. The pages are of the size of an ordinary duodecimo, but contain some fifty lines per page, and perhaps one hundred and fifty letters in each line. What were probably the first half dozen pages have been utterly destroyed, and the next half dozen are so mashed, tattered, and defaced, that only a few sentences here and there are legible. I have contrived, however, to combine these into what I believe to be a substantially correct representation of the author's meaning. The Latin is of a monastic—sometimes almost canine—quality, with many words which are not Latin at all. For the rest, though here and there pages are illegible, and though some symbols, especially those representing numbers or chemical compounds, are absolutely undecipherable, it has been possible to effect what I hope will be found a clear and coherent translation. I have condensed the narrative but have not altered or suppressed a line for fear of offending those who must be unreasonable, indeed, if they lay the offence to my charge.

One word more. It is possible, if not likely, that some of those friends of the narrator, for whom the account was evidently written, may still be living, and that these pages may meet their

eyes. If so, they may be able to solve the few problems that have entirely baffled me, and to explain, if they so choose, the secrets to which, intentionally or through the destruction of its introductory portion, the manuscript affords no clue.

I must add that these volumes contain only the first section of the MS. record. The rest, relating the incidents of a second voyage and describing another world, remains in my hands; and, should this part of the work excite general attention, the conclusion will, by myself or by my executors, be given to the public. Otherwise, on my death, it will be placed in the library of some national or scientific institution.

CHAPTER II.

OUTWARD BOUND.

. . . FOR obvious reasons, those who possessed the secret of the Apergy* had never dreamed of applying it in the manner I proposed. It had seemed to them little more than a curious secret of nature, perhaps hardly so much, since the existence of a repulsive force in the atomic sphere had been long suspected and of late certainly ascertained, and its preponderance is held to be the characteristic of the gaseous as distinguished from the liquid or solid state of matter. Till lately, no means of generating or collecting this force in large quantity had been found. The progress of electrical science had solved this difficulty; and when the secret was communicated to me, it possessed a value which had never before belonged to it.

Ever since, in childhood, I learnt that the planets were worlds, a visit to one or more of the nearest of them had been my favourite day-dream. Treasuring every hint afforded by science or fancy that bore upon the subject, I felt confident that

* Qy. *απο*, from, *εργος*, work—as en-ergy?

such a voyage would be one day achieved. Helped by one or two really ingenious romances on this theme, I had dreamed out my dream, realised every difficulty, ascertained every factor in the problem. I had satisfied myself that only one thing needful was as yet wholly beyond the reach and even the proximate hopes of science. Human invention could furnish as yet no motive power that could fulfil the main requirement of the problem—uniform or constantly increasing motion *in vacuo*—motion through a region affording no resisting medium. This must be a *repulsive* energy capable of acting through an utter void. Man, animals, birds, fishes move by repulsion applied at every moment. In air or water, paddles, oars, sails, fins, wings act by repulsion exerted on the fluid element in which they work. But in space there is no such resisting element on which repulsion can operate. I needed a repulsion which would act like gravitation through an indefinite distance and in a void—act upon a remote fulcrum, such as might be the Earth in a voyage to the Moon, or the Sun in a more distant journey. As soon, then, as the character of the apergic force was made known to me, its application to this purpose seized on my mind. Experiment had proved it possible, by the method described at the commencement of this record, to generate and collect it in amounts practically unlimited. The other hindrances to a voyage through space were trivial in comparison with that thus overcome; there were difficulties to be surmounted, not

absent or deficient powers in nature to be discovered. The chief of these, of course, concerned the conveyance of air sufficient for the needs of the traveller during the period of his journey. The construction of an air-tight vessel was easy enough; but however large the body of air conveyed, even though its oxygen should not be exhausted, the carbonic acid given out by breathing would very soon so contaminate the whole that life would be impossible. To eliminate this element it would only be necessary to carry a certain quantity of lime-water, easily calculated, and by means of a fan or similar instrument to drive the whole of the air periodically through the vessel containing it. The lime in solution combining with the noxious gas would show by the turbid whiteness of the water the absorption of the carbonic acid and formation of carbonate of lime. But if the carbonic acid gas were merely to be removed, it is obvious that the oxygen of the air, which forms a part of that gas, would be constantly diminished and ultimately exhausted; and the effect of highly oxygenated air upon the circulation is notoriously too great to allow of any considerable increase at the outset in the proportion of this element. I might carry a fresh supply of oxygen, available at need, in some solid combination like chlorate of potash; but the electricity employed for the generation of the apergy might be also applied to the decomposition of carbonic acid and the restoration of its oxygen to the atmosphere.

But the vessel had to be steered as well as propelled; and in order to accomplish this it would be necessary to command the direction of the apergy at pleasure. My means of doing this depended on two of the best-established peculiarities of this strange force: its rectilinear direction and its conductibility. We found that it acts through air or in a vacuum in a single straight line, without deflection, and seemingly without diminution. Most solids, and especially metals, according to their electric condition, are more or less impervious to it—antapergic. Its power of penetration diminishes under a very obscure law, but so rapidly that no conceivable strength of current would affect an object protected by an intervening sheet half an inch in thickness. On the other hand, it prefers to all other lines the axis of a conductive bar, such as may be formed of [undecipherable] in an antapergic sheath. However such bar may be curved, bent, or divided, the current will fill and follow it, and pursue indefinitely, without divergence, diffusion, or loss, the direction in which it emerges. Therefore, by collecting the current from the generator in a vessel cased with antapergic material, and leaving no other aperture, its entire volume might be sent into a conductor. By cutting across this conductor, and causing the further part to rotate upon the nearer, I could divert the current through any required angle. Thus I could turn the repulsion upon the resistant body (sun or planet), and so propel the vessel in any direction I pleased.

I had determined that my first attempt should

be a visit to Mars. The Moon is a far less interesting body, since, on the hemisphere turned towards the Earth, the absence of an atmosphere and of water ensures the absence of any such life as is known to us—probably of any life that could be discerned by our senses—and would prevent landing; while nearly all the soundest astronomers agree in believing, on apparently sufficient grounds, that even the opposite hemisphere [of which small portions are from time to time rendered visible by the libration, though greatly foreshortened and consequently somewhat imperfectly seen] is equally devoid of the primary necessaries of animal and vegetable life. That Mars has seas, clouds, and an atmosphere was generally admitted, and I held it to be beyond question. Of Venus, owing to her extraordinary brilliancy, to the fact that when nearest to the Earth a very small portion of her lighted surface is visible to us, and above all to her dense cloud-envelope, very little was known; and though I cherished the intention to visit her even more earnestly than my resolve to reach the probably less attractive planet Mars, I determined to begin with that voyage of which the conditions and the probable result were most obvious and certain. I preferred, moreover, in the first instance, to employ the apergy as a propelling rather than as a resisting force. Now, after passing beyond the immediate sphere of the Earth's attraction, it is plain that in going towards Mars I should be departing from the Sun, relying upon the apergy to overcome his attraction; whereas in seeking to

attain Venus I should be approaching the Sun, relying for my main motive power upon that tremendous attraction, and employing the apergy only to moderate the rate of movement and control its direction. The latter appeared to me the more delicate, difficult, and perhaps dangerous task of the two; and I resolved to defer it until after I had acquired some practical experience and dexterity in the control of my machinery.

It was expedient, of course, to make my vessel as light as possible, and, at the same time, as large as considerations of weight would admit. But it was of paramount importance to have walls of great thickness, in order to prevent the penetration of the outer cold of space, or rather the outward passage into that intense cold of the heat generated within the vessel itself, as well as to resist the tremendous outward pressure of the air inside. Partly for these reasons, and partly because its electric character makes it especially capable of being rendered at will pervious or impervious to the apergic current, I resolved to make the outer and inner walls of an alloy of . . . , while the space between should filled up with a mass of concrete or cement, in its nature less penetrable to heat than any other substance which Nature has furnished or the wit of man constructed from her materials. The materials of this cement and their proportions were as follows.* . . . . .

* The chemical notation of the MS. is unfortunately different from any known to any chemist of my acquaintance, and utterly undecipherable.

Briefly, having determined to take advantage of the approaching opposition of Mars in MDCCCXX . . . ,† I had my vessel constructed with walls three feet thick, of which the outer six and the inner three inches were formed of the metalloid. In shape my Astronaut somewhat resembled the form of an antique Dutch East-Indiaman, being widest and longest in a plane equidistant from floor and ceiling, the sides and ends sloping outwards from the floor and again inwards towards the roof. The deck and keel, however, were absolutely flat, and each one hundred feet in length and fifty in breadth, the height of the vessel being about twenty feet. In the centre of the floor and in that of the roof respectively I placed a large lens of crystal, intended to act as a window in the first instance, the lower to admit the rays of the Sun, while through the upper I should discern the star towards which I was steering. The floor, being much heavier than the rest of the vessel, would naturally be turned downwards; that is, during the greater part of the voyage towards the Sun. I placed a similar lens in the centre of each of the four sides, with two plane windows of the same material, one in the upper, the other in the lower half of the wall, to enable me to discern any object in whatever direction. The crystal in question consisted of . . . , which, as those who manufactured it for me are aware, admits of being cast with a perfection and equality of structure throughout unattainable with ordinary glass, and wrought to a certainty and accuracy of

†Last figures illegible: the year is probably 1830.

curvature which the most patient and laborious polishing can hardly give to the lenses even of moderate-sized telescopes, whether made of glass or metal, and is singularly impervious to heat. I had so calculated the curvature that several eye-pieces of different magnifying powers with I carried with me might be adapted equally to any of the window lenses, and throw a perfect image, magnified by 100, 1000, or 5000, upon mirrors properly placed.

I carpeted the floor with several alternate layers of cork and cloth. At one end I placed my couch, table, bookshelves, and other necessary furniture, with all the stores needed for my voyage, and with a further weight sufficient to preserve equilibrium. At the other I made a garden with soil three feet deep and five feet in width, divided into two parts so as to permit access to the windows. I filled each garden closely with shrubs and flowering plants of the greatest possible variety, partly to absorb animal waste, partly in the hope of naturalising them elsewhere. Covering both with wire netting extending from the roof to the floor, I filled the cages thus formed with a variety of birds. In the centre of the vessel was the machinery, occupying altogether a space of about thirty feet by twenty. The larger portion of this area was, of course, taken up by the generator, above which was the receptacle of the apergy. From this descended right through the floor a conducting bar in an antapergic sheath, so divided that without separating it from the upper portion the lower might revolve in any direction through an angle

of twenty minutes (20′). This, of course, was intended to direct the stream of the repulsive force against the Sun. The angle might have been extended to thirty minutes, but that I deemed it inexpedient to rely upon a force, directed against the outer portions of the Sun's disc, believing that these are occupied by matter of density so small that it might afford no sufficient base, so to speak, for the repulsive action. It was obviously necessary also to repel or counteract the attraction of any body which might come near me during the voyage. Again, in getting free from the Earth's influence, I must be able to steer in any direction and at any angle to the surface. For this purpose I placed five smaller bars, passing through the roof and four sides, connected, like the main conductor, with the receptacle or apergion, but so that they could revolve through a much larger angle, and could at any moment be detached and insulated.

My steering apparatus consisted of a table in which were three large circles. The midmost and left hand of these were occupied by accurately polished plane mirrors. The central circle, or metacompass, was divided by three hundred and sixty fine lines, radiating from the centre to the circumference, marking as many different directions, each deviating by one degree of arc from the next. This mirror was to receive through the lens in the roof the image of the star towards which I was steering. While this remained stationary in the centre all was well. When it moved along any one of the lines, the vessel was obviously deviating

from her course in the opposite direction; and, to recover the right course, the repellent force must be caused to drive her in the direction in which the image had moved. To accomplish this, a helm was attached to the lower division of the main conductor, by which the latter could be made to move at will in any direction within the limit of its rotation. Controlling this helm was, in the open or steering circle on the right hand, a small knob to be moved exactly parallel to the deviation of the star in the mirror of the metacompass. The left-hand circle, or discometer, was divided by nineteen hundred and twenty concentric circles, equidistant from each other. The outermost, about twice as far from the centre as from the external edge of the mirror, was exactly equal to the Sun's circumference when presenting the largest disc he ever shows to an observer on Earth. Each inner circle corresponded to a diameter reduced by one second. By means of a vernier or eye-piece, the diameter of the Sun could be read off the discometer, and from his diameter my distance could be accurately calculated. On the further side of the machinery was a chamber for the decomposition of the carbonic acid, through which the air was driven by a fan. This fan itself was worked by a horizontal wheel with two projecting squares of antapergic metal, against each of which, as it reached a certain point, a very small stream of repulsive force was directed from the apergion, keeping the wheel in constant and rapid motion. I had, of course, supplied myself with an ample store of compressed vegetables,

preserved meats, milk, tea, coffee, &c., and a supply of water sufficient to last for double the period which the voyage was expected to occupy; also a well-furnished tool-chest (with wires, tubes, &c.). One of the lower windows was made just large enough to admit my person, and after entering I had had to close it and fix it in its place firmly with cement, which, when I wished to quit the vessel, would have again to be removed.

Of course some months were occupied in the manufacture of the different portions of the vessel and her machinery, and some time more in their combination; so that when, at the end of July, I was ready to start, the opposition was rapidly approaching. In the course of some fifty days the Earth, moving in her orbit at a rate of about eleven hundred miles* per minute, would overtake Mars; that is to say, would pass between him and the Sun. In starting from the Earth I should share this motion; I too should go eleven hundred miles a minute in the same direction; but as I should travel along an orbit constantly widening, the Earth would leave me behind. The apergy had to make up for this, as well as to carry me some forty millions of miles in a direction at right angles to the former—right outward towards the orbit of Mars. Again, I should share the motion of that particular spot of the Earth's surface from which I rose around her axis, a motion varying with the latitude, greatest at the equator, nothing at the

*These distances are given in Roman measures and round numbers not easy of exact rendering.

pole. This would whirl me round and round the Earth at the rate of a thousand miles an hour; of this I must, of course, get rid as soon as possible. And when I should be rid of it, I meant to start at first right upward; that is, straight away from the Sun and in the plane of the ecliptic, which is not very different from that in which Mars also moves. Therefore, I should begin my effective ascent from a point of the Earth as far as possible from the Sun; that is, on the midnight meridian.

For the same reason which led me to start so long before the date of the opposition, I resolved, having regard to the action of the Earth's rotation on her axis, to start some hours before midnight. Taking leave, then, of the two friends who had thus far assisted me, I entered the Astronaut on the 1st August, about 4.39 P.M.

After sealing up the entrance-window, and ascertaining carefully that everything was in order—a task which occupied me about an hour—I set the generator to work; and when I had ascertained that the apergion was full, and that the force was supplied at the required rate, I directed the whole at first into the main conductor. After doing this I turned towards the lower window on the west—or, as it was then, the right-hand side—and was in time to catch sight of the trees on the hills, some half mile off and about two hundred feet above the level of my starting-point. I should have said that I had considerably compressed my atmosphere and increased the proportion of oxygen by about ten per cent., and also carried with me

the means of reproducing the whole amount of the latter in case of need. Among my instruments was a pressure-gauge, so minutely divided that, with a movable vernier of the same power as the fixed ones employed to read the glass circles, I could discover the slightest escape of air in a very few seconds. The pressure-gauge, however, remained immovable. Going close to the window and looking out, I saw the Earth falling from me so fast that, within five minutes after my departure, objects like trees and even houses had become almost indistinguishable to the naked eye. I had half expected to hear the whistling of the air as the vessel rushed upward, but nothing of the kind was perceptible through her dense walls. It was strange to observe the rapid rise of the sun from the westward. Still more remarkable, on turning to the upper window, was the rapidly blackening aspect of the sky. Suddenly everything disappeared except a brilliant rainbow at some little distance—or perhaps I should rather have said a halo of more than ordinary rainbow brilliancy, since it occupied, not like the rainbows seen from below, something less than half, but nearly two-thirds of a circle. I was, of course, aware that I was passing through a cloud, and one of very unusual thickness. In a few seconds, however, I was looking down upon its upper surface, reflecting from a thousand broken masses of vapour at different levels, from cavities and hillocks of mist, the light of the sun; white beams mixed with innumerable rays of all colours in a confusion of indescribable brilliancy. I presume that the

total obscuration of everything outside the cloud during my passage through it was due to its extent and not to its density, since at that height it could not have been otherwise than exceedingly light and diffuse. Looking upward through the eastern window, I could now discern a number of brighter stars, and at nearly every moment fresh ones came into view on a constantly darkening background. Looking downward to the west, where alone the entire landscape lay in daylight, I presently discerned the outline of shore and sea extending over a semicircle whose radius much exceeded five hundred miles, implying that I was about thirty-five miles from the sea-level. Even at this height the extent of my survey was so great in comparison to my elevation, that a line drawn from the vessel to the horizon was, though very roughly, almost parallel to the surface; and the horizon therefore seemed to be not very far from my own level, while the point below me, of course, appeared at a vast distance. The appearance of the surface, therefore, was as if the horizon had been, say, some thirty miles higher than the centre of the semicircle bounding my view, and the area included in my prospect had the form of a saucer or shallow bowl. But since the diameter of the visible surface increases only as the square root of the height, this appearance became less and less perceptible as I rose higher. It had taken me twenty minutes to attain the elevation of thirty-five miles; but my speed was, of course, constantly increasing, very much as the speed of an object falling to the Earth

from a great height increases; and before ten more minutes had elapsed, I found myself surrounded by a blackness nearly absolute, except in the direction of the Sun,—which was still well above the sea—and immediately round the terrestrial horizon, on which rested a ring of sunlit azure sky, broken here and there by clouds. In every other direction I seemed to be looking not merely upon a black or almost black sky, but into close surrounding darkness. Amid this darkness, however, were visible innumerable points of light, more or less brilliant—the stars—which no longer seemed to be spangled over the surface of a distant vault, but rather scattered immediately about me, nearer or farther to the instinctive apprehension of the eye as they were brighter or fainter. Scintillation there was none, except in the immediate vicinity of the eastern horizon, where I still saw them through a dense atmosphere. In short, before thirty minutes had elapsed since the start, I was satisfied that I had passed entirely out of the atmosphere, and had entered into the vacancy of space—if such a thing as vacant space there be.

At this point I had to cut off the greater part of the apergy and check my speed, for reasons that will be presently apparent. I had started in daylight in order that during the first hundred miles of my ascent I might have a clear view of the Earth's surface. Not only did I wish to enjoy the spectacle, but as I had to direct my course by terrestrial landmarks, it was necessary that I should be able to see these so as to determine

the rate and direction of the Astronaut's motion, and discern the first symptoms of any possible danger. But obviously, since my course lay generally in the plane of the ecliptic, and for the present at least nearly in the line joining the centres of the Earth and Sun, it was desirable that my real journey into space should commence in the plane of the midnight meridian; that is, from above the part of the Earth's surface immediately opposite the Sun. I had to reach this line, and having reached it, to remain for some time above it. To do both, I must attain it, if possible, at the same moment at which I secured a westward impulse just sufficient to counterbalance the eastward impulse derived from the rotation of the Earth;—that is, in the latitude from which I started, a thousand miles an hour. I had calculated that while directing through the main bar a current of apergy sufficient to keep the Astronaut at a fixed elevation, I could easily spare for the eastward conductor sufficient force to create in the space of one hour the impulse required, but that in the course of that hour the gradually increasing apergic force would drive me 500 miles westward. Now in six hours the Earth's rotation would carry an object close to its surface through an angle of 90^0; that is, from the sunset to the midnight meridian. But the greater the elevation of the object the wider its orbit round the Earth's centre, and the longer each degree; so that moving eastward only a thousand miles an hour, I should constantly lag behind a point on the Earth's surface, and should not reach the

midnight meridian till somewhat later. I had, moreover, to lose 500 miles of the eastward drift during the last hour in which I should be subject to it, through the action of the apergic force above-mentioned. Now, an elevation of 330 miles would give the Astronaut an orbit on which 90^0 would represent 6500 miles. In seven hours I should be carried along that orbit 7000 miles eastward by the impulse my Astronaut had received from the Earth, and driven back 500 miles by the apergy; so that at 1 A.M. by my chronometer I should be exactly in the plane of the midnight meridian, or 6500 miles east of my starting-point in space, provided that I put the eastward apergic current in action exactly at 12 P.M. by the chronometer. At 1 A.M. also I should have generated a westward impulse of 1000 miles an hour. This, once created, would continue to exist though the force that created it were cut off, and would exactly counter-balance the opposite rotation impulse derived from the influence of the latter, though still sharing that motion of the Earth through space at the rate of nearly nineteen miles per second, which would carry me towards the line joining at the moment of opposition her centre with that of Mars.

All went as I had calculated. I contrived to arrest the Astronaut's motion at the required elevation just about the moment of sunset on the region of the Earth immediately underneath. At 12 P.M., or 24h. by the chronometer, I directed a current of the requisite strength into the eastward conductor, which I had previously pointed to the

Earth's surface, but a little short of the extreme terrestrial horizon, as I calculated it. At 1 A.M. I found myself, judging by the stars, exactly where I wished to be, and nearly stationary as regarded the Earth. I instantly arrested the eastward current, detaching that conductor from the apergion; and, directing the whole force of the current into the downward conductor, I had the pleasure of seeing that, after a very little adjustment of the helm, the stars remained stationary in the mirror of the metacompass, showing that I had escaped from the influence of the Earth's rotation. It was of course impossible to measure the distance traversed during the invisibility of the Earth, but I reckoned that I had made above 500 miles between 1h. and 2h. A.M., and that at 4h. I was not less than 4800 miles from the surface. With this inference the indication of my barycrite substantially agreed. The latter instrument consisted of a spring whose deflection by a given weight upon the equator had been very carefully tested. Gravity diminishing as the square of the distance from the centre, it was obvious that at about 8000 miles—or 4000 above the Earth's surface—this spring would be deflected only one quarter as much by a given weight as on Earth: at 16,000 miles from the surface, or 20000 from the centre, one-twenty-fifth as much, and so on. I had graduated the scale accordingly, and it indicated at present a distance somewhat less than 9000 miles from the centre. Having, adjusted the helm and set the alarum to wake me in six hours, I lay down upon my bed.

The anxiety and peril of my position had disturbed me very little whilst I was actively engaged either in steering and manipulating my machinery, or in looking upon the marvellous and novel spectacles presented to my eyes; but it now oppressed me in my sleep, and caused me frequently to wake from dreams of a hideous character. Two or three times, on such awaking, I went to examine the metacompass, and on one occasion found it necessary slightly to readjust the helm; the stars by which I steered having moved some second or two to the right of their proper position.

On rising, I completed the circuit which filled my vessel with brilliant light emitted from an electric lamp at the upper part of the stern, and reflected by the polished metallic walls. I then proceeded to get my breakfast, for which, as I had tasted nothing since some hours before the start, I had a hearty appetite. I had anticipated some trouble from the diminished action of gravity, doubting whether the boiling-point at this immense height above the Earth might not be affected; but I found that this depends upon the pressure of the atmosphere alone, and that this pressure was in nowise affected by the absence of gravity. My atmosphere being somewhat denser than that of the Earth, the boiling-point was not 100^0, but 101^0 Cent. The temperature of the interior of the vessel, taken at a point equidistant from the stove and from the walls, was about 5^0 C.; unpleasantly cool, but still, with the help of a greatcoat, not inconveniently so. I found it absolutely impossible

to measure by means of the thermometers I had placed outside the windows the cold of space; but that it falls far short of the extreme supposed by some writers, I confidently believe. It is, however, cold enough to freeze mercury, and to reduce every other substance employed as a test of atmospheric or laboratory temperatures to a solidity which admits of no further contraction. I had filled one outside thermometer with spirit, but this was broken before I looked at it; and in another, whose bulb unfortunately was blackened, and which was filled with carbonic acid gas, and apparent vacuum had been created. Was it that the gas had been frozen, and had sunk into the lower part of the bulb, where it would, of course, be visible? When I had completed my meal and smoked the very small cigar which alone a prudent consideration for the state of the atmosphere would allow me, the chronometer showed 10 A.M. It was not surprising that by this time weight had become almost non-existent. My twelve stone had dwindled to the weight of a small fowl, and hooking my little finger into the loop of a string hung from a peg fixed near the top of the stern wall, I found myself able thus to support my weight without any sense of fatigue for a quarter of an hour or more; in fact, I felt during that time absolutely no sense of muscular weariness. This state of things entailed only one inconvenience. Nothing had any stability; so that the slightest push or jerk would upset everything that was not fixed. However, I had so far anticipated this that nothing of any material

consequence was unfixed, and except that a touch with my spoon upset the egg-cup and egg on which I was about to breakfast, and that this, falling against a breakfast cup full of coffee, overturned that, I was not incommoded. I managed to save the greater part of the beverage, since, the atmospheric pressure being the same though the weight was so changed, lead and still more china or liquid, fell in the Astronaut as slowly as feathers in the immediate vicinity of the Earth. Still it was a novel experience to find myself able to lean in any direction, and rest in almost any posture, with but the slightest support for the body's centre of gravity; and further to find on experiment that it was possible to remain for a couple of hours with my heels above my head, in the favourite position of a Yankee's lower limbs, without any perceptible congestion of blood or confusion of brain.

