

LUMEN:

EXPERIENCES IN THE INFINITE

Camille Flammarion



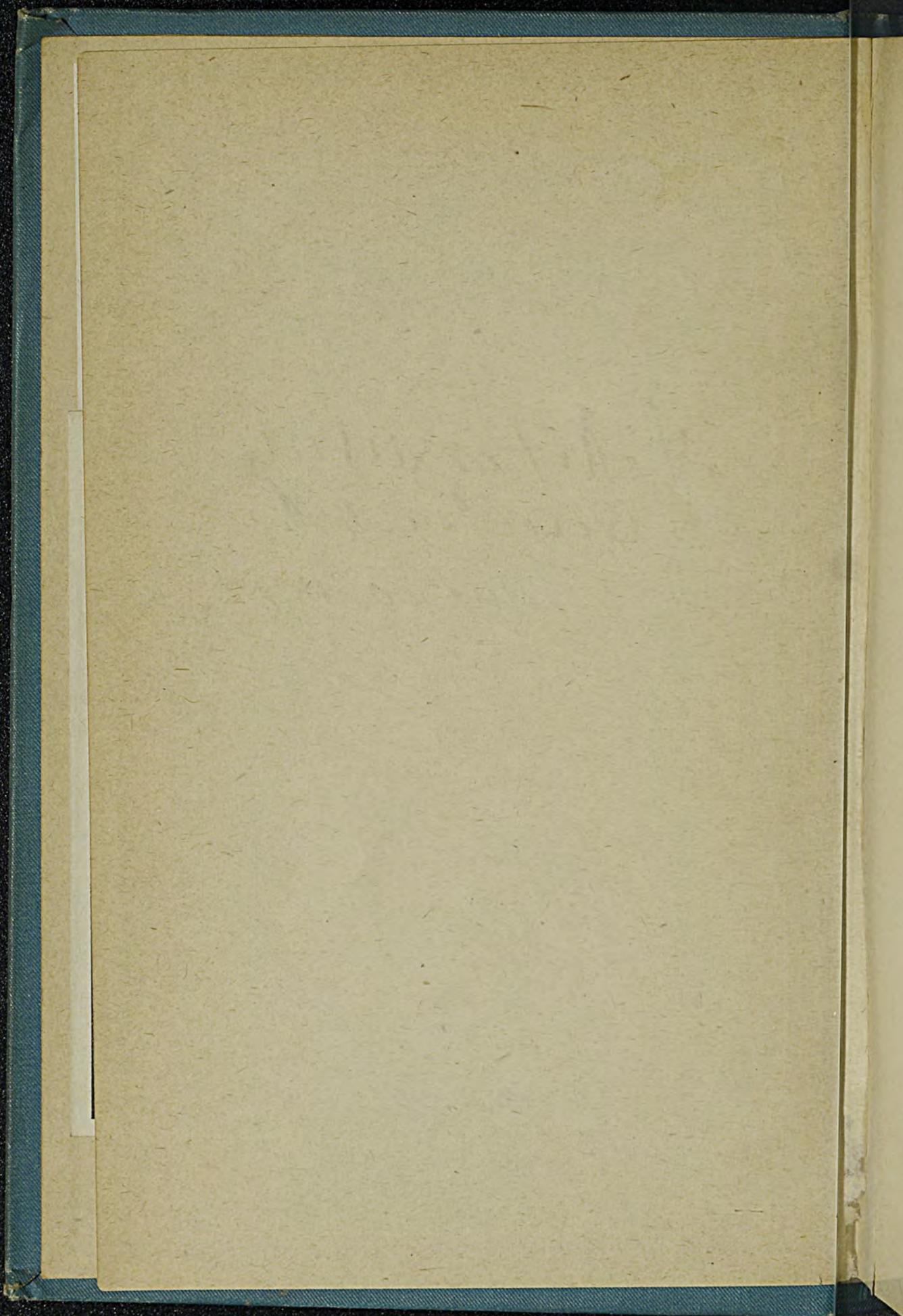
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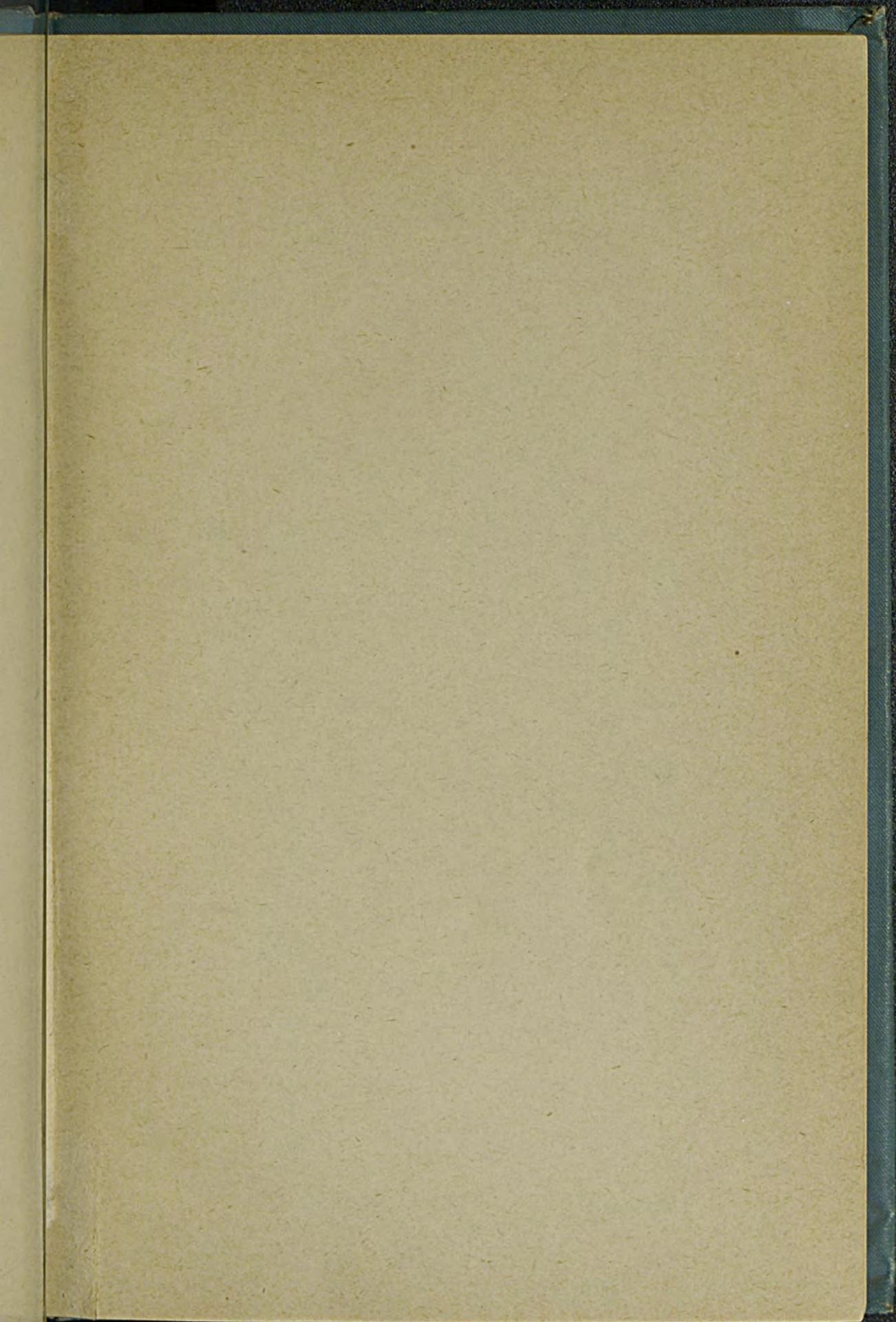
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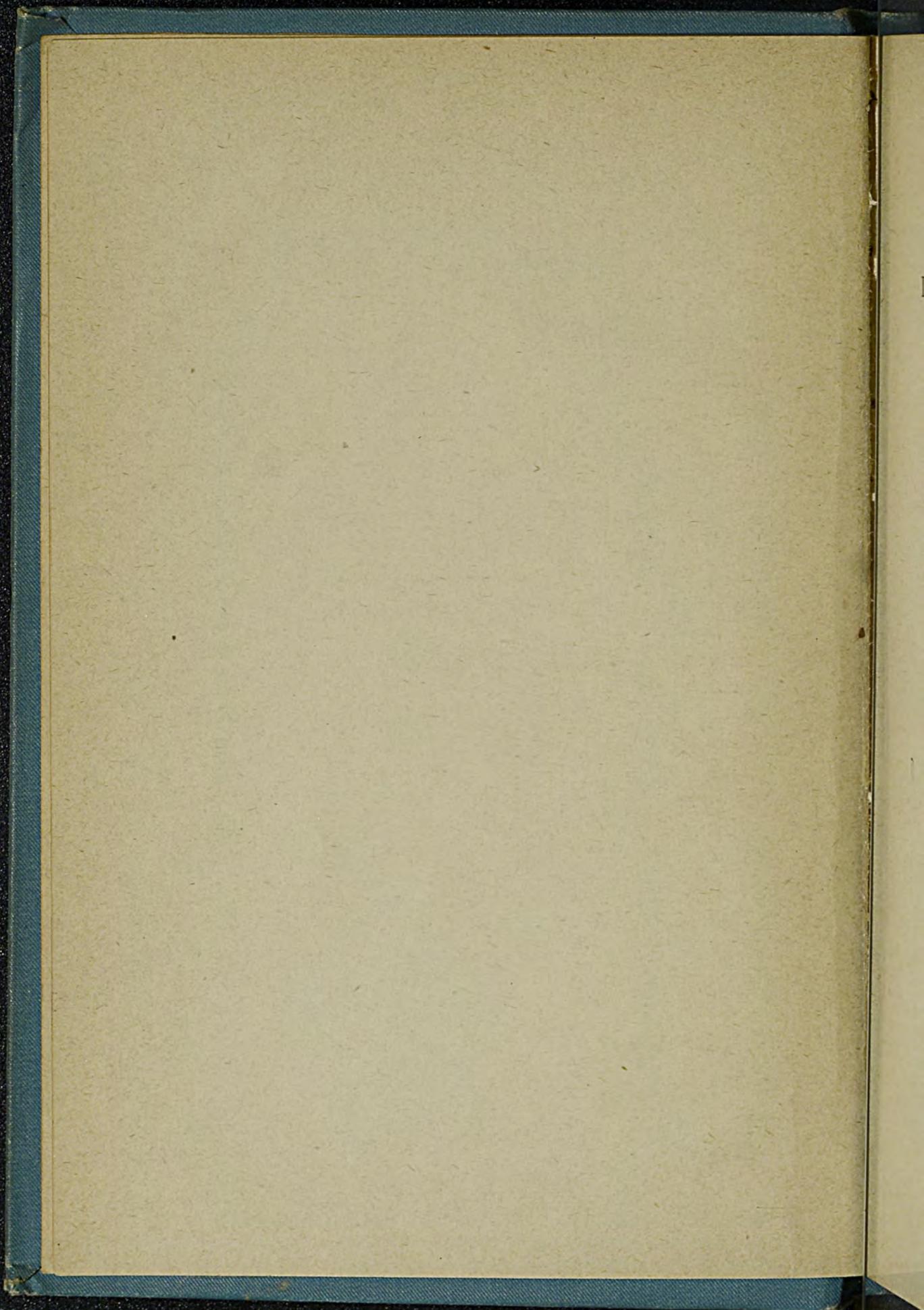
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LUMEN

EXPERIENCES IN THE INFINITE

BY
CAMILLE FLAMMARION

TRANSLATED BY
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YOUNG ARTIST," "MORRIÑA," ETC.

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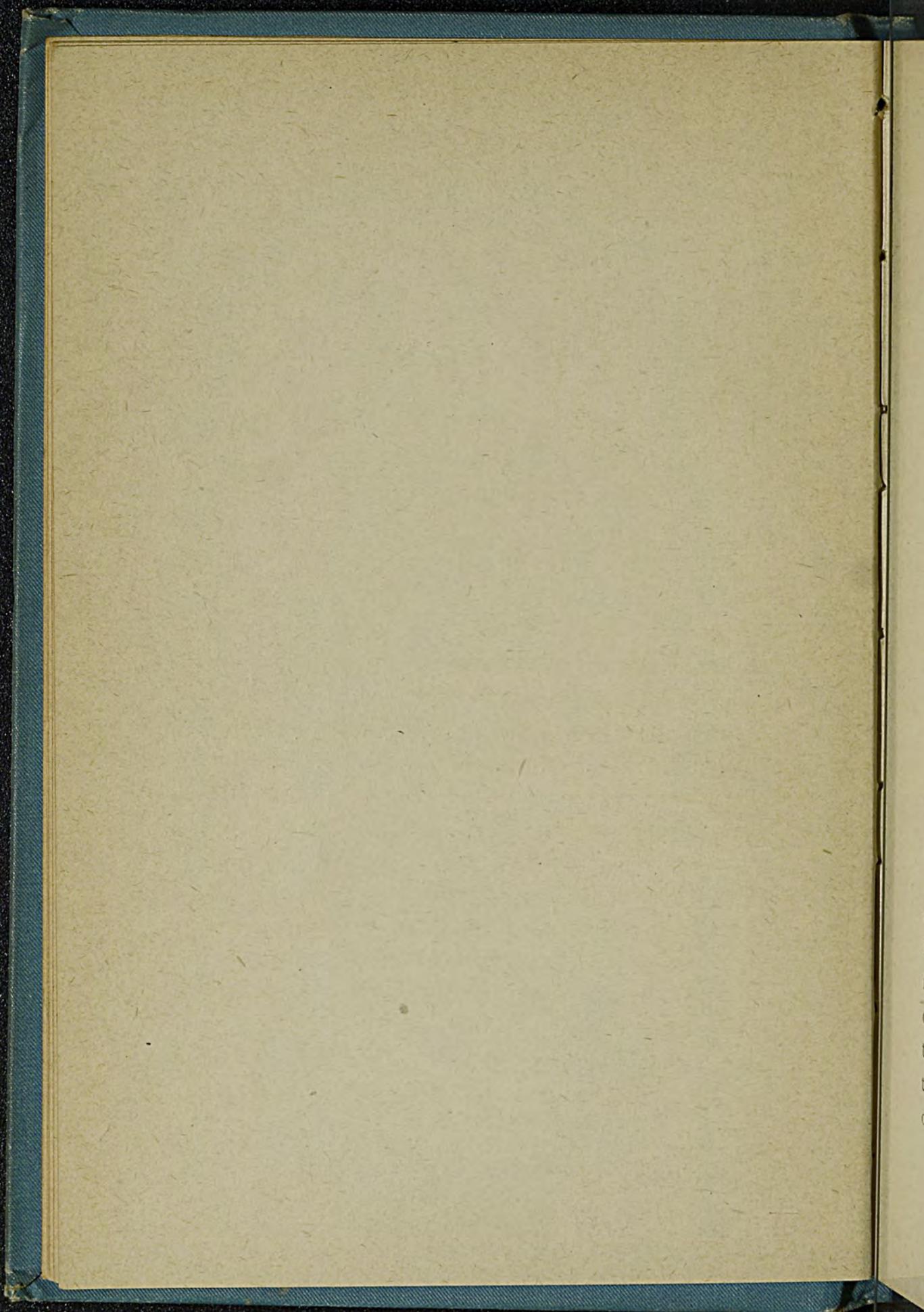
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LUMEN:

EXPERIENCES IN THE INFINITE.

FIRST CONVERSATION.

RESURRECTIO PRÆTERITI.

I.

Quærens.—You have promised, O Lumen, to relate to me the wonderful experiences—wonderful beyond all others—that befell you after you had breathed your last sigh, and to explain to me how, by a natural, although singular law, you saw the past reënact itself in the present, and penetrated a mystery which until now had remained wrapt in impenetrable obscurity.

Lumen.—Yes, my old friend, I will keep my word and, thanks to the long intercommunion of our souls, I trust you will be able to comprehend those wonderful experiences, as you justly call them. There are certain sights of which mortal eyes can scarcely bear the splendor. Death, which has delivered me from the power of the feeble and easily wearied senses of the body, has not yet touched you with his

liberating hand. You belong to the world of the living. Notwithstanding the isolation of your retreat in these royal towers of the Faubourg Saint Jacques, where no profane intruder comes to disturb your meditations, you yet form a part of terrestrial existence and are a participator in its trivial preoccupations. Do not be surprised, then, if, now that I am about to share with you the knowledge of the wonders I have seen, I ask you to isolate yourself still more completely from the external world, and to accord to me all the *intensity of attention* of which your spirit is capable.

Quærens.—I have ears only to hear you, O Lumen, and a mind only that I may endeavor to comprehend you. Speak then, frankly, and without distrust, and deign to relate those, to me, unknown experiences that follow the cessation of life.

Lumen.—At what point do you wish me to begin my recital?

Quærens.—If you can recall the moment when my trembling fingers closed your eyes, I would be pleased if you would begin your recital there.

Lumen.—The separation between the thinking principle and the nervous system leaves no remembrance in the soul. It is as if the impressions of the brain, which constitute the harmony of memory, were

effaced completely in order to renew themselves, after a brief interval, under another form. The first sensation of identity experienced after death resembles the sensation of awakening from sleep, during life, when the spirit, gradually returning to a consciousness of the new day, is still disturbed by the visions of the night. Attracted by the future and by the past, the mind seeks at the same time to recover its self-consciousness and to grasp the fugitive impressions of sleep which are still present, with their train of images and events. Sometimes, absorbed in this retrospection of a delightful dream, the eyes close again, the broken links reunite, and the panorama continues to unfold itself; the mind returns to its dream and to a sort of semi-consciousness. So, on leaving this life, our thinking faculty hovers between a reality which it does not yet comprehend and a dream which has not yet completely vanished. Impressions the most diverse are confused and mingled together, and if, influenced by transitory feelings, we regret the earth from which we have just been exiled, we are overwhelmed by a feeling of vague melancholy which weighs upon our thoughts, involves us in darkness, and retards clairvoyance.

Quærens.—Were these, then, the feelings you experienced immediately after death?

Lumen.—After death? But there is no death. That which you designate by this name, the separation between the body and the soul, is not a material process, like the chemical separation of disassociated elements in the physical world. One is scarcely more conscious of this final separation, which seems to you so painful, than the new-born child is of its birth. We are born into the celestial life as we were born into the terrestrial life, only that the soul, being no longer wrapped in the corporeal swaddling-clothes which envelop it here, acquires more quickly in the former case the notion of its state and its individuality. This faculty of perception, however, varies materially in different souls. There are many who, during the life of the body, never aspire heavenward and never feel the desire to understand the laws of the creation. These being still governed by their bodily appetites, remain for a long time in a disturbed and unconscious condition. There are others, happily, who, during this life, soar on the wings of their aspiration toward the heights of eternal beauty; these behold the moment of separation approach with calmness and serenity; they know that progress is the law of existence and that they will enter, in the Beyond, on a life superior to the earthly life; they follow, step by step, the lethargy which invades their being, and when the heart, its pulsations

growing fainter and fainter, has at last ceased to beat, they are already hovering above the body, whose falling asleep they have witnessed, and, freeing themselves from the magnetic bonds that united them to it, they are borne rapidly by a mysterious force toward that point of the creation whither they are drawn by their aspiration, their feelings, and their hopes.

Quærens.—Our present conversation, my dear master brings to my mind the dialogue of Plato on the immortality of the soul; and as Phædo asked his master Socrates, on the day on which the latter was to drink the hemlock, in obedience to the iniquitous sentence of the Athenians, I ask you, who have passed that fatal boundary, wherein consists the essential difference between the soul and the body, by virtue of which the former continues to live when the latter has ceased to exist?