I was occupied all day with abstract calculations; and knowing that for some time I could see nothing of the Earth—her dark side being opposite me and wholly obscuring the Sun, while I was as yet far from having entered within the sphere where any novel celestial phenomena might be expected—I only gave an occasional glance at the discometer and metacompass, suppressing of course the electric glare within my vessel, till I awoke from a short siesta about 19h. (7 P.M.) The Earth at this time occupied on the sphere of view a space—defined at first only by the absence of stars—about thirty times greater than the disc of the Moon as seen through a tube; but, being

dark, scarcely seemed larger to the eye than the full Moon when on the horizon. But a new method of defining its disc was presently afforded me. I was, in fact, when looking through the lower window, in the same position as regards the Earth as would be an inhabitant of the lunar hemisphere turned towards her having no external atmosphere interposed between us, but being at about two-thirds of the lunar distance. And as, during an eclipse, the Lunarian would see round the Earth a halo created by the refraction of the Sun's rays in the terrestrial atmosphere—a halo bright enough on most occasions so to illuminate the Moon as to render her visible to us—so to my eyes the Earth was surrounded by a halo somewhat resembling the solar corona as seen in eclipses, if not nearly so brilliant, but, unlike the solar corona, coloured, with a preponderance of red so decided as fully to account for the peculiar hue of the eclipsed Moon. To paint this, unless means of painting light—the one great deficiency which is still the opprobrium of human art—were discovered, would task to the uttermost the powers of the ablest artist, and at best he could give but a very imperfect notion of it. To describe it so that its beauty, brilliancy, and wondrous nature shall be in the slightest degree appreciated by my readers would require a command of words such as no poet since Homer—nay, not Homer himself—possessed. What was strange, and can perhaps be rendered intelligible, was the variation, or, to use a phrase more suggestive and more natural, if not

more accurate, the extreme mobility of the hues of this earthly corona. There were none of the efflorescences, if one may so term them, which are so generally visible at four cardinal points of its solar prototype. The outer portion of the band faded very rapidly into the darkness of space; but the edge, though absolutely undefined, was perfectly even. But on the generally rainbow-tinted ground suffused with red—which perhaps might best be described by calling it a rainbow seen on a background of brilliant crimson—there were here and there blotches of black or of lighter or darker grey, caused apparently by vast expanses of cloud, more or less dense. Round the edges of each of these were little irregular rainbow-coloured halos of their own interrupting and variegating the continuous bands of the corona; while throughout all was discernible a perpetual variability, like the the flashing or shooting of colour in the opal, the mother-of-pearl, or similarly tinted translucent substances when exposed to the irregular play of bright light—only that in this case the tints were incomparably more brilliant, the change more striking, if not more rapid. I could not say that at any particular moment any point or part of the surface presented this or that definite hue; and yet the general character of the rainbow, suffused with or backed by crimson, was constant and unmistakable. The light sent through the window was too dim and too imperfectly diffused within my vessel to be serviceable, but for some time I put out the electric lamp in order that its diffused

light should not impair my view of this exquisite spectacle. As thrown, after several reflections, upon the mirror destined afterwards to measure the image of the solar disc, the apparition of the halo was of course much less bright, and its outer boundary ill defined for accurate measurement. The inner edge, where the light was bounded by the black disc of the Earth, shaded off much more quickly from dark reddish purple into absolute blackness.

And now a surprise, the first I had encountered, awaited me. I registered the gravity as shown by the barycrite; and, extinguishing the electric lamp, measured repeatedly the semi-diameter of the Earth and of the halo around her upon the discometer, the inner edge of the latter affording the measurement of the black disc, which of itself, of course, cast no reflection. I saw at once that there was a signal difference in the two indications, and proceeded carefully to revise the earth-measurements. On the average of thirteen measures the halo was about 87″, or nearly $1\frac{1}{2}'$ in breadth, the disc, allowing for the twilight round its edge or limb, about 2^0 50′. If the refracting atmosphere were some 65 miles in depth, these proportions were correct. Relighting the lamp, I worked out severally on paper the results indicated by the two instruments. The discometer gave a distance, roughly speaking, of 40 terrestrial radii, or 160,000 miles. The barycrite should have shown a gravity, due to the Earth's attraction, not 40 but 1600 times less than that prevailing on the Earth's surface; or, to put it in a less accurate form, a weight of

100 lbs. should have weighed an ounce. It did weigh *two* ounces, the gravity being not one 1600th but one 800th of terrestrial gravity, or just double what I expected. I puzzled myself over this matter longer, probably, than the intelligent reader will do: the explanation being obvious, like that of many puzzles that bewilder our minds intensely, only to humiliate us proportionately when the solution is found—a solution as simple as that of Columbus's egg-riddle. At length, finding that the lunar angle—the apparent position of the Moon—confirmed the reading of the discometer, giving the same apogaic distance or elevation, I supposed that the barycrite must be out of order or subject to some unsuspected law of which future observations might afford evidence and explanation, and turned to other subjects of interest.

Looking through the upper window on the left, I was struck by the rapid enlargement of a star which, when I first noticed it, might be of the third magnitude, but which in less than a minute attained the first, and in a minute more was as large as the planet Jupiter when seen with a magnifying power of one hundred diameters. Its disc, however, had no continuous outline; and as it approached I perceived that it was an irregular mass of whose size I could form not even a conjectural estimate, since its distance must be absolutely uncertain. Its brilliancy grew fainter in proportion to the enlargement as it approached, proving that its light was reflected; and as it passed me, apparently in the direction of the earth, I had a sufficiently distinct

view of it to know that it was a mainly metallic mass, certainly of some size, perhaps four, perhaps twenty feet in diameter, and apparently composed chiefly of iron; showing a more or less blistered surface, but with angles sharper and faces more regularly defined than most of those which have been found upon the earth's surface—as if the shape of the latter might be due in part to the conflagration they undergo in passing at such tremendous speed through the atmosphere, or, in an opposite sense, to the fractures caused by the shock of their falling. Though I made no attempt to count the innumerable stars in the midst of which I appeared to float, I was convinced that their number was infinitely greater than that visible to the naked eye on the brightest night. I remembered how greatly the inexperienced eye exaggerates the number of stars visible from the Earth, since poets, and even olden observers, liken their number to that of the sands on the seashore; whereas the patient work of map and catalogue makers has shown that there are but a few thousands visible in the whole heavens to the keenest unaided sight. I suppose that I saw a hundred times that number. In one word, the sphere of darkness in which I floated seemed to be filled with points of light, while the absolute blackness that surrounded them, the absence of the slightest radiation, or illumination of space at large, was strange beyond expression to an eye accustomed to that diffusion of light which is produced by the atmosphere. I may mention here that the recog-

nition of the constellations was at first exceedingly difficult. On Earth we see so few stars in any given portion of the heavens, that one recognises without an effort the figure marked out by a small number of the brightest amongst them; while in my position the multitude was so great that only patient and repeated effort enabled me to separate from the rest those peculiarly brilliant luminaries by which we are accustomed to define such constellations as Orion or the Bear, to say nothing of those minor or more arbitrarily drawn figures which contain few stars of the second magnitude. The eye had no instinctive sense of distance; any star might have been within a stone's throw. I need hardly observe that, while on one hand the motion of the vessel was absolutely imperceptible, there was, on the other, no change of position among the stars which could enable me to verify the fact that I was moving, much less suggest it to the senses. The direction of every recognisable star was the same as on Earth, as it appears the same from the two extremities of the Earth's orbit, 190 millions of miles apart. Looking from any one window, I could see no greater space of the heavens than in looking through a similar aperture on Earth. What was novel and interesting in my stellar prospect was, not merely that I could see those stars north and south which are never visible from the same point on Earth, except in the immediate neighbourhood of the Equator; but that, save on the small space concealed by the Earth's disc, I could, by moving from window to window,

survey the entire heavens, looking at one minute upon the stars surrounding the vernal, and at another, by changing my position, upon those in the neighbourbood of the autumnal equinox. By little more than a turn of my head I could see in one direction Polaris (*alpha* Ursæ Minoris) with the Great Bear, and in another the Southern Cross, the Ship, and the Centaur.

About 23h. 30m., near the close of the first day, I again inspected the barycrite. It showed $\frac{1}{1100}$ of terrestrial gravity, an incredibly small change from the $\frac{1}{800}$ recorded at 19h., since it implied a progress proportionate only to the square root of the difference. The observation indicated, if the instrument could be trusted, an advance of only 18,000 miles. It was impossible that the Astronaut had not by this time attained a very much greater speed than 4000 miles an hour, and a greater distance from the Earth than 33 terrestrial radii, or 132,000 miles. Moreover, the barycrite itself had given at 19h. a distance of 28½ radii, and a speed far greater than that which upon its showing had since been maintained. Extinguishing the lamp, I found that the Earth's diameter on the discometer measured 2° 3′ 52″ (?). This represented a gain of some 90,000 miles; much more approximate to that which, judging by calculation, I ought to have accomplished during the last four hours and a half, if my speed approached to that I had estimated. I inspected the cratometer, which indicated a force as great as that with which I had started,—a force which should by this time

have given me a speed of at least 22,000 miles an hour. At last the solution of the problem flashed upon me, suggested by the very extravagance of the contradictions. Not only did the barycrite contradict the discometer and the reckoning but it contradicted itself; since it was impossible that under one continuous impulsation I should have traversed $28\frac{1}{2}$ radii of the Earth in the first eighteen hours and no more than $4\frac{1}{2}$ in the next four and a half hours. In truth, the barycrite was affected by two separate attractions,—that of the Earth and that of the Sun, as yet operating almost exactly in the same direction. At first the attraction of the former was so great that that of the Sun was no more perceived than upon the Earth's surface. But as I rose, and the Earth's attraction diminished in proportion to the square of the distance from her centre—which was doubled at 8000 miles, quadrupled at 16,000, and so on—the Sun's attraction, which was not perceptibly affected by differences so small in proportion to this vast distance of 95,000,000 miles, became a more and more important element in the total gravity. If, as I calculated, I had by 19h. attained a distance from the earth of 160,000 miles, the attractions of Earth and Sun were by that time pretty nearly equal; and hence the phenomenon which had so puzzled me, that the gravitation, as indicated by the barycrite, was exactly double that which, bearing in mind the Earth's attraction alone, I had calculated. From this point forward the Sun's attraction was the factor which mainly caused

such weight as still existed; a change of position which, doubling my distance from the Earth, reduced her influence to one-fourth, not perceptiby affecting that of a body four hundred times more remote. A short calculation showed that, this fact borne in mind, the indication of the barycrite substantially agreed with that of the discometer, and that I was in fact very nearly where I supposed, that is, a little farther than the Moon's farthest distance from the Earth. It did not follow that I had crossed the orbit of the Moon; and if I had, she was at that time too far off to exercise a serious influence on my course. I adjusted the helm and betook myself to rest, the second day of my journey having already commenced.

CHAPTER III.

THE UNTRAVELLED DEEP.

RISING at 5h., I observed a drooping in the leaves of my garden, and especially of the larger shrubs and plants, for which I was not wholly unprepared, but which might entail some inconvenience if, failing altogether, they should cease to absorb the gases generated from buried waste, to consume which they had been planted. Besides this, I should, of course, lose the opportunity of transplanting them to Mars, though I had more hope of acclimatising seedlings raised from the seed I carried with me than plants which had actually begun their life on the surface of the Earth. The failure I ascribed naturally to the known connection between the action of gravity and the circulation

of the sap; though, as I had experienced no analogous inconvenience in my own person, I had hoped that this would not seriously affect vegetation. I was afraid to try the effect of more liberal watering, the more so that already the congelation of moisture upon the glasses from the internal air, dry as the latter had been kept, was a sensible annoyance—an annoyance which would have become an insuperable trouble had I not taken so much pains, by directing the thermic currents upon the walls, to keep the internal temperature, in so far as comfort would permit—it had now fallen to 4^{0} C.—as near as possible to that of the inner surface of the walls and windows. A careful use of the thermometer indicated that the metallic surface of the former was now nearly zero C., or 32^{0} F. The inner surface of the windows was somewhat colder, showing that the crystal was more pervious to heat than the walls, with their greater thickness, their outer and inner lining of metal, and massive interior of concrete. I directed a current from the thermogene upon either division of the garden, hoping thus to protect the plants from whatever injury they might receive from the cold. Somewhat later, perceiving that the drooping still continued, I resolved upon another experiment, and arranging an apparatus of copper wire beneath the soil, so as to bring the extremities in immediate contact with their roots, I directed through these wires a prolonged feeble current of electricity; by which, as I had hoped rather than expected, the plants were after

a time materially benefited, and to which I believe I owed it that they had not all perished long before the termination of my voyage.

It would be mere waste of space and time were I to attempt anything like a journal of the weeks I spent in the solitude of this artificial planet. As matter of course, the monotony of a voyage through space is in general greater than that of a voyage across an ocean like the Atlantic, where no islands and few ships are to be encountered. It was necessary to be very frequently, if not constantly, on the look-out for possible incidents of interest in a journey so utterly novel through regions which the telescope can but imperfectly explore. It was difficult, therefore, to sit down to a book, or even to pursue any necessary occupation. My eyes, the only sense organs I could employ, were constantly on the alert; but, of course, by far the greater portion of my time passed without a single new object or occasion of remark. That a journey so utterly without precedent or parallel, in which so little could be anticipated or provided for, through regions absolutely untraversed and very nearly unknown, should be monotonous, may seem strange. But in truth the novelties of the situation, such as they were, though intensely striking and interesting, were each in turn speedily examined, realised, and, so to speak exhausted; and this once done, there was no greater occupation to the mind in the continuance of strange than in that of familiar scenery. The infinitude of surrounding blackness, filled as it were

with points of light more or less brilliant, when once its effects had been scrutinised, and when nothing more remained to be noted, afforded certainly a more agreeable, but scarcely a more interesting or absorbing, outlook than the dead grey hemisphere of cloud, which form the prospect from the deck of a packet in mid-Atlantic; while of change without or incident in the vessel herself there was, of course, infinitely less than is afforded in an ocean voyage by the variations of weather, not to mention the solace of human society. Everything around me, except in the one direction in which the Earth's disc still obscured the Sun, remained unchanged for hours and days; and the management of my machinery required no more than an occasional observation of my instruments and a change in the position of the helm, which occupied but a few minutes some half-dozen times in the twenty-four hours. There was not even the change of night and day, of sun and stars, of cloud or clear sky. Were I to describe the manner in which each day's leisure was spent, I should bore my readers even more than—they will perhaps be surprised by the confession—I was bored myself.

My sleep was of necessity more or less broken. I wished to have eight hours of rest, since, though seven of continuous sleep might well have sufficed me, even if my brain had been less quiet and unexcited during the rest of the twenty-four, it was impossible for me to enjoy that term of unbroken slumber. I therefore decided to divide my sleep

into two portions of rather more than four hours each, to be taken as a rule after noon and after midnight; or rather, since noon and midnight had no meaning for me, from 12h. to 16h. and from 24h. to 4h. But of course sleep and everything else, except the necessary management of the machine, must give way to the chances of observation; it would be better to remain awake for forty-eight hours at a stretch than to miss any important phenomenon the period of whose occurrence could be even remotely calculated.

At 8h., I employed for the first time the apparatus which I may call my window telescope, to observe, from a position free from the difficulties inflicted on terrestrial astronomers by the atmosphere, all the celestial objects within my survey. As I had anticipated, the absence of atmospheric disturbance and diffusion of light was of extreme advantage. In the first place, I ascertained by the barycrite and the discometer my distance from the Earth, which appeared to be about 120 terestrial radii. The light of the halo was of course very much narrower than when I first observed it, and its scintillations or coruscations no longer distinctly visible. The Moon presented an exquisitely fine thread of light, but no new object of interest on the very small portion of her daylight hemisphere turned towards me. Mars was somewhat difficult to observe, being too near what may be called my zenith. But the markings were far more distinct than they appear, with greater magnifying powers than I employed, upon the

Earth. In truth, I should say that the various disadvantages due to the atmosphere deprive the astronomer of at least one-half of the available light-collecting power of his telescope, and consequently of the defining power of the eye-piece; that with a 200 glass he sees less than a power of 100 reveals to an eye situated in space; though, from the nature of the lens through which I looked, I cannot speak with certainty upon this point. With a magnifying power of 300 the polar spots of Mars were distinctly visible and perfectly defined. They were, I thought, less white than they appeared from the Earth, but their colour was notably different from that of the planet's general surface, differing almost as widely from the orange hue of what I supposed to be land as from the greyish blue of the water. The orange was, I thought, deeper than it appears through a telescope of similar power on Earth. The seas were distinctly grey rather than blue, especially when, by covering the greater part of the field, I contrived for a moment to observe a sea alone, thus eliminating the effect of contrast. The bands of Jupiter in their turn were more notably distinct; their variety of colour as well as the contrast of light and shade much more definite, and their irregularities more unmistakable. A satellite was approaching the disc, and this afforded me an opportunity of realising with especial clearness the difference between observation through seventy or a hundred miles of terrestrial atmosphere outside the object glass and observation in space. The two discs were

perfectly rounded and separately discernible until they touched. Moreover, I was able to distinguish upon one of the darker bands the disc of the satellite itself, while upon a lighter band its round black shadow was at the same time perfectly defined. This wonderfully clear presentation of one of the most interesting of astronomical phenomena so absorbed my attention that I watched the satellite and shadow during their whole course, though the former, passing after a time on to a light band, became comparatively indistinct. The moment, however, that the outer edge passed off the disc of Jupiter, its outline became perfectly visible against the black background of sky. What was still more novel was the occultation for some little time of a star, apparently of the tenth magnitude, not by the planet but by the satellite, almost immediately after it passed off the disc of the former. Whether the star actually disappeared at once, as if instantaneously extinguished, or whether, as I thought at the moment, it remained for some tenth of a second partially visible, as if refracted by an atmosphere belonging to the satellite, I will not venture to say. The bands and rings of Saturn, the division between the two latter, and the seven satellites, were also perfectly visible, with a distinctness that a much greater magnifying power would hardly have attained under terrestrial conditions. I was perplexed by two peculiarities, not, so far as I know, hitherto* mentioned by

* In 1830 or thereabouts.—Ed

astronomers. The circumference did not appear to present an even curvature. I mean that, apart from the polar compression, the shape seemed as if the spheroid were irregularly squeezed; so that though not broken by projection or indentation, the limb did not present the regular quasi-circular curvature exhibited in the focus of our telescopes. Also, between the inner ring and the planet, with a power of 500, I discerned what appeared to be a dark purplish ring, semi-transparent, so that through it the bright surface of Saturn might be discerned as through a veil. Mercury shone brightly several degrees outside the halo surrounding the Earth's black disc; and Venus was also visible; but in neither case did my observations allow me to ascertain anything that has not been already noted by astronomers. The dim form of Uranus was better defined than I had previously seen it, but no marking of any kind was perceptible.

Rising from my second, or, so to speak, midday rest, and having busied myself for some little time with what I may call my household and garden duties, I observed the discometer at 17h. (or 5 P. M.). It indicated about two hundred terrestrial radii of elevation. I had, of course, from the first been falling slightly behind the Earth in her orbital motion, and was no longer exactly in opposition: that is to say, a line drawn from the Astronaut to the Earth's centre was no longer a prolongation of that joining the centres of the Earth and Sun. The effect of this divergence was now perceptible. The earthly corona was unequal in width, and to

the westward was very distinctly brightened, while on the other side it was narrow and comparatively faint. While watching this phenomenon through the lower lens, I thought that I could perceive behind or through the widest portion of the halo a white light, which at first I mistook for one of those scintillations that had of late become scarcely discernible. But after a time it extended visibly beyond the boundary of the halo itself, and I perceived that the edge of the Sun's disc had come at last into view. It was but a minute and narrow crescent, but was well worth watching. The brightening and broadening of the halo at this point I perceived to be due, not to the Sun's effect upon the atmosphere that produced it, but chiefly to the twilight now brightening on that limb of the Earth's disc; or rather to the fact that a small portion of that part of the Earth's surface, where, if the Sun were not visible, he was but a very little below the horizon, had been turned towards me. I saw through the telescope first a tiny solar crescent of intense brightness, then the halo proper, now exceedingly narrow, and then what looked like a silver terrestrial crescent, but a mere thread, finer and shorter than any that the Moon ever displays even to telescopic observers on Earth; since, when such a minute portion of her illuminated surface is turned towards the Earth, it is utterly extinguished to our eyes by the immediate vicinity of the Sun, as was soon the case with the terrestrial crescent in question. I watched long and with intense interest the gradual change,

but I was called away from it by a consideration of no little practical moment. I must now be moving at a rate of nearly, if not quite, 40,000 miles an hour, or about a million miles per diem. It was not my intention, for reasons I shall presently explain, ever greatly to exceed this rate; and if I meant to limit myself to a fixed rate of speed, it was time to diminish the force of the apergic current, as otherwise before its reduction could take effect I should have attained an impulse greater than I desired, and which could not be conveniently or easily diminished when once reached. Quitting, therefore, though reluctantly, my observation of the phenomena below me, I turned to the apergion, and was occupied for some two or three hours in gradually reducing the force as measured by the cratometer attached to the downward conductor, and measuring with extreme care the very minute effect produced upon the barycrite and the discometer. Even the difference between 200 and 201 radii of elevation or apogaic distance was not easily perceptible on either. It took, of course, much more minute observation and a much longer time to test the effect produced by the regulation of the movement, since whether I travelled forty, forty-five or forty-two thousand miles in the course of one hour made scarcely any difference in the diameter of the Earth's disc, still less, for reasons above given, in the gravity. By midnight, however, I was satisfied that I had not attained quite 1,000,000 miles, or 275 terrestrial radii; also that my speed was not greater than 45,000 miles

(11¼ radii) per hour, and was not, I thought, increasing. Of this last point, however, I could better satisfy myself at the end of my four hours' rest, to which I now betook myself.

I woke about 4h. 30m., and on a scrutiny of the instruments, felt satisfied that I was not far out in my calculations. A later hour, however, would afford a more absolute certainty. I was about to turn again to the interesting work of observation through the lens in the floor, when my attention was diverted by the sight of something like a whitish cloud visible through the upper window on my left hand. Examined by the telescope, its widest diameter might be at most ten degrees. It was faintly luminous, presenting an appearance very closely resembling that of a star cluster or nebula just beyond the power of resolution. As in many nebulæ, there was a visible concentration in one part; but this did not occupy the centre, but a position more resembling that of the nucleus of a small tailless comet. The cloudlet might be a distant comet, it might be a less distant body of meteors clustering densely in some particular part of their orbit; and, unfortunately, I was not likely to solve the problem. Gradually the nebula changed its position, but not its form, seeming to move downwards and towards the stern of my vessel, as if I were passing it without approaching nearer. By the time that I was satisfied of this, hunger and even faintness warned me that I must not delay preparing my breakfast. When I had finished this meal and fulfilled some necessary tasks,

practical and arithmetical, the hand of the chronometer indicated the eighth hour of my third day. I turned again somewhat eagerly to the discometer, which showed an apparent distance of 360 terrestrial radii, and consequently a movement which had not materially varied from the rate of $11\frac{1}{4}$ radii per hour. By this time the diameter of the Earth was not larger in appearance than about 19′, less than two-thirds that of the Sun; and she consequently appeared as a black disc covering somewhat more than one-third of his entire surface, but by no means concentrical. The halo had of course completely disappeared; but with the vernier it was possible to discern a narrow band or line of hazy grey around the black limb of the planet. She was moving, as seen from the Astronaut, very slightly to the north, and more decidedly, though very slowly, to the eastward; the one motion due to my deliberately chosen direction in space, the other to the fact that as my orbit enlarged I was falling, though as yet slowly, behind her. The sun now shone through the various windows, and, reflected from the walls, maintained a continuous daylight within the Astronaut, as well diffused as by the atmosphere of Earth, strangely contrasting the star-spangled darkness outside.

At the beginning as at the end of my voyage, I steered a distinct course, governed by considerations quite different from those which controlled the main direction of my voyage. Thus far I had simply risen straight from the Earth in a direction somewhat to the southward but on the whole "in

opposition," or right away from the Sun. So, at the conclusion of my journey, I should have to devote some days to a gradual descent upon Mars, exactly reversing the process of my ascent from the Earth. But between these two periods I had comparatively little to do with either planet, my course being uniform. I wished to reach Mars at the moment of opposition, and during the whole of the journey to keep the Earth between myself and the Sun, for a reason which may not at first be obvious. The moment of opposition is not necessarily that at which Mars is nearest to the Earth, but is sufficiently so for practical calculation. At that moment, according to the received measurement of planetary distances, the two would be more than 40 millions of miles apart. In the meantime the Earth, travelling on an interior or smaller orbit, and also at a greater absolute speed, was gaining on Mars. The Astronaut, moving at the Earth's rate under an impulse derived from the Earth's revolution round the Sun (that due to her rotation on her own axis having been got rid of, as aforesaid), travelled in an orbit constantly widening, so that, while gaining on Mars, I gained on him less than did the Earth, and was falling behind her. Had I used the apergy only to drive me directly outward from the Sun, I should move under the impulse derived from the Earth about 1,600,000 miles a day, or 72 millions of miles in forty-five days, in the direction common to the two planets. The effect of the constantly widening orbit would be much as if the whole motion took

place on one midway between those of the Earth and Mars, say 120 millions of miles from the Sun. The arc described on this orbit would be equivalent to 86 millions of miles on that of Mars. The entire arc of his orbit between the point opposite to that occupied by the Earth when I started and the point of opposition—the entire distance I had to gain as measured along his path—was about 116 millions of miles; so that, trusting to the terrestrial impulse alone, I should be some 30 millions behindhand at the critical moment. The apergic force must make up for this loss of ground, while driving me in a direction, so to speak, at right angles with that of the orbit, or along its radius, straight outward from the Sun, forty odd millions of miles in the same time. If I succeeded in this, I should reach the orbit of Mars at the point and at the moment of opposition, and should attain Mars himself. But in this I might fail, and I should then find myself under the sole influence of the Sun's attraction; able indeed to resist it, able gradually to steer in any direction away from it but hardly able to overtake a planet that should lie far out of my line of advance or retreat, while moving at full speed away from me. In order to secure a chance of retreat, it was desirable as long as possible to keep the Earth between the Astronaut and the Sun; while steering for that point in space where Mars would lie at the moment when, as seen from the centre of the Earth, he would be most nearly opposite the Sun,—would cross the meridian at midnight. It was by these considera-

tions that the course I henceforward steered was determined. By a very simple calculation, based on the familiar principle of the parallelogram of forces, I gave to the apergic current a force and direction equivalent to a daily motion of about 750,000 miles in the orbital, and rather more than a million in the radial line. I need hardly observe that it would not be to the apergic current alone, but to a combination of that current with the orbital impulse received at first from the Earth, that my progress and course would be due. The latter was the stronger influence; the former only was under my control, but it would suffice to determine, as I might from time to time desire, the resultant of the combination. The only obvious risk of failure lay in the chance that, my calculations failing or being upset, I might reach the desired point too soon or too late. In either case, I should be dangerously far from Mars, beyond his orbit or within it, at the time when I should come into a line with him and the Sun; or, again, putting the same mischance in another form, behind him or before him when I attained his orbit. But I trusted to daily observation of his position, and verification of my "dead reckoning" thereby, to find out any such danger in time to avert it.

The displacement of the Earth on the Sun's face proved it to be necessary that the apergic current should be directed against the latter in order to govern my course as I desired, and to recover the ground I had lost in respect to the orbital motion. I hoped for a moment that this

change in the action of the force would settle a problem we had never been able to determine. Our experiments proved that apergy acts in a straight line when once collected in and directed along a conductor, and does not radiate, like other forces, from a centre in all directions. It is of course this radiation—diffusing the effect of light, heat, or gravity over the surface of a sphere, which surface is proportionate to the square of the radius —that causes these forces to operate with an energy inversely proportionate, not to the distance, but to its square. We had no reason to think that apergy, exempt as it is from this law, would be at all diminished by distance; and this view the rate of acceleration as I rose from the Earth had confirmed, and my entire experience has satisfied me that it is correct. None of our experiments, however, had indicated, or could well indicate, at what rate this force can travel through space; nor had I yet obtained any light upon this point. From the very first the current had been continuous, the only interruption taking place when I was not five hundred miles from the Earth's surface. Over so small a distance as that, the force would move so instantaneously that no trace of the interruption would be perceptible in the motion of the Astronaut. Even now the total interruption of the action of apergy for a considerable time would not affect the rate at which I was already moving. It was possible, however, that if the current had been hitherto wholly intercepted by the Earth, it might take so long a time in reaching the Sun that

the interval between the movement of the helm and the response of the Astronaut's course thereto might afford some indication of the time occupied by the current in traversing the 96½ millions of miles which parted me from the Sun. My hope, however, was wholly disappointed. I could neither be sure that the action was instantaneous, nor that it was otherwise.

At the close of the third day I had gained, as was indicated by the instruments, something more than two millions of miles in a direct line from the Sun; and for the future I might, and did, reckon on a steady progress of about one and a quarter million miles daily under the apergic force alone —a gain in a line directly outward from the Sun about one million. Henceforward I shall not record my observations, except where they implied an unexpected or altered result.

On the sixth day, I perceived another nebula, and on this occasion in a more promising direction. It appeared, from its gradual movement, to lie almost exactly in my course, so that if it were what I suspected, and were not at any great distance from me, I must pass either near or through it, and it would surely explain what had perplexed and baffled me in the case of the former nebula. At this distance the nature of the cloudlet was imperceptible to the naked eye. The window telescope was not adjustable to an object which I could not bring conveniently within the field of view of the lenses. In a few hours the nebula so changed its form and position, that, being imme-

diately over the portion of the roof between the front or bow lens and that in the centre of the roof, its central section was invisible; but the extremities of that part which I had seen in the first instance through the upper plane window of the bow were now clearly visible from the upper windows of either side. What had at first been a mere greatly elongated oval, with a species of rapidly diminishing tail at each extremity, had now become an arc spanning no inconsiderable part of the space above me, narrowing rapidly as it extended downwards and sternwards. Presently it came in view through the upper lens, but did not obscure in the least the image of the stars which were then visible in the metacompass. I very soon ascertained that the cloudlet consisted, as I had supposed in the former case, of a multitude of points of light less brilliant than the stars, the distance between which became constantly wider, but which for some time were separately so small as to present no disc that any magnifying power at my command could render measurable. In the meantime, the extremities visible through the other windows were constantly widening out till lost in the spangled darkness. By and by, it became impossible with the naked eye to distinguish the individual points from the smaller stars; and shortly after this the nearest began to present discs of appreciable size but somewhat irregular shape. I had now no doubt that I was about to pass through one of those meteoric rings which our most advanced astronomers believe to exist in immense num-

bers throughout space and to the Earth's contact with or approach to which they ascribe the showers of falling stars visible in August and November. Ere long, one after another of these bodies passed rapidly before my sight, at distances varying probably from five yards to five thousand miles. Where to test the distance was impossible, anything like accurate measurement was equally out of the question; but my opinion is, that the diameters of the nearest ranged from ten inches to two hundred feet. One only passed so near that its absolute size could be judged by the marks upon its face. This was a rock-like mass, presenting at many places on the surface distinct traces of metallic veins or blotches, rudely ovoid in form, but with a number of broken surfaces, one or two of which reflected the light much more brilliantly than others. The weight of this one meteoroid was too insignificant as compared with that of the Astronaut seriously to disturb my course. Fortunately for me, I passed so nearly through the centre of the aggregation that its attraction as a whole was nearly inoperative. So far as I could judge, the meteors in that part of the ring through which I passed were pretty evenly distributed; and as from the appearance of the first which passed my window to the disappearance of the last four hours elapsed, I conceived that the diameter of the congeries, measured in the direction of my path, which seemed to be nearly in the diameter of their orbit, was about 180,000 miles, and probably the perpendicular depth was about the same.

I may mention here, though somewhat out of place, to avoid interrupting the narrative of my descent upon Mars, the only interesting incident that occurred during the latter days of my journey—the gradual passage of the Earth off the face of the Sun. For some little time after this the Earth was entirely invisible; but later, looking through the telescope adjusted to the lens on that side, I discerned two very minute and bright crescents, which, from their direction and position, were certainly those of the Earth and Moon, indeed could hardly be anything else.

Towards the thirtieth day of my voyage I was disturbed by the conflicting indications obtained from different instruments and separate observations. The general result came to this, that the discometer, where it should have indicated a distance of 333, actually gave 347. But if my speed had increased, or I had overestimated the loss by changes of direction, Mars should have been larger in equal proportion. This, however, was not the case. Supposing my reckoning to be right, and I had no reason to think it otherwise, except the indication of the discometer, the Sun's disc ought to have diminished in the proportion of 95 to 125, whereas the diminution was in the proportion of 92 to 122. So far as the barycrite could be trusted, its very minute indications confirmed those of the discometer; and the only conclusion I could draw, after much thought and many intricate calculations, was that the distance of 95 millions of miles between the Earth and the Sun, accepted, though

not very confidently, by all terrestrial astronomers, is an over-estimate; and that, consequently, all the other distances of the solar system have been equally overrated. Mars consequently would be smaller, but also his distance considerably less, than I had supposed. I finally concluded that the solar distance of the Earth was less than 92 millions of miles, instead of more than 95. This would involve, of course, a proportionate diminution in in the distance I had to traverse, while it did not imply an equal error in the reckoning of my speed, which had at first been calculated from the Earth's disc, and not from that of the Sun. Hence, continuing my course unchanged, I should arrive at the orbit of Mars some days earlier than intended, and at a point behind that occupied by the planet, and yet farther behind the one I aimed at. Prolonged observation and careful calculation had so fully satisfied me of the necessity of the corrections in question, that I did not hesitate to alter my course accordingly, and to prepare for a descent on the thirty-ninth instead of the forty-first day. I had, of course, to prepare for the descent very long before I should come within the direct influence of the attraction of Mars. This would not prevail over the Sun's attraction till I had come within a little more than 100,000 miles of the surface, and this distance would not allow for material reduction of my speed, even were I at once to direct the whole force of the apergic current against the planet. I estimated that arriving within some two millions of miles of him, with a

speed of 45,000 miles per hour, and then directing the whole force of the current in his direction, I should arrive at his surface at a speed nearly equal to that at which I had ascended from the Earth. I knew that I could spare force enough to make up for any miscalculation possible, or at least probable. Of course any serious error might be fatal. I was exposed to two dangers; perhaps to three: but to none which I had not fully estimated before even preparing for my voyage. If I should fail to come near enough to the goal of my journey, and yet should go on into space, or if, on the other hand, I should stop short, the Astronaut might become an independent planet, pursuing an orbit nearly parallel to that of the Earth; in which case I should perish of starvation. It was conceivable that I might, in attempting to avert this fate, fall upon the Sun, though this seemed exceedingly improbable, requiring a combination of accidents very unlikely to occur. On the other hand, I might by possibility attain my point, and yet, failing properly to calculate the rate of descent, be dashed to pieces upon the surface of Mars. Of this, however, I had very little fear, the tremendous power of the apergy having been so fully proved that I believed that nothing but some disabling accident to myself—such as was hardly to be feared in the absence of gravitation, and with the extreme simplicity of the machinery I employed—could prevent my being able, when I became aware of the danger, to employ in time a sufficient force to avert it. The first of these perils, then, was the graver one,

perhaps the only grave one, and certainly to my imagination it was much the most terrible. The idea of perishing of want in the infinite solitude of space, and being whirled round for ever the dead denizen of a planet one hundred feet in diameter, had in it something even more awful than grotesque.

On the thirty-ninth morning of my voyage, so far as I could calculate by the respective direction and size of the Sun and of Mars, I was within about 1,900,000 miles from the latter. I proceeded without hesitation to direct the whole force of the current permitted to emerge from the apergion directly against the centre of the planet. His diameter increased with great rapidity, till at the end of the first day I found myself within one million of miles of his surface. His diameter subtended about 15′, and his disc appeared about one-fourth the size of the Moon. Examined through the telescope, it presented a very different appearance from that either of the Earth or of her satellite. It resembled the former in having unmistakably air and water. But, unlike the Earth, the greater portion of its surface seemed to be land; and, instead of continents surrounded by water, it presented a number of separate seas, nearly all of them land-locked. Around the snowcap of each pole was a belt of water; around this, again, a broader belt of continuous land; and outside this, forming the northern and southern boundary between the arctic and temperate zones, was another broader band of water, connected apparently in

one or two places with the central, or, if one may so call it, equatorial sea. South of the latter is the one great Martial ocean. The most striking feature of this new world, as seen from this point, was the existence of three enormous gulfs, from three to five thousand miles in length, and apparently varying in breadth from one hundred to seven hundred miles. In the midst of the principal ocean, but somewhat to the southward, is an island of unique appearance. It is roughly circular, and, as I perceived in descending, stands very high, its table-like summit being some 4000 feet, as I subsequently ascertained, above the sea-level. Its surface, however, was perfectly white—scarcely less brilliant, consequently, than an equal area of the polar icefields. The globe, of course, revolved in some 24½ hours of earthly time, and, as I descended, presented successively every part of its surface to my view. I speak of descent, but, of course, I was as yet ascending just as truly as ever, the Sun being visible through the lens in the floor, and reflected upon the mirror of the discometer, while Mars was now seen through the upper lens, and his image received in the mirror of the metacompass. A noteworthy feature in the meteorology of the planet became apparent during the second day of the descent. As magnified by the telescope adjusted to the upper lens, the distinctions of sea and land disappeared from the eastern and western limbs to the planet; indeed, within 15^0 or an hour of time from either. It was plain, therefore, that those regions in which it was late evening

or early morning were hidden from view; and, independently of the whitish light reflected from them, there could be little doubt that the obscuration was due to clouds or mists. Had the whitish light covered the land alone, it might have been attributed to a snowfall, or, perhaps, even to a very severe hoar frost congealing a dense moisture. But this last seemed highly improbable; and that mist or cloud was the true explanation became more and more apparent as, with a nearer approach, it became possible to discern dimly a broad expanse of water contrasting the orange tinge of the land through this annular veil. At 24h. on the second day of the descent, I was about 500,000 miles from Mars, the micrometer verifying, by the increased angle subtended by the diameter, my calculated rate of approach. On the next day I was able to sleep in security, and to devote my attention to the observation of the planet's surface, for at its close I should be still 125,000 miles from Mars, and consequently beyond the distance at which his attraction would predominate over that of the Sun. To my great surprise, in the course of this day I discerned two small discs, one on each side of the planet, moving at a rate which rendered measurement impossible, but evidently very much smaller than any satellite with which astronomers are acquainted, and so small that their non-discovery by terrestrial telescopes was not extraordinary. They were evidently very minute, whether ten, twenty, or fifty miles in diameter I could not say; neither of them being

likely, so far as I could calculate, to come at any part of my descent very near the Astronaut, and the rapidity of their movement carrying them across the field, even with the lowest power of my telescopes, too fast for measurement. That they were Martial moons, however, there could be no doubt.

About 10h. on the last day of the descent, the effect of Mars' attraction, which had for some time so disturbed the position of the Astronaut as to take his disc completely out of the field of the metacompass, became decidedly predominant over that of the Sun. I had to change the direction of the apergic current first to the left-hand conductor, and afterwards, as the greater weight of the floor turned the Astronaut completely over, bringing the planet immediately below it, to the downward one. I was, of course, approaching Mars on the daylight side, and nearly in the centre. This, however, did not exactly suit me. During the whole of this day it was impossible that I should sleep for a minute; since if at any point I should find that I had miscalculated my rate of descent, or if any other unforeseen accident should occur, immediate action would be necessary to prevent a shipwreck, which must without doubt be fatal. It was very likely that I should be equally unable to sleep during the first twenty-four hours of my sojourn upon Mars, more especially should he be inhabited, and should my descent be observed It was, therefore, my policy to land at some point where the Sun was setting, and to enjoy rest

during such part of the twelve hours of the Martial night as should not be employed in setting my vessel in order and preparing to evacuate it. I should have to ascertain exactly the pressure of the Martial atmosphere, so as not to step too suddenly from a dense into what was probably a very light one. If possible, I intended to land upon the summit of a mountain, so high as to be untenanted and of difficult access. At the same time it would not do to choose the highest point of a very lofty range, since both the cold and the thinness of the air might in such a place be fatal. I wished, of course, to leave the Astronaut secure, and, if not out of reach, yet not within easy reach; otherwise it would have been a simple matter to watch my opportunity and descend in the dark from my first landing-place by the same means by which I had made the rest of my voyage.

At 18h. I was within 8000 miles of the surface, and could observe Mars distinctly as a world, and no longer as a star. The colour, so remarkable a feature in his celestial appearance, was almost equally perceptible at this moderate elevation. The seas are not so much blue as grey. Masses of land reflected a light between yellow and orange, indicating, as I thought, that orange must be as much the predominant colour of vegetation as green upon Earth. As I came still lower, and only parts of the disc were visible at once, and these through the side and end windows, this conviction was more and more strongly impressed upon my mind. What, however, was beyond denial was,

that if the polar ice and snow were not so purely and distinctly white as they appear at a distance upon Earth, they were yet to a great extent devoid of the yellow tinge that preponderated everywhere else. The most that could be said was, that whereas on Earth the snow is of that white which we consider absolute, and call, as such, snow-white, but which really has in it a very slight preponderance of blue, upon Mars the polar caps are rather cream-white, or of that white, so common in our flowers, which has in it an equally slight tinge of yellow. On the shore, or about twenty miles from the shore of the principal sea to the southward of the equator and but a few degrees from the equator itself, I perceived at last a point which appeared peculiarly suitable for my descent. A very long range of mountains, apparently having an average height of about 14,000 feet, with some peaks of probably twice or three times that altitude, stretched for several hundred miles along the coast, leaving, however, between it and the actual shore-line an alluvial plain of some twenty to fifty miles across. At the extremity of this range, and quite detached from it, stood an isolated mountain of peculiar from, which, as I examined it through the telescope, appeared to present a surface sufficiently broken and sloped to permit of descent; while, at the same time, its height and the character of its summit satisfied me that no one was likely to inhabit it, and that though I might descend it in a few hours, to ascend it on foot from the plain would be a day's journey. Towards this I directed

my course, looking out from time to time carefully for any symptoms of human habitation or animal life. I made out by degrees the lines of rivers, mountain slopes covered by great forests, extensive valleys and plains, seemingly carpeted by a low, dense, rich vegetation. But my view being essentially of a bird's-eye character, it was only in those parts that lay upon my horizon that I could discern dearly the height of any object above the general level; and as yet, therefore, there might well be houses and buildings, cultivated fields and divisions, which I could not see.

Before I had satisfied myself whether the planet was or was not inhabited, I found myself in a position from which its general surface was veiled by the evening mist, and directly over the mountain in question, within some twelve miles of its summit. This distance I descended in the course of a quarter of an hour, and landed without a shock about half an hour, so far as I could judge, after the Sun had disappeared below the horizon. The sunset, however, by reason of the mists, was totally invisible.

CHAPTER IV.

A NEW WORLD.

I WILL not attempt to express the intensity of the mingled emotions which overcame me as I realised the complete success of the most stupendous adventure ever proposed or even dreamed by man. I don't think that any personal vanity, unworthy of the highest lessons I had received, had much share in my passionate exultation. The conception was not original; the means were furnished by others; the execution depended less on a daring and skill, in which any courageous traveller or man of science knowing what I knew might well have excelled me, than on the direct and manifest favour of Providence. But this enterprise, the greatest that man had ever attempted, had in itself a charm, a sanctity in my eyes that made its accomplishment an unspeakable satisfaction. I would have laid down life a dozen times not only to achieve it myself, but even to know that it had been achieved by others. All that Columbus can have felt when he first set foot on a new hemisphere I felt in tenfold force as I assured myself that not, as often before, in dreams, but in very truth and fact, I had traversed forty million miles of space, and landed in a new world. Of the perils that might await me I could hardly care to think. They might be greater in degree, they

could hardly be other in kind, than those which a traveller might incur in Papua, or Central Africa, or in the North-West Passage. They could have none of that wholly novel, strange, incalculable character which sometimes had given to the chances of my etherial voyage a vague horror and mystery that appalled imagination.

For the first time during my journey I could neither eat nor sleep; yet I must do both. I might soon meet with difficulties and dangers that would demand all the resources of perfect physical and mental condition, with heavy calls on the utmost powers of nerve and muscle. I forced myself, therefore, to sup and to slumber, resorting for the first time in many years to the stimulus of brandy for the one purpose, and to the aid of authypnotism for the other. When I woke it was 8h. by my chronometer, and, as I inferred, about 5h. after midnight of the Martial meridian on which I lay. Sleep had given me an appetite for breakfast, and necessary practical employment calmed the excitement natural to my situation. My first care, after making ready to quit the Astronaut as soon as the light around should render it safe to venture into scenes so much more utterly strange, unfamiliar, and unknown than the wildest of the yet unexplored deserts of the Earth, was to ascertain the character of the atmosphere which I was presently to breathe. Did it contain the oxygen essential to Tellurian lungs? Was it, if capable of respiration, dense enough to sustain life like mine? I extracted the plug from the tubular aperture through which

I had pumped in the extra quantity of air that the Astronaut contained; and substituted the sliding valve I had arranged for the purpose, with a small hole which, by adjustment to the tube, would give the means of regulating the air-passage at pleasure. The difficulty of this simple work, and the tremendous outward pressure of the air, showed that the external atmosphere was very thin indeed. This I had anticipated. Gravity on the surface of Mars is less than half what it is on Earth; the total mass of the planet is as two to fifteen. It was consequently to be expected that the extent of the Martial atmosphere, and its density even at the sea-level, would be far less than on the heavier planet. Rigging the air-pump securely round the aperture, exhausting its chamber, and permitting the Martial air to fill it, I was glad to find a pressure equal to that which prevails at a height of 16,000 feet on Earth. Chemical tests showed the presence of oxygen in somewhat greater proportion than in the purest air of terrestrial mountains. It would sustain life, therefore, and without serious injury, if the change from a dense to a light atmosphere were not too suddenly made. I determined then gradually to diminish the density of the internal atmosphere to something not very much greater than that outside. For this purpose I unrigged the air-pump apparatus, and almost, but not quite, closed the valve, leaving an aperture about the twentieth part of an inch in diameter. The silence was instantly broken by a whistle the shrillest and loudest I had ever

heard; the dense compressed atmosphere of the Astronaut rushing out with a force which actually created a draught through the whole vessel, to the great discomfiture of the birds, which roughed their feathers and fluttered about in dismay. The pressure gauge fell with astonishing rapidity, despite the minuteness of the aperture; and in a few minutes indicated about 24 barometrical inches. I then checked the exit of the air for a time, while I proceeded to loosen the cement around the window by which I had entered, and prepared for my exit. Over a very light flannel under-vesture I put on a mail-shirt of fine close-woven wire, which had turned the edge of Mahratta tulwars, repelled the thrust of a Calabrian stiletto, and showed no mark of three carbine bullets fired point-blank. Over this I wore a suit of grey broadcloth, and a pair of strong boots over woollen socks, prepared for cold and damp as well as for the heat of a sun shining perpendicularly through an Alpine atmosphere. I had nearly equalised the atmospheric pressure within and without, at about 17 inches, before the first beams of dawn shone upward on the ceiling of the Astronaut. A few minutes later I stepped forth on the platform, some two hundred yards in circumference, whereon the vessel rested. The mist immediately around me was fast dispersing; five hundred feet below it still concealed everything. On three sides descent was barred by sheer precipices; on the fourth a steep slope promised a practicable path, at least as far as my eye could reach. I placed the weaker and smaller of my

birds in portable cages, and then commenced my experiment by taking out a strong-winged cuckoo and throwing him downwards over the precipice. He fell at first almost like a stone; but before he was quite lost to sight in the mist, I had the pleasure of seeing that he had spread his wings, and was able to sustain himself. As the mist was gradually dissolving, I now ventured to begin my descent, carrying my bird-cages, and dismissing the larger birds, several of which, however, persistently clung about me. I had secured on my back an air-gun arranged to fire sixteen balls in succession without reloading, while in my belt, scabbarded in a leathern sheath, I had placed a well and often tried two-edged sword. I found the way practicable, though not easy, till I reached a point about 1000 feet below the summit, where farther progress in the same direction was barred by an abrupt and impassable cleft some hundred feet deep. To the right, however, the mountain side seemed to present a safe and sufficiently direct descent. The sun was a full hour above the horizon, and the mist was almost gone. Still I had seen no signs of animal life, save, at some distance and in rapid motion, two or three swarms of flying insects, not much resembling any with which I was acquainted. The vegetation, mostly small, was of a yellowish colour, the flowers generally red, varied by occasional examples of dull green and white; the latter, however, presenting that sort of creamy tinge which I had remarked in the snow. Here I released and dismissed my

birds one by one. The stronger and more courageous flew away downwards, and soon disappeared; the weakest, trembling and shivering, evidently suffering from the thinness of the atmosphere, hung about me or perched upon the cages.

The scene I now contemplated was exceedingly novel and striking. The sky, instead of the brilliant azure of a similar latitude on earth, presented to my eye a vault of pale green, closely analogous to that olive tint which the effect of contrast often throws over a small portion of clear sky distinguished among the golden and rose-coloured clouds of a sunset in our temperate zones. The vapours which still hung around the north-eastern and south-eastern horizon, though dispelled from the immediate vicinity of the Sun, were tinged with crimson and gold much deeper than the tints peculiar to an earthly twilight. The Sun himself, when seen by the naked eye, was as distinctly golden as our harvest moon; and the whole landscape, terrestrial, aerial, and celestial, appeared as if bathed in a golden light, wearing generally that warm summer aspect peculiar to Tellurian landscapes when seen through glass of a rich yellow tint. It was a natural inference from all I saw that there takes place in the Martial atmosphere an absorption of the blue rays which gives to the sunlight a predominant tinge of yellow or orange. The small rocky plateau on which I stood, like the whole of the mountain-side I had descended, faced the extremity of the range of which this mountain was an outpost; and the valley which separated them

was not from my present position visible. I saw that I should have to turn my back upon this part of the landscape as I descended farther, and therefore took note at this point of the aspect it presented. The most prominent object was a white peak in the distant sky, rising to a height above my actual level, which I estimated conjecturally at 25,000 feet, guessing the distance at fifty miles. The summit was decidedly more angular and pointed, less softened in outline by atmospheric influences, than those of mountains on Earth. Beyond this in the farthest distance appeared two or three peaks still higher, but of which of course, only the summits were visible to me. On this side of the central peak an apparently continuous double ridge extended to within three miles of my station, exceedingly irregular in level, the highest elevations being perhaps 20,000, the lowest visible depressions 3000 feet above me. There appeared to be a line of perpetual snow, though in many places above this line patches of yellow appeared, the nearer of which were certainly and the more distant must be inferred to be covered with a low, close herbaceous vegetation. The lower slopes were entirely clothed with yellow or reddish foliage. Between the woods and snow-line lay extensive pastures or meadows, if they might be so called, though I saw nothing whatever that at all resembled the grass of similar regions on Earth. Whatever foliage I saw—as yet I had not passed near anything that could be called a tree, and very few shrubs—consisted distinctly of leaves analogous to those of our deciduous

trees, chiefly of three shapes: a sort of square rounded at the angles, with short projecting fingers; an oval, slightly pointed where it joined the stalk; and lanceolate or sword-like blades of every size, from two inches to four feet in length. Nearly all were of a dull yellow or copper-red tinge. None were as fine as the beech-leaf, one succulent or fleshy; nothing resembling the blades of grass or the bristles of the pine and cedar tribes was visible.

My path now wound steadily downward at a slope of perhaps one in eight along the hillside, obliging me to turn my back to the mountains, while my view in front was cut off by a sharp cross-jutting ridge immediately before me. By the time I turned this, all my birds had deserted me, and I was not, I think, more than 2000 feet from the valley below. Just before reaching this point I first caught sight of a Martial animal. A little creature, not much bigger than a rabbit, itself of a sort of sandy-yellow colour, bounded from among some yellow herbage by my feet, and hopped or sprang in the manner of a kangaroo down the steep slope on my left. When I turned the ridge, a wide and quite new landscape burst upon my sight. I was looking upon an extensive plain, the continuation apparently of a valley of which the mountain range formed the southern limit. To the southward this plain was bounded by the sea, bathed in the peculiar light I have tried to describe, and lying in what seemed from this distance a glassy calm. To eastward and northward the

plain extended to the horizon, and doubtless far beyond it; while from the valley north of the mountain range emerged a broad river, winding through the plain till it was lost at the horizon. Plain I have called it, but I do not mean to imply that it was by any means level. On the contrary, its surface was broken by undulations, and here and there by hills, but all so much lower than the point on which I stood that the general effect was that of an almost flat surface. And now the question of habitation, and of human habitation, seemed to be solved. Looking through my field-glass, I saw, following the windings of the river, what must surely be a road; serving also, perhaps, as an embankment, since it was raised many feet above the level of the stream. It seemed, too, that the plain was cultivated. Everywhere appeared extensive patches, each of a single colour, in every tint between deep red and yellowish green, and so distinctly rectangular in form as irresistibly to to suggest the idea of artificial, if not human, arrangement. But there were other features of the scene that dispelled all doubt upon this point. Immediately to the south-eastward, and about twenty miles from where I stood, a deep arm of the sea ran up into the land, and upon the shores of this lay what was unquestionably a city. It had nothing that looked like fortifications, and even at this distance I could discern that its streets were of remarkable width, with few or no buildings so high as mosques, churches, State-offices, or palaces in Tellurian cities. Their colours were

most various and brilliant, as if reflected from metallic surfaces; and on the waters of the bay itself rode what I could not doubt to be ships or rafts. More immediately beneath me, and scattered at intervals over the entire plain, clustering more closely in the vicinity of the city, were walled enclosures, and in the centre of each was what could hardly be anything but a house, though not apparently more than twelve or fourteen feet high, and covering a space sufficient for an European or even American street or square. Upon the lower slopes of the hill whereon I stood were moving figures, which, seen through the binocular, proved to be animals; probably domestic animals, since they never ranged very far, and presented none of those signs of watchfulness and alarm which are peculiar to creatures not protected by man from their less destructive enemies, and taught to lay aside their dread of man himself. I had descended, then, not only into an inhabited world —not only into a world of men, who, however they might differ in outward form, must resemble in their wants, ideas, and habits, in short, in mind if not in body, the lords of my own planet—but into a civilised world and among a race living under a settled order cultivating the soil, and taming the brutes to their service.