Lumen.—I shall not give a metaphysical answer to this question, like Socrates, nor a dogmatic answer like the theologians, but a scientific answer, for neither you nor I attach any value to facts that are not verified by experience. In man, then, as in the universe, there are three distinct principles: First, the body; second, vital force; third, the soul.

I name them in this order, following the *a posteriori* method. The body is an assemblage of molecules

formed in their turn by groups of atoms. The atoms are inert, passive, unchangeable, and indestructible. They enter into the organism by means of respiration and alimentation, constantly renewing the tissues, are replaced by others, and leaving the body with life, go to form other bodies. In a few months the human body is completely renewed, and neither in the blood, nor in the flesh, nor in the brain, nor in the bones, does there remain a single atom of those that constituted the body a few months previously. By the great medium of the atmosphere, especially, do the atoms pass ceaselessly from one body to another. The molecule of iron is the same whether it is incorporated in the blood which throbs in the brain of a man of genius or forms part of a worthless fragment of rusty iron. The molecule of oxygen is the same whether it shines in the tender glance of the bride or, uniting with hydrogen, burns in one of the innumerable lights that illuminate a Parisian night, or descends in a raindrop from the bosom of the clouds. The bodies now living are formed from the ashes of the dead, and if all the dead were to come at once to life, the last to resuscitate would be wanting in many of their parts which had belonged to the first. And even during life an interchange of atoms takes place between enemies and friends, between men,

animals, and plants, which would startle the eye that could perceive it. That which you breathe, eat, and drink has been already breathed, drunk, and eaten innumerable times. Such is the body—an assemblage of material molecules, which are constantly being renewed.

Vital force—life—is the principle around which these molecules are grouped, according to a certain form, constituting an organism. This force rules the passive atoms, those which are themselves incapable of motion, inert. It attracts them, draws them, seizes them, assigns to them their places, disposes them according to certain laws, and forms this body, so wonderfully constituted, which is the subject of the study of the anatomist and the physiologist. The atoms are indestructible ; not so vital force. Atoms are of no age ; vital force is born, grows old, and dies. An octogenarian is older than a youth of twenty. Why? The atoms constituting his body have occupied their place for a few months at most, and besides, in themselves, are neither old nor young. What is it that has grown old in him? It is his vital force, which is used up and exhausted. Like heat, like electricity, life is a force engendered by certain causes. It is transmitted from parent to child. It sustains the body naturally and unconsciously. It has a

beginning and an end. It is the vital principle, an unconscious physical force, the organizer and preserver of bodies.

The soul is an intellectual, thinking, immaterial entity. The world of ideas in which it lives is not the world of matter. It has no age, it never grows old. It is not changed in a month or in two months, like the body, for, after months, after years, after decades of years, we feel that we still preserve our identity, that the *I* is the same. Otherwise, if the soul did not exist, if the thinking faculty were a property of the brain, we could no longer continue to say that *we possess* a body; it would be our body, our brain, *that would possess us*. Besides, from time to time, our self-consciousness would change. We would no longer have the certainty, nor even the simple feeling of our identity, and we would not be responsible for the resolutions secreted by the molecules which passed through our brain many months before. The soul is not the vital force, for this is measurable, is transmitted from parent to child, has no self-consciousness, is born, grows, declines, and dies—states all opposed to the states of the soul, which is immaterial, not to be measured, not transmittable, self-conscious. The development of vital force may be represented, geometrically, by a spindle which swells imper-

ceptibly toward the middle and then decreases until it comes to a point. At the middle of life the soul does not diminish like the spindle (if I may use this comparison) and taper to an end, but continues to open its parabola launched into the infinite. Besides, the mode of existence of the soul is essentially different from that of physical life. It is a *spiritual* mode. The sentiment of the just and the unjust, of the true and the false, of good and evil, study, mathematics, analysis, synthesis, reflection, admiration, love, affection and hatred, esteem and contempt, in a word, the occupations of the soul, whatever they be, are of the intellectual and moral order, which neither the atoms nor the physical forces can experience, and which exist as really as the physical order.

The three elements composing the human being we find again in the whole of the universe: 1st, the material worlds, passive, inert; 2d, the active physical forces that govern the worlds; 3d, God, the Eternal and Infinite Spirit, the *Intellectual* Organizer of the *mathematical* laws which these forces obey—an unknown God in whom reside the supreme principles of the True, the Beautiful, and the Good.

The soul can be attached to the body only through the medium of the vital force. When life is extinct the soul separates itself naturally from the organism

and ceases to have any immediate connection with time and space. It has neither density nor weight. After death the soul remains in that part of the heavens in which the Earth may happen to be at the moment of separation. You know that the Earth is one of the planets in the heavens, like Venus or Jupiter. The Earth continues to revolve in its orbit at the rate of 26,800 leagues an hour, so that an hour after death the soul finds itself at this distance from the body, by the sole fact of its release from the laws that govern matter and its immobility in space. Thus we are in the heavens immediately after death, as we have been in them during life, only that we have no longer any gravity to attach us to the planet. I may add, however, that, as a general rule, the soul is some time in disengaging itself entirely from the nervous system, and that sometimes it remains several days, several months, even, bound to its former body, which it is reluctant to abandon.

Quærens.—I can now for the first time form a clear conception of the material act of death, of the individual being of the soul, its independence of the body and of life, of its personality, its continued existence, and its position in the heavens. All this will, I hope, prepare me to understand and appreciate your revelations.

You have told me that a strange event attracted your attention on your entrance on eternal life. At what time did this event take place?

Lumen.—My friend, allow me to continue my narrative without interruption. The hour of midnight had struck, as you know, and the full moon, midway in her course, poured her pale light on my dying bed, when my daughter, my grandson, and the others withdrew to take some rest. You desired to remain at my bedside, and had promised my daughter not to leave me until morning. I should have thanked you for your tender and devoted affection if we had not been old friends. We had been a full hour alone, for the star of night was declining in the west, when I took your hand in mine and told you that life was already leaving my extremities. You wished to persuade me of the contrary, but I was observing calmly my physiological condition, and I knew that I had but a few seconds more to breathe. You were walking softly toward the door of my children's apartments, but (I know not by what superhuman effort) I succeeded in calling out to you to stop. You returned, my friend, and said to me with tears in your eyes; "You are right; you have already made known your last wishes; it will be time enough to summon your children in the morning." These words involved a contradiction, which I felt

without allowing it to appear. You remember that I then begged you to open the window. It was a beautiful October night, more beautiful than any sung by Ossian, the Scottish bard. Before me, not far above the horizon, could be seen the Pleiades veiled by the mists rising from the earth. A little farther away Castor and Pollux moved triumphantly in the heavens. And higher up, forming with these latter a triangular constellation, a beautiful star, called on the zodiacal charts Capella, or the Goat, shone with golden light in the Constellation of the Charioteer.

You see that I have not lost my memory. When you opened the high window the fragrance of the roses, asleep under the wings of night, reached my senses, mingled with the peaceful light of the stars. To describe to you the sweetness shed over my soul by these impressions, my last earthly ones, the last experienced by my expiring senses, would be beyond my power. Never in my moments of most intoxicating happiness, of purest bliss, have I felt the intense delight, the glorious serenity, the celestial joy which I felt in those moments of ecstasy during which I inhaled the perfumed breath of the flowers and gazed at the tender light of the distant stars.

When you returned I had come back to the external world, and, with my hands folded on my breast and

upturned gaze, I allowed my thoughts to wing their flight in prayer through space. And I remember that the last words my lips pronounced, before my ears closed to earthly sounds forever, were, "Adieu, my old friend ; I feel that death is bearing me away—toward those unknown regions where we shall one day meet again. When those stars shall have faded in the morning light only my mortal part will be here. Tell my daughter that my last wish is that she should bring up her children in the knowledge and pursuit of righteousness."

And as you wept and remained kneeling at my bedside, I added, "Repeat the beautiful prayer of Jesus." And you began to repeat with a trembling voice the Lord's Prayer : "Forgive us—our trespasses—as we—forgive—those—who—trespass——"

These were the last thoughts that visited my mind through the medium of the senses. My gaze, fixed on the star Capella, began to grow indistinct, and of what took place immediately afterward I knew nothing.

Years, days, and hours are measured by the movements of the Earth. Beyond the sphere of those movements time *does not exist* in space ; it is then absolutely impossible for me to have a notion of time. I think, however, that it was on the day of my death

that the event I am going to describe to you took place. For, as you will soon perceive, my body had not yet been interred when this spectacle presented itself to my spiritual vision.

Born in '93, I was then in my seventy-second year, and it was with no little surprise that I felt myself endowed with a fire and activity of spirit no less ardent than those of my early manhood. I had no body, and yet I was not incorporeal, for I both felt and saw a substance that constituted my form. There is no analogy, however, between this substance and the substance which forms terrestrial bodies. I know not how I traversed the celestial space, nor by what force I soon found myself approaching a glorious golden sun, whose splendor, however, did not dazzle me, surrounded by what seemed to me from a distance a great number of worlds, each encircled by one or more rings. Borne onward by the same mysterious force I found myself in the neighborhood of those rings, a spectator of indescribable phenomena of light, for the starry space was traversed, as it were, by rainbow bridges. I no longer saw the golden sun, and around me reigned a sort of darkness composed of multicolored shadows.

My spiritual vision was incomparably more powerful than the vision of the terrestrial body which I had

just left, and, strange to say, this faculty seemed subject to the will. This spiritual vision is so marvelous that I will not attempt to describe it now. It will be enough for me to say, in order to give you some conception of it, that instead of simply seeing the stars in the sky as you see them from the Earth, I distinguished clearly the worlds that gravitated around them, and strange to say, when I desired to lose sight of a star, in order the better to observe the worlds around it, the star disappeared from my view, leaving me to observe the world, undisturbed.¹ In addition to this, when my gaze concentrated itself on a particular world I could distinguish the accidents of its surface, its continents and its seas, its clouds and its rivers, and by a special intensity of concentration of the spiritual sight (although it did not appear to increase visibly in size, as an object does when seen through a telescope) I was able to distinguish the object on which it was fixed, as, for instance, a town or a field. And as I continued to gaze at one sole point, minor details became visible, and I saw edifices, streets, and houses, trees, gardens, and paths, as distinctly as if I were looking at them from a balloon,

¹ Transcendental physiological anatomy might perhaps explain this fact by suggesting that the *punctum cacum* changes its place so as to hide from the view the object which it no longer desires to see.

a little distance above them. Finally, in the same way and in virtue of the same faculty, by continuing to concentrate my attention on the same object, I could distinguish even the inhabitants, and follow their movements in the streets and in their dwellings. It was sufficient for me, in order to do this, to fix my thought on the quarter, the house, or the individual that I desired to observe.

Quærens.—But, my friend (excuse what may seem to you the simplicity of the remark), are not the worlds, or planets which revolve around each star, undistinguishable at so great a distance from the star itself? For instance, at the distance at which you then found yourself, were the planets of our system distinguishable from our star, our Sun? Were you able to distinguish the Earth?

Lumen.—You have seen at the first glance the only objection based on mathematical laws which might appear to be in contradiction with my previous statement. In effect, at a certain distance, the planets seem lost in the radiance of their sun, and our terrestrial eyes can scarcely distinguish them. You know that from Saturn the Earth is scarcely to be seen. But it is important to remember that these difficulties depend as much on the imperfection of our sight as on the geometrical law of the decrease of surfaces.

But in the world in which I had just arrived, beings, not incarnated in a gross envelop like the beings here on Earth, but free and endowed with perceptive faculties of a high degree of power may, as I have said, *isolate* the illuminating source from the object illuminated, and, besides, perceive plainly details which, at that distance, would be altogether undistinguishable by the eyes of terrestrial organisms.

Quærens.—Do those beings make use, for this purpose, then, of instruments superior to our telescopes?

Lumen.—If, as being less opposed to the admissibility of this marvelous faculty, you find it easier to conceive them provided with such instruments, you may do so theoretically. You may picture to yourself glasses, which by a series of lenses and diaphragms bring near successively the worlds, concealing their source of light from the vision, in order that this may concentrate itself on the particular world under observation. But I must inform you that these instruments are not exterior to those beings but are a part of their organs of vision. It is to be understood that this construction of the organs of vision is natural, in these worlds, not supernatural. If you will call to mind for a moment those insects which enjoy the faculty of shortening or lengthening their organs of vision, like the tubes of a telescope, of expanding or flattening

their crystalline lens so as to make of it a magnifying glass of varying degrees of power, and even of concentrating the vision of a multitude of eyes, pointed like so many microscopes, on the same object to grasp its minutest details, you can more easily conceive the faculty of those ultra-terrestrial beings.

Quærens.—Without being able to imagine it, since it lies outside the sphere of my experience, I can yet conceive the existence of this faculty. Thus, then, you could see the Earth and even distinguish from above the cities and the villages of our lower world?

Lumen.—Let me continue. I reached, then, the rings I have before spoken of, whose breadth is so vast that two hundred Earths like yours could revolve on them abreast; and I found myself on a mountain crowned by palaces formed of vegetable growths. At least it seemed to me that those fairy-like chateaus were either natural growths or were formed by a simple arrangement of boughs and tall flowers. It was a populous city. On the summit of the mountain on which I stood, I remarked a group of old men, twenty-five or thirty in number, who were observing with profound and uneasy attention a beautiful star of the southern constellation of the Altar on the confines of the Milky Way. They did not notice my

arrival among them, so intently were they gazing at this star, or at some world of its system.

As for me, I had found myself, on arriving at this atmosphere, clothed with a material body of the same form as theirs, and, more wonderful still, it caused me but little surprise to hear them talking about the Earth; yes, about the Earth, in that universal language of the spirit which all created beings, from the seraphim to the trees of the forest, comprehend, and they were speaking not only about the Earth but about France. "Why these continual massacres?" they were saying among themselves. "Must brute force, then, reign supreme? Is civil war, then, destined to exterminate this people, and to inundate with blood the streets of that capital but lately so joyous in its pride and pomp?"

I, who had just come from the Earth with the swiftness of thought, and who only yesterday had lived in the midst of a peaceful and tranquil city, could not understand the meaning of this language. I joined the group and fixed my eyes, like them, on the beautiful star. Soon afterward, while I was listening to their conversation, and eagerly endeavoring to perceive the extraordinary things of which they spoke, I saw to the left of the star a pale blue sphere; it was the Earth. You are not ignorant of the fact, my friend,

paradoxical as it may appear, that the Earth is in reality a star in the sky, as I reminded you a moment since. At a distance, seen from one of the stars in the neighborhood of our system, this system appears, to the spiritual vision of which I have spoken, like a family of stars composed of eight principal worlds grouped around the Sun, become a star. Jupiter and Saturn are the first to arrest the attention, on account of their size ; then Uranus and Neptune are perceived, and afterward, close to the Sun-Star, Mars and the Earth. Venus is scarcely to be distinguished, and Mercury remains invisible, owing to its close proximity to the Sun. Such is the planetary system in the heavens.

My attention was fixed exclusively on the little terrestrial sphere, close beside which I recognized the Moon. Soon I observed the white snows of the North Pole, the yellow triangle of Africa, the outlines of the ocean, and, as my attention was fixed solely on our planet, the Sun-Star disappeared from my sight. Then I was able to distinguish, in the midst of the azure regions on the sphere, a geographical division of land of a darker color, and, pursuing my investigations, a city in the midst of this division. I had no difficulty in recognizing the country to be France and the city Paris. The first sign by which I recognized

the capital was the silvery ribbon of the Seine, winding gracefully to the west of the great city. I recognized also the Island of the Cité. The nave and the towers of Nôtre-Dame, which I saw from above, formed a Latin cross at the eastern extremity of the Cité; the Boulevards girdled the city on the north. To the south I recognized the Garden of the Luxembourg and the Observatory. The cupola of the Panthéon showed like a gray point on the summit of Mount Sainte-Geneviève. To the west extended, in a straight line, the grand avenue of the Champs-Élysées; further on were distinguishable the Bois de Boulogne, the environs of St. Cloud, the woods of Meudon, Sèvres, Ville-d'Avray, and Montretout. This scene was lighted by a glorious sun; but strange to relate, the hills were covered with snow, as if it were the month of January, while I had left the October landscape perfectly green. I soon had the certainty that it was indeed Paris which I had been observing, but as I was as little able as before to understand to what the exclamations of my neighbors had reference, I made further efforts to distinguish the details more clearly.

My gaze rested longest on the Observatory. It was my favorite quarter, and during the past forty years I had scarcely ever been away from it for more than

a few months at a time. But judge of my surprise when, my sight becoming more accustomed to the scene, I noticed that there was no longer any avenue between the Luxembourg and the Observatory, while numerous little gardens had replaced the magnificent avenue of chestnut trees. My æsthetic feeling was beginning to protest against the encroachments of the Parisian ediles, when my attention was suddenly attracted by a more serious subject for thought. A convent stood in the middle of the orchard. Neither the Boulevard Saint-Michel nor the Rue de Médicis was any longer in existence. In their place was a network of little streets, and I fancied I recognized the old Rue de l'Est, the Place Saint-Michel, where an antique fountain formerly supplied the inhabitants of the Faubourg with water, and a number of lanes which had been there in former years. The Observatory itself had been despoiled of its cupolas; the two side wings had also disappeared. Continuing my observations I saw that the city had changed greatly in many particulars. Neither the Arc de Triomphe de l'Étoile nor any of the magnificent avenues which had formerly opened into it any longer existed. The Boulevard de Sebastopol, the Eastern railway terminus, all the other way-stations, the railroads themselves, had disappeared. The Tower of Saint-Jacques was situated

in the midst of a group of dilapidated houses, and the Column of Victory was close beside it. The Column of the Bastille too was absent; otherwise I should have seen the statue flashing back the sun's rays. The Column Vendôme seemed to have been replaced by an equestrian statue. In the Rue Castiglione was an ancient mossgrown convent. The Rue de Rivoli had disappeared. The Louvre was either unfinished or partly demolished. Between the courts of Francis I. and the Tuileries were to be seen groups of hovels, dilapidated terraces, and mansard roofs. On the Place de la Concorde no obelisk was to be seen, but in its stead a surging crowd that I had not at first observed; neither the Madeleine nor the Rue Royale was visible. Behind the island of Saint-Louis there was another smaller island. In place of the other boulevards was the wall, formerly surrounding the city and the fortifications had narrowed their circle. In short, while I recognized the French capital by the familiar edifices which still remained and some quarters that had not changed, I was puzzled by so wonderful a metamorphosis which in a single day had radically altered the aspect of the ancient city.

My first thought was that instead of spending, as I had supposed, a very short time in my journey from the Earth, I had been several years, several centuries,

perhaps, on the way. As the notion of time is essentially relative, and the measure of duration has nothing real or absolute, beyond the terrestrial globe, I had lost all measure of time, and I reflected that years and even centuries might have passed over me without my perceiving them, for the lively interest I had taken in this journey had made the time seem short ; a common expression which denotes the relativity of this conception in the mind. Having no means of assuring myself of the fact, I should doubtless have come to the conclusion that several centuries separated me already from terrestrial life, and that I was looking at the Paris of the twentieth or the twenty-first century, if I had not continued my observation of the scene before me.

In effect, I began gradually to recognize the aspect of the city, and I succeeded in identifying one after another various sites, streets, and buildings which I had been familiar with in my youth. I saw the Hôtel de Ville decked with flags and the square central dome of the palace of the Tuileries. A slight detail sufficed to render my recognition complete ; in the center of the garden of an ancient convent of the Rue Saint-Jacques I observed a pavilion, the sight of which sent a thrill through my frame. It was there I had met in my youth the woman who had loved me with so deep

a love—my Eivlys, so tender and devoted, who had sacrificed everything to follow my fortunes. I saw again the little cupola of the terrace where we loved to spend the evening hours in reverie and in the contemplation of the stars. Ah, with what delight I saw again those paths along which we had walked hand in hand ; those avenues in whose shade we had sheltered ourselves from the prying eyes of the jealous world. I looked at this pavilion, which I at once recognized, and you will divine that the sight of it sufficed in itself to complete the chain of evidence, and to force upon me the conviction, irresistible and not to be shaken, that, far from having before me, as was natural to suppose, the Paris of the period *succeeding my death*, I had before me a Paris *which had passed out of existence*, the Paris of the beginning of the present or the end of the last century.