And now, as I came on lower ground, I found at each step new objects of curiosity and interest. A tree with dark-yellowish leaves, taller than most timber trees on Earth, bore at the end of drooping twigs large dark-red fruits—fruits with a rind some-

thing like that of a pomegranate, save for the colour and hardness, and about the size of a shaddock or melon. One of these, just within reach of my hand, I gathered, but found it impossible to break the thin, dry rind or shell, without the aid of a knife. Having pierced this, a stream of red juice gushed out, which had a sweet taste and a strong flavour, not unlike the juice expressed from cherries, but darker in colour. Dissecting the fruit completely, I found it parted by a membrane, essentially of the same nature as the rind, but much thinner and rather tough than hard, into sixteen segments, like those of an orange divided across the middle, each of which enclosed a seed. These seeds were all joined at the centre, but easily separated. They were of a yellow colour and about as large as an almond kernel. Some fruits that, being smaller, I concluded to be less ripe, were of a reddish-yellow. After walking for about a mile through a grove of such trees, always tending downwards, I came to another of more varied character. The most prevalent tree here was of lower stature and with leaves of great length and comparatively narrow, the fruit of which, though protected by a somewhat similar rind, was of rich golden colour, not so easily seen among the yellowish leaves, and contained one solid kernel of about the size of an almond, enclosed entirely in a sort of spongy material, very palatable to the taste, and resembling more the inside of roasted maize than any other familiar vegetable. As I emerged entirely from the grove, I came upon a

ditch about twice as broad as deep. On Earth I certainly could not have leaped it; but since landing on Mars, I had forgotten the weightless life of the Astronaut, and felt as if on Earth, but enjoying great increase of strength and energy; and with these sensations had come instinctively an exalted confidence in my physical powers. I took, therefore, a vigorous run, and leaping with all my strength, landed, somewhat to my own surprise, a full yard on the other side of the ditch.

Having done so, I found myself in what was beyond doubt a cultivated field, producing nothing but one crimson-coloured plant, about a foot in height. This carpeted the soil with broad leaves shaped something like those of the laurel, and in colour exactly resembling a withered laurel leaf, but somewhat thicker, more metallic and brighter in appearance, and perfectly free from the bitter taste of the bay tribe. At a little distance I saw half-a-dozen animals somewhat resembling antelopes, but on a second glance still more resembling the fabled unicorn. They were like the latter, at all events, in the single particular from which it derived its name: they had one horn, about eight inches in length, intensely sharp, smooth and firm in texture as ivory, but marbled with vermilion and cream white. Their skins were cream-coloured, dappled with dark red. Their ears were large and protected by a lap which fell down so as to shelter the interior part of the organ, but which they had not quite lost the power to erect at the approach of a sound that startled them. They looked up

at me, at first without alarm, afterwards with some surprise, and presently bounded away; as if my appearance, at first familiar, had, on a closer examination, presented some unusual particulars, frightening them, as everything unusual frightens even those domestic animals on Earth best acquainted with man and most accustomed to his caprices. I noticed that all were female, and their abnormally large udders suggested that they were domestic creatures kept for their milk. Not being able to see a path through the field, I went straight forward, endeavouring to trample the pasture as little as I could, but being surprised to remark how very little the plants had been injured by the feet of the animals. The leaves had been grazed, but the stems were seldom or never broken. In fact, the animals seemed to have gathered their food as man would do, with an intelligent or instinctive care not to injure the plant so as to deprive it of the power of reproducing their sustenance.

In another minute I discerned the object of my paramount interest, of whose vicinity I had thus far seen nearly every imaginable evidence except himself. It was undoubtedly a man, but a man very much smaller than myself. His eyes were fixed upon the ground as if in reverie, and he did not perceive me till I had come within fifty yards of him, so that I had full time to remark the peculiarities of his form and appearance. He was about four feet eight or nine inches in height, with legs that seemed short in proportion to the,

length and girth of the body, but only because, as was apparent on more careful scrutiny, the chest was proportionately both longer and wider than in our race; otherwise he greatly resembled the fairer families of the Aryan breed, the Swede or German. The yellow hair, unshaven beard, whiskers, and moustache were all close and short. The dress consisted of a sort of blouse and short pantaloons, of some soft woven fabric, and of a vermilion colour. The head was protected from the rays of an equatorial sun by a species of light turban, from which hung down a short shade or veil sheltering the neck and forehead. His bare feet were guarded by sandals of some flexible material just covering the toes and bound round the ankle by a single thong. He carried no weapon, not even a staff, and I therefore felt that there was no immediate danger from him. On seeing me he started as with intense surprise and not a little alarm, and turned to run. Size and length of limb, however, gave me immense advantage in this respect, and in less than a minute I had come up with and laid my hand upon him.

He looked up at me, scanning my face with earnest curiosity. I took from my pocket first a jewel of very exquisite construction, a butterfly of turquoise, pearl, and rubies, set on an emerald branch, upon which he looked without admiration or interest, then a watch very small and elaborately enamelled and jewelled. To the ornament he paid no attention whatever; but when I opened the watch, its construction and movement evidently

interested him. Placing it in his hands and endeavouring to signify to him by signs that he was to retain it, I then held his arm and motioned to him to guide me towards the houses visible in the distance. This he seemed willing to do, but before we had gone many paces he repeated two or three times a phrase or word which sounded like "r'mo-ah-el" ("whence-who-what" do you want?). I shook my head; but, that he might not suppose me dumb, I answered him in Latin. The sound seemed to astonish him exceedingly; and as I went on to repeat several questions in the same tongue, for the purpose of showing him that I could speak and was desirous of doing so, I observed that his wonder grew deeper and deeper, and was evidently mingled first with alarm and afterwards with anger, as if he thought I was trying to impose upon him. I pointed to the sky, to the summit of the mountain from which I had descended, and then along the course by which I had come, explaining aloud at the same time the meaning of my signs. I thought that he had caught the latter, but if so, it only provoked an incredulous indignation, contempt of a somewhat angry character being the principal expression visible in his countenance. I saw that it was of little use to attempt further conversation for the present, and, still holding his hand and allowing him to direct me, looked round again at the scenes through which we were passing. The lower hill slopes before us appeared to be divided into fields of large extent, perhaps some 100 acres each, separated by ditches. We followed

a path about two yards broad, raised two or three inches above the level of the ground, and paved with some kind of hard concrete. Each ditch was crossed by a bridge of planks, in the middle of which was a stake or short pole, round which we passed with ease, but which would obviously baffle a four-footed animal of any size. The crops were of great variety, and wonderfully free from weeds. Most of them showed fruit of one kind or another, sometimes gourd-like globes on the top of upright stalks, sometimes clusters of a sort of nut on vines creeping along the soil, sometimes a number of pulpy fruits about the size of an orange hanging at the end of pendulous stalks springing from the top of a stiff reed-like stem. One field was bare, its surface of an ochreish colour deeper than that of clay, broken and smoothed as perfectly as the surface of the most carefully tended flower-bed. Across this was ranged a row of birds, differing, though where and how I had hardly leisure to observe, from the form of any earthly fowl, about twice the size of a crow, and with beaks apparently at least as powerful but very much longer. Extending entirely across the field, they kept line with wonderful accuracy, and as they march across it, slowly and constantly dug their beaks into the soil as if seeking grubs or worms beneath the surface. They went on with their work perfectly undisturbed by our presence. In the next field was a still odder sight; here grew gourd-like heads on erect reed-like stems, and engaged in plucking the ripe purple fruit, carefully distinguishing them from

the scarlet unripened heads, were half-a-score of creatures which, from their occupation and demeanour, I took at first to be human; but which, as we approached nearer, I saw were only about half the size of my companion, and thickly covered with hair, with bushy tails, which they kept carefully erect so as not to touch the ground; creatures much resembling monkeys in movement, size, and length, and flexibility of limb, but in other respects more like gigantic squirrels. They held the stalks of the fruit they plucked in their mouths, filling with them large bags left at intervals, and from the manner in which they worked I suspected that they had no opposable thumbs—that the whole hand had to be used like the paw of a squirrel to grasp an object. I pointed to these, directing my companion's attention and asking, "What are they?" "Ambau," he said, but apparently without the slightest interest in their proceedings. Indeed, the regularity and entire freedom from alarm or vigilance which characterised their movements, convinced me that both these and the birds we passed were domesticated creatures, whose natural instincts had been turned to such account by human training.

After a few moments more, we came in sight of a regular road, in a direction nearly at right angles to that which followed the course of the river. Like the path, it was constructed of a hard polished concrete. It was about forty paces broad, and in the centre was a raised way about four inches higher than the general surface, and occu-

pying about one-fourth of the entire width. Along the main way on either side passed from time to time with great rapidity light vehicles of shining metal, each having three wheels, one small one in front and two much larger behind, with box-like seats and steering handle; otherwise resembling nothing so much as the velocipedes I have seen ridden for amusement by eccentric English youths. It was clear, however, that these vehicles were not moved by any effort on the part of their drivers, and their speed was far greater than that of the swiftest mail-coach:—say, from fifteen to thirty miles an hour. All risk of collision was avoided, as those proceeding in opposite directions took opposite sides of the road, separated by the raised centre I have described. Crossing the road with caution, we came upon a number of small houses, perhaps twenty feet square, each standing in the midst of a garden marked out by a narrow ditch, some of them having at either side wings of less height and thrown a little backward. In the centre of each, and at the end of the wings where these existed, was what seemed to be a door of some translucent material about twelve feet in height. But I observed that these doors were divided by a scarcely perceptible line up to six feet from the ground, and presently one of these parted, and a figure, closely resembling that of my guide, came out.

We had now reached another road wich led apparently towards the larger houses I had seen in the distance, and were proceeding along the

raised central pathway, when some half-dozen persons from the cottages followed us. At a call from my guide, these, and presently as many more, ran after and gathered around us. I turned, took down my air-gun from my back, and waving it around me, signalled to them to keep back, not choosing to incur the danger of a sudden rush, since their bearing, if not plainly hostile, was not hospitable or friendly. Thus escorted, but not actually assailed, I passed on for three or four miles, by which time we were among the larger dwellings of which I have spoken. Each of them stood in grounds enclosed by walls about eight feet high, each of some uniform colour, contrasting agreeably with that chosen for the exterior of the house. The enclosures varied in size from about six to sixty acres. The houses were for the most part some twelve feet in height, and from one to four hundred feet square. On several flat roofs, guarded by low parapets, other persons, all about the size of my guide, now showed themselves, all of them interested, and, as it seemed, somewhat excited by my appearance. In a few cases groups differently dressed, and from their somewhat smaller stature, slighter figures, and the long hair here and there visible, probably consisting of women, were gathered on a remoter portion of the roof. But these when seen by those in front, were always waived back with an impatient or threatening gesture, and instantly retired. Presently two or three men more richly dressed than my escort, and in various colours, came out upon the road.

Addressing one of these, I pointed again to the sky, and again endeavoured to describe my journey, holding out to him at the same time, as the thing most likely to conciliate him, a watch somewhat larger than that I had bestowed upon my guide. He, however, did not come within arm's length: and when I repeated my signs, he threw back his head with a sort of sneer and uttered a few words in a sharp tone, at which my escort rushed upon and attempted to throw me down. For this, however, I had been long prepared, and striking right and left with my air-gun—for I was determined not to shed blood except in the last extremity—I speedily cleared a circle round me still grasping my guide with the left hand, from a providential instinct which suggested that his close contiguity might in some way protect me. A call from the chief of my antagonists was answered from the roof of a neighbouring house. I heard a whizzing through the air, and presently something like a winged serpent, but with a slender neck, and shoulders of considerable breadth, and a head much larger than a serpent's in proportion to the body, and shaped more like a bird's, with a sharp, short beak, sprang upon and coiled round my left arm. That it was trying to sting with an erectile organ placed about midway between the shoulders and the tail I became instinctively aware, and presently felt something like a weak electric thrill over all my body, while my left hand, which was naked, sustained a severe shock, completely numbing it for the moment. I caught the beast by the neck, and flung him with all my force right in the face of my chief antagonist, who

fell with a cry of terror. Looking in the direction from which this dangerous assailant had come, I perceived another in the air, and saw that not a moment was to be lost. Dropping my gun with the muzzle between my feet, and holding it so far as I could with my numbed left hand—releasing also my guide, but throwing him to the ground as I released him—I drew my sword; and but just in time, with the same motion with which I drew it, I cut right through the neck of the dragon that had been launched against me. My principal enemy had quickly recovered his feet and presence of mind, and spoke very loudly and at some length to the person who had launched the dragons. The latter disappeared, and at the same time the group around me began to disperse. Whatever suited them was certain not to suit me, and accordingly, still holding my sword, I caught one of them with each hand. It was well I had done so, for within another minute the owner of the dragons reappeared with a weapon not wholly unlike a long cannon of very small bore fixed upon a sort of stand. This he levelled at me, and I, seeing that a danger of whose magnitude and nature I could form no exact estimate was impending, caught up instinctively one of my prisoners, and held him as a shield between myself and the weapon pointed at me. This checked my enemy, who for the moment seemed almost as much at a loss as myself. Fortunately his hostile intention evidently endangered not only my life but all near me, and secured me from any close attack.

At this moment a somewhat remarkable personage came to the front of the group which had gathered some few yards before me. He wore a long frock of emerald green and trousers of the same colour, gathered in at the waist by a belt of a red metal. On earth I should have taken him for a hale and vigorous gentleman of some fifty years; he was two inches short of five feet, but well proportioned as a man of middle size. Gentleman I say emphatically; for something of dignity, gravity, and calm good-breeding, was conspicuous in his manner, as authority unmixed with menace was evident in his tone. He called, somewhat peremptorily as I thought, to the man who was still aiming his weapon at my head, then waived back those behind him, and presently advanced towards me, looking me straight in the eyes with a steadiness and intensity of gaze far exceeding, both in expressiveness and in effect, the most fixed stare of the most successful mesmerists I have known. I doubt whether I should have had the power to to resist his will had I thought it wise to do so. But I was perfectly aware that, however successful in repelling the first tumultuous attack, prolonged self-defence was hopeless. I must, probably at the next move, certainly in a few minutes, succumb to the enemies around me. I could not conciliate those whose malignity I could not comprehend. I had done them no injury, and they could hardly be maddened by fear, since my size and strength did not seem to overawe them save at close quarters, and of my weapons they were certainly less

afraid than I of theirs. My only chance must lie in finding favour with an individual protector. When, therefore, the new-comer fearlessly laid his hand on an arm which could have killed him at a blow, and rather by gesture than by force released my captives, policy as well as instinct dictated submission. I allowed him to disarm and make me in some sense his prisoner without a show of resistance. He took me by the *left* hand, first placing my fingers upon his own wrist and then grasping mine, and led me quietly through the crowd, which gave way before him reluctantly and not without angry murmurs, but with a certain awe as before one superior either in power or rank.

Thus he led me for about half a mile, till we reached the crystal gate of an enclosure of exceptional size, the walls of which, like the gate itself, were of a pale rose-colour. Through grounds laid out in symmetrical alternation of orchard and grove, shrubbery, close-carpeted field, and garden beds, arranged with evident regard to effect in form and colour, as well as to fitting distribution of shade and sun, we followed a straight path which sloped under a canopy of flowering creepers up to the terrace on which stood the house itself. There were some eight or nine crystal doors (or windows) in the front, and in the centre one somewhat larger than the others, which, as we came immediately in front of it, opened, not turning on hinges, but, like every other door I had seen, dividing and sliding rapidly into the walls to the right and left. We entered, and it immediately closed behind

us in the same way. Turning my head for a moment, I was surprised to observe that, whereas I could see nothing through the door from the outside, the scene without was as visible from within as through the most perfectly transparent glass. The chamber in which I found myself had walls of bright emerald green, with all the brilliant transparency of the jewel; their surface broken by bas-reliefs of minutely perfect execution, and divided into panels—each of which seemed to contain a series of distinct scenes, one above the other—by living creepers with foliage of bright gold, and flowers sometimes pink, sometimes cream-white of great size, both double and single; the former mostly hemispherical and the latter commonly shaped as hollow cones or wide shallow champagne glasses. In these walls two or three doors appeared, reaching from the floor to the roof, which was coloured like the walls, and seemingly of the same material. Through one of these my guide led me into a passage which appeared to run parallel with the front of the house, and turning down this, a door again parted on the right hand, through which he led me into a similar but smaller apartment, some twenty feet in width and twenty-five in length. The window—if I should so call that which was simply another door—of this apartment looked into one corner of a flowergarden of great extent, beyond and at each end of which were other portions of the dwelling. The walls of this chamber were pink, the surface appearing as before of jewel-like lustre; the roof and floor of a green

lighter than that of the emerald. In two corners were piles of innumerable cushions and pillows covered with a most delicate satin-like fabric, embroidered with gold, silver and feathers, all soft as eider-down and of all shapes and sizes. There were three or four light tables, apparently of metal, silver, or azure, or golden in colour, in various parts of the chamber, with one or two of different form, more like small office-tables or desks. In one of the walls was sunk a series of shelves closed by a transparent sheet of crystal of pale yellow tinge. There were three or four movable seats resembling writing or easy-chairs, but also of metal, luxurious all though all different. In the corner to the left, farthest from the inner court or peristyle, was a screen, which, as my host showed me, concealed a bath and some other convenient appurtenances. The bath was a cylinder some five feet in depth and about two in diameter, with thin double walls, the space between which was filled with an apparatus of small pipes. By pressing a spring, as my protector pointed out, countless minute jets of warm perfumed water were thrown from every part of the interior wall, forming the most delicious and perfect shower-bath that could well be devised.

My host then led me to a seat among the cushions, and placed himself beside me, looking for some time intently and gravely into my face, but with nothing of offensive curiosity, still less of menace in his gaze. It appeared to me as if he wished to read the character and perhaps the

thoughts of his guest. The scrutiny seemed to satisfy him. He stretched out his left hand, and grasping mine, placed it on his heart, and then dropping my hand, placed his upon my breast. He then spoke in words whose meaning I could not guess, but the tone sounded to me as that of inquiry. The question most likely to be asked concerned my character and the place from which I had come. I again explained, again pointing upward. He seemed dubious or perplexed, and it occurred to me that drawing might assist explanation; since, from the bas-reliefs and tracery, it was evident that the art was carried to no common excellence in Mars. I drew, therefore, in the first place, a globe to represent the Earth, traced its orbit round the Sun, and placed a crescent Moon at some little distance, indicating its path round the Earth. It was evident that my host understood my meaning the more clearly, when I marked upon the form of the Earth a crescent, such as she would often present through a Martial telescope. Sketches in outline roughly exhibiting different stages of my voyage, from the first ascent to the final landing, appeared to convince my host of my meaning, if not of my veracity. Signing to me to remain where I was, he left the room. In a few minutes he returned, accompanied by one of the strange squirrel-like animals I had seen in the fields. I was right in conjecturing that the creature had no opposable thumb; but a little ingenuity had compensated this so far as regarded the power of carrying. A little chain hung down

from each wrist, and to these was suspended a tray, upon which were arranged a variety of fruits and what seemed to be small loaves of various materials. Breaking one of these and cutting open with a small knife, apparently of silver, one of the fruits, my host tasted each and then motioned to me to eat. The attendant had placed the tray upon a table, disengaged the chains, and disappeared; the door opening and closing as he trod, somewhat more heavily than had been necessary for my host, upon particular points of the floor.

The food offered me was very delicious and various in flavour. My host showed me how to cut the top from some of the hard-rind fruits, so as to have a cup full of the most delicately-flavoured juice, the whole pulp having been reduced to a liquid syrup by a process with which some semi-civilised cultivators on Earth are familiar. When I had finished my meal, my host whistled, and the attendant, returning, carried away the tray. His master gave him at the same time what was evidently an order, repeating it twice, and speaking with signal clearness of intonation. The little creature bowed its head, apparently as a sign of intelligence, and in a few minutes returned with what seemed like a pencil or stylus and writing materials, and with a large silver-like box of very curious form. To one side was affixed a sort of mouthpiece, consisting of a truncated cone expanding into a saucer-shaped bowl. Across the wider and outer end of the cone was stretched a membrane or diaphragm about three inches in diameter.

Into the mouth of the bowl, two or three inches from the diaphragm, my host spoke one by one a series of articulate but single sounds, beginning with *â, a, aa, au, o, oo, ou, u, y* or *ei* (long), *i* (short), *oi, e,* which I afterwards found to be the twelve vowels of their language. After he had thus uttered some forty distinct sounds, he drew from the back of the instrument a slip of something like gold-leaf, on which as many weird curves and angular figures were traced in crimson. Pointing to these in succession, he repeated the sounds in order. I made out that the figures in question represented the sounds spoken into the instrument, and taking out my pencil, marked under each the equivalent character of the Roman alphabet, supplemented by some letters not admitted therein but borrowed from other Aryan tongues. My host looked on with some interest whilst I did this, and bent his head as if in approval. Here then was the alphabet of the Martial tongue—an alphabet not arbitrary, but actually produced by the vocal sounds it represented! The elaborate machinery modifies the rough signs which are traced by the mere aerial vibrations; but each character is a true physical type, a visual image, of the spoken sound; the voice, temper, accent, sex, of a speaker affect the phonograph, and are recognisable in the record. The instrument wrote, so to speak, different hands under my voice and under Esmo's; and those who knew him could identify his phonogram, as my friends my manuscript.

After I had been employed for some time in

fixing these forms and the corresponding sounds in my memory, my host advanced to the window, and opening it, led me into the interior garden; which, as I had supposed, was a species of central court around which the house was built.

The construction of the house was at once apparent. It consisted of a front portion, divided by the gallery of which I have spoken, all the rooms on one side thereof looking, like the chamber I first entered, into the outer enclosure; those on the other into the interior garden or peristyle. Beyond the latter was a single row of chambers opening upon it, appropriated to the ladies and children of the household. The court was roofed over with the translucent material of the windows. It was about 360 feet in length by 300 in width. At either end were chambers entirely formed of the same material as the roof, in one of which the various birds and animals employed either in domestic service or in agriculture, in another the various stores of the household, were kept. In front of these, two inclined planes of the same material as the walls of the house led up to the several parts of the roof. The court was divided by broad concrete paths into four gardens. In the centre of each was a basin of water and a fountain, above which was a square opening of some twenty feet in the roof. Each garden was, so to speak, turfed with minute plants, smaller than daisy roots, and even more closely covering the soil than English lawn grass. These were of different colours — emerald, gold, and purple —

arranged in bands. This turf was broken by a number of beds of all shapes, the crescent, circle, and six-rayed star being apparently the chief favourites. The smaller of these were severally filled with one or two flowers; in the larger, flowers of different colours were set in patterns, generally rising from the outside to the centre, and never allowing the soil to be seen through a single interval. The contrast of colours and tints was admirably ordered; the size, form, and structure of the flowers wonderfully various and always exquisitely beautiful. The exact tints of silver and gold were frequent and especially favoured. At each corner of every garden was a hollow silvery pillar, up which creepers with flowers of marvellous size and beauty, and foliage of hues almost as striking as those of the flowers, were conducted to form a perfect arch overhead, parting off the gardens from the walks. In each basin were fishes whose brilliancy of colouring and beauty of form far surpassed anything I have seen in earthly seas or rivers.

At the meeting of the four cross paths was a wide space covered with a soft woven carpet, upon which were strown cushions similar to those in my room. On these several ladies were reclining, who rose as the head of the family approached. One who seemed by her manner to be the mistress, and by her resemblance to some of her younger companions the mother, of the family, wore a sort of light golden half-helmet on the head, and over this falling round her half-way to the waist, a

crimson veil, intended apparently to protect her head and neck from the sun as much as to conceal them. Her face was partially uncovered. The dress of all was, except in colour and in certain omissions, and additions, much the same. The under-garments must have been slight in material and few in number. Nothing was to be seen of them save the sleeves, which were of a delicate substance, resembling that of the finest Parisian kid gloves, but far softer and finer. Over all was a robe almost without shape, save what it took from the figure to which it closely adapted itself, suspended by broad ribbons and jewelled clasps from the shoulders, falling nearly to the ankles, and gathered in by a zone at the waist. This garment left the neck, shoulders, and the upper part of the bosom uncovered; but the veil, whether covering the head completely, drawn round all save the face, or consisting only of two separate muslin falls behind either ear, was always so arranged as to render the general effect far more decorous than the "low dresses" of European matrons and maidens. The ankles and feet were entirely bare, save for sandals with an embroidered velvety covering for the toes, and silver bands clasped round the ankles. The eldest lady wore a pale green robe of a fine but very light silken-seeming fabric. Three younger ones wore a similar material of pink, with silver head-dresses and veils hiding everything but the eyes. All these had sleeves reaching to the wrist, ending in gloves of the same fabric. Two young girls were robed in

white gauze, with gauze veils attached over either ear to a very slight silver coronal; their arms bare till the sleeve of the under-robe appeared, a couple of inches below the shoulder; their bright soft faces and their long hair (which fell freely down the back, kept in graceful order here and there by almost invisible silver clasps or bands) were totally uncovered. "A maiden," says the Martialist, "may make the most of her charms; a wife's beauty is her lord's exclusive right." One of the girls, my host's daughters, might almost have veiled her entire form above the knees in the masses of rich soft brown hair inherited from her father, but mingled with tresses of another tinge, shimmering like gold under certain lights. Her eyes, of deepest violet, were shaded by dark thick lashes, so long that when the lids were closed they traced a clear black curve on either cheek. The other maiden had, like their mother, and, I believe, like the younger matrons, the bright hair—flaxen in early childhood, pale gold in maturer years—and the blue or grey eyes characteristic of the race. My host spoke two or three words to the chief of the party, indicating me by a graceful and courteous wave of the hand, upon which the person addressed slightly bent her head laying her hand at the same time upon her heart. The others acknowledged the introduction by a similar but slighter inclination, and all resumed their places as soon as my host, seating himself between us, signed to me to occupy some pillows which one of the young ladies arranged on his

left hand. I had observed by this time that the left hand was used by preference, as we use the right, for all purposes, and therefore was naturally extended in courtesy; and the left side was, for similar reasons, the place of honour.