You will readily imagine, however, that, strong as these proofs might be, I could scarcely believe the evidence of my eyes. It seemed to me more reasonable to suppose that Paris had fallen into the ruin, and suffered the transformation I saw, after my departure from the Earth (an interval the duration of which was absolutely unknown to me), and that I had before my gaze the city of the future, if I can in this way express a fact that would have been a present fact

for me. I continued my observations, then, attentively, in order to determine if it were indeed *ancient* Paris, in part fallen to ruins, which I now beheld, or if, by a no less incredible phenomenon it were another Paris, another France, another Earth.

II.

Quærens.—What an extraordinary problem on which to exercise the powers of your analytic mind, O Lumen! How were you enabled to arrive at a solution of it?

Lumen.—The sages on the mountain had continued their conversation while the foregoing thoughts were passing through my mind. Suddenly I heard the eldest of the group, a venerable spirit whose Nestor-like aspect commanded at the same time admiration and respect, cry out in a mournful and impressive voice :

“To your knees, my brothers! let us invoke the mercy of the God of the Universe. This earth, this nation, this city, continue to perpetrate their crimes; another head, the head of a king, has just fallen.”

His companions appeared to comprehend him, for they knelt down on the mountain and bowed their white faces in the dust.

As for me, who had not yet been able to distinguish the forms of the men in the streets and in the squares,

and who had not directed my gaze toward the particular spot which the sages were observing, I remained standing, and continued my observations with more interest than before.

“Stranger,” said the venerable man to me, “is it because you disapprove of the unanimous action of your brothers, that you refuse to join in their prayer?”

“Senator,” I answered, “I can neither censure nor approve what I do not understand. As I have but just now arrived on this mountain, the motive of your pious invocation is unknown to me.”

I then approached the sage and, while his companions, who had risen to their feet, conversed in groups, I asked him to describe to me what he had seen.

He informed me that, by the intuition with which spirits of the degree of the inhabitants of this world are endowed, and by the inward faculty of perception which they possess, they have a sort of magnetic relation with the neighboring stars, some twelve or fifteen in number. Beyond this region perception becomes confused. Our Sun is one of those neighboring stars. They have a general idea of the condition of the various humanities who inhabit the planets dependent on this sun, and of their relative degrees of moral and intellectual elevation.

In addition to this when any great disturbance takes

place among any of those humanities, whether in the physical or the moral realm, they experience a sort of inward shock, as a cord, set in vibration, communicates this vibration to another cord situated at a distance from it.

For a year past (the year of this world is equal to ten years of ours), they had felt themselves drawn by a particular emotion toward the terrestrial planet ; and the observers had followed with interest and anxiety the march of events in this world. They had witnessed the end of a reign, the glorious dawn of freedom, the conquest of the rights of man, the establishment of the great principles of human dignity. Then they had seen the sacred cause of Liberty imperiled by those who should have been its foremost defenders, and brute force take the place of reason and persuasion. I understood that by this was meant the great Revolution of '89 and the overthrow of the ancient political system, to give place to a new order of things. For a short time past, especially, they had been witnessing with sorrow the deeds of the Reign of Terror and the atrocities committed during that sanguinary period. They feared the destruction of the Earth, and they lost faith thenceforward in the progress of that emancipated humanity which was itself imperiling, by its excess, the treasure it had just won,

I took good care not to inform the senator that I had just come from the Earth myself, and that I had lived upon it for seventy-two years. I knew not if he had some intuition of the fact ; I was, too, so strongly impressed by the spectacle I had just witnessed that my spirit was engrossed with its reflection and took no thought of my form.

My sight had now become accustomed to the scene I was observing, and I could distinguish in the Place de la Concorde a scaffold surrounded by a formidable array of warlike implements.

In a cart driven by a man dressed in red was the dead body of Louis XVI.; other executions had just taken place and tumbrils were approaching from the Faubourg Saint-Honoré.

A furious mob were gesticulating violently.

Cavaliers walked mournfully in procession, sword in hand. In the Champs-Élysées trenches were distinguishable into which were jostled many of the eager and curious crowd. The scene seemed one of national mourning rather than an execution. *Sans-culottes* had climbed to the very tops of the leafless trees and were waving their caps in the air, while in the distant and deserted streets only an occasional passer-by was to be seen.

I had not been a witness of the events of '93, for

that was the year of my birth, and I experienced an indescribable interest in observing this scene, with which I was familiar through history. But, however great this interest might be, you can well imagine that it was dominated by a feeling more powerful still: that of knowing that this was the end of the year 1864, and that I was witnessing an event which had taken place at the close of the last century.

Quærens.—It seems to me, indeed, that this feeling of its unreality ought to have greatly contributed to lessen your interest in the scene you were observing. For, after all, it was a spectacle which we know must have been absolutely illusory, and the reality of which it would be impossible to admit even while seeing it.

Lumen.—Yes, my friend, impossible. But can you understand my feeling on seeing with my own eyes this impossibility realized? It is a common observation that we sometimes see a thing and cannot believe it. This was the case in which I found myself. It was impossible to refuse credence to the evidence of my senses; it was equally impossible to believe what I saw to be real.

Quærens.—But was not this scene a mental picture; a creation of your imagination, a reminiscence? Are you fully convinced that it was indeed a reality and not a scene conjured up by memory?

Lumen.—That it was so was the first thought that came to my mind. But it was so evident to me that I had before my eyes the Paris of '93, and the tragic occurrences of the 21st of January, that I could not long remain in doubt that such was the case. And then this explanation was already rendered inadmissible by the fact that the venerable old men of the mountain had preceded me in the observation of this spectacle, that they beheld, noted, and discussed the action as it was taking place, without having any knowledge of the history of the Earth, or being aware that I was acquainted with this history. Besides, we had before our eyes *an event actually taking place* and not a past event.

Quærens.—But if the past can thus blend with the present, if reality and appearances can mingle together in this way, if persons long dead may be still seen playing their parts on the mortal stage, if the buildings of a city like Paris can disappear to allow the ancient city to be seen in their stead, if, in short, the present can vanish so that the past may come to life again, in what fact can we henceforward believe? What becomes of experimental science? What becomes of our deductions and our theories? What foundation is there for even those scientific truths which seem to be the most firmly established? If

these things be true, must we not henceforth doubt everything or believe everything?

Lumen.—Those considerations and many others like them, my friend, have exercised my thoughts, too ; but they do not affect the reality of what I saw. When I had reached the conviction that we had *present* before our eyes the year 1793, the thought immediately occurred to me that science itself, instead of combating this reality (for two truths cannot be opposed to each other) must furnish me with the explanation of it. I interrogated science, then, and awaited its response.

Quærens.—And with what result? Was the spectacle real?

Lumen.—Not only real, but comprehensible and demonstrable. You shall now hear its astronomical explanation.

I examined in the first place the position of the Earth in the constellation of the Altar, of which I have spoken. In determining my position with reference to the North Star and the Zodiac I observed that the constellations did not differ greatly from those seen from the Earth and that, with the exception of a few stars, their apparent position was the same. Orion still reigned at the terrestrial ex-equator ; the Great Bear, arrested in his circular course, still indicated the north. Recurring to the coördinates of apparent movements,

here suspended, I came to the conviction that the point where I saw the group of the Sun, the Earth, and the planets, must mark the seventeenth hour of right ascension, that is to say, the 256th degree or thereabouts. (I had no instrument with which to take an exact observation.) I observed in the second place that the Earth was situated in the 44th degree from the South Pole. These researches were made for the purpose of ascertaining on what star I then was. They resulted in the conviction that I was on a star situated in the 76th degree of right ascension, and the 46th degree of north declination. I knew, besides, from the words of the venerable sage, that the star on which we were was not far removed from our Sun, since the latter was one of its neighboring stars. With the help of these data I could easily ascertain, by consulting my memory, which star it was that agreed with the determined positions. One only answered to these conditions ; it was the star of the first magnitude in the constellation of the Charioteer, called Capella, or the Goat. There was not the slightest room for doubt on this point.

I was then, to a certainty, in a world belonging to the system of this star. At this point, in fact, the Sun appeared like a simple star, which, in consequence of the difference in position, seemed to be in the constellation of the Charioteer as seen from the Earth.

I then searched my memory for the parallax of this star. I recalled the fact that a Russian astronomer of my acquaintance had calculated it, and his calculation being verified, this parallax was ascertained to be $0''046$. I was advancing rapidly toward a solution of the problem, and my heart beat with joy.

Every astronomer knows that the parallax of a star expresses mathematically its distance, in units of the magnitude employed. I should then be able to recall exactly the distance which separates this star from the Earth and even, in case of necessity, be able to compute it. It was sufficient for this purpose to find what number corresponds to $0''046$.¹

Expressed in leagues this number is 170,392,000. Therefore, between the star on which I was and the Earth, the distance was 170 trillions, 392 thousand millions of leagues.

The principal difficulty was overcome, and the

¹ No one is ignorant of the fact that the more distant an object is the smaller it appears. An object, seen at an angle of a second, is situated at a distance of 206,256 times its magnitude, whatever that may be. Since there are 1,296,000 seconds in a circle, the ratio of a circle to its diameter is that between 3,141,59 and $\frac{1,296,000}{3,141,59 \times 2} = 206,265$. The star Capella, beholding the semi-diameter of the terrestrial orbit only at an angle 22 times smaller than its actual size, its distance is 22 times greater; it is consequently 4,484,000 times the radius of the terrestrial orbit.

problem was three-fourths solved. But now comes the main point, that to which I wish to call your special attention, for in it lies the explanation of the most wonderful of facts.

You know that light does not pass from one point to another instantaneously, but by degrees. You will have observed that when a stone is thrown into a body of water at rest, a series of circles succeed one another, having for their center the spot where the stone disappeared. This is what takes place when sound traverses the atmosphere ; this is what takes place when light traverses space ; both are transmitted by degrees, by successive undulations.

The light of a star, then, takes a certain time to reach the Earth, and this time naturally depends on the distance which separates the star from the Earth.

Sound travels at the rate of 340 meters a second. The sound made by a ball fired from a cannon is heard the instant the ball leaves the cannon's mouth by those who are beside it, a second afterward by those who are 340 meters distant, 3 seconds afterward by those who are a kilometer distant ; for those who are a league distant the sound is retarded 12 seconds, 2 minutes for those who are ten leagues distant and 3 minutes for those who, at a distance of 25 leagues, can still hear this artificial thunder.

Light is transmitted with much greater velocity than sound, but not instantaneously, as the ancients believed. It is transmitted with a velocity of 75,000 leagues a second and, if it could move in a circle, would pass eight times around the globe in a second. It takes $1\frac{1}{4}$ seconds to come from the Moon to the Earth ; 8 minutes, 13 seconds to come from the Sun ; 42 minutes to come from Jupiter ; 2 hours from Uranus ; 4 hours from Neptune. We see the heavenly bodies, then, not as they are at the moment when we are observing them, but as they were at the moment when the light which then reaches us left them. If an eruption were to take place in a volcano in one of those worlds, for instance, we should not see its flames until $1\frac{1}{4}$ seconds after the eruption had taken place, if it were in the Moon ; 42 minutes afterward, if it were in Jupiter ; 2 hours afterward if it were in Uranus, and 4 hours afterward if it were in Neptune. Beyond the planetary system the distances are immeasurably vaster, and the time taken by the light to reach us is much greater. Thus, a ray of light proceeding from the star nearest to us, Alpha of the Centaur, will reach us in 3 years and 6 months ; while a ray from Sirius will take 16 years to traverse the space that separates us from that sun.

The star Capella being at the distance I have

mentioned from the Earth, it is easy to calculate, at the rate of 75,000 leagues a second, how long it would take light to traverse that space. The result is 71 years, 8 months, and 24 days. A ray of light, then, proceeding from Capella and traveling toward us ceaselessly, takes 71 years, 8 months and 24 days to reach the Earth.

Conversely, a ray of light proceeding from the Earth takes the same time to reach that star.

Quærens.—If a ray of light proceeding from that star takes nearly 72 years to reach us, it brings us, then, the brightness of that star as it was nearly 72 years before, at the moment of its departure?

Lumen.—Precisely; and this is the point which it is necessary to bear well in mind.

Quærens.—So that, in other words, the ray of light is like a courier which brings us news of the state of the country sending it, and which, if it spends nearly 72 years in reaching us, informs us of the state of that country at the moment of its departure, that is to say, almost 72 years before the moment in which it reaches us.

Lumen.—You have divined the mystery. Your comparison shows that you have raised a corner of the veil. To speak more exactly, the ray of light would be a courier bringing us, not written news, but

the *photograph*, or, to speak still more exactly, the *very image* of the star from which it has come. We see this image as it was when the rays of light sent to us from every point of its surface, and by which it makes itself known to us, left it. Nothing can be simpler, nothing more certain. When we observe the surface of a star through the telescope, then, we do not see this surface as it is at the moment in which we observe it, but as it was at the moment when the light reaching us proceeded from its surface.

Quærens.—So that if a star whose light takes, let us say, ten years to reach us were to be to-day suddenly extinguished we should still continue to see the star for ten years to come ; since its last ray would not reach us for ten years ?

Lumen.—Precisely so. In a word, the rays of light sent us by the stars do not reach us instantaneously, but, taking a certain time to travel over the space which separates us from them, do not show us those stars as they are now, but as they were at the moment when the light which brings their images to us emanated from them.

Here, then, is a surprising *transformation of the past into the present*. For the star under observation it is the past, already vanished ; for the observer it is the present, that which is actually taking place. As the

aspects of worlds change from one year to another, from one season to another, and almost from one day to another, we may figure to ourselves this aspect as thrown off into space and advancing through the infinite to reveal itself to the eyes of distant observers. One image is followed by another ; and this by another, and so on, like a series of undulations carrying with them into space the past of the worlds, become the present for the observers stationed at intervals along its passage. That which we think we see taking place on the stars is already past ; that which is actually taking place we cannot yet see.

Grasp well, my friend, this explanation of a real fact, for it is important that you should understand the gradual progress of light, and comprehend in its true nature this incontestable truth. In the images of objects brought to us by the light we see those things not as they are at present but as they were at some previous period, varying according to the length of time necessary for their light to traverse the distance which separates us from these objects.

We do not see these stars as they are but as they were at the moment when the light reaching us proceeded from them. *It is not the present condition of the heavens which we see, but its past history.* There are certain stars which ceased to exist ten thousand years

ago, and which we still see because the light reaching us proceeded from them before their destruction. You may be seeking patiently and laboriously to investigate the nature and the movements of some binary star which ceased to exist before there were astronomers on the earth. If the visible heavens were to-day destroyed they would still be visible to-morrow, and next year, and for a hundred years, a thousand years, fifty thousand, a hundred thousand years to come, with the exception only of the nearest stars, which would be extinguished one by one when the necessary time should have elapsed for the light emanating from them to traverse the distance that separates us from them. Alpha of the Centaur, the first to be thus extinguished, would become extinct in three years and six months; Sirius would become extinct in sixteen years, and so on.

It is easy for you now, my friend, to explain scientifically the singular fact of which I was a witness. If the star Capella is seen from the Earth, not as it is at the moment in which it is observed, but as it was 72 years before, in the same way the Earth is seen from Capella as it was 72 years before. Light always takes the same time to travel the same distance.

Quærens.—Master, I have followed your explana-

tions attentively. But does the Earth, then, which is not a luminous body, shine from afar like a star?

Lumen.—It reflects into space the light it receives from the sun. The greater its distance from any point, the greater its resemblance to a star when seen from that point; all the light diffused over its surface of three thousand leagues in extent by the Sun being condensed into a disk which grows smaller with distance. Thus, viewed from the Moon, it appears as brilliant as the full moon and fourteen times as large. Viewed from the planet Venus, it appears as brilliant as Jupiter viewed from the Earth. Viewed from the planet Mars, it is the morning and evening star, presenting phases such as Venus presents to you. Thus, although it is not luminous in itself, it shines from afar like the Moon, like the planets, by the light which it receives from the Sun and which it reflects into space. But in the same way as events in Neptune are not seen from the Earth until four hours after they have taken place, so events taking place on the Earth are not seen from the orbit of Neptune until after the same lapse of time. Thus, from Capella, the events taking place on the Earth are seen 72 years after they have taken place.

Quærens.—However strange and new these views may appear to me, I understand perfectly now how,

finding yourself on the star Capella, you did not behold the Earth as it was in October, 1864, the date of your death, but as it was in January, 1793 ; since light takes 71 years and 8 months to travel over the space which separates the Earth from that star. And I comprehend with equal clearness that it was not a vision or an image reproduced by memory, or a marvelous or supernatural occurrence, but an actual, positive, natural, and incontestable reality ; and that, in effect, events which had taken place long before on the Earth were visible only to the observer situated at that distance. But allow me to submit an incidental question to you. In order that, coming from the Earth, you should have witnessed this reality, it was necessary for you to traverse the distance from our world to Capella with a velocity much greater than that of light itself.

Lumen.—It was to this fact I referred when I told you that it seemed to me as if I had traversed this distance with the velocity of thought, and that I found myself on the very day of my death in the system of the star which I had so greatly loved and admired during my sojourn on the terrestrial globe.

Quærens.—Ah, master ! even with this explanation the vision seems to me no less wonderful than before. It is in truth an extraordinary phenomenon—that of beholding the past as if it were the *present*, of beholding

it only in this surprising manner, and of seeing the stars not as they are when we look at them but as they were at some longer or shorter period before that time !

Lumen.—The natural surprise you feel at the contemplation of this truth, my friend, is only the prelude, I venture to say, to the astonishment that you are now about to experience. Doubtless it will appear at first sight extraordinary that by traveling far enough into space one can in this way be an actual witness of the events of vanished ages, ascending the stream of the past. But I have something still more strange and wonderful to communicate to you, something which will appear to you still more fantastic, if you desire to hear anything more about the journey I made after my death.

Quærens.—Speak, I beg of you ! I am eager to hear you.

III.

Lumen.—When I had turned my eyes away from the sanguinary scenes of the Place de la Révolution, I felt my gaze attracted toward a dwelling of a somewhat old-fashioned style, fronting Notre-Dame, and standing on the site now occupied by the court of that edifice. In front of the door of this dwelling was a group of five persons, reclining bareheaded in the sunshine, on wooden seats. After a time they rose and began to walk about the Square, and I then recognized among them my father, looking younger than I had ever seen him, my mother, looking still more youthful, and one of my cousins, who died in the same year in which my father had died, about forty years ago. It is difficult at first glance to recognize persons on the earth, seen, as they are, not directly in front, but from above and from a higher plane, as it were. I was not a little surprised at this recognition. I then remembered to have heard in my youth that my parents had resided, before I was born, in the Place Notre-Dame.

More astonished than I can express, I continued to

gaze at the scene before me until my sight became fatigued and I saw everything confusedly, as if the city were enveloped in clouds. I thought for an instant that I was being carried away in a whirlwind. And then, as you already know, I had no longer any conception of time.

When I was again able to distinguish objects clearly, I observed a troop of children running about in the Place du Panthéon. They seemed to be pupils returning home from school, for they were laden with maps and books, and were gamboling about and gesticulating. Two among them in particular attracted my attention, because they seemed to be engaged in an angry dispute which at last ended in blows. One of their companions approached to separate them, but he received a blow on the shoulder which knocked him down. At the same instant I saw a woman run toward the child who had been thrown down. It was my mother.

Never in all the seventy-two years of my terrestrial existence, in all the sudden turns of fortune, all the surprises with which this life was crowded, did I experience so great a shock as I felt when in this child I recognized—*myself*.

Quærens.—Yourself?

Lumen.—Myself. With my blond curly head, my

collar embroidered by the hands of the mother who had just run to my assistance, my little sky-blue blouse, and my crumpled sleeves. There I was, the same child of six years old whose faded likeness you have seen in the miniature on my mantelpiece. My mother lifted me from the ground, scolding my companions as she did so—and then led me by the hand to our house situated at the opening of the present Rue d'Ulm. Then I saw that, passing through the house, we found ourselves in a garden, among a numerous company.

Quærens.—Master, pardon my doubts. But I will confess to you that it appears to me impossible thus to behold one's self. You cannot be two persons at once. Since you were seventy-two years old your state of childhood was long since past, vanished, sunk into oblivion. You cannot behold a thing which no longer exists. Besides, I cannot understand how, being an old man, you beheld yourself at that time as a child.

Lumen.—And what is the reason that you cannot accept this statement as you accepted the previous ones?

Quærens.—Because one cannot behold one's self under two forms at one and the same time—as a child and as a man.

Lumen.—You have not considered the subject attentively, my friend. You have grasped the general idea, but you have not reflected sufficiently to perceive that this latter fact is included in the former. You admit, do you not, that the image of the Earth took seventy-two years to reach me; that events came to my knowledge only that length of time after they had actually taken place? In short, that I beheld the world as it was at that epoch. You admit, too, that seeing the streets at that epoch, I at the same time saw the children running about the streets. You admit all this?

Quærens.—I admit it.

Lumen.—Well, then, since I saw this troop of children of whom I was one, why should I not see myself in the same way as I saw the others?

Quærens.—But you were no longer among that troop.

Lumen.—As I said before, this troop itself was now no longer in existence. But I saw it as it existed at the instant in which the light which then reached me proceeded from it. And since I could distinguish the fifteen or eighteen children composing it, there is no reason why the child who was I should have disappeared because it was I who beheld him. Other observers would see him in the company of his school-

fellows ; why should an exception be made because I was the observer ? I saw them all, and I saw myself with them.

Quærens.—I had not altogether grasped your meaning. It is evident, in effect, that, seeing a troop of children, of whom you were one, you could not fail to see yourself as you saw the others.

Lumen.—But can you understand the feeling of astonishment that such a sight would cause me ? This child was indeed I in flesh and bone, according to a vulgar but expressive saying. It was I at the age of six years. I saw myself as really as the children who were playing with me in the garden saw me. It was not a mirage, not a vision, not a phantom, not a reminiscence, not an image ; it was reality itself, it was absolutely myself, mind and body. I was there before my own eyes. If my other senses had been as acute as my sight it seemed to me that I could have touched myself, or heard myself speak. I jumped about in the garden, and ran around the piece of water which was surrounded with a railing. A little afterward my grandfather took me on his knee and made me read out of a large book.

But no ! I renounce the attempt to describe my feelings ; I leave you the task of imagining them if you have fully realized the actuality of the fact, and I only

say that never in my life was I so completely overwhelmed with amazement.

One thought especially confounded me. I said to myself: This child is really I. He is really living. He is growing, and will live sixty-six years longer. He is really and incontestably I myself. And on the other hand, I, who am here, aged seventy-two terrestrial years, I, who comprehend and perceive these things, am also I, and as equally I as the child. *I am two persons*, then, one below on the Earth, another here in space. Two complete yet distinct persons. Any other observer, situated where I am, could see this child in the garden as I see him, and see me also here. I am two. then. This is undeniable. My soul is in that child, it is equally here; it is the same soul, my only soul; and yet it animates two beings. What an extraordinary fact! And I cannot say that I deceive myself, that I am laboring under an hallucination, that I am the victim of an optical illusion. By the laws of nature and of science I behold myself at once as a child and as an old man, there and here—there, careless and happy, here thoughtful and agitated.

Quærens.—Extraordinary, indeed!

Lumen.—And true. Seek throughout creation, and say if you can find a more formidable paradox than this.

What more is there to add? I followed myself thus growing up in the vast Parisian city. I saw myself in 1804, entering college and making my first campaign, at the time when the First Consul was crowned Emperor. I beheld the commanding and thoughtful brow of Napoleon one day when he was reviewing the troops in the Champs-de-Mars. I do not remember to have seen him during my lifetime, and I was pleased to see him come within my field of observation. In 1810 I saw myself again at the promotions of the Polytechnic School, and I perceived myself chatting at the lectures with that best of comrades, François Arago. This young man was already a member of the Institute, and succeeded Monge at the School, in consequence of the Jesuitism of Binet, of which the Emperor had complained. I thus beheld myself living again the most brilliant years of my youth, planning a journey for scientific exploration in the company of Arago and Humboldt, a journey which the latter only, however, undertook. Later, I beheld myself, during the Hundred Days, rapidly crossing the little grove of the old Luxembourg, the Rue de l'Est and the alley of the garden of the Rue Saint-Jacques, and saw my beloved run to meet me under the flowering lilacs. Happy hours of undisturbed companionship, confidences of the heart, silences of the soul,

twilight meetings, you presented yourselves to my astonished view, no longer as a dim and distant memory, but as absolute fact.

I again witnessed the battle with the allies on the hill of Montmartre, their descent upon the capital, the fall of the statue of the Place Vendôme, which I saw dragged through the streets with cries of joy, the encamping of the English and the Prussians on the Champs-Élysées, the devastation of the Louvre, the Journey from Ghent, the return of Louis XVIII. The flag of the island of Elba floated before my eyes, and later on, as my gaze sought in the Atlantic the solitary island where the eagle was chained—his wings broken—the revolution of the globe brought Saint Helena under my view, and I saw the Emperor seated at the foot of a sycamore, absorbed in reverie.

Thus did the years pass actually before my gaze. At the same time, then, I retraced the events of my life: my marriage, my enterprises, my social relations, my studies, my journeys; I witnessed also the course of the history of the time. To the Restoration of Louis XVIII. succeeded the ephemeral government of Charles X. I beheld the barricades of July, 1830, and not far from the throne of the Duke of Orleans I saw the column of the Bastille. These eighteen years passed rapidly. I then saw myself at the Luxembourg,

at the time when the magnificent avenue that I loved so well, and which a recent decree once more menaces was opened. I saw Arago again at the Observatory, and the thoughtful throng pressing toward the doors of the new amphitheater. I recognized the Sorbonne of Cousin and Guizot. Then my heart was made heavy by seeing the funeral of my mother, a woman of austere character and somewhat severe, perhaps, in her judgments, but whom, as you know, I always tenderly loved. The curious revolution of '48 surprised me no less than it had done when I had first witnessed it. I recognized, standing on the Place de la Bourse, Lamoricière, who died last year, and in the Champs-Élysées Cavaignac, who died five or six years ago. I observed, from my station in the heavens, the events of the Second of December, as I had observed them from my solitary tower, and thus I saw pass, one after another, events which had already impressed me as well as others which I had not before witnessed.

Quærens.—And did those events pass rapidly before your eyes?

Lumen.—I am unable to estimate the measure of time, but all this retrospective panorama certainly unfolded itself before my gaze in less than a day—in a few hours, perhaps.

Quærens.—Then I can no longer understand what

you tell me! According to what I had supposed it was the events themselves which you saw and not a simulacrum of those events. Only that, on account of the time necessary for the passage of light, those events were visible to you after they had already taken place. Then, if 72 terrestrial years passed before your eyes, it would have taken exactly 72 years for this panorama to unfold itself, and not a few hours. If the events of the year 1793 were visible to you only in 1864, the events of the year 1864, in their turn, should be visible to you only in 1936.

Lumen.—Your new objection is well-founded, and proves to me that you have understood perfectly the theory of the fact I have stated. I am obliged to you for mentioning it. I shall explain to you, then, why it was not necessary for me to wait 72 years in order to witness again all the events of my past life, and why, under the influence of an unconscious force, I saw those events pass before me in less than a day.

Continuing to retrace my past existence I came down to recent years, noteworthy for the remarkable transformation which Paris underwent during that time. I saw the friends of my old age, yourself among them; my daughter and her charming children; my family and acquaintances; and finally the moment

came in which I saw myself stretched on my death-bed, and became a witness to the closing scene.

That is to say that I had returned to the earth.

Absorbed in the scene before me I had forgotten the mountain on which were the venerable old men, and the star Capella. As sometimes happens in a dream, my soul seemed to take flight toward the object of its contemplation. I was not conscious of this at first, so absorbed were all my faculties in the contemplation of the strange vision. Nor can I explain, either, by what law or power souls can transport themselves thus rapidly from one place to another ; but the fact is that *I had returned to the Earth* in less than a day, and that I entered my room at the very moment of my interment.

Since, on this journey back to Earth, by meeting light on its passage toward me I shortened continually the distance which separated me from the Earth, light had at each instant a less distance to travel, and thus condensed the succession of events. Midway in my journey light reached me only 36 years later than its emission from its source, showing me the Earth as it was, not 72 years but 36 years before. When I had accomplished three-fourths of my journey the images of events came to me only 18 years after those events had taken place. Midway at the last fourth of the

journey I saw them 9 years later, and so on ; so that the entire series of the events of my existence was condensed into less than a day in consequence of the velocity with which my soul traveled to meet the light on its passage toward me.

Quærens.—This combination is not the least strange part of the phenomenon.

Lumen.—Have any other objections occurred to you while listening to me ?

Quærens.—I confess that this was the last objection to present itself to my mind, or at least, it perplexed me so greatly that it did not allow me to think of any others.

Lumen.—I may point out to you, however, that there is another objection based on astronomical reasons, an objection which I will at once meet in order to remove every remaining doubt from your mind. This is founded on the Earth's motion. Not only would the diurnal motion of the Earth have prevented me from grasping completely the succession of events, but this motion being disproportionately accelerated by the rapidity of my return toward the Earth, and 72 years passing in less than a day, I thought it strange that I had not felt it. But, as I saw pass before me only a relatively small number of landscapes, panoramas and events, it is probable that, in return-

ing to our planet, I remained only a very few moments above the points that successively interested me. However that may be, I was obliged to yield to the evidence and acknowledge that I had been a passive spectator of the events of the century and of my own existence.

Quærens.—The objection you mention had not escaped my notice, and I had met it by the supposition that you had moved in a circle in space, as a balloon follows the rotation of the globe. It is true that the thought of the inconceivable rapidity with which you must have been carried through space is enough to make the brain whirl, but I confined myself to this hypothesis, remembering your observation that spirits traverse space with the velocity and the lightness of thought, and reflecting that your vision, like your unconscious approach to the Earth, being due to the intensity with which your attention was fixed on that point of the globe on which you beheld yourself, the supposition is not inadmissible that you might have remained constantly above that spot.

Lumen.—On this point I cannot enlighten you, for I have no knowledge on the subject. I did not retrace all the events of my life, but only a few of the principal ones, which, in successive tableaux, gave me a general view of my existence. They may all have

presented themselves under the same visual ray. All I know is that the intensity of attention which held me bound with irresistible force to the Earth acted, in fact, like a chain which might have drawn me back to it, or, if you prefer it, like the mysterious attraction exercised by the stars upon each other, by virtue of which the smaller stars would rush into the larger ones if they were not retained in their orbits by the action of centrifugal force.

Quærens.—In the effect of the concentration of thought on one sole point, and the real attraction it afterward undergoes toward that point, I fancy I can discover one of the chief springs of the mechanism of dreams.

Lumen.—You are right, my friend, and I am able to confirm you in this supposition by an experience of many years during which I have made dreams a special object of observation and study. When the soul, freed from corporeal cares, preoccupations, and tendencies, beholds in a dream an object which charms it and to which it feels itself drawn, all surrounding objects disappear and this object becomes the center of a world of creations; the soul possesses it completely and without reserve; it contemplates it, it identifies itself with it, it makes it its own; the entire universe vanishes out of the memory to give

absolute dominion to the subject of the soul's contemplation, and as happened to me, on my swift return to the Earth, the soul beholds only this object, accompanied by the ideas and images which it engenders, which it causes to appear one after the other.

Quærens.—Your rapid journey to Capella, like your no less rapid return to Earth, was, then, performed in obedience to this physiological law; and you acted with still greater freedom than in a dream, for your soul was not trammelled by the machinery of the organism. For I remember that, in our past conversations, you dwelt frequently on the power of the will. You returned, then, to your deathbed before your mortal remains were interred?

Lumen.—I returned, and I blessed the sincere sorrow of my family, I calmed your friendly regrets, I tried to inspire my children with the certainty that this corporeal envelope was no longer I, and that I dwelt in the region of spirits, the realms of heaven, infinite and unexplored.

I witnessed the funeral procession, and I noticed the absence of many who had called themselves my friends, and who, on account of some trivial occupation, neglected to accompany my remains to their last resting-place. I listened to the various remarks made around my grave and, although in the peaceful regions

where we dwell we are no longer avid of praise, it nevertheless gave me happiness to perceive that my passage through Earth had left a pleasant memory in every mind.

When the tomb was closed, separating the living from the dead, I bade a last farewell to my sleeping body, and as the sun was now sinking into his couch of purple and gold, I hovered in the air until night fell, absorbed in admiring contemplation of the glorious spectacles which unfolded themselves in the aërial regions. The aurora borealis unrolled its silver ribbon in the north, shooting stars fell in showers from Cassiopeia, and the full moon rose slowly in the east, like a new world emerging from the waves. I saw Capella glittering in the heavens, watching me with its pure bright glance, and I could distinguish the crowns that surrounded it, celestial courtiers of a deity. Then I once more forgot the Earth, the Moon, the planetary system, the Sun, the comets, to give myself up without reserve to the fascinating contemplation of Capella, and I felt myself drawn toward her, by the power of my desire, with a rapidity greater than that of the lightning. After an interval, whose duration I did not know, I arrived at the same ring and the same mountain on which I had alighted on the previous day, and I beheld the same venerable old men oc-

cupied in following the course of events which had taken place on the earth 71 years, 8 months before, They were now engaged in contemplating the events that had taken place in Lyons on January 23, 1793.

Shall I confess to you the cause of the mysterious attraction possessed for me by Capella? Oh, wonder! There are in creation invisible bonds which are not broken, as earthly bonds are broken; there are mysterious communications which exist between souls in spite of the distance that may separate them. On the evening of the second day, as the emerald moon was entering the third golden ring (such is the sidereal measure of time) I was surprised to find myself walking along a solitary avenue in the midst of flowers and perfumes. I had been walking, absorbed in reverie, for some time, when I saw coming toward me my beautiful and beloved Eivlys. Her appearance was that of mature age, as at the time of her death, and, notwithstanding her new form, the candor and goodness which had distinguished her life of abnegation and affection were still to be read on her brow and in her glance. I will not stop to describe to you the joy of our reunion; this is not the time to do so; and perhaps we may one day be permitted to discourse on the ultra-terrestrial affections which succeed our earthly ones. I merely wish to mention the

meeting as coming under the subject of our present conversation, and to add that we soon sought together in the heavens, the Earth, the country of our adoption, where we had spent happy and peaceful days. We loved, indeed, to turn our gaze toward that luminous point where our actual condition permitted us to distinguish a world; we loved to connect the recollections of the past with the present, which sped before us on wings of light; and in the ecstasy in which this new and strange faculty plunged us we eagerly sought to retrace the events of our youth. And we saw reappear before us the happy years of our first love, the pavilion of the convent, the blooming garden, the delightful walks in the environs of Paris, and our solitary excursions into the country. To retrace the years it was only necessary to proceed together through space toward the Earth, until we reached the regions where those images borne by the light were photographed.

I have now made to you, my friend, the extraordinary revelations which I had promised you. Dawn is approaching, and the morning-star is already fading in her rosy light. I must return to the constellations——

Quærens.—One word more, O Lumen, before we close this conversation. Since terrestrial images are

transmitted only in a series through space, there will always be, for those who are stationed throughout space, a present up to a limit bounded only by the power of the spiritual vision.

Lumen.—Yes, my friend. Let us place, for example, the first observer at the distance of the Moon : he will perceive terrestrial events a second and a quarter after they have occurred. Let us suppose a second observer placed at four times that distance from the Earth ; events will come to his observation five seconds after their occurrence. A third will see them at an interval of ten seconds. At a distance double the preceding a fourth will observe them with a delay of twenty seconds ; and so on. At a distance equal to that of the Sun from the Earth there will be a delay of eight minutes, thirteen seconds. On certain planets there will be a delay of several hours, as we have seen. Further away there will be a delay of whole days. Further still, of months and years. On Alpha of the Centaur terrestrial occurrences are visible only three years and six months after they have taken place. There are stars so distant that their light does not reach us for several hundred or even for several thousand years.

Quærens.—So that, in order to have witnessed a historical or geological event of past times, it would

only be necessary for those piercing organs of vision to withdraw to a sufficient distance. Might not one in this way behold again the deluge, the Garden of Eden, Adam, and——

Lumen.—I have told you, my old friend, that the appearance of the Sun above the horizon is the signal for spirits to take their flight. Another conversation on some future occasion will give us an opportunity to investigate still further a subject of which I have to-day been able to give you only the general outlines, and which opens up many new vistas. The fading stars call me. Farewell, Quærens, farewell.

SECOND CONVERSATION.

REFLUUM TEMPORIS.

I.

Quærens.—The revelations interrupted by the coming of the dawn, O Lumen! have inspired me with an eager desire to penetrate still further into the strange mystery. As the child who sees before him a delicious fruit and longs to taste it, and when he has tasted desires to continue eating it, so am I eager to seek new delights in the paradoxes of nature. Shall I be indiscreet if I venture to submit to you a few supplementary questions suggested by the friends to whom I communicated the substance of our conversation? And may I ask you to continue the recital of your ultra-terrestrial experiences?

Lumen.—I cannot consent, my friend, to gratify your curiosity. However well-disposed may be your soul to receive my words, I am persuaded that the details of my subject have not all equally impressed you, and do not all, in your eyes, bear equal evidence of truth. My narration has been called fantastic. People have not at all understood that this is no

wild tale, no figment of the imagination but a scientific truth, a physical fact, demonstrable and demonstrated, indisputable and of as positive a nature as the fall of an aërolite or the flight of a cannon-ball. The cause which has prevented you and your friends from comprehending fully the reality of the fact is that this fact occurs beyond the Earth, in a region outside the sphere of your impressions, and inaccessible to your terrestrial senses. It is natural that you should not comprehend it. (Pardon my frankness, but in the spiritual world we are frank; our very thoughts are visible.) You can comprehend only what pertains to the sphere of your impressions. And as you are disposed to regard your ideas respecting time and space as *absolute*, while they are only *relative*, your understandings are closed to the truths which reside outside your sphere, and which are not in correspondence with the faculties of your terrestrial organisms. Thus, my friend, it would be no real service to you to continue the account of my extra-terrestrial observations.

Quærens.—It is not, believe me, through a mere spirit of curiosity, O Lumen, that I have ventured to call you now from the bosom of the invisible world where superior souls must enjoy ineffable delights. But I have comprehended more fully than you will grant

the greatness of the problem, and it is inspired with an eager desire for knowledge that I seek to hear experiences still more novel, if I may say so, than those you have already communicated to me, or rather still more wonderful and incredible. My reflections have led me to believe that all we know is as nothing compared to what remains to be known. I am, consequently, prepared to accept everything. Let me then, share your experiences, I entreat you.

Lumen.—I am convinced, my friend, that you are either not sufficiently prepared to hear these experiences or you are too eager to hear them. In the former case you would not understand them. In the latter you would be too credulous and would be unable justly to estimate their significance. Therefore I shall now leave you——

Quærens.—Beloved companion of my terrestrial existence——

Lumen.—Besides, the facts I should now have to communicate to you are even yet more wonderful than those I have already related to you.