Three or four children were playing in another part of the court. All, with one exception, were remarkably beautiful and healthy-looking, certainly not less graceful in form and movement than the happiest and prettiest in our own world. Their tones were soft and gentle, and their bearing towards each other notably kind and considerate. One unfortunate little creature differed from the rest in all respects. It was slightly lame, misshapen rather than awkward, and with a face that indicated bad health, bad temper, or both. Its manner was peevish and fractious, its tones sharp and harsh, and its actions rough and hasty. I took it for a mother's sickly favourite, deformed in character to compensate for physical deformity. Watching them for a short time, I saw the little creature repeatedly break out in all the humours of an ill-tempered, over-indulged youngest-born in an ill-managed family; snatching toys from the others, and now and then slapping or pinching them. But they never returned either word or blow, even when pain or vexation brought the tears to their eyes. When its caprices became intolerable most of its companions withdrew; one, however, always remaining on the watch, even if driven from the immediate neighbourhood by its intolerably provoking temper, tones, and acts.

Before sunset we were joined by a young man, who, first approaching my host with a respectful inclination of the head, stood before him till apparently desired by a few quiet words to speak; when he addressed the head of the family in some short sentences, and then, at a sign from him, turned to two of the squirrel-like animals "ambau," which followed him. These then laid at my feet two large baskets, or open bags of golden network, containing many of the smaller objects left in the Astronaut. Emptying these, they brought several more, till they had laid before me the whole of my wardrobe and my store of intended presents, books, and drawings, with such of my instruments as were not attached to the walls. It was evident that great care had been taken not to injure or dismantle the vessel. Nothing that actually belonged to it had been taken away, and of the articles brought not one had been broken or damaged. It was equally evident that there was no intention or idea of appropriating them. They were brought and handed over to me as a host on Earth might send for the baggage of an unexpected guest. Of the various toys and ornaments that I had brought for the purpose, I offered several of the most precious to my host. He accepted one of the smallest and least valuable, rather declining to understand than refusing the offer of the rest. The bringer did the same. Then placing in the chief's hands an open jewel-box containing a variety of the choicest jewellery, I requested by signs his permission to offer them

to the ladies. The elder ones imitated his example, and graciously accepted one or two tasteful feminine ornaments, of far less beauty and value than any of the few splendid jewels that adorned their belts and clasped their robes at the shoulder, or fastened their veils. The white-robed maidens shrank back shyly until the box was pressed upon them, when each, at a word from the mistress, selected some small gold or silver locket or chain; each at once placing the article accepted about her person, with an evident intention of adding to the grace with which it was received and acknowledging the intended courtesy. How valueless the most valuable of these trifles must have been in their eyes I had begun to suspect from what I saw, and was afterwards made fully aware. As the shades of evening fell, the fountains ceased to play, the young man pressed electric springs which closed the openings in the roof, and, finally, turning a small handle, caused a bright light to diffuse itself over the whole garden, and through the doors into the chambers opening upon it. At the same time a warmer air gradually spread throughout the interior of the building. A meal was then served in small low trays, which was eaten by all of us reclining on our cushions; after which the ladies retired, and my host conducted me back to my chamber, and left me to repose.

My books and sketches, as well as the portfolios of popular prints which I had selected to assist me in describing the life and scenery of our world, were, with my wardrobe and other proper-

ties, arranged on my shelves by the *ambau*, under the direction of Kevimâ, the young gentleman who had superintended their removal and conveyance to his father's house. The portfolios gave me occasional means and topics of pleasant intercourse with the family of my host, before we could converse at ease in their language. The children, though never troublesome or importunate, took frequent opportunities of stealing into the room to look over the prints I produced for their amusement. The ladies also, particularly the violet-eyed maiden, who seemed to be the especial guardian of the little ones, would draw near to look and listen. The latter, though she never entered the room or directly addressed me, often assisted in explaining my broken sentences to her charges, some of them not many years younger than herself. I took sincere pleasure in the children's company and growing confidence, but they were not the less welcome because they drew their sisters to listen to my descriptions of an existence so strange and so remote in habits and character, as well as in space. Perhaps their gentle governess learned more than any other member of the family respecting Earth-life, and my own adventures by land and water, in air and space. For, though just not child enough to share the children's freedom, she took in all they heard; she listened in silence during our evening gatherings to the conversation in which her father and brother encouraged me to practise the language I was laboriously studying. She had, therefore, double oppor-

tunities of acquiring a knowledge which seemed to interest her deeply; naturally, since it was so absolutely novel, and communicated by one whose very presence was the most marvellous of the marvels it attested. How much she understood I could not judge. Except her mother, the ladies did not take a direct part in my talk with the children, and but very seldom interposed, through my host, a shy brief question when the evening brought us all together. The maidens, despite their theoretical privileges, were even more reserved than their elders, and the dark-haired Eveena the most silent and shy of all.

I learned afterwards that the privilege of intercourse with the ladies of the household, restricted as it was, was wholly exceptional, and even in this family was conceded only out of consideration for one who could not safely be allowed to leave the house.

CHAPTER V.

LANGUAGE, LAWS AND LIFE.

THOUGH treated with the greatest kindness and courtesy, I soon found reason to understand that I was, at least for the present, a prisoner. My host or his son never failed to invite me each day to spend some time in the outer enclosure, but never intentionally left me alone there. On one occasion, when Kevimâ had been called away and I ventured to walk down towards the gate, my

host's youngest child, who had been playing on the roof, ran after me, and reaching me just as my foot was set on the spring that opened the gate or outer door, caught me by the hand, and looking up into my face, expressed by glance and gesture a negative so unmistakable that I thought it expedient at once to comply and return to the house. There my time was occupied, for as great a part of each day as I could give to such a task without extreme fatigue, in mastering the language of the country. This was a much simpler task than might have been supposed. I soon found that, unlike any Terrestrial tongue, the language of this people had not grown but been made—constructed deliberately on set principles, with a view to the greatest possible simplicity and the least possible taxation of the memory. There were no exceptions or irregularities, and few unnecessary distinctions; while words were so connected and related that the mastery of a few simple grammatical forms and of a certain number of roots enabled me to guess at, and by and by to feel tolerably sure of, the meaning of a new word. The verb has six tenses, formed by the addition of a consonant to the root, and six persons, plural and singular, masculine and feminine.

Singular.	*Masc.*	*Fem.*	*Plural.*	*Masc.*	*Fem.*
I am	*avâ*	*ava*	We are	*avau*	*avaa*
Thou art	*avo*	*avoo*	You are	*avou*	*avu*
He *or* she is	*avy*	*ave*	They are	*avoi*	*avee*

The terminations are the three pronouns, feminine and masculine, singular and plural, each represented by one of the twelve vowel characters, and declined like nouns. When a nominative immediately follows the verb, the pronominal suffix is generally dropped, unless required by euphony. Thus "a man strikes" is *dak klaftas,* but in the past tense, *dakny klaftas,* the verb without the suffix being unpronounceable. The past tense is formed by the insertion of *n* (*avnâ:* "I have been"), the future by *m*: *avmâ.* The imperative, *avsâ*; which in the first person is used to convey determination or resolve; *avsâ,* spoken in a peremptory tone, meaning "I *will* be," while *avso*, according to the intonation, means "be" or "thou shalt be;" *i.e.*, shalt whether or no. *R* forms the conditional, *avrâ*, and *ren* the conditional past, *avrenâ*, "I should have been." The need for a passive voice is avoided by the simple method of putting the pronoun in the accusative; thus, *dâcâ* signifies "I strike," *dâcal* (me strike) "I am struck." The infinitive is *avi; avyta,* "being;" *avnyta*, "having been;" *avmyta*, "about to be." These are declined like nouns, of which latter there are six forms, the masculine in *â, o,* and *y,* the feminine in *a, oo,* and *e*; the plurals being formed exactly as in the pronominal suffixes of the verb. The root-word, without inflexion, alone is used where the name is employed in no connection with a verb, where in every terrestrial language the nominative would be employed. Thus, my guide had named the

squirrel-monkeys *ambau* (sing. *ambâ*); but the word is declined as follows:—

	Singular.	*Plural.*
Nominative	ambâs	ambaus
Accusative	ambâl	ambaul
Dative, to or in	ambân	ambaun
Ablative, by or from	ambâm	ambaum

The five other forms are declined in the same manner, the vowel of the last syllable only differing. Adjectives are declined like nouns, but have no comparative or superlative degree; the former being expressed by prefixing the intensitive syllable *ca,* the latter, when used (which is but seldom), by the prefix *cla,* signifying *the* in an emphatic sense, as his Grace of Wellington is in England called *The* Duke *par excellence.* Prepositions and adverbs end in *t* or *d.*

Each form of the noun has, as a rule, its special relation to the verb of the same root: thus from *dâc,* "strike," are derived *dâcâ,* "weapon" or "hammer;" *dâco,* a "stroke" or "striking" [as given] both masculine; *dâca,* "anvil;" *dâcoo,* "blow" or "beating" [as received]; and *dâke,* "a thing beaten", feminine. The sixth form, *dâky,* masculine, has in this case no proper signification, and not being wanted, is not used. Individual letters or syllables are largely employed in combination to give new and even contradictory meanings to a root. Thus *n,* like the Latin *in,* signifies "penetration," "motion towards," or simply "remaining in a place," or again, "permanence." *M,* like the

Latin *ab* or *ex*, indicates "motion from." *R* expresses "uncertainty" or "incompleteness," and is employed to convert a statement into a question, or a relative pronoun into one of inquiry. *G*, like the Greek *a* or *anti*, generally signifies "opposition" or "negation;" *ca* is, as aforesaid, intensitive, and is employed, for example, to convert *âfi*, "to breathe," into *câfi*, "to speak." *Cr* is by itself an interjection of abhorrence or disgust; in composition it indicates detestation or destruction: thus, *crâky* signifies "hatred;" *crâvi*, "the destruction of life" or "to kill." *L* for the most part indicates passivity, but with different effect according to its place in the word. Thus *mepi* signifies "to rule;" *mepil*, "to be ruled;" *melpi*, "to control one's self;" *lempi*, "to obey." The signification of roots themselves is modified by a modification of the principal vowel or consonant, *i.e.*, by exchanging the original for one closely related. Thus *avi*, "exist;" *âvi*, "be," in the positive sense of being this or that; *âfi*, "live;" *âfi*, "breathe." *Z* is a diminutive; *zin*, "with," often abbreviated to *zn*, "combination," "union." Thus *znaftau* means "those who were brought into life together," or "brethren."

I may add, before I quit this subject, that the Martial system of arithmetic differs from ours principally in the use of a duodecimal instead of a decimal basis. Figures are written on a surface divided into minute squares, and the value of a figure, whether it signify so many units, dozens, twelve dozens, and so forth, depends upon the

square in which it is placed. The central square of a line represents the unit's place, and is marked by a line drawn above it. Thus a figure answering to our 1, if placed in the fourth square to the left, represents 1728. In the third place to the right, counting the unit square in both cases, it signifies $\frac{1}{144}$, and so forth.

In less than a fortnight I had obtained a general idea of the language, and was able to read easily the graven representations of spoken sound which I have described; and by the end of a month (to use a word which had no meaning here) I could speak intelligibly if not freely. Only in a language so simple could my own anxiety to overcome as soon as possible a fatal obstacle to all investigation of this new world, and the diligent and patient assistance given by my host or his son for a great part of every day, have enabled me to make such rapid progress. I had noted, even during the short evening gatherings when the whole family was assembled, the extreme taciturnity of both sexes; and by the time I could make myself understood, I was not surprised to learn that the Martials have scarcely the idea of what we mean by conversation, not talking for the sake of talking, or speaking unless they have something to discuss, explain, or communicate. I found, again, that a new and much more difficult task, though fortunately one not so indispensable, was still in store for me. The Martials have two forms of writing; the one I have described, which is simply a mechanical rendering of spoken words

into artificially simplified visible signs; the other, written by hand, with a fine pencil of some chemical material on a prepared surface, textile or metallic. The characters of the latter are, like ours, wholly arbitrary; but the contractions and abbreviations are so numerous that the mastery of the mere alphabet, the forty or fifty single letters employed, is but a single step in the first stage of the hard task of learning to read. In no country on Earth, except China, is this task half so severe as in Mars. On the other hand, when it is once mastered, a far superior instrument has been gained; the Martial writing being a most terse but perfectly legible shorthand. Every Martial can write at least as quickly as he can speak, and can read the written character more rapidly than the quickest eye can peruse the best Terrestrial print. Copies, whether of the phonographic or stylographic writing, are multiplied with extreme facility and perfection. The original, once inscribed in either manner upon the above-mentioned *tafroo* or gold-leaf, is placed upon a sheet of a species of linen, smoother than paper, called *difra*. A current of electricity sent through the former reproduces the writing exactly upon the latter, which has been previously steeped in some chemical composition; the effect apparently depending on the passage of the electricity through the untouched metal, and its absolute interception by the ink, if I may so call it, of the writing, which bites deeply into the leaf. This process can be repeated almost *ad libitum*; and it is equally easy to take at any

time a fresh copy upon *tafroo,* which serves again for the reproduction of any number of *difra* copies. The book, for the convenience of this mode of reproduction, consists of a single sheet, generally from four to eight inches in breadth and of any length required. The writing intended to be thus copied is always minute, and is read for the most part through magnifying spectacles. A roller is attached to each end of the sheet, and when not in use the latter is wound round that attached to the conclusion. When required for reading, both rollers are fixed in a stand, and slowly moved by clockwork, which spreads before the eyes of the reader a length of about four inches at once. The motion is slackened or quickened at the reader's pleasure, and can be stopped altogether, by touching a spring. Another means of reproducing, not merely writings or drawings, but natural objects, consists in a simple adaptation of the *camera obscura.* [The only essential difference from our photographs being that the Martial art reproduces colour as well as outline, I omit this description.]

While I was practising myself in the Martial language my host turned our experimental conversations chiefly, if not exclusively, upon Terrestrial subjects; endeavouring to learn all that I could convey to him of the physical peculiarities of the Earth, of geology, geography, vegetation, animal life in all its forms, human existence, laws, manners, social and domestic order. Afterwards, when, at the end of some fifty days, he found that we could converse, if not with ease yet without fear of se-

rious misapprehension, he took an early opportunity of explaining to me the causes and circumstances of my unfriendly reception among his people.

"Your size and form," he said, "startled and surprised them. I gather from what you have told me that on Earth there are many nations very imperfectly known to one another, with different dress, language, and manners. This planet is now inhabited by a single race, all speaking the same tongue, using much the same customs, and differing from one another in form and size much less widely than (I understand) do men upon your Earth. There you might have been taken for a visitor from some strange and unexplored country. Here it was clear that you were not one of our race, and yet it was inconceivable what else you could be. We have no giants; the tallest skeleton preserved in our museums is scarcely a hand's breadth taller than myself, and does not, of course, approach to your stature. Then, as you have pointed out, your limbs are longer and your chest smaller in proportion to the rest of the body; probably because, as you seem to say, your atmosphere is denser than ours, and we require ampler lungs to inhale the quantity of air necessary at each breath for the oxidation of the blood. Then you were not dumb, and yet affected not to understand our language and to speak a different one. No such creature could have existed in this planet without having been seen, described, and canvassed. You did not, therefore, belong to us. The story you told by signs was quickly apprehended, and as

quickly rejected as an audacious impossibility. It was an insult to the intelligence of your hearers, and a sufficient ground for suspecting a being of such size and physical strength of some evil or dangerous design. The mob who first attacked you were probably only perplexed and irritated; those who subsequently interfered may have been animated also by scientific curiosity. You would have been well worth anatomisation and chemical analysis. Your mail-shirt protected you from the shock of the dragon, which was meant to paralyse and place you at the mercy of your assailants; the metal distributing the current, and the silken lining resisting its passage. Still, at the moment when I interposed, you would certainly have been destroyed but for your manœuvre of laying hold of two of your immediate escort. Our destructive weapons are far superior to any you possess or have described. That levelled at you by my neighbour would have sent to ten times your distance a small ball, which, bursting, would have asphyxiated every living thing for several yards around. But our laws regarding the use of such weapons are very stringent, and your enemy dared not imperil the lives of those you held. Those laws would not, he evidently thought, apply to yourself, who, as he would have affirmed, could not be regarded as a man and an object of legal protection."

He explained the motives and conduct of his countrymen with such perfect coolness, such absence of surprise or indignation, that I felt slightly nettled, and answered sarcastically, "If the slaugh-

ter of strangers whose account of themselves appears improbable be so completely a matter of course among you, I am at a loss to understand your own interference, and the treatment I have received from yourself and your family, so utterly opposite in spirit as well as in form to that I met from everybody else."

"I do not," he answered, "always act from the motives in vogue among my fellow-creatures of this planet; but why and how I differ from them it might not be well to explain. It is for the moment of more consequence to tell you why you have been kept in some sense a prisoner here. My neighbours, independently of general laws, are for certain reasons afraid to do me serious wrong. While in my company or in my dwelling they could hardly attempt your life without endangering mine or those of my family. If you were seen alone outside my premises, another attempt, whether by the asphyxiator or by a destructive animal, would probably be made, and might this time prove successful. Till, therefore, the question of your humanity and right to the protection of our law is decided by those to whom it has been submitted, I will beg you not to venture alone beyond the bounds that afford you security; and to believe that in this request, as in detaining you perforce heretofore, I am acting simply for your own welfare, and not," he added, smiling, "with a view to secure the first opportunity of putting your relation to our race to the tests of the dissecting table and the laboratory."

"But my story explained everything that seemed inexplicable; why was it not believed? It was assumed that I could not belong to Mars; yet I was a living creature in the flesh, and must therefore have come from some other planet, as I could hardly be supposed to be an inhabitant of space."

"We don't reason on impossibilities," replied my friend. "We have a maxim that it is more probable that any number of witnesses should lie, that the senses of any number of persons should be deluded, than that a miracle should be true; and by a miracle we mean an interruption or violation of the known laws of nature."

"One eminent terrestrial sceptic," I rejoined, "has said the same thing, and masters of the science of probabilities have supported his assertion. But a miracle should be a violation not merely of the known but of all the laws of nature, and until you know all those laws, how can you tell what is a miracle? The lifting of iron by a magnet —I suppose you have iron and loadstones here as we have on Earth—was, to the first man who witnessed it, just as complete a violation of the law of gravity as now appears my voyage through space, accomplished by a force bearing some relation to that which acts through the magnet."

"Our philosophers," he answered, "are probably satisfied that they know nearly all that is to be known of natural laws and forces; and to delusion or illusion human sense is undeniably liable."

"If," I said, "you cannot trust your senses, you may as well disbelieve in your own existence and

in everything around you, for you know nothing save through those senses which are liable to illusion. But we know practically that there are limits to illusion. At any rate, your maxim leads directly and practically to the inference that, since I do not belong to Mars and cannot have come from any other world, I am not here, and in fact do not exist. Surely it was somewhat illogical to shoot an illusion and intend to dissect a spectre! Is not a fact the complete and unanswerable refutation of its impossibility?

"A good many facts to which I could testify," he replied, "are in this world confessed impossibilities, and if my neighbours witnessed them they would pronounce them to be either impostures or illusions."

"Then," said I, somewhat indignantly, "they must prefer inferences from facts to facts themselves, and the deductions of logic to the evidence of their senses. Yet, if that evidence be wanting in certainty, then, since no chain can be stronger than its weakest point, inferences are doubly uncertain; first, because they are drawn from facts reported by sense, and, secondly, because a flaw in the logic is always possible."

"Do not repeat that out of doors," he answered, smiling. "It is not permitted here to doubt the infallibility of science; and any one who ventures to affirm persistently a story which science pronounces impossible (like your voyage through space), if he do not fall at once a victim to popular piety, would be consigned to the worse than

living death of life-long confinement in a lunatic hospital."

"In that case I fear very much that I have little chance of being put under the protection of your laws, since, whatever may be the impression of those who have seen me, every one else must inevitably pronounce me non-existent; and a nonentity can hardly be the subject of legal wrong or have a right to legal redress."

"Nor," he replied, "can there be any need or any right to annihilate that which does not exist. This alternative may occupy our Courts of Justice, for aught I know, longer than you or I can hope to live. What I have asked is that, till these have decided between two contradictory absurdities, you shall be provisionally and without prejudice considered as a human reality and an object of legal protection."

"And who," I asked, "has authority *ad interim* to decide this point?"

"It was submitted," he answered, "in the first place, to the Astyntà (captain, president) who governs this district; but, as I expected, he declined to pronounce upon it, and referred it to the Mepta (governor) of the province. Half-an-hour's argument so bewildered the latter that he sent the question immediately to the Zamptà (Regent) of this dominion, and he, after hearing by telegraph the opening of the case, at once pronounced that, as affecting the entire planet, it must be decided by the Camptà or Suzerain. Now this gentleman is impatient of the dogmatism of the philosophers,

who have tried recently to impose upon him one or two new theoretical rules which would limit the amount of what he calls free will that he practically enjoys; and as the philosophers are all against you, and as, moreover, he has a strong though secret hankering after curious phenomena—it would not do to say, after impossibilities—I do not think he will allow you to be destroyed, at least till he has seen you."

"Is it possible," I said, "that even your monarch cherishes a belief in the incredible or logically impossible, and yet escapes the lunatic asylum with which you threaten me?"

"I should not escape grave consequences were I to attribute to him a heresy so detestable," said my host. "Even the Camptà would not be rash enough to let it be said that he doubts the infallibility of science, or of public opinion as its exponent. But as it is the worst of offences to suggest the existence of that which is pronounced impossible or unscientific, the supreme authority can always, in virtue of the enormity of the guilt, insist on undertaking himself the executive investigation of all such cases; and generally contrives to have the impossibility, if a tangible one, brought into the presence either as evidence or as accomplice."

"Well," I rejoined, after a few minutes' reflection, "I don't know that I have much right to complain of ideas which, after all, are but the logical development of those which are finding constantly more and more favour among our most enlightened nations. I can quite believe, from

what I have seen of our leading scientists, that in another century it may be dangerous in my own country for my descendants to profess that belief in a Creator and a future life which I am superstitious enough to prefer to all the revelations of all the material sciences."

"As you value your life and freedom," he replied, "don't speak of such a belief here, save to the members of my own family, and to those with whom I may tell you you are safe. Such ideas were held here, almost as generally as you say they now are on Earth, some twelve thousand years ago, and twenty thousand years ago their profession was compulsory. But for the last hundred centuries it has been settled that they are utterly fatal to the progress of the race, to enlightenment, to morality, and to the practical devotion of our energies to the business of life; and they are not merely disavowed and denounced, but hated with an earnestness proportioned to the scientific enthusiasm of classes and individuals."

"But," said I, "if so long, so severely, and so universally discountenanced, how can their expression by one man here or there be considered perilous?"

"Our philosophers say," he replied, "that the attractiveness of these ideas to certain minds is such that no reasoning, no demonstration of their absurdity, will prevent their exercising a mischievous influence upon weak, and especially upon feminine natures; and perhaps the suspicion that they are still held in secret may contribute to keep alive

the bitterness with which they are repudiated and repressed. But if they are so held, if there be any who believe that the order of the universe was at first established, and that its active forces are still sustained and governed, by a conscious Intelligence—if there be those who think that they have proof positive of the continued existence of human beings after death—their secret has been well kept. For very many centuries have elapsed since the last victim of such delusions, as they were solemnly pronounced by public vote in the reign of the four-hundredth predecessor of the present Camptà, was sent as incurable to the dangerous ward of our strictest hospital for the insane."

A tone of irony, and at the same time an air of guarded reserve, seemed to pervade all my host's remarks on this subject, and I perceived that for some reason it was so unpleasant to him that courtesy obliged me to drop it. I put, therefore, to turn the conversation, some questions as to the political organisation of which his words had afforded me a glimpse; and in reply he undertook to give me a summary of the political history of his planet during the last few hundred generations.

"If," he said, "in giving you this sketch of the process by which our present social order has been established, I should mention a class or party who have stood at certain times distinctly apart from or in opposition to the majority, I must, in the first place, beg you to ask no questions about them, and in the next not to repeat incautiously

the little I may tell you, or to show, by asking questions of others, what you have heard from me."

I gave my promise frankly, of course, and he then gave me the following sketch of Martial history:—

"We date events from the union of all races and nations in a single State, a union which was formally established 13,218 years ago. At that time the large majority of the inhabitants of this planet possessed no other property than their houses, clothes, and tools, their furniture, and a few other trifles. The land was owned by fewer than 400,000 proprietors. Those who possessed movable wealth may have numbered thrice as many. Political and social power was in the hands of the owners of property, and of those, generally connected with them by birth or marriage, who were at any rate not dependent on manual labour for their bread. But among these there were divisions and factions on various questions more or less trivial, none of them approaching in importance or interest to the fundamental and irreconcilable conflict sure one day to arise between those who had accumulated wealth and those who had not. To gain their ends in one or another of these frivolous quarrels, each party in turn admitted to political influence section after section of what you call the proletariat; till in the year 3278 universal suffrage was granted, every man and woman over the age of twelve years* being entitled to a single and equal vote.

* The Martial year is 687 of our days, and eight Martial

About the same time the change in opinion of which I have spoken had taken general effect, and the vast majority of the men, at any rate, had ceased to believe in a future life wherein the inequalities and iniquities of this might be redressed. It followed that they were fiercely impatient of hardships and suffering, especially such as they thought might be redressed by political and social changes. The leaders of the multitude, for the most part men belonging to the propertied classes who had either wasted their wealth or never possessed any, demanded the abolition of private ownership, first of land, then of movable wealth; a demand which fiercely excited the passions of those who possessed neither, and as bitterly provoked the anger and alarm of those who did. The struggle raged for some generations and ended by an appeal to the sword; in which, since the force of the State was by law in the hands of the majority, the intelligent, thrifty, careful owners of property with their adherents were signally defeated. Universal communism was established in 3412, none being permitted to own, or even to claim, the exclusive use of any portion of the planet's surface, or of any other property except the share of food and clothing allotted to him. One only privilege was allowed to certain sectaries who still clung to the habits of the past, to the permanence and privacy of family life. They were

years are nearly equivalent to fifteen Terrestrial. Roughly, and in round numbers, the time figures given may be multiplied by two to reduce them to Terrestrial periods.—ED.

permitted to have houses or portions of houses to themselves, and to live there on the share of the public produce allotted to the several members of each household. It had been assumed as matter of course by the majority that when every one was forced to work there would be more than enough for all; that public spirit, and if necessary coercion, would prove as effectual stimulants to exertion and industry as interest and necessity had done under the system of private ownership.