Quærens.—I am like Tantalus in the midst of his lake, like the spirits of the Twenty-Fourth Canto of the Purgatory, like the arms outstretched to pluck the fragrant apples of the Hesperides, like the desire of Eve——

Lumen.—A short time after my departure from the Earth my spiritual eyes were mournfully directed toward my former dwelling-place, when an attentive observation of the spot where the 45th degree of north latitude intersects the 35th degree of longitude revealed to me a triangular-shaped division of land, of a grayish color, on the western shore of the Black Sea, where a wretched multitude of my poor earthly brothers were furiously engaged in mortal combat. I began to reflect on the barbarity of this so-called glorious institution of war, which still holds dominion over you, and I saw that in this corner of the Crimea 800,000 men were engaged in slaughtering each other, without knowing why. Clouds were passing over the surface of Europe.

I was, at this time, not on Capella but in space, between that star and the Earth, midway from Vega, and, having left the Earth some time before, I directed my course toward a small nebula visible from your abode, at the left of the former star. My thoughts, however, returned to the Earth from time to time. Shortly after I had made the preceding observations, my eyes being turned toward Paris, I was surprised to see it plunged in all the horrors of a popular insurrection. Looking at the scene more attentively I observed barricades on the boulevard, in the neighborhood of the

Hôtel de Ville and along the streets, and saw the citizens firing at each other. The first thought that presented itself to my mind was that another revolution was taking place before my gaze and that Napoleon III. had been dethroned. But by some secret communication of souls, my eyes were attracted by a barricade of the Faubourg Saint-Antoine, on which I saw extended the lifeless body of the Archbishop Denis-Auguste Affre, with whom I had been slightly acquainted. His unseeing eyes were raised toward the sky, in his hand was a green branch. I was witnessing, then, the events of June, 1848, and particularly the events of the 25th of that month. A few moments, a few hours, perhaps, passed, during which my imagination and my reason sought by turns for the explanation of this particular fact: that I should witness the events of the year 1848 *after* those of 1854, when, my gaze attracted anew toward the Earth, I observed that a presentation of tricolor flags was taking place on the principal square of the city of Lyons. Endeavoring to distinguish the official who was making this presentation I recognized among the officers the young Duke of Orleans, and I remembered that, after the accession of Louis Philippe this young prince had been sent to the capital of French industry for the purpose of allaying the popular agitation. It follows from this

that, after 1854 and 1848, I was witnessing an occurrence which had taken place in 1831. A little later my gaze fell on Paris, on a public fête-day. The king, a stout man with a prominent abdomen and a rubicund face, was being driven in an elegant barouche across the Pont Neuf. The weather was magnificent. Young girls, dressed in white, were grouped like a cluster of white lilacs on the platform of the bridge. Strange light-colored animals were running about over the city. It was evidently the return of the Bourbons to France. I should not have understood the meaning of this last detail if I had not remembered that at the time in question a large number of balloons, having the shapes of animals, had been sent into the air. From above they seemed to be animals running awkwardly over the roofs.

To see a past event reënact itself in inverse order—this seemed altogether fantastic and filled me with ever-increasing amazement.

As these events were actually passing before my eyes, however, I could not deny their reality. I sought to find some hypothesis, then, by which to explain so singular a fact.

The first hypothesis which occurred to me was this: It is the Earth I see, and by some strange fatality, of which only God knows the cause, France is

passing again through phases of her history almost identical with those through which she has already passed ; having just reached a height of glory which has dazzled the eyes of the peoples, she is retracing her history by a species of oscillation which may exist among men as it exists in the variations of the magnetic needle and the movements of the stars. The personages who seem to me here to be the Duke of Orleans and Louis XVIII. are, perhaps, other princes, who are reënacting their parts.

This hypothesis, however, seemed to me too extraordinary to be admissible and I fixed on a more rational theory.

Taking into account the number of the stars and of the planets which revolve around them I asked myself the question what the probabilities were of there being in space another world exactly resembling the Earth ?

The law of probabilities furnishes an answer to this question : The greater the number of worlds, the greater will be the probability that the forces of nature have created another body similar to that of the Earth. But the actual number of worlds exceeds all human means of computation or possibility of computation. If we could understand the meaning of infinity, it would perhaps be permissible to say that

this number is infinity. I deduce from this that there is a strong probability in favor of the existence of one or more worlds exactly resembling the Earth, on whose surface the same events, political and social, take place, the same vegetable and animal species exist—the same humanity, the same men, the same families, in every particular.

I asked myself, in the second place, if this world, while being analogous to the Earth, might not be symmetrical with it. Here I called to my aid geometry and the metaphysical theory of images. I arrived at the conclusion that it was *possible* that the world in question should be similar to the Earth, although obverse to it. When you look at your image in a mirror, you observe that the ring on your right hand seems to be on the finger of your left hand, which alters its meaning as a symbol; that if you wink your right eye, your *sosie* winks its left eye; that if you stretch out your right arm your image stretches out its left arm. Is it impossible that in the infinity of stars there should exist a world exactly the obverse of the terrestrial world? On the contrary, in *an infinity* of worlds the impossibility would be that there should not be one like it, and it is more likely that there should be thousands than that there should be only a single one. Nature must not only have repeated and

reproduced herself, but must still reënact, in all its forms, the drama of the creation. I reflected, then, that the world on which I saw these events taking place was not the Earth, but a globe resembling it, whose history was precisely the inverse of the history of your Earth.

Quærens.—The thought has already suggested itself to me too, that this might be the case. But would it not have been easy for you to assure yourself of the fact and to ascertain if it were indeed the Earth or another star which you had before your eyes, by examining your position in the heavens in reference to the stars?

Lumen.—This is precisely what I did, and this examination confirmed me in my idea. The star on whose surface I had just observed four events, analogous to four terrestrial events, but taking place in inverse order to these, did not seem to me to occupy the position it had before occupied. The little constellation of the Altar was no longer visible, and on that side of the heavens on which, as you will remember, the Earth had appeared to me in my first journey, there was a group of unknown stars in the form of an irregular polygon. I thus arrived at the conviction that it was not our Earth which I had before my eyes. There was no longer any room for the slightest doubt

on this point, and I had now open to me a field of investigation, a world all the more curious that it was not the Earth, while its history appeared a repetition, in inverse order, of the history of the Earth.

There were some of these events which did not seem to have had their counterparts on the Earth, but in general the coincidence appeared to me very remarkable, the more so as the contempt with which I look upon martial glory had made me cherish the hope that the terrible scourge of war did not exist on other worlds, while, in fact, the greater number of the events of which I had been a witness were either battles or preparations for war.

After a battle which I thought strongly resembled the battle of Waterloo, I saw the battle of the Pyramids. A *sosie* of Napoleon as Emperor had become Napoleon as First Consul, and I saw the events of the revolution succeed those of the Consulate. Some time afterward I remarked the square of the Palace of Versailles crowded with mourning coaches and, walking slowly along a footpath in Ville-d'Avray, I recognized the naturalist Jean-Jacques Rousseau, who doubtless at this moment was engaged in making philosophical reflections on the death of Louis XV. The next event to attract my particular attention was one of the *fêtes* at the commencement of the reign of

Louis XV., worthy successors of the *fêtes* of the Regency, when the wealth of France slipped like water through the hands of three or four favorites of the king. I saw Voltaire, in his cotton cap, in his park of Ferney, and, later, Bossuet walking on the terrace of his episcopal Palace of Meaux. near the hill which is now crossed by the railroad, of which no trace was then to be seen. In this same series of events I saw the roads covered with stage-coaches and the seas with vast ships. None of the various machines for which steam serves as a motive power at the present time were to be seen. The telegraph and all the other instruments now employed in connection with electricity had disappeared. The balloons, which had before occasionally crossed my field of observation, had vanished from sight, and the last which I beheld was the monstrous balloon sent up at Annonay by the brothers Montgolfier in the presence of the States-General. The face of the world had changed. Paris, Lyons, Marseilles, Havre, and above all Versailles, were unrecognizable. The former cities had lost their immense activity. The latter city had acquired an incomparable magnificence. I had never formed any adequate idea of the regal splendor of the *fêtes* of Versailles; I was pleased to witness them, and I was profoundly impressed on seeing Louis XIV.

himself on the splendid terrace of the West, surrounded by a multitude of noblemen wearing decorations. It was evening ; the last rays of the setting sun were reflected from the façade of the palace ; elegantly attired couples gravely descended the steps of the marble staircase, or plunged into the shade of the dark and silent avenues.

My gaze was most strongly attracted toward France, or at least toward that region of the unknown world which seemed to me to be France, for no matter how far we may be from our native land, our thoughts still turn to it with ever fresh pleasure. Do not imagine that deincarnated souls are disdainful, or cold, or forgetful of the past ; our existence, if that were the case, would be a sad one. No, we preserve the faculty of memory, and our hearts are not all absorbed with the spiritual life. It was, then, with a feeling of emotion which I leave you to imagine that I saw the past history of France unfold itself before my eyes, but in inverse order. To the unification of the people I saw the sovereign rule of a single potentate succeed ; to this the feudal system. Mazarin, Richelieu, Louis XIII. and Henry IV. presented themselves to my gaze at Saint-Germain. The Bourbons and the Guises repeated for me their quarrels. I witnessed the scenes of Saint Bartholomew. Some

details of the history of our provinces were reënacted for me—the butchery of Chaumont, which I saw reënacted before the church of Saint-Jean, and the massacre of the Protestants at Vassy. These scenes aroused my indignation ; but I was afterward agreeably surprised by the spectacle of the magnificent sword-shaped comet of 1577. On a distant plain I perceived Francis I. and Charles V. saluting each other. Louis XI. appeared before me on one of the terraces of the Bastille. I recognized him by the little figures on his hat. Presently, my gaze turning to a square in Rouen, I saw a thick smoke mingled with flames ; the Maid of Orleans was being burned at the stake.

Convinced as I was that this world was the exact counterpart of the Earth, I anticipated in my thoughts the events I was now to see. Thus, when after having beheld Saint Louis dying of the plague in Tunis I witnessed the eighth crusade, then the third crusade in which I recognized Frederick Barbarossa from his red beard, then the first, where Peter the Hermit and Godfrey de Bouillon recalled to my mind the verses of Tasso, I was but slightly surprised. I was prepared to see in succession Hugh Capet chanting vespers in his monk's cope, the council of Tauriacum deciding to accept as the judgment of God the result of the

battle of Fontanet; Charles the Bald causing there the massacre of a hundred thousand men together with all the Merovingian nobility; Charlemagne crowned at Rome; the war with the Saxons and the Lombards; Charles Martel dealing his blows among the Saracens; King Dagobert building the Abbey of Saint-Denis, as I had already seen Alexander III. laying the first stone of Notre-Dame; Brunhilda dragged along the ground by her horse; the Visigoths, the Ostrogoths, Clovis, and Meroveus making their appearance in the country of the Sali; in a word the ancient history of our people unfolding itself in inverse order, and this is what really took place. Many important historical questions which until then I had been unable to solve were rendered clear to me. Thus I learned, among other facts, that the French were originally from the right bank of the Rhine, and that the Germans have no ground for disputing with them the possession of this river, especially of its left bank.

It was indeed a source of greater interest than I can express to witness in this way events of which I had had only a vague idea through the accounts, often misleading, of history, and to see countries as they had been in long past ages. The vast and brilliant capital of modern civilization had deteriorated rapidly and declined to the state of an ordinary city, surrounded

however, by its battlemented walls. I admired in turn the beautiful city of the fifteenth century, its curious archæological types, the celebrated Tour de Nesles, the vast convents of Saint-Germain-des-Prés. Where now blooms the garden of the Tower of Saint-Jacques I saw the somber court of the alchemist Nicholas Flamel. The round, pointed roofs had the curious effect of mushrooms growing on the river bank. Then this feudal scene disappeared to give place to a simple chateau built on an island in the Seine and surrounded by a few cabins, and finally the open country, in which were to be seen only some huts of savages, Paris was no longer in existence, and the Seine rolled its silent waters between banks bordered by grasses and willows. At the same time I observed that the center of civilization had descended further south. Shall I confess it to you, my friend? Never in my life did I experience so keen a sense of happiness as at the moment in which it was given me to behold the Rome of the Cæsars in all its splendor. It was the day of a triumph, and, doubtless, in the time of the Syrian princes, for, in the midst of external magnificence, blazing chariots, purple oriflammes, a senate looking like an assemblage of elegant women, and ministers who resembled opera singers, I distinguished, luxuriously reclining in a gilded chariot, an imperial

form, clad in light-colored silk and covered with precious stones, and ornaments of gold and silver that gleamed in the light of the southern sun. The Coliseum, the temple of Antinous, the triumphal arches, the column of Trajan, lifted themselves to the sky, and Rome was before me in all its archæological beauty, its latest beauty, which now served only as the scenery of a theater for crowned buffoons. A little later I witnessed the grand spectacle of the eruption of Vesuvius which destroyed Herculaneum and Pompeii. I saw Rome in flames, and, although I could not distinguish Nero on his terrace, I was convinced that I was witnessing the conflagration of the year 64 and the signal for the persecutions of the Christians. Some hours later, while my attention was engaged with the vast gardens of Tiberius—whom I had just seen approaching a parterre of roses—in consequence of the revolution of the Earth upon its axis, Judea was brought immediately under my eager gaze, and I at once recognized Jerusalem and the mountain of Golgotha. Jesus was ascending the mountain, accompanied by a few women, guarded by soldiers, and followed by the Jewish populace. This was one of those sights which I shall never forget. It had an entirely different significance for me from that which it had for those who were taking part in it, for the future

glory (which was yet past) of the Christian Church unfolded itself before me, as the crown of the divine Sacrifice. I need say no more ; you will understand what varied emotions agitated my soul at the view of this supeme spectacle.

Returning presently toward Rome, I recognized Julius Cæsar lying on his funeral pyre, Mark Antony at his head, holding in his hand what seemed to be a roll of papyrus. The conspirators were hurrying along the banks of the Tiber. Retracing, with a curiosity which you will easily understand, the events of the life of Julius Cæsar, I saw him with Vercingetorix in the midst of the Gauls, and I ascertained that of all the conjectures of modern times regarding the site of Alesia not one is correct, seeing that that fortress was situated on——

Quærens.—Forgive me for interrupting you, master, but I wish to avail myself of this opportunity to ask you to enlighten me on a point concerning the dictator. Since you have seen Julius Cæsar, tell me, I pray you, if he really resembled the picture given of him by the Emperor Napoleon III., the present ruler of France, in his great work on the life of that famous soldier.

Lumen.—I should be charmed, my old friend, to enlighten you on this point if it were possible for me to

do so. But remember that the laws of perspective here forbid me——

Quærens.—The laws of perspective? You mean political laws——

Lumen.—No, the laws of perspective (although there is a striking analogy between the two); for great men, viewed from the heavens, do not present the same appearance as they do to the vulgar crowd who surround them. In the heavens we see men, according to the laws of perspective, from above and not opposite us. That is to say that when they are standing we have only a horizontal projection of their figures. You remember one day, as we were passing together in a balloon above the Vendôme Column in Paris, that you remarked to me that Napoleon, seen from above, was no greater than other men. The same thing is true of Cæsar. Viewed from the other world material measures disappear; only intellectual measures remain.

But to resume: After Julius Cæsar I saw the consuls and kings of Latium, pausing an instant at the rape of the Sabines, which I was pleased to have an opportunity of witnessing personally, as furnishing a picture of ancient manners. History has embellished many things, and I saw that the greater number of historical events reproduced by the painters were altogether different from the representations they have given us of

those events. At one and the same moment I observed King Candaules in Lydia, in the scene of the bath, which you will remember, the invasion of Egypt by the Ethiopians, the oligarchic republic of Corinth, the eighth Olympiad of Greece, and Isaiah prophesying in Judea. I saw troops of slaves building the pyramids, under the orders of chiefs mounted on dromedaries. The great dynasties of Bactriana and India appeared before me, and China displayed for me the marvelous arts she possessed before the Western world had begun to exist. I had an opportunity of searching for the Atlantis of Plato, and I saw that the views of Bailly regarding this vanished continent are not altogether without foundation. In Gaul only vast forests and morasses were to be seen; the Druids themselves had disappeared and the savage inhabitants bore a strong resemblance to the savages who inhabit Oceania at the present day. It was indeed the *Age of Stone* as modern archæologists have pictured it. Later on I saw the number of human inhabitants gradually diminish and nature return to the dominion of a gigantic race of apes, of bears dwelling in caves, of the lion, the hyæna, and the rhinoceros. There came a moment when I could see not only not a single human being but not even the slightest vestige of the human race on the surface of the globe. All had disappeared.

Earthquakes, volcanoes, floods seemed to hold sway over the surface of the planet, and to permit no longer the presence of man in the midst of the ruins they had made.

Quærens.—Shall I confess to you, O Lumen, that I was impatiently awaiting the moment in which you should come to the terrestrial paradise, in order to have authentic information regarding the creation of the human race on the Earth? I am surprised to see that you do not even seem to have thought of this important event.

Lumen.—I relate to you only what I saw, my curious friend, and I shall take good care not to substitute, for what my eyes beheld, the visions of my fancy. But I did not perceive the slightest trace of this Eden, so poetically described in primitive theogonies. Besides, it would have been indeed extraordinary if the resemblance between the world I was observing and the Earth should have extended as far as this, the more so as, if the terrestrial paradise had a reason for existing when humanity was in its infancy, it does not seem to me to have had the same reason for existence when the race was in its decline.

Quærens.—I think, on the contrary, that it would be more reasonable to imagine it at the end than at the beginning of the life of the race, as the recom-

pense rather than the inexplicable prelude to a life of suffering. But as you did not observe it, I shall not urge the question.

Lumen.—Finally, I saw, at the termination of my observation of this singular world whose history is precisely the inverse of yours, strange animals of monstrous size fighting fiercely on the shores of vast seas. There were gigantic serpents armed with formidable claws, crocodiles flying in the air, supported by wings longer than their bodies; misshapen fishes whose capacious maws might have swallowed an ox, birds of prey engaged in terrible combats on desolate islands. There were whole continents covered with vast forests, trees with enormous leaves growing one upon the other, plants of a somber and severe character—for the vegetable kingdom possessed then neither fruits nor flowers. The mountains vomited forth sheets of flame, the rivers fell in cataracts, the ground opened like an immense maw in which were swallowed up hills, woods, rivers, trees, and animals. But soon it was impossible for me to distinguish even the surface of the globe; a universal sea covered everything, and the vegetable kingdom and the animal kingdom slowly disappeared, to give place to a monotonous green surface diversified by gleams of light and by white mists. It was henceforth a

dying world. I witnessed the last pulsations of its heart revealed by intermittent gleams of tawny light. Then it seemed to be raining over its entire surface, for the sun lighted up only clouds and belts of rain. The side presented to the sun seemed less dark than before, and gleams of light shone faintly through the mists and the rain. These gleams gradually increased in intensity, spreading over the entire globe. Great rifts glowed like metal in the forge. And as the iron heated in the furnace becomes first bright red, then orange, then yellow, then white and incandescent, so did the globe pass through all these progressive stages of heat. Its volume increased, its revolutions became slower. The mysterious sphere now resembled an immense globe of metal in fusion, enveloped in metallic vapors. Under the incessant action of its internal fires, and the elemental strife of this strange chemistry, it acquired enormous proportions, and the incandescent globe became a vaporous globe. Thenceforward it continued to expand and to lose its shape. The sun, which had at first lighted it, did not surpass it in splendor, and itself grew larger and larger until it became evident that the vapory planet would lose its individual existence and become absorbed in the ever-expanding atmosphere of the Sun.

To witness the end of a world is a rare privilege. Therefore, in my enthusiasm, I could not help crying out with something like a feeling of vanity: "This, then, is the end of the world, O God! and such is the fate decreed to innumerable inhabited worlds."

"Not *the end*," answered a voice audible to my soul, "*but the beginning*."

"How the beginning?" I said to myself.

"The beginning of the Earth itself," responded the same voice as before. "Thou hast beheld the history of the Earth unfolding itself before thee, *by receding from it with a velocity greater than that of light*."

This affirmation did not surprise me so greatly as the first episode of my ultra-terrestrial life had done, for, already familiarized with the astonishing effects of the laws of light, I was now prepared for every fresh surprise. I had indeed suspected this to be so, from certain particulars, which I have not mentioned in order not to break the continuity of my narrative, but which were infinitely stranger than most of the events I have described.

Quærens.—But if it were really the Earth that you beheld, how was it that the astronomical observations you had previously made to identify it in the constellation of the Altar showed it, on the contrary, to be neither the Earth nor an asterism of the Altar?

Lumen.—This was because the constellation itself had changed its appearance, in consequence of my journey through space. The stars which compose this figure, α , γ , and ζ , stars of the third magnitude, and β , δ , and θ , stars of the fourth magnitude, as seen from the Earth, had diminished in size during my progress toward the nebula, until they appeared to be almost imperceptible points. Other brilliant stars had made their appearance there, α and β of the Charioteer, probably θ , τ , η and perhaps even ε of the same constellation, stars diametrically opposite the former ones, when the observer is stationed on the Earth, but which must have interposed themselves there when I had passed beyond them. The perspective of the heavens had already changed, and it had become in truth almost impossible to determine the position of our Sun.

Quærens.—This inevitable change of perspective, beyond Capella, had not occurred to me. So, then, it must have been indeed the Earth you saw. Besides, its history unfolded itself to your view inversely to the reality. You saw ancient events take place *after* modern events. By what strange process was it that light thus enabled you to ascend the stream of time?

Besides, O Lumen, you have told me that you observed certain curious particulars with regard to the

Earth itself. I should like to submit some questions to you regarding these particulars. I shall listen, then, with interest, to the extraordinary revelations that are to complete this narrative, convinced that, as before, they will anticipate my curiosity.

II.

Lumen.—The first event is connected with the battle of Waterloo.

Quærens.—No one has greater reason than I to remember that catastrophe. There, near Mount St. Jean, I received a bullet in the shoulder, and a sabre-cut on the right hand, from one of Blucher's rascals.

Lumen.—Well, my old comrade, in witnessing anew this battle I saw it quite differently from the way in which it actually took place. Judge of this, yourself, however.

I recognized the plain of Waterloo, to the south of Brussels, and I distinguished also a great number of corpses, a sinister assemblage of the dead lying on the field. In the distance, through the fog, I perceived Napoleon, holding his horse by the bridle and walking with his back toward me in the direction of the field; the officers who accompanied him also marched with their backs toward me. The firing of cannon must have already begun, for from time to time I could see the lurid flashes of their discharges. When my eyes had become accustomed to the battle-

field I saw some of the dead soldiers open their eyes and, awakening from their eternal sleep, spring to their feet. A great number came to life thus in successive groups. The dead horses returned to life, as well as their riders, who once more mounted them, As soon as two or three thousand men had returned to life in this way, they gradually formed in line of battle, and the two armies, finding themselves confronting each other, commenced to fight with a fury that verged on desperation. The combat once begun, the soldiers on both sides began to return to life with greater rapidity than before. French, English, Prussians, Germans, Hanoverians, Belgians—gray great-coats, blue uniforms, red, green, and white coats—rose from the field of death and engaged in mortal combat. In the midst of the French army I perceived the Emperor, in the center of a hollow square. The Imperial guard had come back to life.

Then, from both camps, endless battalions advanced; squadrons dashed from the left. White horses shook their aërial manes to the breeze. I thought of Raffet's wonderful picture, and of the weird lines of the German poet, Baron von Zedlitz :

So strangely rolls that drum,
So deep its echoes sound,
Old soldiers in their graves
To life start at the sound.

.

'Tis there at midnight hour
The grand review, they say,
Is by dead Cæsar held
In the Champs-Élysées.¹

It was Waterloo, indeed, but a Waterloo of the other world, for the combatants had risen from the dead. In addition to this—strange spectacle—they marched against each other backward. Such a scene had something magical in it, and it impressed me all the more strongly as I divined that I saw the event as it had actually taken place, but curiously altered in its symmetric image. The longer they fought the more numerous became the combatants; at each breach made by the cannon in the serried ranks a group of dead soldiers returned to life to fill up the breach. When the hostile armies had spent the entire day in destroying each other with grapeshot, cannonballs, bullets, bayonets, swords, and sabers, and the tremendous battle had come to an end, there was not a single dead or wounded soldier to be seen; the uniforms, a short time before torn and disordered, were in good condition, the men uninjured, their ranks unbroken. The two armies drew slowly apart, as if the fierce encounter had had no other object than to bring back to life, amid the smoke of the combat, the

¹ Anonymous translation.

two hundred thousand corpses strewn upon the plain a few hours before. What an exemplary and enviable battle! Without doubt this was the most singular warlike episode that had ever occurred. And stranger than its material was its moral aspect, for I saw that the battle resulted, not in the defeat of Napoleon, but, on the contrary, in his return to the throne. Instead of losing the battle the Emperor had won it, instead of being a prisoner he was a sovereign. Waterloo was a second 18 *Brumaire*!

Quærens.—I can only partially comprehend, O Lumen, this novel effect of the laws of light, and I should be grateful to you if you would explain it to me, if you can.

Lumen.—I suggested its explanation to you just now, when I told you that I receded from the Earth with a velocity greater than that of light.

Quærens.—But how, I pray you, did this gradual progress through space cause you to perceive events in an inverse order to that in which they had taken place?

Lumen.—The theory is very simple. Suppose you leave the Earth with a velocity exactly *equal* to that of light: you will continue to see the Earth's image as it appeared at the moment of your departure from it, since you recede from the globe with a velocity exactly equal to that which carries this image into space.

Even if you were to journey for a thousand years, for a hundred thousand years, this image would always accompany you, like a photograph which would not grow old with time, although years would cause the original to grow old.

Quærens.—I learned this fact in our first conversation.

Lumen.—Well, suppose now that you recede from the Earth with a velocity *greater* than that of light. What will happen? You will meet, as you advance in space, the rays that left the Earth *before* you, that is to say, a series of photographs which, from second to second, from instant to instant, are thrown off into space. If, for instance, you start from the Earth in 1867 with a velocity equal to that of light, you will have with you forever the year 1867. If you proceed with a velocity greater than that of light you will meet the rays that left the Earth during the years anterior to your departure from it, and which bear with them the photographic images of those years.

To enable you to perceive more clearly the truth of this fact let us suppose that several rays of light have left the Earth at different epochs, the first, let us say, at any instant during the 1st day of January, 1867. Traveling at the rate of 75,000 leagues a second, this ray has, at the moment in which I now speak to you, already

traversed a certain distance since the moment of its departure, and reached a certain point, which I shall express by the letter A. Let us now suppose a second ray of light to have left the Earth a hundred years previously, on the 1st of January, 1767. It will be a hundred years *in advance* of the first ray, and will be at a much greater distance from the Earth, a distance which I shall express by the letter B. A third ray, which has left the Earth, let us say, on the 1st of January, 1667, has traversed a *still greater distance*, a distance equal to that traversed by light in the space of a hundred years. I shall call the distance reached by this third ray C. Finally a fourth, a fifth, a sixth ray, have left the Earth, let us say, on the 1st day of January of the years 1567, 1467, 1367, etc., respectively, and remaining at equal distance from each other, D, E, F, travel onward ceaselessly through space.

Here, then, we have a series of terrestrial photographs, succeeding one another at equal distances, and in a direct line, through space. Now, the spirit traveling from the Earth on passing the points A, B, C, D, E, and F, successively, will find recorded at each of those points the history of the Earth for the corresponding century.

Quærens.—And how far apart are those photographs, master?

Lumen.—The calculation is an easy one to make. The interval which separates them is, naturally, that traversed by light during a hundred years. Now, at the rate of 75,000 leagues a second, you will at once perceive that it traverses a distance of 4,500,000 leagues in a *minute*, 270,000,000 leagues in an *hour*, 6,652,800,000 leagues in a *day*, 2,428,272,000,000 in a *year*, or, taking into account the bissextile years, 2,429,935,200,000. It follows from this calculation that the space between two points, a *century* apart, is about 242 *trillions*, 993½ *thousand millions* of leagues.

Here we have, I repeat, a series of terrestrial photographs ranged in space at the corresponding intervals. Let us now suppose that between those secular images, annual images are also ranged, separated by the distance which the light travels over during a year, as I have just explained; then, that between these annual images we have the images of each day; then, that each day contains the images of its hours, each hour, finally, the images of its minutes, and each minute the images of its seconds, all succeeding each other according to their respective distances, we shall have in a beam of light, or to speak more properly, in a jet of light composed of a series of distinct images in juxtaposition, the fluidic record of the history of the Earth.

When the spirit journeys through this ethereal beam of images with a velocity superior to that of light, he meets, one after another, the images previously recorded there. When he arrives at the distance at which the image which left the Earth in 1767 has arrived he has already retraced a century of terrestrial history. When he reaches the point which the image of 1667 has reached he has retraced two centuries. When he reaches the photograph of 1567 he has seen three centuries, and so on in succession. I told you during our first conversation that I had directed my course toward a nebula situated to the left of Capella. This nebula is incomparably more distant than that star, although from the Earth it seems to be beside it, because the two visual rays are close together; this apparent proximity is due to perspective. To give you an idea of the probable distance of this nebula I may tell you that it is not less vast than the Milky Way. We may ask ourselves, then, to what distance it would be necessary to suppose the Milky Way transported in order to be reduced to the appearance of this nebula. My learned friend Arago has made this computation, as you are aware, for he repeated it, every year, in his course of lectures at the Observatory, and it has been published since his death. It would be necessary to suppose the Milky Way transported to a distance equal

to 334 times its length. But, as light takes 15,000 years to traverse the Milky Way, it follows that light cannot take less than 334 times 15,000 years, that is to say, less than five millions of years to come from there. I had ascended the light of the Earth as far as this distant nebula, and if my spiritual sight had been more perfect, I should have been able to distinguish, not only the retrospective history of ten thousand, a hundred thousand years, but even that of five millions of years.

Quærens.—In order to retrace events in this way, passing through space, did you fly backward, or are spirits endowed, rather, with the faculty of seeing behind them?

Lumen.—What a question! If I undertook to explain to you by what inward sense it is that spirits see, I should involve you in the difficulties of a problem which you could never solve. For your own personal satisfaction you may regard me as turning back from time to time to observe the Earth; you will find this idea easier to understand.

Quærens.—What was the duration of this journey toward the nebula?

Lumen.—Have I not already told you that time does not exist outside the orbit of the Earth? A hundred

years or half a day spent in this observation would be of exactly the same duration in the infinite.

Quærens.—Will you permit me, now, master, to mention to you a strange idea which has just presented itself to my mind?

Lumen.—It is for the purpose of hearing your reflections concerning them that I have communicated these facts to you.

Quærens.—The thought has occurred to me whether this inversion may not take place for the ear as well as for the eye—whether, in the same way that we can see an event in an inverse order to that in which it has taken place, we can hear a discourse backward. This is, doubtless, an idle question, absurd even, in appearance, but, paradoxically, it seems to me that everything is equally worthy of our attention. Shall I venture to confess to you, then, that just now, while you were speaking of the battle of Waterloo, the idea occurred to me of asking you how you would hear the celebrated phrase :

Le garde meurt et ne se rend pas,

if the same phenomenon produced by the light were to take place also with regard to sound.

Lumen.—The laws of sound differ essentially from the laws of light. Sound travels at the rate of only

340 meters a second, and its effects have absolutely nothing in common with those of light. Nevertheless, it is evident that if we were to advance through the air with a velocity *superior* to that of sound, we should hear sounds in an inverse order from that in which they issue from the lips of the speaker. If the latter, for example, were to repeat an alexandrine, an auditor moving away from him with the above mentioned velocity, starting at the moment in which he had uttered the last foot, would meet, one after another, the eleven feet which went before, and would hear the line backward.

Quærens.—So that, returning to the battle of Waterloo, you would have heard——

Lumen.—If what happens with regard to light happened also with regard to sound I should have heard the following confused succession of syllables :

Pas-rend-se ne et-meurt-de-gar-la,

which it would have been difficult for me to understand. I should have tried to discover the various meanings these syllables might bear.

Quærens.—You would have thought, perhaps, giving a logical signification to the sounds, that Cambronne, responding to the challenge of the English officer, had sent him to the abode of shades with the apostrophe :

Pars en ce lieu, et meurs. De guerre las.

Lumen.—How like you that is ! You always love to play upon words. Well, this half-meaning would certainly not have satisfied me. I would doubtless have found a thousand different interpretations of them, all more or less unmeaning. As to the theory itself, it suggests a curious reflection, which is that while nature might have caused sound to travel with a velocity less than 340 meters a second (for why this should be the rate of velocity at which sound travels is unknown to science,) it is in fact transmitted very much more slowly. Why, for instance, is it not transmitted through the atmosphere with a velocity of only a few centimeters per second ? But see what would be the result if this were the case. People could no longer speak to each other as they walked. Two friends are conversing together, for instance ; one of them takes a step or two in advance, proceeding to a distance of a meter, let us say, and, as sound takes several seconds to traverse this meter, the result would be that, instead of hearing the continuation of the phrase uttered by his friend, he would hear again, in an inverse order, the sounds composing the phrases uttered before. What is it that hinders people from being able to converse while walking and three-fourths of mankind from being able to understand one another ?

These remarks, my friend, induce me to suggest to

you a subject of meditation well worthy of your consideration, and one which has hitherto received but little attention—that of the adaptation of the human organism to its terrestrial environment. The manner of seeing and hearing of man, his sensations, his nervous system, his stature, his weight, his density, his walk, his functions—in a word, all his acts—are governed, created, even, by the condition of your planet. Not one of your acts is absolutely free, independent: man is the docile, although unconscious, resultant of the organic forces of the Earth.

But returning to my observation of the details of terrestrial life, inversely rendered by my rapid flight, I will give you an account now of the singular aspects presented to me by human existences. In the world which I was observing, and which (as we have seen) was no other than your own, human beings were no longer born in the manner which you know. On the contrary——

Quærens.—How, on the contrary?

Lumen.—To bring a human being into the world a hole was first dug in the ground to a certain depth, or to speak more correctly, the people assembled in a species of garden where workmen shoveled loose earth onto the edge of a ditch, this earth seeming to

come from the bottom of the ditch. Then the workmen bent down and drew from the excavation made in the ground an oblong box, which they carried, not precisely in triumph, but with much ceremony, to a temple. A little later I saw the same box carried out of the temple, still followed by a considerable number of persons, some of whom appeared sad, while others remained perfectly indifferent. The people forming the cortége were dressed in black, and marched backward.

Presently they arrived at a house, which they entered, also backward, carrying the box I have mentioned. What took place then in the interior of the building? On one single occasion, owing to a particular arrangement of the high windows and the light, I was able to perceive this. Some men, charged with the task, began to draw the nails out of the box with a hammer (a proceeding as fantastic as all the others) after which they took out the object it contained and placed it on a bed.

Then all was made ready for the supreme moment in which a human being was to be born, for this lifeless body which had just been disinterred was a future living being. All the members of the family fell to weeping, as if deploring the coming of another being

into this sorrowful existence ; some tore their garments ; others (but these were not so many) tore their hair, others lay back, seemingly lifeless, in their arm-chairs. Physicians, always easy to recognize, came, not to dispatch the patient, but to bestow life upon him. It was usually on the third day after exhumation that the corpse awoke to life. The minister who had directed the first ceremony came to baptize him, administering the sacrament of extreme unction. From this moment the new-born being was surrounded by every imaginable care.

Such was the manner in which all births were effected. Beings were born old or of mature age. Ordinarily the new-born being suffered a long illness before belonging definitely to the living. Sometimes no such illness was suffered and one rose from death as if by accident. Life thenceforth was perceptibly different from your actual life. Instead of growing old, human beings grew young ; they advanced to the prime of life and bald heads were insensibly covered with hair ; white hair turned brown or blonde ; women were experienced in their wiles before being guileless : Nature herself repaired the reparable ravages of time : men and women attained, first manhood and womanhood, then adolescence, then early

youth, then childhood, and after having passed through all these phases, became at last little infants, until the moment came when they were carried by their parents to the temple; then they disappeared from the earthly scene by a process which you may divine if you will consider symmetry——

Quærens.—I confess, O Lumen, that I have never heard a stranger or more wonderful relation. But in this singular world, if everything took place in an inverse order to that of terrestrial nature, how——

Lumen.—Behold, my friend, the dawn calls me once more to return to the bosom of space—realm of mysteries for the dwellers on the Earth, fruitful mine in which spirits find the wrecks of dead worlds, the germs of future worlds. It would, besides, be superfluous to prolong this account by useless details. My object was to show you that, in order to see a world and a manner of life exactly the opposite of yours, it would only be necessary to move away from the Earth with a velocity superior to that of light.

In this flight of the soul toward the unapproachable horizons of the infinite it meets the light reflected from the Earth and from other planets millions and myriads of years ago, and *by observing the planets from that distance it may witness, de visu, the events of their past his-*

tory. In this way it may ascend the stream of time to its very source. Such a faculty should throw a new light for you on the realms of eternity. I propose to myself to show you before long the metaphysical deductions to be drawn from it, as I hope you have admitted the scientific value of the documents pertaining to this ultra-terrestrial study.

THIRD CONVERSATION.

HOMO HOMUNCULUS.

Quærens.—I have listened to you with interest, O Lumen, without being, I confess, entirely convinced of the absolute reality of what you have just related to me. For it is indeed difficult to believe that you could have seen what you describe so distinctly as you say you did. For example, when there are clouds you cannot see through them what passes on the surface of the Earth. The same may be said of the interior of dwellings.

Lumen.—You are mistaken, my friend; the undulations of ether pass through obstacles which to you might appear impassable. The clouds are composed of molecules between which a ray of light can often pass. When this is not the case, there are here and there clear spaces through which one may see obliquely. It rarely happens that it is impossible to distinguish anything. If that is your only objection you see that it is far from being insurmountable.

Quærens.—You have a wonderful way of solving

all difficulties. Perhaps that is one of the privileges of spiritual beings. I have been obliged to take for granted successively that you were transported to Capella with a velocity superior to that of light ; that you entered a world without being incarnated in it ; that your soul remains free from any corporeal envelope ; that your ultra-terrestrial eyes are powerful enough to distinguish from on high what passes here ; that you can move backward or forward through space at your will, and, finally, that even the clouds present no obstacle to your seeing the surface of our globe. And yet you must admit that those are all things very difficult of belief. .

Lumen.—How terrestrial you are, my old friend ! and how surprised you would be if I were to undertake to prove to you that what you regard as difficult is all very simple, and that what prevents your comprehension of the phenomena I have described is only your native ignorance. What would you think if I should say that no man has the slightest idea of what is taking place even on the Earth, and that no person knows anything of the processes of Nature ?

Quærens.—Considering the incontrovertible truths discovered by modern science, I should venture to think that you were jesting with me.