Those who relied on the refutation of this theory forgot that with poor and suffering men who look to no future, and acknowledge no law but such as is created by their own capricious will and pleasure, envy is even a more powerful passion than greed. The Many preferred that wealth and luxury should be destroyed, rather than that they should be the exclusive possession of the Few. The first and most visible effect of Communism was the utter disappearance of all perishable luxuries, of all food, clothing, furniture, better than that enjoyed by the poorest. Whatever could not be produced in quantities sufficient to give each an appreciable share was not produced at all. Next, the quarrels arising out of the apportionment of labour were bitter, constant, and savage. Only a grinding despotism could compose them, and those who wielded such despotism for a short time excited during the period of their rule such fierce and universal hatred, that they were invariably overturned and almost invariably murdered before their very brief legal term of office had closed. It

was not only that those engaged in the same kind of labour quarrelled over the task assigned to each, whether allotted in proportion to his strength, or to the difficulty of his labour, or by lot equally to all. Those to whom the less agreeable employments were assigned rebelled or murmured, and at last it was necessary to substitute rotation for division of labour, since no one would admit that he was best fitted for the lower or less agreeable. Of course we thus wasted silver tools in doing the work of iron, and reduced enormously the general production of wealth. Next, it was found that since one man's industry or idleness could produce no appreciable effect upon the general wealth, still less upon the particular share assigned to him, every man was as idle as the envy and jealousy of his neighbours would allow. Finally, as the produce annually diminished and the number of mouths to be fed became a serious consideration, the parents of many children were regarded as public enemies. The entire independence of women, as equal citizens, with no recognised relation to individual men, was the inevitable outcome, logically and practically, of the Communistic principle; but this only made matters worse. Attempts were of course made to restrain multiplication by law, but this brought about inquisitions so utterly intolerable that human nature revolted against them. The sectaries I have mentioned—around whom, without adopting or even understanding their principles, gradually gathered all the better elements of society, every man of intellect and spirit who

had not been murdered, with a still larger proportion of women—seceded separately or in considerable numbers at once; established themselves in those parts of the planet whose less fertile soil or less genial climate had caused them to be abandoned, and there organised societies on the old principles of private ownership and the permanence of household ties. By and by, as they visibly prospered, they attracted the envy and greed of the Communists. They worked under whatever disadvantage could be inflicted by climate and soil, but they had a much more than countervailing advantage in mutual attachment, in freedom from the bitter passions necessarily excited by jealousy and incessant mutual interference inseparable from the Communistic system, and in their escape from the caprice and instability of popular government —these societies, whether from wisdom or mere reaction, submitting to the rule of one or a few chief magistrates selected by the natural leaders of each community. Moreover, they had not merely the adhesion of all the more able, ambitious, and intellectual who seceded from a republic in which neither talent nor industry could give comfort or advantage, but also the full benefit of inventive genius, stimulated by the hope of wealth in addition to whatever public spirit the habits of Communism had not extinguished. They systematically encouraged the cultivation of science, which the Communists had very early put down as a withdrawal of energy from the labour due to the community at large. They had a monopoly of ma-

chinery, of improvement, of invention both in agriculture, in manufactures, and in self-defence. They devised weapons far more destructive than those possessed by the old *régime*, and still more superior to such as, after centuries of anarchy and decline, the Communists were able to procure. Finally, when assailed by the latter, vast superiority of numbers was annulled by immeasurable superiority in weapons and in discipline. The secessionists were animated, too, by a bitter resentment against their assailants, as the authors of the general ruin and of much individual suffering; and when the victory was gained, they not infrequently improved it to the utter destruction of all who had taken part in the attack. Whichever side were most to blame in the feud, no quarter was given by either. It was an internecine war of numbers, ignorance, and anarchy against science and order. On both sides there still remained much of the spirit generated in times when life was less precious than the valour by which alone it could be held, and preserved through milder ages by the belief that death was not annihilation—enough to give to both parties courage to sacrifice their lives for the victory of their cause and the destruction of their enemies. But after a few crushing defeats, the Communists were compelled to sue for peace, and to cede a large part of their richest territory. Driven back into their own chaotic misery, deterred by merciless punishment from further invasion of their neighbours' dominions, they had leisure to contrast their wretched condition with that of those

who prospered under the restored system of private ownership, family interest, strong, orderly, permanent government, material and intellectual civilisation. Machinery did for the new State, into which the seceding societies were consolidated by the necessity of self-defence, much more than it had done before Communism declared war on it. The same envy which, if war had been any longer possible, would have urged the Communists again and again to plunder the wealth that contrasted so forcibly their own increasing poverty, now humbled them to admire and covet the means which had produced it. At last, after bitter intestine struggles, they voluntarily submitted to the rule of their rivals, and entreated the latter to accept them as subjects and pupils. Thus in the 39th century order and property were once more established throughout the planet.

"But, as I have said, what you call religion had altogether disappeared—had ceased, at least as an avowed principle, to affect the ideas and conduct of society or of individuals. The re-establishment of peace and order concentrated men's energies on the production of material wealth and the achievement of physical comfort and ease. Looking forward to nothing after death, they could only make the best of the short life permitted to them and to their utmost to lengthen it. In the assurance of speedy separation, affection became a source of much more anxiety and sorrow than happiness. All this being precarious and their endurance short, their force became less and

less; till the utmost enjoyment of the longest possible life for himself became the sole, or almost the sole, animating motive, the one paramount interest, of each individual. The equality which logic had established between the sexes dissolved the family tie. It was impossible for law to dictate the conditions on which two free and equal individuals should live together, merely because they differed in sex. All the State could do it did; it insisted on a provision for the children. But when parental affection was extinguished, such provision could only be secured by handing over the infant and its portion to the guardianship of the State. As children were troublesome and noisy, the practice of giving them up to public officers to be brought up in vast nurseries regulated on the strictest scientific principles became the general rule, and was soon regarded as a duty; what was at first almost openly avowed selfishness soon justifying and glorifying itself on the ground that the children were better off under the care of those whose undivided attention was given to them, and in establishments where everything was regulated with sole regard to their welfare, than they could be at home. No law compels us to send our children to these establishments. In rare cases a favourite will persuade her lord to retain her pet son and make him heir, but both the Courts and public opinion discountenance this practice. Some families, like my own, systematically retain their children and educate them at home; but it is generally thought that in doing so we do them a wrong, and our neighbours

look askance upon so signal a deviation from custom; the more so, perhaps, that they half suspect us of dissenting from their views on other subjects, on which our opinions do not so directly or so obviously affect our conduct, and on which therefore we are not so easily convicted of free choice" [heresy].

Here I inquired whether the birth and parentage of the children sent to the public establishments were registered, so as to permit their being reclaimed or inheriting property.

"No," he replied. "Inheritance by mere descent is a notion no longer favoured. I believe that young mothers sometimes, before parting with their children, impress upon them some indelible mark by which it may be possible hereafter to recognise them; but such recognitions seldom occur. Maternal affection is discountenanced as a purely animal instinct, a survival from a lower grade of organisation, and does not generally outlast a ten years' separation; while paternal love is utterly scouted as an absurdity to which even the higher animals are not subject. Boys are kept in the public establishments until the age of twelve, those from ten to twelve being separated from the younger ones and passing through the higher education in separate colleges. The girls are educated apart till they complete their tenth year, and are almost invariably married in the course of the next. At first, under the influence of the theory of sexual equality, both received their intellectual instruction in the same classes and passed through

the same examinations. Separation was soon found necessary; but still girls passed through the same intellectual training as their brothers. Experience, however, showed that this would not answer. Those girls who distinguished themselves in the examinations were, with scarcely an exception, found unattractive as wives and unfit to be mothers. A very much larger number, a number increasing in every generation, suffered unmistakably from the severity of the mental discipline to which they were subjected. The advocates of female equality made a very hard fight for equal culture; but the physical consequences were perfectly clear and perfectly intolerable. When a point was reached at which one half the girls of each generation were rendered invalids for life, and the other half protected only by a dense stupidity or volatile idleness which no school punishments could overcome, the Equalists were driven from one untenable point to another, and forced at last to demand a reduction of the masculine standard of education to the level of feminine capacities. Upon this ground they took their last stand, and were hopelessly beaten. The reaction was so complete that for the last two hundred and forty generations, the standard of female education has been lowered to that which by general confession ordinary female brains can stand without injury to the physique. The practical consequences of equality have re-established in a more absolute form than ever the principle that the first purpose of female life is marriage and maternity; and that for their own

sakes as for the sake of each successive generation, women should be so trained as to be attractive wives and mothers of healthy children, all other considerations being subordinated to these. A certain small number of ladies avail themselves of the legal equality they still enjoy, and live in the world much as men. But we regard them as third-rate men in petticoats, hardly as women at all. Marriage with one of them is the last resource to which a man too idle or too foolish to earn his own living will betake himself. Whatever their education, our women have always found that such independence as they could earn by hard work was less satisfactory than the dependence, coupled with assured comfort and ease, which they enjoy as the consorts, playthings, or slaves of the other sex; and they are only too glad to barter their legal equality for the certainty of protection, indolence, and permanent support."

"Then your marriages," I said, "*are* permanent?"

"Not by law," he replied. "Nothing like what our remote ancestors called marriage is recognised at all. The maidens who come of age each year sell themselves by a sort of auction, those who purchase them arranging with the girls themselves the terms on which the latter will enter their family. Custom has fixed the general conditions which every girl expects, and which only the least attractive are forced to forego. They are promised a permanent maintenance from their master's estate and promise in return a fixed term of marriage. After two or three years they are free to rescind

the contract; after ten or twelve they may leave their husbands with a stipulated pension. They receive an allowance for dress and so forth proportionate to their personal attractions or to the fancy of the suitor; and of course the richest men can offer the best terms and generally secure the most agreeable wives, in whatever number they please, or think they can without inconvenience support."

"Then," I said, "the women can divorce themselves at pleasure, but the men cannot dismiss them! This hardly looks like equality."

"The practical result," he answered, "is that men don't care for a release which would part them from complaisant slaves, and that women dare not seek a divorce which can only hand them over to another master on rather worse terms. When the longer term has expired, the latter almost always prefer the servitude to which they are accustomed to an independent life of solitude and friendlessness."

"And what becomes," I asked, "of the younger men who must enter the world without property, without parents or protectors?

"We are, after youth has passed, an indolent race. We hardly care, as a rule, to cultivate our fields or direct our factories; but prefer devoting the latter half at least of our lives to a somewhat easy-going cultivation of that division of science which takes hold of our fancy. These divisions are such as your conversation leads me to think you would probably consider absurdly minute. A single class of insects, a single family of plants,

the habits of one race of fishes, suffice for the exclusive study of half a lifetime. Minds of a more active or more practical bent will spend an equal time over the construction of a new machine more absolutely automatic than any that has preceded it. Physical labour is thrown as much as possible on the young; and even they are now so helped by machinery and by trained animals, that the eight hours' work which forms their day's labour hardly tires their muscles. Our tastes render us very anxious to devolve upon others as soon as possible the preservation and development of the property we have acquired. A man of moderate means, long before he has reached his thirtieth* year, generally seeks one assistant; men of larger fortune may want two, five, or ten. These are chosen, as a rule, by preference from those who have passed the most stringent and successful collegiate examination. Martial parents are not prolific, and the mortality in our public nurseries is very large. I impute it to moral influences, since the chief cause of death is low vitality, marked nervous depression and want of animal spirits, such as the total absence of personal tenderness and sympathy must produce in children. It is popularly ascribed to the overcultivation of the race, as plants and animals highly civilised—that is, greatly modified and bred to an artificial excellence by human agency—are certainly delicate, unprolific, and especially difficult to rear. There is

* Say fifty-sixth; in effect, fiftieth.—*Narrator.*

little disease in the nurseries, but there is little health and a deficiency of nervous energy. One fact is significant, however interpreted, and bears directly on your last question. Since the wide extension of polygamy, female births are to male about as seven to six; but the deaths in public nurseries between the first and tenth years are twenty-nine in twelve dozen admissions in the stronger sex, and only about ten in the weaker. Read these facts as we may, they ensure employment to the young men when their education is completed—the two last years of severe study adding somewhat to the mortality among them.

"A large number find employment in superintending the property of others. To give them a practical interest in its preservation and improvement, they are generally, after a shorter or longer probation, adopted by their employers as heirs to their estate; our experience of Communism having taught us that immediate and obvious self-interest is the only motive that certainly and seriously affects human action. The distance at which they are kept, and the absolute seclusion of our family life, enables us easily to secure ourselves against any over-anxiety on their part to anticipate their inheritance. The minority who do not thus find a regular place in society are employed in factories, as artisans, or on the lands belonging to the State. To ensure their zeal, the last receive a fixed proportion of the produce, or are permitted to rent land at fixed rates, and at the end of ten years receive a part thereof in full property. By these

means we are free from all the dangers and difficulties of that state of society which preceded the Communistic cataclysm. We have poor men, and men who can live only by daily labour; but these have dissipated their wealth, or are looking forward at no very distant period to a sufficient competence. The entire population of our planet does not exceed two hundred millions, and is not much increased from generation to generation. The area of cultivable land is about ten millions of square miles, and half a square mile in these equatorial continents, which alone are at all generally inhabited, will, if well cultivated and cared for, furnish the largest household with every luxury that man's heart can desire. Eight hours' labour in the day for ten years of life will secure to the least fortunate a reasonable competence; and an ambitious man, with quick intelligence and reasonable industry, may always hope to become rich, if he thinks wealth worth the labour of invention or of exceptionally troublesome work."

"Mars ought, then," I said, "to be a material paradise. You have attained nearly all that our most advanced political economist regard as the perfection of economical order—a population nearly stationary, and a soil much more than adequate to their support; a general distribution of property, total absence of permanent poverty, and freedom from that gnawing anxiety regarding the future of ourselves or our children which is the great evil of life upon Earth and the opprobrium of our social arrangements. You have carried out, more-

over, the doctrines of our most advanced philosophers; you have absolute equality before the law, competitive examination among the young for the best start in life, with equal chances wherever equality is possible; and again, perfect freedom and full legal equality as regards the relations of the sexes. Are your countrymen satisfied with the results?"

"Yes," answered my host, "in so far, at least, that they have no wish to change them, no idea that any great social or political reforms could improve our condition. Our lesson in Communism has rendered all agitation on such matters, all tendency to democratic institutions, all appeals to popular passions, utterly odious and alarming to us. But that we are happy I will venture neither to affirm nor to deny. Physically, no doubt, we have great advantages over you, if I rightly understand your description of life on Earth. We have got rid of old age, and, to a great extent, of disease. Many of our scientists persist in the hope to get rid of death; but, since all that has been accomplished in this direction was accomplished some two thousand years back, and yet we continue to die, general opinion hardly concurs in this hope."

"How do you mean," I inquired, "that you have got rid of old age and of disease?"

"We have," he replied, "learned pretty fully the chemistry of life. We have found remedies for that hardening of the bones and weakening of the muscles which used to be the physical charac-

teristics of declining years. Our hair no longer whitens; our teeth, if they decay, are now removed and naturally replaced by new ones; our eyes retain to the last the clearness of their sight. A famous physician of five thousand years back said in controversy on this subject, that 'the clock was not made to go for ever;' by which he meant that human bodies, like the materials of machines, wore out by lapse of time. In his day this was true, since it was impossible fully to repair the waste and physical wear and tear of the human frame. This is no longer so. The clock does not wear out, but it goes more and more slowly and irregularly, and stops at last for some reason that the most skilful inspection cannot discover. The body of him who dies, as we say, 'by efflux of time' at the age fifty is as perfect as it was at five and twenty.* Yet few men live to be fifty-five,† and most have ceased to take much interest in practical life, or even in science, by forty-five."††

"That seems strange," I said. "If no foreign body gets into the machinery, and the machinery itself does not wear out, it is difficult to understand why the clock should cease to go."

"Would not some of your race," he asked, "explain the mystery by suggesting that the human frame is not a clock, but contains, and owes its

* Equivalent in time to ninety-three and forty-seven with us: in effect corresponding to eighty and forty.

† About ninety; in time, one hundred and six.

†† Seventy; in time, eighty-three.—*Narrator.*

life to, an essence beyond the reach of the scalpel, the microscope, and the laboratory?"

"They hold that it is so. But then it is not the soul but the body that is worn out in seventy or eighty of the Earth's revolutions."

"Ay," he said; "but if man were such a duplex being, it might be that the wearing out of the body was necessary, and had been adapted to release the soul when it had completed its appropriate term of service in the flesh."

I could not answer this question, and he did not pursue the theme. Presently I inquired, "If you allow no appeal to popular feeling or passion, to what was I so nearly the victim? And what is the terrorism that makes it dangerous to avow a credulity or incredulity opposed to received opinion?"

"Scientific controversies," he replied, "enlist our strongest and angriest feelings. It is held that only wickedness or lunacy can resist the evidence that has convinced a vast majority. By arithmetical calculation the chances that twelve men are wrong and twelve thousand* right, on a matter of inductive or deductive proof, are found to amount to what must be taken for practical certainty; and when the twelve still hold out, they are regarded as madmen or knaves, and treated accordingly by their fellows. If it be thought desirable to invoke a legal settlement of the issue, a council of all the overseers of our scientific colleges is

* The centuries, hundreds, thousands, &c., appear to represent multiples of *twelve*, not *ten*.—ED.

called, and its decision is by law irrevocable and infallible, especially if ratified by the popular voice. And if a majority-vote be worth anything at all, I think this modern theory at least as sound as the democratic theory of politics which prevailed here before the Communistic revolution, and which seems by your account to be gaining ground on Earth."

"And what," I inquired, "is your political constitution? What are the powers of your rulers; and how, in the absence of public discussion and popular suffrage, are they practically limited?"

"In theory they are unlimited," he answered; "in practice they are limited by custom, by caution, and, above all, by the lack of motives for misrule. The authority of each prince over those under him, from the Sovereign to the local president or captain, is absolute. But the Executive leaves ordinary matters of civil or criminal law to the Courts of Justice. Cases are tried by trained judges; the old democratic usage of employing untrained juries having been long ago discarded as a worse superstition than simple decision by lot. The lot is right twelve times in two dozen; the jury not oftener than half-a-dozen times. The judges don't heat or bias their minds by discussion. They hear all that can be elicited from parties, accuser, accused, and witnesses, and all that skilled advocates can say. Then the secretary of the Court draws up a summary of the case, each judge takes it home to consider, each writes out his judgment, which is read by the secretary, none but the author

knowing whose it is. If the majority be five to two, judgment is given; if less, the case is tried again before a higher tribunal of twice as many judges. If no decision can be reached, the accused is acquitted for the time, or, in a civil dispute, a compromise is imposed. The rulers cannot, without incurring such general anger as would be fatal to their power, disregard our fundamental laws. Gross tyranny to individuals is too dangerous to be carried far. It is a capital crime for any but the officers of the Sovereign and of the twelve Regents to possess the fearfully destructive weapons that brought our last wars to an end. But any man, driven to desperation, can construct and use similar weapons so easily that no ruler will drive a man to such revengeful despair. Again, the tyranny of subordinate officials would be checked by their chief, who would be angry at being troubled and endangered by misconduct in which he had no direct interest. And finally, *personal* malice is not a strong passion among us; and our manners render it unlikely that a ruler should come into such collision with any of his subjects as would engender such a feeling. Of those immediately about him, he can and does at once get rid as soon as he begins to dislike, and before he has cause to hate them. It is our maxim that greed of wealth or lust of power are the chief motives of tyranny. Our rulers cannot well hope to extend a power already autocratic, and we take care to leave them nothing to covet in the way of wealth. We can afford to give them all that they can

desire of luxury and splendour. To enrich to the uttermost a few dozen governors costs us nothing comparable to the cost of democracy, with its inseparable party conflicts, maladministration, neglect, and confusion."

"A clever writer on Earth lately remarked that it would be easy to satiate princes with all personal enjoyments, but impossible to satiate all their hangers-on, or even all the members of their family."

"You must remember," he replied, "that we have here, save in such exceptional cases as my own, nothing like what you call a family. The ladies of a prince's house have everything they can wish for within their bounds and cannot go outside of these. As for dependents, no man here, at least of such as are likely to be rulers, cares for his nearest and dearest friends enough to incur personal peril, public displeasure, or private resentment on their account. The officials around a ruler's person are few in number, so that we can afford to make their places too comfortable and too valuable to be lightly risked. Neglect, again, is pretty sure to be punished by superior authority. Activity in the promotion of public objects is the only interest left to princes, while tyranny is, for the reasons I have given, too dangerous to be carried far."

CHAPTER VI.

AN OFFICIAL VISIT.

AT this point of our conversation an ambâ entered the room and made certain signs which my host immediately understood.

"The Zamptâ," he said, "has called upon me, evidently on your account, and probably with some message from his Suzerain. You need not be afraid," he added. "At worst they would only refuse you protection, and I could secure you from danger under my own roof, and in the last extremity effect your retreat and return to your own planet; supposing for a moment," he added, smiling, "that you are a real being and come from a real world."

The Regent of that dominion, the only Martialist outside my host's family with whom I had yet been able to converse, awaited us in the hall or entrance chamber. I bowed low to him, and then remained standing. My host, also saluting his visitor, at once took his seat. The Regent, returning the salute and seating himself, proceeded to address us; very little ceremony on either side being observed between this autocratic deputy of an absolute Sovereign and his subjects.

"Esmo *dent Ecasfen,*" said the Regent, "will you point out the person you declare yourself to

have rescued from assault and received into your house on the 431st day of this year?"

"That is the person, Regent," said my host, pointing to me.

The visitor then asked my name, which I gave, and addressing me thereby, he continued—

"The Camptâ has requested me to ascertain the truth regarding your alleged size, so far exceeding anything hitherto known among us. You will permit me, therefore, to measure your height and girth."

I bowed, and he proceeded to ascertain that I was about a foot taller and some ten inches larger round the waist than himself. Of these facts he took note, and then proceeded—

"The signs you made to those who first encountered you were understood to mean that you descended from the sky, in a vessel which is now left on the summit of yonder mountain, Asnyca."

"I did not descend from the sky," I replied, "for the sky is, as we both know, no actual vault or boundary of the atmospheric depths. I ascended from a world nearer to the Sun, and after travelling for forty days through space, landed upon this planet in the vessel you mention."

"I am directed," he answered, "to see this vessel, to inspect your machinery and instruments, and to report thereon to the Suzerain. You will doubtless be ready to accompany me thither to-morrow two hours after sunrise. You may be accompanied, if you please, by your host or any

members of his family; I shall be attended by one or more of my officers. In the meantime I am to inform you that, until my report has been received and considered, you are under the protection of the law, and need not apprehend any molestation of the kind you incurred at first. You will not, however, repeat to any one but myself the explanation you have offered of your appearance—which, I understand, has been given in fuller detail to Esmo—until the decision of the Camptâ shall have been communicated to you."

I simply bowed my assent; and after this brief but sufficient fulfilment of the purpose for which he had called, the Regent took his leave.

"What," I asked, when we re-entered my chamber, "is the meaning of the title by which the Regent addressed you?"

"In speaking to officials," he replied, "of rank so high as his, it is customary to address them simply by their titles, unless more than one of the same rank be present, in which case we call them, as we do inferior officials, by their name with the title appended. For instance, in the Court of the Sovereign, our Regent would be called Endo Zamptâ. Men of a certain age and social position, but having no office, are addressed by their name and that of their residence; and, *asfe* meaning a town or dwelling, usage gives me the name of Esmo, in or of the town of Eca.

"I am sorry," he went on, "that neither my son nor myself can accompany you to-morrow. All the elder members of my family are engaged

to attend at some distance hence before the hour at which you can return. But I should not like you to be alone with strangers; and, independently of this consideration, I should perhaps have asked of you a somewhat unusual favour. My daughter Eveena, who, like most of *our* women" (he laid a special emphasis on the pronoun) "has received a better education than is now given in the public academies, has been from the first greatly interested in your narrative and in all you have told us of the world from which you come. She is anxious to see your vessel, and I had hoped to take her when I meant to visit it in your company. But after to-morrow I cannot tell when you may be summoned to visit the Camptâ, or whether after that visit you are likely to return hither. I will ask you, therefore, if you do not object to what I confess is an unusual proceeding, to take Eveena under your charge to-morrow."

"Is it," I inquired, "permissible for a young lady to accompany a stranger on such an excursion?"

"It is very unusual," returned my host; "but you must observe that here family ties are, as a rule, unknown. It cannot be usual for a maiden to be attended by father or brother, since she knows neither. It is only by a husband that a girl can, as a rule, be attended abroad. Our usages render such attendance exceedingly close, and, on the other hand, forbid strangers to interrupt or take notice thereof. In Eveena's presence the Regent will find it difficult to draw you into conversation which might be inconvenient or dangerous;

and especially cannot attempt to gratify, by questioning you, any curiosity as to myself or my family."

"But," I said, "from what you say, it seems that the Regent and any one who might accompany him would draw inferences which might not be agreeable to you or to the young lady."

"I hardly understand you," he replied. "The only conjecture they could make, which they will certainly make, is that you are, or are about to be, married to her; and as they will never see her again, and, if they did, could not recognise her—as they will not to-morrow know anything save that she belongs to my household, and certainly will not speak to her—I do not see how their inference can affect her. When I part with her, it will be to some one of my own customs and opinions; and to us this close confinement of girls appears to transcend reasonable restraint, as it contradicts the theoretical freedom and equality granted by law to the sex, but utterly withheld by the social usages which have grown out of that law."

"I can only thank you for giving me a companion more agreeable than the official who is to report upon my reality," I said.

"I do not desire," he continued, "to bind you to any reserve in replying to questions, beyond what I am sure you will do without a pledge—namely, to avoid betraying more than you can help of that which is not known outside my own household. But on this subject I may be able to speak more fully after to-morrow. Now, if you will come

into the peristyle, we shall be in time for the evening meal."