Lumen.—Heaven forbid ! Listen to me, my friend,

The marvelous discoveries of modern science should enlarge the sphere of your conceptions. Spectral analysis has just been discovered. By the methodical examination of a simple ray of light coming from a distant star, you are able to ascertain what are the elements which constitute that inaccessible star and feed its flames. That is, my young spiritual brother, a fact more astonishing in itself than all the conquests of Alexander, of Cæsar, or of Napoleon ; than all the discoveries of Ptolemy, of Columbus, of Gutenberg ; than all the Bibles of Moses, of Confucius, of Jesus. What ! trillions of leagues separate you from Sirius, from Arcturus, from Vega, from Capella, from Castor and Pollux, and you analyze the substances which constitute those suns, as if you could take them in your hand and submit them to the crucible of the laboratory ! How, then, can you refuse to admit that, by processes which are unknown to you, the spiritual vision can perceive the luminous aspect of a distant world, and distinguish its most minute details ? What ! the telegraph, in an inappreciable space of time, bears your thought from Europe to America ; across the abysses of the ocean two interlocutors, thousands of leagues apart, hold converse together, and yet you are unwilling to admit the possibility of the facts I have related to you, because you cannot

fully comprehend them. But can you comprehend how the telegraphic dispatch is transmitted? You cannot, is it not so? Cease, then, to raise objections which have not even the value of being scientific.

Quærens.—My objections, O my learned master! had no other object than to bring new light to my understanding. I am far from denying the truth of the facts you have been good enough to communicate to me, and I desire, above all things, to form to myself a rational and exact conception of them.

Lumen.—You may be assured, my dear friend, that I am by no means offended by what you have said, and in order to broaden, as I wish, the sphere of your conceptions, I will at this very instant open your eyes to the insufficiency of your terrestrial faculties and to the fatal poverty of positive science itself, begging you to reflect that the causes of your impressions are only modes of movement, and that what you proudly call *science* is only a very limited organic perception. Light, by which your eyes see; sound, by which your ears hear; odor, taste, etc., are different modes of motion which impress you. You can perceive only a few among them by the senses with which you are endowed—chiefly by those of sight and hearing. You innocently believe that you see and understand nature. Not at all: you perceive a few of the modes of motion

on your sublunary atom ; that is all. Besides the impressions which you receive there are a multitude of other impressions which you cannot receive.

Quærens.—Pardon me, master! But this new aspect of nature does not present itself to my mind with sufficient clearness to enable me to comprehend it. Would you be——

Lumen.—The aspect is new for you, in truth, but a little careful reflection will make it comprehensible to you. Sound is formed by vibrations, which, being executed in the air, strike the membrane of your tympanum and give you the impression of divers tones. Man does not hear all those sounds. When the vibrations are too slow (below 40 a second), the sound is too low ; your ear can no longer hear it. When the vibrations are too rapid (above 36,850 a second), the sound is too sharp ; your ear can no longer appreciate it. Above and below these two limits of the human organism sounds still exist, however, and are heard by other beings, as, for example, by insects. The same reasoning applies to light. The different aspects of light, the shades and colors of objects, are in like manner due to vibrations which strike your optic nerve and give you the impression of various intensities of light. Man does not see all that is visible. When the vibrations are too slow (below 727 trillions

a second), the light exceeds his organic faculty of perception and becomes invisible for him. Above and below these two limits colors still exist, and are seen by other beings. You perceive, then, and you can only perceive, the impressions which can set in vibration the two chords of your organic lyre, which we call the optic nerve and the auditory nerve.

Reflect for an instant on the multitude of things which are not perceived by you. All the undulatory motions which exist in the universe, between those which vibrate 36,850 times and those which vibrate 458 trillion times in the same unit of time, can neither be seen nor heard by you, and remain consequently unknown to you. Attempt, if you can, to measure this scale. Contemporary science begins to penetrate a little into this invisible world, and you know that it has just measured vibrations below 458 trillions—the invisible calorific rays—and vibrations above 727 trillions—the chemical rays, also invisible. But scientific methods can enlarge but little the sphere of direct perception. You are isolated in the midst of infinity.

More, a vast number of other vibrations exist in nature, *which, not being in correspondence* with your organization, and not being capable of being perceived by you, are *forever unknown to you*. If you had more

chords in your lyre—ten, a hundred, a thousand—the harmony of nature would make itself more fully perceptible to you, causing each of those chords to vibrate with the mode of motion peculiar to it; you would perceive a multitude of facts which occur around you, but whose existence you are not even able to divine; and, instead of two dominant notes, you could form an idea of the entire concert. But you have not the least suspicion of the poverty of your senses, for poverty which is general is not recognized as such, and it is impossible for you to compare it with the richness of certain beings superior to the inhabitants of the Earth.

The senses which you possess suffice to suggest to you the possible existence of other senses, not only more powerful than they, but also of an altogether different kind. By the sense of touch it is, for example, that you receive the sensation of heat; but it is easy to conceive of the existence of a special sense, analogous to that by which light renders perceptible to you the aspect of surrounding objects, which would enable you to judge of the form, the substance, the internal structure, and other qualities of an object by the action of the calorific waves which emanate from it. The same reasoning might be used with regard to electricity. You can, in like manner, conceive of the

existence of a sense, which, being, for example, to the eye what the spectroscope is to the telescope, would make you acquainted with the constituent elements of the body. Thus, already, from the scientific point of view, you have a sufficient basis for imagining modes of perception totally different from those which characterize terrestrial humanity. Those senses exist in other worlds, and there is an infinity of ways of perceiving the action of the forces of nature.

Quærens.—I confess, O master, that a new and strange light breaks upon my mind, and that your teaching appears to me to be a true interpretation of reality. I had already dreamed of the possibility of such things; but I was unable to divine them, encumbered as I still am by the terrestrial senses. It is certain that it is necessary to be outside our circle to be able to judge correctly of the whole. Thus, being endowed with only limited senses, we can perceive only the facts which are accessible to their perception. What remains is, naturally, unknown. Is this remainder great compared to what we know?

Lumen.—The remainder is immense, and what you know is almost nothing. Not only do your senses not perceive the physical motions, such as solar and terrestrial electricity, whose effluvia cross each other in the atmosphere, the magnetism of minerals, of

plants and of beings, the affinities of organisms, etc., which are invisible for you ; still less do they perceive the movements of the moral world—sympathies and antipathies, presentiments, spiritual attractions, etc. All that you know, all that it would be possible for you to know, through the medium of your terrestrial senses, is as nothing compared to what is. So true is this that it might be quite possible for beings to exist upon the Earth, essentially different from you, possessing neither eyes nor ears, nor any of your senses, but endowed with *other* senses, and capable of perceiving what you do not perceive, and who, while living in the same world with you, know what you cannot know, and form an idea of nature altogether different from that which you form of it.

Quærens.—That, indeed, passes my comprehension.

Lumen.—And still more, O my terrestrial friend ! I may add, in all soberness, that the perceptions which you receive and which constitute the basis of your science are not even perceptions of *reality*. No ; light, brightness, colors, tones, noises, harmonies, sounds, perfumes, tastes, the aspects of bodies, etc., are only *forms*. Those forms enter your mind by the doors of your eyes and ears, smell and taste, and give you the appearances but not the essence of things. *The reality of things is completely unperceived*

by you, and you are absolutely incapable of comprehending the universe.

Matter itself is not what you believe it to be. There is nothing solid ; your own body, a bar of iron, a granite rock, are not more solid than the air you breathe. They are all made up of atoms which do not even touch each other, and which are all in perpetual movement.

The Earth, an atom of the Heavens, moves in space with a velocity of 650,000 leagues a day ; but in proportion to their dimensions each of the atoms which constitute your own body and which circulate in your blood moves much more swiftly. If your sight were sufficiently powerful to see this stone as it is, it would not see it, for it would pass through it.

But I perceive by the commotion in your encephalon, and the fluidal agitations which pervade your cerebral lobes, that you no longer follow me in my revelations. I will pursue no further, then, this subject—a subject which I introduced merely for the purpose of showing you how great an error it would be on your part to attach any importance to objections based on your terrestrial sensations, and to convince you that neither you nor any other man on the Earth can form even an approximate idea of the universe as

it really is. The terrestrial man is only a *homunculus*.

Ah! if you could but know the organisms which live on Jupiter or on Uranus, if it had been given you to perceive the senses in action on Venus and on the ring of Saturn, if a few centuries of travel had allowed you to obtain even an idea of the forms of life in the systems of stars, of the sensations of sight in the colored suns, of the perceptions of an electric sense, which is unknown to you, in the groups of multiple suns; if an ultra-terrestrial comparison, in short, had furnished you with the elements of a new knowledge, you would comprehend that living beings can see, hear, feel, or more properly speaking, know nature, without eyes, without ears, without sense of smell; that an indeterminate number of other senses exist in nature, senses essentially different from your senses, and that there is in creation an incalculable number of marvelous realities which it is impossible for you even to have any idea of. In this general contemplation of the universe, my friend, may be perceived the solidarity which unites the physical with the spiritual world; from a higher sphere comes the inward force which raises certain souls, tried by the grossness of matter, but purified by sacrifice, toward the solemn

regions of spiritual light; and one can understand how great a happiness is reserved for those beings who, even upon the Earth, have succeeded in gradually freeing themselves from corporeal passions.

Quærens.—To return to the transmission of light through space, does not light in the end become extinct? Does the image of the Earth remain forever visible, or does it not rather grow fainter in proportion to the square of the distance, to be lost to sight altogether after a certain period?

Lumen.—Your expression, “in the end,” has no applicability, since there is no end in space. Light, it is true, diminishes with distance, images grow less intense, but nothing is entirely lost. The Earth is not visible to all eyes at a certain distance; but its image exists even when it is not seen, and spiritual sight can distinguish it. Besides, the image of a star, borne upon the wings of light, sometimes recedes to an immeasurable distance in the obscure deserts of space.

In space there are vast regions without stars, regions decimated by time, whence worlds are successively withdrawn by the attraction of exterior suns. Now the image of a star, traversing those dark abysses, is in a condition analogous to the image of a person or of an object obtained by photography in

the camera oscura. It is not impossible that those images may encounter in those vast spaces an obscure star (the existence of several such stars has been proved), of peculiar condition, whose surface (formed of iodine perhaps, if we are to believe spectrum analysis) would be sensitized and capacitated to receive on its surface the image of the distant world. Terrestrial events would thus paint themselves upon a dark globe. And if that globe revolved upon its own axis, as do the other celestial bodies, it would present all its zones successively to the terrestrial image, and thus take a continuous photograph of successive events. Further, descending or ascending, following a line perpendicular to its equator, the line where the images are reproduced would no longer describe a circle, but a spiral, and the first movement of rotation completed, the images would not coincide with one another, the new images superimposing themselves upon the old, but would succeed one another, above or below. You might now suppose this world to be, not spherical, but cylindrical, and thus fancy that there is in space an imperishable column around which the great events of terrestrial history engrave themselves. I have not myself beheld this process realized. I left the Earth so recently that I have scarcely had time to catch a passing glimpse of the wonders of the skies.

I shall before long convince myself whether this fact be not realized among the infinitude of astral creations.

Quærens.—If the light proceeding from the Earth is never *destroyed*, O master! our acts, then, are eternal.

Lumen.—Such is the case. An act performed can never be blotted out, and no power can ever undo it. A crime may be committed in the heart of a desert region. The criminal may go far away from the scene of his crime, he may remain undiscovered and suppose that the act which he has committed is *past* forever. He has washed his hands of it; he has repented, he believes his act *obliterated*. But in reality nothing is destroyed. At the moment when this deed was committed, the light seized it and carried it into the heavens with the rapidity of lightning. It is incorporated in a ray of light. It is eternal, and will be transmitted eternally through space.

A good action is done in secret; he who performs it conceals it; the light takes possession of it; far from being forgotten, it will live forever.

Napoleon, to gratify his personal ambition, voluntarily caused the death of five millions of men, of an average age of thirty years, who had, consequently, thirty-seven years longer to live, according to the law

of probabilities and the allotted period of human life. He has then destroyed one hundred and eighty-five millions of years. His punishment, his expiation, is to be borne on the ray of light which proceeded from the plains of Waterloo on the 18th of June, 1815, to move through space with the swiftness of the light, to have constantly before him the fatal moment when he saw the scaffolding of his vanity crumble away forever, to feel unceasingly the despair of that fatal moment, and to remain attached to this ray of light during the hundred and eighty-five millions of years for whose destruction he is responsible.

In acting thus instead of worthily fulfilling his mission, he has retarded for that length of time his progress in spiritual life.

And if it were given you to perceive what is passing in the physical system, you would perceive vibrations and transmissions of another nature, which record among the arcana of the spiritual world the most secret actions and even the most secret thoughts.

Quærens.—Your revelations are appalling, O Lumen! Thus our eternal destinies are intimately connected with the very structure of the universe. I have at times speculated on the possibility of some kind of communication between the worlds by the aid of light. Many physicists have supposed that it would perhaps

be possible one day to establish communication between the Earth and the Moon, and even the planets, by means of luminous signals. But if signals can be made from the Earth to a star whose light takes, for example, a hundred years to reach us, the signal from the Earth would reach its destination only after that interval of time, and the answer would require the same period of time to come back here. Two centuries, then, would pass between the question and the answer. The terrestrial observer would have been long dead before his signal would have reached the sidereal observer, and the same fate would have befallen the latter before his answer should have been received !

Lumen.—It would be, in fact, a conversation between the living and the dead.

Quærens.—Will you, master, pardon my asking you a last question, somewhat indiscreetly perhaps, for I see Venus growing pale, and I know that I must soon cease to hear your voice ? If actions are thus visible from the ethereal regions, we can see after our death not only our own actions, but also the actions of others, I mean to say of those in whom we take an interest.

For instance, two twin souls who have always been united will contemplate again with joy, during a thousand years, the delightful hours they spent together

upon the Earth. They will move through space with a velocity equal to that of light, in order to have always before their eyes the same hour of happiness. Again, a husband will follow with interest the whole course of his companion's life and in case some unforeseen circumstance should occur he will be able to examine at his leisure the details which may interest him. If his disembodied companion were dwelling in some neighboring region, he might even call her to observe with him those retrospective events. No denial could be accepted in face of so flagrant a testimony. Perhaps, among spiritual beings, many secrets are thus revealed.

Lumen.—In the heavens, my terrestrial friend, but little attention is paid to recollections of the material order such as you speak of, and I am surprised to find that you yourself should have progressed no further. The fact that should particularly strike you, among those treated of in the two conversations, is, that in virtue of the laws of light we can see events after they have taken place, and when they have in reality ceased to exist.

Quærens.—Believe me, master, this truth will never be effaced from my memory. That is precisely the point which has most amazed me. Overlook my former digression. To tell you the truth, of all you have re-

lated to me since we first conversed together, what my imagination finds it most difficult to grasp is the idea that the progress made by the spirit on its journey is not only null, negative, but still more, that it is *retrograde*. Retrograde time? It is singular, indeed, to find those two words associated. Can it be possible? You set out to-day for a star and you arrive there yesterday. What do I say! yesterday? You arrive there *seventy-two years ago*. You arrive there *a hundred years ago*. The greater the distance you have to travel, the sooner you will arrive at your destination. It would be necessary to remake language.

Lumen.—Yet what I tell you is an incontrovertible fact. Speaking in terrestrial style, you are not incorrect in expressing yourself thus, since the Earth is only in the year 1793, etc., for the world where we have arrived. You have, besides, even upon your own little globe, certain apparent paradoxes which may, remotely, give you an idea of this one. For instance, that of the telegraphic dispatch which, sent from Paris at noon, reaches Brest at twenty minutes before noon.

But it is not particular applications or curious phases which it is important for you to keep in mind; but rather the *revelation* of which they are only the form, and the metaphysical truth of which they are only the sensible expression. Know that time is not

an absolute reality, but only a transitory measure determined by the motions of the Earth in the solar system. Regarded by the eyes of the soul and not by those of the body, this picture, not fictitious, but real, of human life as it actually was, without possible disguise, touches on one side, the domain of theology, in that it explains physically a mystery hitherto unexplained—that of private judgment, the judgment by ourselves of each one of us after death. Viewed as a whole, the present of a world is not a momentary actuality, which disappears as soon as it appears, nor is it merely an aspect without consistence, a door through which the past rushes incessantly toward the future, a mathematical plan in space. It is, on the contrary, an actual reality which leaves that world with the swiftness of light, and, traveling eternally through space, thus remains an *eternal present*.

The metaphysical reality of this vast problem is such that one can now conceive the omnipresence of the world in its entire duration. Events vanish from the place where they occurred, but live in space. This successive and endless projection of deeds done in each of the worlds takes place in the bosom of the Infinite Being, whose ubiquity thus holds all things in eternal permanence.

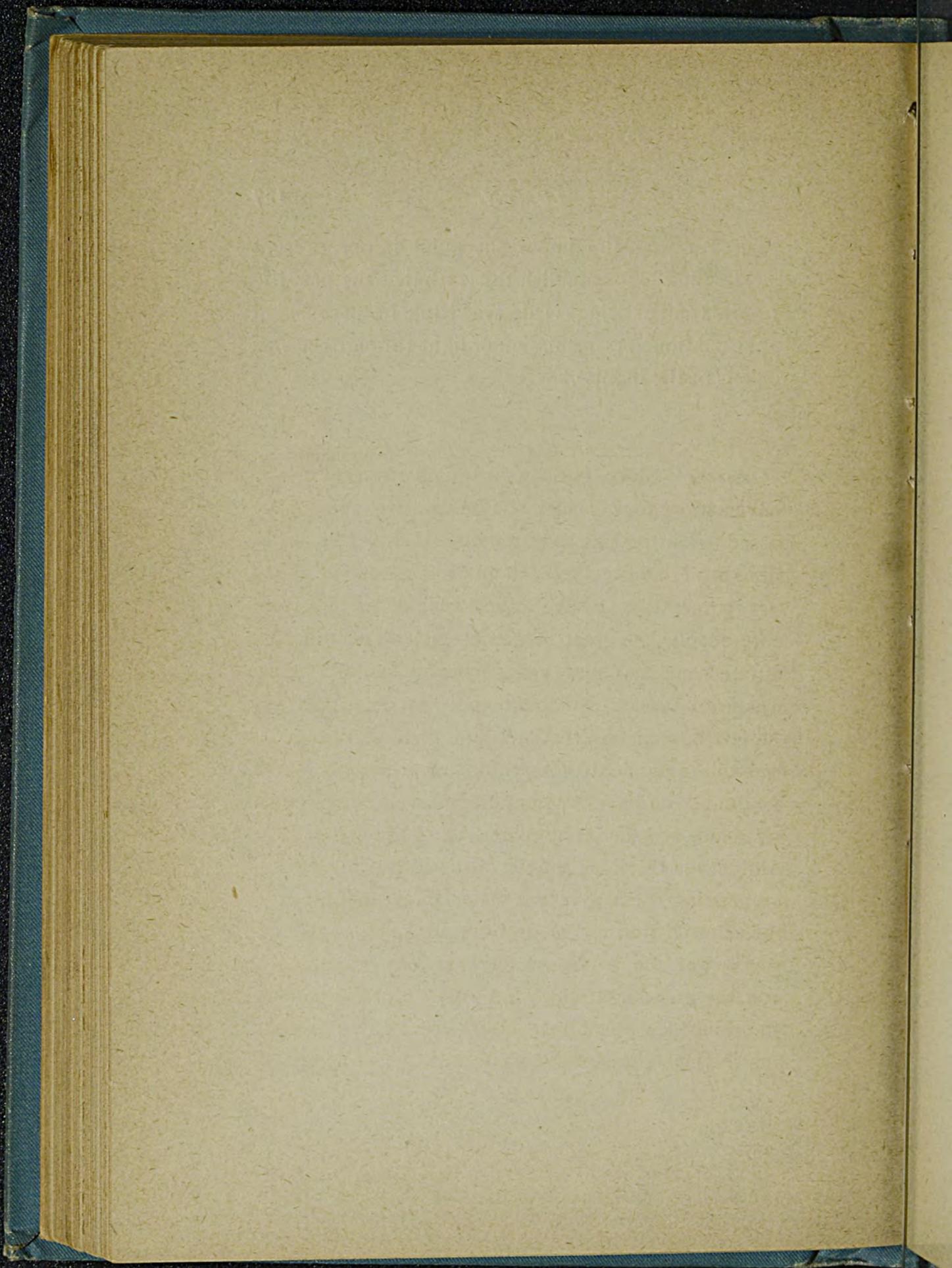
All the events which have occurred on the Earth

from its beginning are visible in space at distances proportioned to their remoteness. The whole history of the Earth and the life of each one of its inhabitants might thus be seen at once by a glance that could embrace this space. From this optical law we can understand how the Eternal Spirit, present everywhere, sees all the past at one and the same moment.