Eveena's curiosity had in nowise overcome her silent shyness. She might possibly have completed her tenth year, which epoch in the life of Mars is about equivalent to the seventeenth birthday of a damsel nurtured in North-Western Europe. I hardly think that I had addressed her directly half-a-dozen times, or had received from her a dozen words in return. I had been attracted, nevertheless, not only by her grace and beauty, but by the peculiar sweetness of her voice and the gentleness of her manner and bearing when engaged in pacifying dispute or difficulty among the children, and particularly in dealing with the half-deformed spoilt infant of which I have spoken. This evening that little brat was more than usually exasperating, and having exhausted the patience or repelled the company of all the rest, found itself alone, and set up a fretful, continuous scream, disagreeable even to me, and torturing to Martial ears, which, adapted to hear in that thin air, are painfully alive to strident, harsh, or even loud sounds. Instantly obeying a sign from her mother, Eveena rose in the middle of a conversation to which she had listened with evident interest, and devoted herself for half-an-hour to please and pacify this uncomfortable child. The character and appearance of this infant, so utterly unlike all its companions, had already excited my curiosity, but I had found no opportunity of asking a question without risking an impertinence. On this occasion, however, I ventured

to make some remark on the extreme gentleness and forbearance with which not only Eveena but the children treated their peevish and exacting brother.

"He is no brother of theirs," said Zulve, the mistress of the house. "You would hardly find in any family like ours a child with so irritable a temper or a disposition so selfish, and nowhere a creature so hardly treated by Nature in body as well as mind."

"Indeed," I said, hardly understanding her answer.

"No," said my host. "It is the rule to deprive of life, promptly and painlessly, children to whom, from physical deformity or defect, life is thought unlikely to be pleasant, and whose descendants might be a burden to the public and a cause of physical deterioration to the race. It is, however, one of the exceptional tenets to which I have been obliged to allude, that man should not seek to be wiser than Nature; and that life should neither be cut short, except as a punishment for great crimes, nor prolonged artificially contrary to the manifest intention, or, as our philosophers would say, the common course of Nature. Those who think with me, therefore, always endeavour, when we hear in time of their approaching fate, to preserve children so doomed. Precautions against undue haste or readiness to destroy lives that might, after all, grow up to health and vigour are provided by law. No single physician or physiologist can sign a death-warrant; and I, though no longer a phy-

sician by craft, am among the arbiters, one or more of whom must be called in to approve or suspend the decision. On these occasions I have rescued from extinction several children of whose unfitness to live, according to the standard of the State Nurseries, there was no question, and placed them in families, mostly childless, that were willing to receive them. Of this one it was our turn to take charge; and certainly his chance is better for being brought up among other children, and under the influence of their gentler dispositions and less exacting temperaments."

"And is such ill-temper and selfishness," I asked, "generally found among the deformed?"

"I don't think," replied Esmo, "that this child is much worse than most of my neighbours' children, except that physical discomfort makes him fretful. What you call selfishness in him is only the natural inheritance derived from an ancestry who for some hundred generations have certainly never cared for anything or any one but themselves. I thought I had explained to you by what train of circumstances and of reasoning family affection, such as it is reputed to have been thousands of years ago, has become extinct in this planet; and, family affection extinguished, all weaker sentiments of regard for others were very quickly withered up."

"You told me something of the kind," I said; "but the idea of a life so utterly swallowed up in self that no one even thinks it necessary to affect regard for and interest in others, was to me so

unintelligible and inconceivable that I did not realise the full meaning of your account. Nor even now do I understand how a society formed of such members can be held together. On Earth we should expect them either to tear one another to pieces, or to relapse into isolation and barbarism lower than that of the lowest tribe which preserves social instincts and social organisation. A society composed of men resembling that child, but with the intelligence, force, and consistent purpose of manhood, would, I should have thought, be little better than a congregation of beasts of prey."

"We have such beasts," said Esmo, "in the wild lands, and they are certainly unsociable and solitary. But men, at least civilised men, are governed not only by instinct but by interest, and the interest of each individual in the preservation of social co-operation and social order is very evident and very powerful. Experience and school discipline cure children of the habit of indulging mere temper and spite before they come to be men, and they are taught by practice as well as by precept the absolute necessity of co-operation. Egotism, therefore, has no tendency to dissolve society as a mere organisation, though it has utterly destroyed society as a source of pleasure."

"Does your law," I asked, "confine the principle of euthanasia to infants, or do you put out of the world adults whose life is supposed, for one reason or another, to be useless and joyless?"

"Only," he answered, "in the case of the in-

sane. When the doctors are satisfied that a lunatic cannot be cured, an inquest is held; and if the medical verdict be approved, he is quietly and painlessly dismissed from existence. Logically, of course, the same principle should be applied to all incurable disease; and I suspect—indeed I know—that it is applied when the household have become weary, and the patient is utterly unable to protect himself or appeal to the law. But the general application of the principle has been successfully resisted, on the ground that the terror it would cause, the constant anxiety and alarm in which men would live if the right of judging when life had become worthless to them were left to others, would far outweigh any benefit which might be derived from the legalised existences which had become a prolonged misery; and such cases, as I have told you, are very rare among us. A case of hopeless bodily suffering, not terminating very speedily in death, does not occur thrice a year among the whole population of the planet, except through accident. We have means of curing at the outset almost all of those diseases which the observance for hundreds of generations of sound physical conditions of life has not extirpated; and in the worst instances our anæsthetics seldom fail to extinguish the sense of pain without impairing intellect. Of course, any one who is tired of his life is at liberty to put an end to it, and any one else may assist him. But, though the clinging to existence is perhaps the most irrational of all those purely animal instincts on eman-

cipation from which we pride ourselves, it is the strongest and the most lasting. The life of most of my countrymen would be to me intolerable weariness, if only from the utter want, after wealth is attained, of all warmer and less isolated interest than some one pet scientific pursuit can afford; and yet more from the total absence of affection, family duties, and the various mental occupations which interest in others affords. But though the question whether life is worth living has long ago been settled among us in the negative, suicide, the logical outcome of that conviction, is the rarest of all the methods by which life is terminated."

"Which seems to show that even in Mars logic does not always dominate life and prevail over instinct. But what is the most usual cause of death, where neither disease nor senility are other than rare exceptions?"

"Efflux of time," Esmo replied with an ironical smile. "That is the chief fatal disease recognised by our physicians."

"And what is its nature?"

"Ah, that neither I nor any other physician can tell you. Life 'goes out,' like a lamp when the materials supplying the electric current are exhausted; and yet here all the waste of which physic can take cognisance is fully repaired, and the circuit is not broken."

"What are the symptoms, then?"

"They are all reducible to one—exhaustion of the will, the prime element of personality. The

patient ceases to *care*. It is too much trouble to work; then too much trouble to read; then too much trouble to exert even those all but mechanical powers of thought which are necessary to any kind of social intercourse—to give an order, to answer a question, to recognise a name or a face: then even the passions die out, till the patient cannot be provoked to rate a stupid amba or a negligent wife; finally, there is not energy to dress or undress, to rise up or sit down. Then the patient is allowed to die: if kept alive perforce, he would finally lack the energy to eat or even to breathe. And yet, all this time, the man is alive, the self is there; and I have prolonged life, or rather renewed it, for a time, by some chance stimulus that has reached the inner sight through the thickening veil, and shocked the essential man into willing and thinking once more as he thought and willed when he was younger than his grandchildren are now. . . . It is well that some of us who know best how long the flesh may be kept in life, are, in right of that very knowledge, proof against the wish to keep the life in the flesh for ever."

CHAPTER VII.

ESCORT DUTY.

IMMEDIATELY after breakfast the next morning my host invited me to the gate of his garden, where stood one of the carriages I had seen before in the distance, but never had an opportunity of examining. It rested on three wheels, the two hind ones by far larger than that in front, which merely served to sustain the equilibrium of the body and to steer. The material was the silverlike metal of which most Martial vessels and furniture are formed, every spar, pole, and cross-piece being a hollow cylinder; a construction which, with the extreme lightness of the metal itself, made the carriage far lighter than any I had seen on Earth. The body consisted of a seat with sides, back, and footboard, wide enough to accommodate two persons with ease. It was attached by strong elastic fastenings to a frame consisting of four light poles rising from the framework in which the axles turned; completely dispensing with the trouble of of springs while affording a more complete protection from anything like jolting. The steering gear consisted of a helm attached to the front wheel and coming up within easy reach of the driver's hand. The electric motive power and machinery were concealed in a box beneath the

seat, which was indeed but the top of this most important and largest portion of the carriage. The poles sustained a light framework supporting a canopy, which could be drawn over the top and around three sides of the carriage, leaving only the front open. This canopy, in the present instance, consisted of a sort of very fine silken material, thickly embroidered within and without with feathers of various colours and sizes, combined in patterns of exquisite beauty. My host requested me to mount the carriage with him, and drove for some distance, teaching me how to steer, and how, by pressing a spring, to stop or slacken the motion of the vehicle, also how to direct it over rough ground and up or down the steepest slope on which it was available. When we returned, the Regent's carriage was standing by the gate, and two others were waiting at a little distance in the rear. The Regent, with a companion, was already seated, and as soon as we reached the gate, Eveena appeared. She was enveloped from head to foot in a cloak of something like swansdown covering her whole figure, loose, like the ordinary outer garments of both sexes, and gathered in at the waist by a narrow zone of silver, with a sort of clasp of some bright green jewel; and a veil of white satinlooking material covered the whole head and face and fell half-way to the waist. Her gloved right hand was hidden by the sleeve of her cloak; that of the left arm was turned back, and the hand which she gave me as I handed her to the seat on my left was bare—a usage both of convenience

and courtesy. At Esmo's request, the Regent, who led the way, started at a moderate pace, not exceeding some ten miles an hour. I observed that on the roofs of all the houses along the road the inhabitants had gathered to watch us; and as my companion was so completely veiled, I did not baulk their curiosity by drawing the canopy. I presently noticed that the girl held something concealed in her right sleeve, and ventured to ask her what she had there.

"Pardon me," she said; "if we had been less hurried, I meant to have asked your permission to bring my pet *esvè* with me." Drawing back her sleeve, she showed a bird about the size of a carrier-pigeon, but with an even larger and stronger beak, white body, and wings and tail, like some of the plumage of the head and neck, tinted with gold and green. Around its neck was a little string of silver, and suspended from this a small tablet with a pencil or style. Since by her look and manner she seemed to expect an answer, I said—

"I am very glad you have given me the opportunity of making acquaintance with another of those curiously tame and manageable animals which your people seem to train to such wonderful intelligence and obedience. We have birds on Earth which will carry a letter from a strange place to their home, but only homewards."

"These," she answered, "will go wherever they are directed, if they have been there before and know the name of the place; and if this bird had been let loose after we had left, he would have

found me, if not hidden by trees or other shelter, anywhere within a score of miles."

"And have your people," I asked, "many more such wonderfully intelligent and useful creatures tamed to your service, besides the ambau, the tyree, and these letter-carriers?"

"Oh yes!" she answered. "Nearly all our domestic animals will do anything they are told which lies within their power. You have seen the tyree marching in a line across a field to pick up every single worm or insect, or egg of such, within the whole space over which they move, and I think you saw the ambau gathering fruit. It is not very usual to employ the latter for this purpose, except in the trees. Have you not seen a big creature—I should call it a bird, but a bird that cannot fly, and is covered with coarse hair instead of feathers? It is about as tall as myself, but with a neck half as long as its body, and a very sharp powerful beak; and four of these *carvee* would clear a field the size of our garden (some 160 acres) of weeds in a couple of days. We can send them, moreover, with orders to fetch a certain number of any particular fruit or plant, and they scarcely ever forget or blunder. Some of them, of course, are cleverer than others. The cleverest will remember the name of every plant in the garden, and will, perhaps, bring four or even six different kinds at a time; but generally we show them a leaf of the plant we want, or point out to them the bed where it is to be found, and do not trouble their memory with more than two different orders at a time.

The Unicorns, as you call them, come regularly to be milked at sunset, and, if told beforehand, will come an hour earlier or later to any place pointed out to them. There were many beasts of burden before the electric carriages were invented, so intelligent that I have heard the rider never troubled himself to guide them except when he changed his purpose, or came to a road they had not traversed before. He would simply tell them where to go, and they would carry him safely. The only creature now kept for this purpose is the largest of our birds (the *caldecta*), about six feet long from head to tail, and with wings measuring thrice as much from tip to tip. They will sail through the air and carry their rider up to places otherwise inaccessible. But they are little used except by the hunters, partly because the danger is thought too great, partly because they cannot rise more than about 4000 feet from the sea-level with a rider, and within that height there are few places worth reaching that cannot be reached more safely. People used to harness them to balloons till we found means to drive these by electricity —the last great invention in the way of locomotion, which I think was completed within my grandfather's memory."

"And," I asked, "have you no animals employed in actually cultivating the soil?"

"No," she replied, "except the weeding birds of whom I have told you. When we have a piece of ground too small for our electric ploughs, we sometimes set them to break it up, and they cer-

tainly reduce the soil to a powder much finer than that produced by the machine."

"I should like to see those machines at work."

"Well," answered Eveena, "I have no doubt we shall pass more than one of them on our way."

As she said this we reached the great road I had crossed on my arrival, and turning up this for a short distance, sufficient, however, to let me perceive that it led to the seaport town of which I have spoken, we came to a break in the central footpath, just wide enough to allow us to pass. Looking back on this occasion, I observed that we were followed by the two other carriages I have mentioned, but at some distance. We then proceeded up the mountain by a narrow road I had not seen in descending it. On either side of this lay fields of the kind already described, one of which was in course of cultivation, and here I saw the ploughs of which my companion had spoken. Evidently constructed on the same principle as the carriages, but of much greater size, and with heavier and broader wheels, they tore up and broke to pieces a breadth of soil of some two yards, working to a depth of some eighteen inches, with a dozen sharp powerful triangular shares, and proceeding at a rate of about fifty yards per minute. Eveena explained that these fields were generally from 200 to 600 yards square. The machine having traversed the whole field in one direction, then recommenced its work, ploughing at right angles to the former, and carrying behind it a sort of harrow, consisting of hooks supported by light,

hollow, metallic poles fixed at a certain angle to the bar forming the rearward extremity of the plough, by which the surface was levelled and the soil beaten into small fragments; broken up, in fact, as I had seen, not less completely than ordinary garden soil in England or Flanders. When it reached the end of its course, the plough had to be turned: and this duty required the employment of two men, one at each end of the field, who, however, had no other or more difficult labour than that of turning the machine at the completion of each set of furrows. In another field, already doubly ploughed, a sowing machine was at work. The large seeds were placed singly by means of an instrument resembling a magnified ovipositor, such as that possessed by many insects, which at regulated intervals made a hole in the ground and deposited a seed therein. Eveena explained that where the seed and plan were small, a continuous stream was poured into a small furrow made by a different instrument attached to the same machine, while another arm placed a little to the rear, covered in the furrow and smoothed the surface. In reply to another question of mine—

"There are," she said, "some score of different wool or hair bearing animals, which are shorn twice in the year, immediately after the rains, and furnish the fibre which is woven into most of the materials we use for dress and other household purposes. These creatures adapt themselves to the shearing machines with wonderful equanimity and willingness, so that they are seldom or never injured."

"Not even," I asked, "by inexperienced or clumsy hands?"

"Hands," she said, "have nothing to do with the matter. They have only to send the animal into the machine, and, indeed, each goes in of his own accord as he sees his fellow come out."

"And have you no vegetable fibres," I said, "that are used for weaving?"

"Oh yes," the answered, "several. The outer dress I wear indoors is made of a fibre found inside the rind of the fruit of the algyro tree, and the stalks of three or four different kinds of plants afford materials almost equally soft and fine."

"And your cloak," I asked," is not that made of the skin of some animal?"

"Yes," she replied, "and the most curious creature I have heard of. It is found only in the northern and southern Arctic land-belts, to which indeed nearly all wild animals, except the few small ones that are encouraged because they prey upon large and noxious insects, are now confined. It is about as large as the Unicorns, and has, like them, four limbs; but otherwise it more resembles a bird. It has a bird's long slight neck, but a very small and not very bird-like head, with a long horny snout, furnished with teeth, something between a beak and a mouth. Its hind limbs are those of a bird, except that they have more flesh upon the lowest joints and are covered with this soft down. Its front limbs, my father says, seem as if nature had hesitated between wings and arms, They have attached to them several long, sharp

featherless quills starting from a shrivelled membrane, which make them very powerful and formidable weapons, so that no animal likes to attack it; while the foot has four fingers or claws with which it clasps fish or small dragons, especially those electric dragons of which you have seen a tame and very much enlarged specimen, and so holds them that they cannot find a chance of delivering their electric shock. But for the *Thernee* these dragons, winged as they are, would make those lands hardly habitable either for man or other beasts. All our furs are obtained from those countries, and the creatures from which they are derived are carefully preserved for that purpose, it being forbidden to kill more than a certain number of each every year, which makes these skins by far the costliest articles we use."

By this time we had reached the utmost point to which the carriages could take us, about a furlong from the platform on which I had rested during my descent. Seeing that the Regent and his companion had dismounted, I stopped and sprang down from my carriage, holding out my hand to assist Eveena's descent, an attention which I thought seemed to surprise her. Up to the platform the path was easy enough; after that it became steep even for me, and certainly a troublesome and difficult ascent for a lady dressed as I have described, and hardly stronger than a child of the same height and size on earth. Still my companion did not seem to expect, and certainly did not invite assistance. That she found no little

difficulty in the walk was evident from her turning back both sleeves and releasing her bird, which hovered closely round her. Very soon her embarrassments and stumbles threatened such actual danger as overcame my fear of committing what, for aught I knew, might be an intrusion. Catching her as she fell, and raising her by the left hand, I held it fast in my own right, begging to be permitted to assist her for the rest of the journey. Her manner and the tone of her voice made it evident that such an attention, if unusual, was not offensive; but I observed that those who were following us looked at us with some little surprise, and spoke together in words which I could not catch, but the tone of which was not exactly pleasant or complimentary. The Regent, a few steps in advance of us, turned back from time to time to ask me some trivial question. At last we reached the summit, and here I released my companion's hand and stepped forward a pace or two to point out to the Regent the external structure of the Astronaut. I was near enough, of course, to be heard by Eveena, and endeavoured to address my explanations as much to her as to the authority to whom I was required to render an account. But from the moment that we had actually joined him she withdrew from all part and all apparent interest in the conversation. When our companions moved forward to reach the entrance, which I had indicated, I again offered my hand, saying, "I am afraid you will find some little difficulty in getting into the vessel by the window by which I got out."

The Regent, however, had brought with him several light metal poles, which I had not observed while carried by his companion, but which being put together formed a convenient ladder of adequate length. He desired me to ascend first and cut the riband by means of which the window had been sealed; the law being so strict that even he would not violate the symbol of private ownership which protected my vessel. Having done this and opened the window, I sprang down, and he, followed by his companion, ascended the ladder, and resting himself upon the broad inner ledge of the window —which afforded a convenient seat, since the crystal was but half the thickness of the wall— first took a long look all round the interior, and then leaped down, followed by his attendant. Eveena drew back, but was at last persuaded to mount the ladder with my assistance, and rest on the sill till I followed her and lifted her down inside. The Regent had by this time reached the machinery, and was examining it very curiously, with greater apparent appreciation of its purpose than I should have expected. When we joined them, I found little difficulty in explaining the purpose and working of most parts of the apparatus. The nature and generation of the apergic power I took care not to explain. The existence of such a repulsive force was the point on which the Regent professed incredulity; as it was, of course, the critical fact on which my whole narrative turned—on which its truth or falsehood depended. I resolved ere the close of the inspection to give

him clear practical evidence on this score. In the meantime, listening without answer to his expressions of doubt, I followed him round the interior, explaining to him and to Eveena the use and structure of the thermometer, barycrite, and other instruments. My fair companion seemed to follow my explanation almost as easily as the officials. Our followers, who had now entered the vessel, kept within hearing of my remarks; but, evidently aware that they were there on sufferance, asked no questions, and made their comments in a tone too low to allow me to understand their purport. The impression made on the Regent by the instruments, so far as I could gather from his brief remarks and the expression of his face, was one of contemptuous surprise rather than the interest excited by the motive machinery. Most of them were evidently, in his opinion, clumsy contrivances for obtaining results which the scientific knowledge and inventive genius of his countrymen had long ago secured more completely and more easily. But he was puzzled by the combination of such imperfect knowledge or semi-barbaric ignorance with the possession of a secret of such immense importance as the repulsive current, not yet known nor, as I gathered, even conceived by the inhabitants of this planet. When he had completed his inspection, he requested permission to remove some of the objects I had left there; notably many of the dead plants, and several books of drawings, mathematical, mechanical, and ornamental, which I had left, and which had not been brought away

by my host's son when he visited the vessel. These I begged him to present to the Camptà, adding to them a few smaller curiosities, after which I drew him back towards the machinery. He summoned his attendant, and bade him take away to the carriages the articles I had given him, calling upon the intruders to assist.

I was thus left with him and with Eveena alone in the building; and with a partly serious, partly mischievous desire to prove to him the substantial reality of objects so closely related to my own disputed existence, and to demonstrate the truth of my story, I loosened one of the conductors, connected it with the machinery, and, directing it against him, sent through it a very slight apergic current. I was not quite prepared for the result. His Highness was instantly knocked head over heels to a considerable distance. Turning to interrupt the current before going to his assistance, I was startled to perceive that an accident of graver moment, in my estimation at least, than the discomfiture of this exalted official, had resulted from my experiment. I had not noticed that a conductive wire was accidentally in contact with the apergion, while its end hung down towards the floor. Of this I suppose Eveena had carelessly taken hold, and a part of the current passing through it had lessened the shock to the Regent at the expense of one which, though it could not possibly have injured her, had from its suddenness so shaken her nerves as to throw her into a momentary swoon. She was recovering almost as

soon as I reached her; and by the time her fellow-sufferer had picked himself up in great disgust and astonishment, was partly aware what had happened. She was, however, much more anxious to excuse herself, in the manner of a frightened child, for meddling with the machinery than to hear my apologies for the accident. Noting her agitation, and seeing that she was still trembling all over, I was more anxious to get her into the open air, and out of reach of the apparatus she seemed to regard with considerable alarm, than to offer any due apology to the exalted personage to whom I had afforded much stronger evidence, if not of my own substantiality, yet of the real existence of a repulsive energy, than I had seriously intended. With a few hurried words to him, I raised Eveena to the window, and lifted her to the ground outside. I felt, however, that I could not leave the Regent to find his own way out, the more so that I hardly saw how he could reach the window from the inside without my assistance. I excused myself, therefore, and seating her on a rock close to the ladder, promised to return at once. This, however, I found impossible. By the time the injured officer had recovered the physical shock to his nerves and the moral effect of the disrespect to his person, his anxiety to verify what he had heard entirely occupied his mind; and he requested further experiments, not upon himself, which occupied some half-hour. He listened and spoke, I must admit, with temper; but his air of displeasure was evident enough, and I was aware that I had not entitled

myself to his good word, whether or not he would permit his resentment to colour his account of facts. He was compelled, however, to request my help in reaching the window, which I gave with all possible deference.

But, to my alarm, when we reached the foot of the ladder, Eveena was nowhere to be seen. Calling her and receiving no reply, calling again and hearing what sounded like her voice, but in a faint tone and coming I knew not whence, I ran round the platform to seek her. I could see nothing of her; but at one point, just where the projecting edge of the platform overhung the precipice below, I recognised her bird fluttering its wings and screaming as if in pain or terror. The Regent was calling me in a somewhat imperious tone, but of course received neither answer nor attention. Reaching the spot, I looked over the edge and with some trouble discovered what had happened. Not merely below but underneath the overhanging edge was a shelf about four feet long and some ten inches in breadth, covered with a flower equally remarkable in form and colour, the former being that of a hollow cylindrical bell, about two inches in diameter; the latter a bluish lilac, the nearest approach to azure I have seen in Mars—the whole ground one sheet of flowers. On this, holding in a half-insensible state to the outward-sloping rock above her, Eveena clung, her veil and head dress fallen, her face expressing utter bewilderment as well as terror. I saw, though at the moment I hardly understood, how she had reached this point. A

very narrow path, some hundred feet in length, sloped down from the table-rock of the summit to the shelf on which she stood, with an outer hedge of shrubs and the summits of small trees, which concealed, and in some sort guarded, the precipice below, so that even a timid girl might pursue the path without fear. But this path ended several feet from the commencement of the shelf. Across the gap had lain a fallen tree, with boughs affording such a screen and railing on the outward side as might at once conceal the gulf below, and afford assistance in crossing the chasm. But in crossing this tree Eveena's footsteps had displaced it, and it had so given way as not only to be unavailable, but a serious obstacle to my passage. Had I had time to go round, I might have been able to leap the chasm; I certainly could not return that way with a burden even so light as that of my precious charge. The only chance was to lift her by main force directly to where I stood; and the outward projection of the rock at this point rendered this peculiarly difficult, as I had nothing to cling or hold by. The Regent had by this time reached me, and discerned what had occurred.

"Hold me fast," I said, "or sit upon me if you like, to hold me with your weight whilst I lean over." The man stood astounded, not by the danger of another but by the demand on himself; and evidently without the slightest intention of complying.

"You are mad!" he said. "Your chance is ten times greater to lose your own life than to save hers."

"Lose my life!" I cried. "Could I dare return alive without her? Throw your whole weight on me, I say, as I lean over, and waste no more time!"

"What!" he rejoined. "You are twice as heavy as I, and if you are pulled over I shall probably go over too. Why am I to endanger myself to save a girl from the consequences of her folly?"

"If you do not," I swore, "I will fling you where the carcass of which you are so careful shall be crushed out of the very form of the manhood you disgrace."

Even this threat failed to move him. Meantime the bird, fluttering on my shoulder, suggested a last chance; and snatching the tablet round its neck, I wrote two words thereon, and calling to it, "Home!" the intelligent creature flew off at fullest speed.

"Now," I said, "if you do not help me I will kill you here and now. If you pretend to help and fail me, that bird carries to Esmo my request to hold you answerable for our lives."

I invoked, in utter desperation, the awe with which, as his hints and my experience implied, Esmo was regarded by his neighbours; and slender as seemed this support, it did not fail me. The Regent's countenance fell, and I saw that I might depend at least on his passive compliance. Clasping his arm with my left hand, I said, "Pull back with all your might. If I go over, you *shall* go over too." Then pulling him down with me, and stretching myself over the precipice so far that but

for this additional support I must have fallen, I reached Eveena, whose closed eyes and relaxing limbs indicated that another moment's delay might be fatal.

"Give me your hand," I cried in despair, seeing how tightly she still grasped the tough fibrous shoots growing in the crevices of the rock, whereof she had taken hold. "Give me your hand, and let go!"

To give me her hand was beyond the power of her will; to let go without giving me hold would have been fatal. Reaching over to the uttermost, I contrived to lay a firm grasp upon her wrist. But this would not do. I could hardly drag her up by one arm, especially if she would not relax her grasp. I must release the Regent and depend upon his obedience, or forfeit the chance of saving her, as in a few more moments she would certainly swoon and fall.

"Throw yourself upon me, and sit firm, if you value your life," I cried, and I relaxed my hold on his arm, stretching both hands to grasp Eveena. I felt the man's weight on my body, and with both arms extended to the uttermost hanging over the edge, I caught firm hold of the girl's shoulders. Even now, with any girl of her age on earth, and for aught I know with many Martial damsels, the case would have been hopeless. My whole strength was required to raise her; I had none to spare to force her loose from her hold. Fortunately my rough and tight clasp seemed to rouse her. Her

eyes half opened, and semi-consciousness appeared to have returned.

"Let go!" I cried in that sharp tone of imperious anger which—with some tempers at least—is the natural expression of the outward impulse produced by supreme and agonizing terror. Obedience is the hereditary lesson taught to her sex by the effects of equality in Mars. Eveena had been personally trained in a principle long discarded by Terrestrial women; and not half aware what she did, but yielding instinctively to the habit of compliance with imperative command spoken in a masculine voice, she opened her hands just as I had lost all hope. With one desperate effort I swung her fairly on to the platform, and, seeing her safe there, fell back myself scarcely more sensible than she was.

The whole of this terrible scene, which it has taken so long to relate, did not occupy more than a minute in action. I know not whether my readers can understand the full difficulty and danger of the situation. I know that no words of mine can convey the impression graven into my own memory, never to be effaced or weakened while consciousness remains. The strongest man on Earth could not have done what I did; could not, lying half over the precipice, have swung a girl of eighteen right out from underneath him, and to his own level. But Eveena was of slighter, smaller frame than a healthy French girl of twelve, while I retained the full strength of a man adapted to the work of a world where every weight is twice as heavy as on

Mars. What I had practically to do was to lift not seven or eight stone of European girlhood, not even the six Eveena might possibly have weighed on Earth, but half that weight. And yet the position was such that all the strength I had acquired through ten years of constant practice in the field and in the chase, all the power of a frame in healthful maturity, and of muscles whose force seemed doubled by the tension of the nerves, hardly availed. When I recovered my own senses, and had contrived to restore Eveena's, my unwilling assistant had disappeared.

It was an hour before Eveena seemed in a condition to be removed, and perhaps I was not very urgent to hurry her away. I had done no more than any man, the lowest and meanes on Earth, must have done under the circumstances. I can scarcely enter into the feelings of the fellow-man who, in my position, could have recognised a choice but between saving and perishing with the helpless creature entrusted to his charge. But hereditary disbelief in any power above the physical forces of Nature, in any law higher than that of man's own making, has rendered human nature in Mars something utterly different from, perhaps hardly intelligible to, the human nature of a planet forty million miles nearer the Sun. Though brought up in an affectionate home, Eveena shared the ideas of the world in which she was born; and so far accepted its standards of opinion and action as natural if not right, that the risk I had run, the effort I had made to

save her, seemed to her scarcely less extraordinary than it had appeared to the Zamptâ. She rated its devotion and generosity as highly as he appreciated its extravagance and folly; and if he counted me a madman, she was disposed to elevate me into a hero or a demi-god. The tones and looks of a maiden in such a temper, however perfect her maidenly reserve, would, I fancy, be very agreeable to men older than I was, either in constitution or even in experience. I doubt whether any man under fifty would have been more anxious than myself to cut short our period of repose, broken as it was, when I refused to listen to her tearful penitence and self-reproach, by occasional words and looks of gratitude or admiration. I did, however, remember that it was expedient to refasten the window, and re-attach the seals, before departing. At the end of the hour's rest I allowed my charge and myself, I had recovered more or less completely the nervous force which had been for a while utterly exhausted, less by the effort than by the terror that preceded it. I was neither surprised, nor perhaps as much grieved as I should have been, to find that Eveena could hardly walk; and felt to the full the value of those novel conditions which enabled me to carry her the more easily in my arms, though much oppressed even by so slight an effort in that thin air, to the place where we had left our carriage—no inconsiderable distance by the path we had to pursue. Before starting on our return I had, in despite of her most earnest entreaties, managed to recover

her head-dress and veil, at a risk which, under other circumstances, I might not have cared to encounter. But had she been seen without it on our return, the comments of the whole neighbourhood would have been such as might have disturbed even her father's cool indifference. We reached her home in safety, and with little notice, having, of course, drawn the canopy around us as completely as possible. I was pleased to find that only her younger sister, to whose care I at once committed her, was there at present, the elders not having yet returned. I took care to detach from the bird's neck the tablet which had served its purpose so well. The creature had found his way home within half-an-hour after I dismissed him, and had frightened Zevle [Stella] not a little; though the message, which a fatal result would have made sufficiently intelligible to Esmo, utterly escaped her comprehension.

CHAPTER VIII.

A FAITH AND ITS FOUNDER.

ON the return of the family, my host was met at the door with such accounts of what had happened as led him at once to see and question his daughter. It was not, therefore, till he had heard her story that I saw him. More agitated than I should have expected from one under ordinary circum-

stances so calm and and self-possessed, he entered my room with a face whose paleness and compressed lips indicated intense emotion; and, laying his hand on my shoulder, expressed his feeling rather in look and tone than in his few broken and not very significant words. After a few moments, however, he recovered his coolness, and asked me to supply the deficiencies of Eveena's story. I told him briefly but exactly what had passed from the moment when I missed her to that of her rescue. He listened without the slightest symptom of surprise or anger to the tale of the Regent's indifference, and seemed hardly to understand the disgust and indignation with which I dwelt upon it. When I had finished—

"You have made," he said, "an enemy, and a dangerous one; but you have also secured friends against whose support even the anger of a greater than the Zamptà might break as harmlessly as waves upon a rock. He behaved only as any one else would have done; and it is useless to be angry with men for being what they habitually and universally are. What you did for Eveena, one of ourselves, perhaps, but no other, might have risked for a first bride on the first day of her marriage. Indeed, though I am most thankful to you, I should, perhaps, have withheld my consent to my daughter's request had I supposed that you felt so strongly for her."

"I think," I replied with some displeasure, "that I may positively affirm that I have spoken no word to your daughter which I should not have

spoken in your presence. I am too unfamiliar with your ideas to know whether your remark has the same force and meaning it would have borne among my own people; but to me it conveys a grave reproach. When I accepted the charge of your daughter during this day's excursion, I thought of her only as every man thinks of a young, pretty, and gentle girl of whom he has seen and knows scarcely anything. To avail myself of what has since happened to make a deeper impression on her feelings than you might approve would have seemed to me unpardonable treachery."

"You do utterly misunderstand me," he answered. "It may be that Eveena has received an impression which will not be effaced from her mind. It may be that this morning, could I have foreseen it, I should have decidedly wished to avoid anything that would so impress her. But that feeling, if it exist, has been caused by your acts and not by your words. That you should do your utmost, at any risk to yourself, to save her, is consistent with what I know of your habit of mind, and ought not much to surprise me. But, from your own account of what you said to the Zamptà, you were not merely willing to risk life for life. When you deemed it impossible to return without her, you spoke as few among us would seriously speak of a favourite bride."

"I spoke and felt," I replied, "as any man trained in the hereditary thought of my race and rank would have spoken of any woman committed to his care. All that I said and did for Eveena,

I should have said and done, I hope, for the least attractive or least amiable maiden in this planet who had been similarly entrusted to my charge. How could any but the vilest coward return and say to a father, 'You trusted your daughter to me, and she has perished by my fault or neglect'?"

"Not so," he answered, "Eveena alone was to blame—and much to blame. She says herself that you had told her to remain where you left her till your return; and if she had not disobeyed, neither her life nor yours would have been imperilled."

"One hardly expects a young lady to comply exactly with such requests," I said. "At any rate, Terrestrial feelings of honour and even of manhood would have made it easier to leap the precipice than to face you and the world if, no matter by whose fault, my charge had died in such a manner under my eyes and within my reach."

Esmo's eyes brightened and his cheek flushed a little as I spoke, with more of earnestness or passion than any incident, however exciting, is wont to provoke among his impassive race.

"Of one thing," he said, "you have assured me—that the proposal I was about to make rather invites honour than confers it. I have been obliged, in speaking of the manners and ideas of my countrymen, to let you perceive not only that I differ from them, but that there are others who think and act as I do. We have for ages formed a society bound together by our peculiar tenets. That we individually differ in conduct, and, therefore, probably in ideas, from our countrymen, they

necessarily know; that we form a body apart with laws and tenets of our own, is at least suspected. But our organisation, its power, its methods, its rules of membership, and its doctrines are, and have always been, a secret, and no man's connection with it is avowed or provable. Our chief distinctive and essential doctrines you hold as strongly as we do —the All-perfect Existence, the immortal human soul. From these necessarily follow conceptions of life and principles of conduct alien to those that have as necessarily grown up among a race which repudiates, ignores, and hates our two fundamental premises. After what has happened, I can promise you immediate and eager acceptance among those invested with the fullest privileges of our order. They will all admire your action and applaud your motives, though, frankly speaking, I doubt whether any of us would carry your views so far as you have done. The best among us would have flinched, unless under the influence of the very strongest personal affection, from the double peril of which you seemed to think so lightly. They might indeed have defied the Regent, but it would have been in reliance on the protection of a power superior to his of which you knew nothing."

"Then," I said, "I suppose your engagement of to-day was a meeting of this society?"

"Yes," he answered, "a meeting of the Chamber to which I and the elder members of my household, including my son and his wife, belong."

"But," I said, "if you are more powerful than

the rulers of your people, what need of such careful secrecy?"

"You will understand the reason," he answered, "when you learn the nature of our powers. Hundreds among millions, we are no match for the fighting force of our unbelieving countrymen. Our safety lies in the terror inspired by a tradition, verified by repeated and invariable experience, that no one who injures one of us but has reason to rue it, that no mortal enemy of *the Star* has ever escaped signal punishment, more terrible for the mystery attending it. Were we known, were our organisation avowed, we might be hunted down and exterminated, and should certainly suffer frightful havoc, even if in the end we were able to frighten or overcome our enemies. But if you are disposed to accept my offer—and enrolment among us gives you at once your natural place in this planet and your best security against the enmity you have incurred and will incur here—I should prefer to make the rest of the explanation that must precede your admission in presence of my family. The first step, the preliminary instruction in our creed and our simpler mysteries, which is the work of the Novitiate, is a solemn epoch in the lives of our children. They are not trusted with our secret till we can rely on the maturity of their intelligence and loyalty of their nature. Eveena would in any case have been received as a novice within some dozen days. It will now be easy for me, considering her education and intelligence and my own position in the Order, to obtain, for her as

for you, exemption from the usual probation on proof that you both know all that is usually taught therein, and admission on the same occasion; and it will add solemnity and interest to her first initiation, that this chief lesson of her life should be shared this evening with him to whom she owes it that she lives to enter the society, to which her ancestors have belonged since its institution."

We passed into the peristyle, where the ladies were as usual assembled; but the children had been dismissed, and of the maidens Eveena only was present. Fatigue and agitation had left her very pale, and she was resting at full length on the cushions with her head pillowed on her mother's knee. As we approached, however, they all rose, the other ladies greeting me eagerly and warmly, Eveena rising with difficulty and faltering the welcome which the rest had spoken with enthusiastic earnestness. Forgetting for the moment the prudence which ignorance of Martial customs had hitherto dictated, I lifted to my lips the hand that she, following the example of the rest, but shyly and half reluctantly, laid on my shoulder—a form very different to the distant greeting I had heretofore received, and marking that I was no longer to be treated as a stranger to the family. My unusual salute brought the colour back to her cheeks, but no one else took notice of it. I observed, however, that on this occasion, instead of interposing himself between me and the ladies as usual, her father left vacant the place next to her; and I seated myself at her feet. She would have

exchanged her reclining posture for that of the others, but her mother gently drew her down to her former position.

"Eveena," said my host, "I have told our friend, what you know, that there is in this world a society, of which I am a member, whose principles are not those of our countrymen, but resemble rather those which supplied the impulses on which he acted to-day. This much you know. What you would have learned a few days hence, I mean that you and he shall now hear at the same time."

"Before you enter on that subject," interposed Zulve timidly—for it is most unusual for a lady to interfere in her husband's conversation, much more to offer a suggestion or correction—but yet earnestly, "let me say, on my own part, what I am sure you must have said already on yours. If there be now, or ever shall be, anything we can do for our guest, anything we can give that he would value, not in requital, but in memory of what he has done for us—whatever it should cost us, though he should ask the most precious thing we possess, it will be our pride and pleasure—the greatest pleasure he can afford us—grant it."

The time and the surroundings were not perhaps exactly suitable to the utterance of the wish suggested by these words; but I knew so little what might be in store for me, and understood so well the difficulty and uncertainty of finding future opportunities of intercourse with the ladies at least of the family, that I dared not lose the present. I spoke at once upon the impulse of the moment,

with a sense of reckless desperation not unlike that with which an artillerist fires the train whose explosion may win for him the obsidional wreath or blow him into atoms. "You and my host," I said, "have one treasure that I have learned to covet, but it *is* exactly the most precious thing you possess, and one which it would be presumptuous to ask as reward; even had I not owed to Esmo the life I perilled for Eveena, and if I had acted from choice and freely, instead of doing only what only the vilest of cowards could have failed to attempt. In asking it indeed, I feel that I cancel whatever claim your extravagant estimate of that act can possibly ascribe to me."

"We don't waste words," answered Esmo, "in saying what we don't mean, and I confirm fully what my wife has said. There is nothing we possess that we shall not delight to give as token of regard and in remembrance of this day to the saviour of our child."

"If," I said, "I find a neighbour's purse containing half his fortune, and return it to him, he may offer me what reward I ask, but would hardly think it reasonable if I asked for the purse and its contents. But you have only one thing I care to possess—that which I have, by God's help, been enabled to save to-day. If I must ask a gift, give me Eveena herself."

Utilitarianism has extinguished in Mars the use of compliment and circumlocution; and until I concluded, their looks of mild perplexity showed that neither Zulve nor her husband caught my pur-

pose. I fancied—for, not daring to look them in the face, I had turned my downcast glance on Eveena—that she had perhaps somewhat sooner divined the object of my thoughts. However, a silence of surprise—was it of reluctance?—followed, and then Zulve bent over her daughter and looked into her half-averted face, while Esmo answered—

"What you should ask I promised to give; what you have asked I give, in so far as it is mine to give, in willing fulfilment of my pledge. But, of course, what I can give is but my free permission to my daughter to answer for herself. You will be, I hope, within a few days at furthest, one of those in whose possession alone a woman of my house could be safe or content; and, free by the law of the land to follow her own wish, she is freed by her father's voice from the rule which the usage of ten thousand years imposes on the daughters of our brotherhood."

Zulve then looked up, for Eveena had hidden her face in her mother's robe, and said—

"If my child will not speak for herself I must speak for her, and in my own name and in hers I fulfil her father's promise. And now let my husband tell his story, for nothing can solemnise more appropriately the betrothal of a daughter of the Star, than her admission to the knowledge of the Order whose privileges are her heritage."

"At the time," Esmo began, "when material science had gained a decided ascendant, and enforced the recognition of its methods as the only ones whereby certain knowledge and legitimate

belief could be attained, those who clung most earnestly to convictions not acquired or favoured by scientific logic were sorely dismayed. They were confounded, not so much by the yet informal but irrevocable majority-vote against them, as by an instinctive misgiving that Science was right; and by irrepressible doubts whether that which would not bear the application of scientific method could in any sense be true or trustworthy knowledge. At the same time, to apply a scientific method to the cherished beliefs threatened only to dissolve them. Fortunately for them and their successors, there was living at that time one of the most remarkable and original thinkers whom our race has produced. From him came the suggestions that gave impulse to our learning and birth to our Order. 'The reasonings, the processes of Science,' he affirmed, 'are beyond challenge. Their trustworthiness depends not on their subject-matter, but on their own character; not on their relation to outward Nature, but on their conformity to the laws of thought. Their upholders are right in affirming that what will not ultimately bear the test of their application cannot be knowledge, and probably—for the practical purposes of human life we may say certainly—cannot be truth. They are wrong in alleging that the ideas for which they can find no foundation in the subjects to which scientific method has hitherto been applied, are therefore unscientific, or sure to disappear under scientific investigation. I hold that the existence of a Creator and Ruler of the Uni-

verse can be logically deduced from first principles, as well as justly inferred from cumulative evidences of overwhelming weight. The existence of something in Man that is not merely corporeal, of powers that can act beyond the reach of any corporeal instruments at his command, or without the range of their application, is not proven; it may be, only because the facts that indicate without proving it have never yet been subject to systematic verification or scientific analysis. But of such facts there exists a vast accumulation; unsifted, untested, and therefore as yet ineffective for proof, but capable, I can scarcely doubt, of reduction to methodical order and scientific treatment. There are records and traditions of every degree of value, from utter worthlessness to the worth of the most authentic history, preserving the evidences of powers which may be generally described as spiritual. Through all ages, among all races, the living have alleged themselves from time to time to have seen the forms and even heard the voices of the dead. Scientific men have been forced by the actual and public exercise of the power under the most crucial tests—for instance, to produce insensibility in surgical operations—to admire that the will of one man can control the brain, the senses, the physical frame of another without material contact, perhaps at a distance. There are narratives of marvels wrought by human will, chiefly in remote, but occasionally in recent times, transcending and even contradicting or overruling the known laws of Nature. All these evi-

dences point to one conclusion; all corroborate and confirm one another. The men of science ridicule them because in so many cases the facts are imperfectly authenticated, and because in others the action of the powers is uncertain, dependent on conditions imperfectly ascertained, and not of that material kind to which material science willingly submits. But if they be facts, if they relate to any element of human nature, all these things can be systematically investigated, the true separated from the false, the proven from the unproven. The powers can be investigated, their conditions of action laid down. Probably they may be so developed as to be exercised with comparative certainty, whether by every one or only by those special constitutions in which they may inhere. Such investigations will at present only enlist the attention and care of a few qualified persons, and, that they may be carried on in peace and safety, should be carried on in secrecy. But upon them may, I hope, be founded a certainty as regards the higher side of man's nature not less complete than that which science, by similar methods, has gradually acquired in regard to its purely physical aspects.'

"For this end he instituted a secret society, which has subsisted in constantly increasing strength and cohesion to the present hour. It has collected evidence, conducted experiments, investigated records, studied methodically the abnormal phenomena you call occult or spiritual, and reduced them to something like the certainty of science. Discoveries

from the first curious and interesting have become more and more complete, practical, and effective. Our results have surpassed the hopes of our Founder, and transcend in importance, while they equal in certainty, the contemporary achievements of physical science,—some of the chief of which belong to us. All that profound knowledge of human nature could suggest to bring its weakness to the support of its strength, and enlist both in the work, was done by our Founder, and by those who have carried out his scheme. The corporate character of the society, its rites and formularies, its grades and ranks, are matter of deep interest to all its members, have linked them together by an inviolable bond, and given them a strength infinitely greater than numbers without such cohesion could possibly have afforded. The Founder left us no moral code, imposed on us none of his own most cherished ethical convictions, as he pledged us to none of the conclusions which his own occult studies had led him to anticipate, nearly all of which have been verified by later investigation. Such rules as he imposed were directed only to the cohesion and efficiency of the Order. Our creed still consists only of the two fundamental doctrines; two settled principles only are laid down by our aboriginal law. We are taught to cultivate the closest personal affection, the most intimate and binding ties among ourselves; to defend the Order and one another, whether by strenuous resistance or severe reprisals, against all who injure us individually or collectively, and especially against

persecutors of the Order. But the few laws our Founder has left are given in the form of striking precepts, brief, and often even paradoxical. For example, the law of defence or reprisal is concentrated in one antithetic phrase:—*Gavart dax Zveltâ, gavart gedex Zinta* [Never let the member strike, never let the Order spare]. At it is a rule with us to embody none of our symbols, forms, or laws in writing, this manner of statement served to impress them on the memory, as well as to leave the utmost freedom in their application, by the gathered experience of ages, and the prudence of those who had to deal with the circumstances of each successive period. Another maxim says, 'Who kisses a brother's hand may kick the Camptâ,' thus enforcing at once the value of ceremonial courtesy, and the power conferred by union. We observe more ceremony in family life than others in the most formal public relations. Their theory of life being utterly utilitarian, no form is observed that serves no distinct practical purpose. We wish to make life graceful and elegant, as well as easy. Principles originally inculcated upon us by the necessity of selfprotection have been enforced and graven on our very nature, by the reaction of our experience against the rough and harsh relations, the jarring and often unfriendly intercourse, of external society. Aliens to our Order—that is, ninety-nine hundredths of our race—take delight in the infliction of petty personal annoyance, at least never take care not to 'jar each other's elbow-nerves,' or set on edge the teeth that never bit

them. *We* are careful not to wound the feelings or even the weaknesses of a brother. Punctilious courtesy, frank apology for unintentional wrong, is with us a point of honour. Disputes, when by any chance they arise, are referred to the arbitration of our chiefs, who never consider their work done till the disputants are cordially reconciled. Envy, the most dangerous source of ill-will among men, can hardly exist among us. Rank has been well earned by its holder, or in a few cases by his ancestors; and authority is a trust never to be used for its holder's benefit. Wealth never provokes covetousness, since no member is ever allowed to be poor. Not only the Order but each member is bound to take every opportunity of assisting every other by every method within his power. We employ them, we promote them, we give them the preference in every kind of patronage at our command. But these obligations are points of honour rather than of law. Only apostasy or treason to the Order involve compulsory penalties; and the latter, if it ever occurred in these days, would be visited with instant death,—inflicted, as it is inflicted upon irreconcilable enemies, in such a manner that none could know who passed the sentence, or by whom it was executed."

"And have you," I asked, "no apostates, as you have no traitors?

"No," he said. "In the first place, none who has lived among us could endure to fall into the ordinary Martial life. Secondly, the foundations of

our simple creed are so clear, so capable of being made apparent to every one, that none once familiar with the evidences can well cease to believe them."

Here he paused, and I asked, "How is it possible that the means you employ to punish those who have wronged you should not, in some cases at least, indicate the person who has employed them?"

"Because," he said, "the means of vengeance are not corporeal; the agency does not in the least resemble any with which our countrymen, or apparently your race on Earth, are acquainted. A traitor would be found dead with no sign of suffering or injury, and the physician would pronounce that he had died of apoplexy or heart disease. A persecutor, or one who had unpardonably wronged any of the Children of the Star, might fling himself from a precipice, might be visited with the most terrible series of calamities, all natural in their character, all distinctly traceable to natural causes, but astonishing and even apparently supernatural in their accumulation, and often in their immediate appropriateness to the character of his offence. Our neighbours would, of course, destroy the avenger, if they could find him out—would attempt to exterminate our society, could they prove its agency."

"But surely your countrymen must either disbelieve in such agency, in which case they can hardly fear your vengeance, or they must believe

it, and then would deem it just and necessary to retaliate."

"No," he said. "They disbelieve in the possibility while they are forced to see the fact. It is impossible, they would say, that a man should be injured in mind or body, reputation or estate, that the forces of Nature or the feelings of men should be directed against him, without the intervention of any material agent, by the mere will of those who take no traceable means to give that will effect. At the same time, tradition and even authentic history record, what experience confirms, that every one who has wronged us deeply has come to come terrible, awe-striking end. Each man would ridicule heartily a neighbour who should allege such a ground for fearing to injure one of us; but there is none who is so true to his own unbelief as to do that which, in every instance has been followed by signal and awful disaster. Moreover, we do by visible symbols suggest a relation between the vengeance and the crime. Over the heart of criminals who have paid with their lives, no matter by what immediate agency, for wrong to us, is found after death the image of a small blood-red star; the only case in which any of our sacred symbols are exposed to profane eyes."

"Surely," I said, "in the course of generations, and with your numbers, you must be often watched and traced; and some one spy, on one out of a million occasions, must have found access to your meetings and heard and seen all that passed."

"Our meetings," he said, "are held where no

human eye can possibly see, no human ear hear what passes. The Chambers meet in apartments concealed within the dwellings of individual members. When we meet the doors are guarded, and can be passed only those who give a token and a password. And if these could become known to an enemy, the appearance of a stranger would lead to questions that would at once expose his ignorance of our simplest secrets. He would learn nothing, and would never tell his story to the outer world." . . .

Opening the door, or rather window, of his private chamber, Esmo directed our eyes to a portrait sunk in the wall, and usually concealed by a screen which fitted exactly the level and the patterns of the general surface. It displayed, in a green vesture not unlike his own, but with a gold ribbon and emerald symbol like the cross of an European knighthood over the right shoulder, a spare soldierly form, with the most striking countenance I have ever seen; one which, once seen, none could forget. The white long hair and beard, the former reaching the shoulders, the latter falling to the belt, were not only unlike the fashion of this generation, but gave tokens of age never discerned in Mars for the last three or four thousand years. The form, though erect and even stately, was that of one who had felt the long since abolished infirmity of advancing years. The countenance alone bore no marks of old age. It was full, unwrinkled, firm in physical as in moral character; calm in the unresisted power of intellect and will over the passions, serene in a dignity too

absolute and selfcontained for pride, but expressing a consciousness of command over others as evident as the unconscious, effortless command of self to which it owed its supreme and sublime quietude. The lips were not set as with a habit of reserve or self-restraint, but close and even as in the repose to which restraint, had never been necessary. The features were large, clearly defined, and perfect in shape, proportion, and outline. The brow was massive and broad, but strangely smooth and even; the head had no single marked development or deficiency that could have enlightened a phrenologist, as the face told no tale that a physiognomist could read. The dark deep eyes were unescapable; while in presence of the portrait you could not for a moment avoid or forget their living, fixed, direct look into your own. Even in the painted representation of that gaze, almost too calm in its absolute mastery to be called searching or scrutinising, yet seeming to look through the eyes into the soul, there was an almost mesmeric influence as if, across the abyss of ten thousand years, the Master could still control the wills and draw forth the inner thoughts of the living, as he had dominated the spirits of their remotest ancestors. * * * *

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