What is true of our Earth is true of all the worlds in space. Thus the entire history of the universe may be present at once to the universal ubiquity of the Creator.

I may add that God knows all the past, not only by this direct view, but also by his knowledge of things present. If a naturalist like Cuvier was able to reconstruct species of animals long extinct from a fragment of bone, the Author of Nature can know by the actual Earth the Earth of the past, the planetary system of the past, the Sun of the past, and all the conditions of temperature, of aggregation, of association by which the elements have come to form the compounds existing at the present time. On the other hand, the future may be as completely present to God in its actual germs as the past is in its fruits. The future will as inevitably succeed the present, is as logically deducible from it, and exists as truly as the past itself is inscribed in it, for him who knows how to decipher it.

But, I repeat, the important point in our present conversation is to establish the truth that the past life of worlds and of beings is always visible in space owing to the continued transmission of light through the vast regions of the infinite.



FOURTH CONVERSATION.

ANTERIORES VITÆ.

Quærens.—Since the day on which our last mystic conversation took place, O Lumen, two years have passed. During this time, unnoticeable to you, an inhabitant of infinite space, to us dwellers on the Earth very perceptible, I have often sought to penetrate more deeply the great mysteries into which you have initiated me, and new vistas have opened up before my spiritual view. No doubt since your departure from the Earth your observations and your studies in an ever-enlarging field of research have increased also. No doubt you have innumerable marvels to present to my mind, now better prepared to comprehend them. Ah! if you think me worthy of it and capable of comprehending them, give me an account, O Lumen, of the celestial journey made by your spirit to superior spheres, of the truths which have been revealed to you, the grandeurs which have been laid bare to you, the principles which have been taught to you regarding the mysterious destinies of men and of beings.

Lumen.—I have prepared your spirit, my dear old friend, to receive those strange impressions, impressions such as no terrestrial spectacle has ever produced or ever could produce. It is, however, absolutely necessary that you should first free your mind from every terrestrial prejudice. What I am about to reveal to you will astonish you, but listen to it with attention as an ascertained truth, and not a romance. This is the first effort I shall require from you in your ardent search after knowledge. When you come to understand—and you will understand if you bring to the task a logical mind and an unprejudiced spirit—you will perceive that all the facts I have related to you regarding our ultra-terrestrial existence are not only possible, but real, and, besides, in strict accordance with our intellectual faculties, as manifested on this Earth.

Quærens.—Be assured, O Lumen, that I bring to the task an unprejudiced spirit, freed from every passion, and eager to understand the revelations which human ear has never yet heard.

Lumen.—The occurrences which will form the subject of this conversation are connected, not with the Earth and the neighboring stars only, but are spread also over the vast fields of sidereal astronomy, whose wonders they will make clear to us. These occur-

rences, like the preceding ones, will be explained by the study of *light*, the magic bridge thrown from star to star, from the Earth to the Sun, from the Earth to the stars—of *light*, the universal motion which fills all space, sustains the worlds in their orbits, and constitutes the eternal life of nature. Do not fail, then, to keep before your mind, as the subject of its contemplation, the *gradual transmission of light through space*.

Quærens.—I know that light, the agent by which objects are rendered visible to our eyes, is not transmitted instantaneously from one point to another, but gradually, like every other moving thing. I know that it travels at the rate of 75,000 leagues a second, traverses 750,000 leagues in 10 seconds and 4,500,000 in every minute. I know that it employs more than 8 minutes in traversing the 37 millions of leagues which are the mean distance of the Earth from the sun. Modern astronomy rendered those facts familiar to us.

Lumen.—And you have an exact idea of its undulatory motion?

Quærens.—I think so. I may compare it to that of sound, although it runs through a scale incomparably more vast. Wave after wave, sound propagates itself in the air. When a church-bell rings, its sonorous peal, which is heard by those who live in the

neighborhood of the church at the very instant when the clapper of the bell strikes, is not heard until a second afterward by those who live at a distance from it of $3\frac{1}{2}$ hectometers, 2 seconds afterward by those who live at a distance of 7 hectometers, 3 seconds afterward by those who live at a distance of 1 kilometer, and so on at successive distances, as far as it will carry. In the same way light passes from nearer to more distant regions in space, and travels thus, without becoming extinct, to almost infinite distances. If we could see from the Earth an event which was taking place on the Moon, if, for example, we had instruments powerful enough to perceive from here a fruit falling from a tree on the surface of the Moon, we should not see this occurrence *at the very moment* at which it took place, but a second and a quarter *afterward*, because light takes about a second and a quarter to traverse the distance that separates us from the Moon. If we could in the same way see an event taking place on a world situated at a distance ten times greater than that which separates us from the Moon, we should not see it until 13 seconds after it had actually taken place. If this world were a hundred times farther away than the Moon, we should not see the occurrence until 130 seconds after it had actually taken place; a thousand times farther away we should see it 1300 sec-

onds, or 21 minutes 40 seconds afterward. And so on, according to the distances.

Lumen.—Exactly so, and you know that it is for this reason that the ray of light sent by the star Capella to the Earth spends 72 years in reaching it. If, then, we only receive to-day the image of the star carried by the light that proceeded from its surface 72 years ago, reciprocally the inhabitants of Capella see the Earth to-day as it was 72 years ago. The Earth reflects into space the light which it receives from the Sun, and at a distance appears as brilliant as Venus and Jupiter, planets lighted by the same sun that light it, appear to you. The luminous image of the Earth, its photograph, travels through space at the rate of 75,000 leagues a second, and reaches the star Capella only after traveling ceaselessly for 72 years. I recall these principles to you, so that, having fixed them firmly and clearly upon your mind, you may be prepared to understand without difficulty the facts which I have observed in my ultra-terrestrial existence, since our last conversation.

Quærens.—These principles of optics are firmly fixed upon my mind. The day after your death in October, 1864, when you found yourself, as you have told me, swiftly transported to Capella, you were astonished to arrive there at the moment when the

learned astronomers of the country were observing the Earth as it was in 1793, at the time of one of the most daring acts of the French Revolution.

You were no less surprised to see yourself shortly afterward as a child running through the streets of Paris. On approaching nearer to the Earth than Capella you stationed yourself in the zone reached by the terrestrial photograph thrown off from it at the period of your infancy ; and you saw yourself again at the age of six years, not in memory, but in reality. Of all your former experiences this is the one which I found it most difficult to believe—that is to say, to understand and grasp in all its details.

Lumen.—The experience which I am about to communicate to you now is still more extraordinary. But it was necessary that you should have understood the former experience to hear this with profit. Leaving Capella and approaching the Earth I saw again the events of my 72 years of terrestrial existence, my entire life, actually as they took place ; for in approaching the Earth I encountered successive zones of terrestrial images which were carrying into space the visible history of our planet, including that of Paris and of myself, who was then there. Retracing in a day the path which it takes light 72 years to pass over, I had reviewed my whole life in the space of a

day, and I reached the Earth in time to witness my interment.

Quærens.—It is as if, returning from Capella to the Earth, you had found 72 photographs ranged at intervals of a year along your path. The most distant from the Earth, the one which first proceeded from it, that at Capella, showed it as it was in 1793: the second, thrown off from it a year afterward, and not yet arrived at Capella, as it was in 1794; the tenth in 1803, the thirty-sixth, arrived midway, gave its image as it was in 1829, the fiftieth in 1843, the seventy-second in 1865.

Lumen.—You could not have a clearer comprehension of this fact, which at first sight appears incomprehensible and mysterious. I can now relate to you what happened to me on Capella after seeing a second time my terrestrial existence.

I.

NOT long since (but I can no longer express time by terrestrial measurement), while I was in the midst of a melancholy landscape in Capella, at the beginning of a clear night, engaged in contemplating the starry heavens, and in those heavens the star which is your terrestrial Sun, and in the neighborhood of this star the little bluish planet which is your Earth, as I was observing one of the scenes of my early childhood—my young mother sitting in the midst of a garden, holding in her arms an infant a few months old (my brother) and having at her side a little girl who had scarcely completed her second summer (my sister) and a little boy two years older (myself), while I saw myself at this age in which man is not yet conscious of his intellectual existence and yet carries in his brain the germ of his whole life ; as I was observing this singular scene, in which I saw myself at the beginning of my earthly career, I felt my gaze irresistibly attracted from your planet toward another point in the skies which seemed, at this moment, to be connected by some secret bond with the Earth and

with my terrestrial career. I could not prevent my gaze from dwelling on this new point in the skies ; it was held there by I know not what magnetic power. Several times I essayed to turn it again toward the Earth, which I still love, but it always returned persistently to the unknown star.

This star, on which my eyes thus instinctively sought to discover I knew not what, forms a part of the constellation of the *Virgin*, an asterism whose form changes slightly when seen from Capella. It is a double star, that is to say an association of two stars, the one a silvery white, the other a bright golden-yellow, which revolve round each other once in the space of one hundred and seventy-five years. This star can be seen with the naked eye from the Earth, and it is designated by the letter γ (Gamma) in the constellation of the *Virgin*. Each of the suns which compose it is the center of a planetary system. My gaze fixed itself on one of the planets of the golden sun.

On this planet there are vegetables and animals, as there are on the Earth, whose forms bear some resemblance to those of the Earth, although differing from them greatly in reality. There is an animal kingdom analogous to yours ; there are fishes in its seas and quadrupeds in its atmosphere, in which the

men also can fly, but without wings, owing to its great density. The men of this planet resemble closely in their forms terrestrial men, although their heads are devoid of hair, although they have on their hands three opposable thumbs, long and slender, instead of fingers, and three great toes on the heel instead of on the forepart of the foot; and the extremities of the arms and of the legs are as elastic as india-rubber. But they have two eyes, a nose, and a mouth, which give their countenances a resemblance to those of terrestrial human beings. Instead of two ears, one on either side of the head, they have but one ear, in the form of a conical pavilion, set on the top of the head like a little hat. They live in society and wear clothing. You see, in short, that they differ but little, externally, from the inhabitants of the Earth.

Quærens.—There are, then, on other worlds beings differing greatly from us, since those beings, notwithstanding these dissimilarities, can be compared to us?

Lumen.—An important difference, inconceivable by you, exists in general among the living forms of the various globes. *These forms are the result of the elements peculiar to the globe on which they dwell and of the forces which govern it.* In matter, density, weight, heat, light, electricity, atmosphere, etc., the worlds differ essentially from one another. Even in the

same system the forms on the various globes differ. Thus the men on Saturn and on Mercury in no way resemble the men on the Earth ; at first sight they seem to have neither a head nor limbs, nor to be endowed with organs of sense. The men of the planetary system of the Virgin, on which my gaze was fixed with a persistence altogether passive, resemble in their forms the inhabitants of the terrestrial globe. They resemble them no less in their intellectual and moral states. A little inferior to us, they belong to that grade of the spiritual scale immediately preceding the grade to which terrestrial humanity, as a whole belongs.

Quærens.—Terrestrial human beings are not all of equal intellectual and moral worth, but, on the contrary, of many gradations. We in Europe differ greatly from the tribes of Abyssinia and the savages of the Oceanian islands. What people do you take as a type of the intelligence of terrestrial humanity ?

Lumen.—The Arabs. Terrestrial humanity can produce a Kepler, a Newton, a Galileo, an Archimedes, a Euclid, a d'Alembert ; on the other hand, its roots touch the primitive hordes attached to the granite rock. But it is not necessary to choose here a people as a type ; it is preferable to consider modern civilization as a whole. Besides there is not so great

a difference as you suppose between the understanding of a negro and the understanding of an individual of the Latin race. However, if you will have a comparison, I may say that the men of the Virginal planet occupy almost the same place in the intellectual scale as the Arabs and the Scandinavians.

The most important difference which exists between this world and the Earth is that there is no sex, either in the plants, the animals, or humanity. The generation of beings is effected there spontaneously, as the natural result of certain physiological conditions reunited in certain fertile islands of the planet, and the human being is not formed in the maternal womb as here. To explain the process to you would be useless, since you can judge and understand only according to your terrestrial ideas, which are altogether different from those of this planet. The result of this organic state is that marriage does not exist under any form in this world, and that friendships between its inhabitants have no mixture of carnal attraction, as is always the case here, even in the purest relations, between persons of opposite sexes.

Drawn, as I have said, toward that distant planet, my spiritual eyes observed its surface attentively. They were particularly attracted, without my being aware of any special reason for it, by a white city re-

sembling from a distance a region covered with snow ; but it is probable that it was not really snow, for it is unlikely that water could exist on that globe in the same physical and chemical states as on the Earth. On the outskirts of the city was an avenue leading to a neighboring wood of yellow trees. It was not long before I perceived a group of three persons walking slowly in this avenue, in the direction of the wood. This little group was composed of two friends, who seemed to be conversing confidentially together, and a being differing from them in his dress, which was red, who carried a load and who must have been either a servant, a slave, or a domestic animal belonging to them.

While I was examining the two principal persons with curiosity, the one on the right raised his face toward the skies, as if he had heard himself called from above, and fixed his gaze on Capella, a star which no doubt was invisible to him, as this scene took place during what was day for him. Ah, my old friend ! never shall I forget the feeling of astonishment which the sight I saw caused me. Even now I can scarcely believe it to be real.

This man of the Virginal planet who was looking at me without being conscious of it, was—dare I say it to you without further preamble ?—Well, it was *I*.

Quærens.—*You?*

Lumen.—I myself, in person. I recognized myself at once and you may judge how great was my surprise.

Quærens.—I can well imagine it. What you tell me is altogether beyond my comprehension.

Lumen.—The fact is that this was an altogether novel situation and one which requires an explanation.

It was indeed I, and it was not long before I recognized, not only my own former features and form but also, in the person who was walking at my side, my dear Kathleen, who was the companion of my studies on this planet. I followed our figures with my gaze as far as the golden wood, through delightful valleys shaded with gilded cupolas, trees with heavy branches of various shades of orange, and elms with amber leaves. A brook ran babbling over its sandy bed and we sat down on its banks. I remembered happy hours spent by us together there, happy years that glided away in that distant land, our intimacy, like that between brother and sister, the feelings which we shared in common at sight of those beautiful wooded landscapes, those silent plains, those hazy hills, those little lakes, that reflected the serenity of the heavens. Our aspirations went forth toward great and holy nature and we adored God in his works. With what happiness did I once more behold this phase of my anterior ex-

istence and reunite the links of this golden chain broken by the Earth.

In truth, my dear Quærens, it was actually I who was there living on that Virginal planet. I saw myself really, and I continued observing my actions and actually witnessing again the brightest moments of that now long-past existence. Besides, if any doubt of my identity had remained in my mind, it would have been dispelled by my observations themselves, for, while I was looking at myself, I saw Berthor, my brother in that life, emerge from the wood, come toward us and join in our conversation, sitting down beside us on the banks of the murmuring brook.

Quærens.—Master, I cannot yet understand how it was that you could thus see yourself actually on the Virginal planet. Had you, then, the property of ubiquity? Could you, like St. Francis of Assisi, or Apollonius of Tyana, be in two places at once?

Lumen.—Not at all. On examining the astronomical coördinates of the Sun Gamma of the Virgin, knowing its parallax, seen from Capella, I succeeded in ascertaining that the light of this Sun could not take less than 172 years to traverse the distance separating it from Capella.

I received, then, at that time (terrestrial style, in 1869), the light which had proceeded from that world

172 years before (terrestrial style, in 1697). But at that time I was living on the planet in question, and had then attained my twentieth year.

In verifying the ages and comparing the different planetary chronologies, I recognized, in fact, that I was born into the Virginal world in the year 45,904 (corresponding to the year 1677 of the terrestrial Christian era) and had died by accident in the year 45,913, which corresponded to the terrestrial year 1767. Each year of that planet is equal to ten of our years. At the moment when I saw myself, as I have just related to you, I seemed about twenty years old, terrestrially speaking. But, according to the method of reckoning time in that planet, I was about two years old. Its inhabitants often reach the age of 15 years, which is considered the limit of life on that globe, and which is equivalent to 150 terrestrial years.

The light, or to speak more correctly, the image, the photograph, of this world of the Virgin, employing 172 terrestrial years to traverse the vast extent of space which separates it from Capella, it follows, as a consequence, that, being on this latter star, I received only then the image thrown off 172 years previously from the constellation of the Virgin. And although great changes had taken place since then, although many generations had succeeded one another, although

I myself died and was born again, and lived 72 years upon the Earth, as light had spent all this time in traversing the distance between the Virgin and Capella, it brought me fresh impressions of those vanished events.

Quærens.—The duration of the passage of light being demonstrated I have no further objection to make on that point. I cannot help saying, however, that so strange a fact surpasses all that I could have ever conceived in the wildest flights of my imagination.

Lumen.—There is no imagination here, my old friend. This is a sacred and eternal truth, which occupies its proper place in the plane of the universe. The light of each star, direct or reflected, in other words, the image of each sun and each planet, passes through space, with the velocity we have seen, and this light contains in itself all that is visible. As nothing is lost, the history of each world, recorded in the light which emanates incessantly and successively from it, traverses infinite space eternally without ever being extinguished. The terrestrial eye would be unable to read it. But there are eyes superior to terrestrial eyes. Besides, even on the Earth, when you examine through a telescope, or better still, through a spectroscope, the nature of a star, you know

that it is not its present condition that you behold, but its past, which is brought to you by the light that proceeded from it eighteen thousand years before, perhaps. Nor are you ignorant of the fact that a certain number of stars whose material and numerical elements terrestrial astronomers are investigating, and which now shine brightly above your head, may have passed out of existence before the beginning of the terrestrial world.

Quærens.—I know it. So, then, you beheld your penultimate existence unroll itself before you 172 years after it had passed.

Lumen.—Or rather a phase of that existence. But it is plain that I might have beheld it, that I might again behold it, by journeying toward that planet, as in the case of my terrestrial existence.

Quærens.—So that you have reviewed, imaged in the light, your two latest incarnations?

Lumen.—Precisely, and stranger still, I have seen them, and I can again see them together, *simultaneously*; the one, in a sense, beside the other.

Quærens.—You beheld them again *at the same time*?

Lumen.—The fact is easy to understand. The Earth's light takes 72 years to reach Capella. The light of the Virginal planet, almost one and a half times more distant than the terrestrial planet, takes

172 years to reach it. 'As I lived on the Earth 72 years ago, and a hundred years before that on the Virginal planet, those two epochs reached me exactly *together* on Capella. I had, then, before me by merely fixing my gaze on these two worlds my two latest existences, which unfolded themselves naturally, as if I were not there to see them, and without my being able to alter in any way the acts which I saw myself performing, in the one world as in the other, since those acts, although present and future, to my actual observation were in reality past.

Quærens.—Wonderful indeed! truly wonderful!

Lumen.—What struck me most, as I saw my two latest existences thus unfolding themselves together before me on two different worlds, was that those two existences bore the strangest resemblance to each other. I saw that in the one as in the other I had almost the same tastes, the same passions, the same faults. In the one as in the other I was neither a criminal nor a saint. Besides (extraordinary coincidence!)—I saw in the former world landscapes resembling those which I had seen on the Earth. In this I find the explanation of an innate taste which I brought with me into the terrestrial world for the poetry of the North, the songs of Ossian, the romantic landscapes of Ireland, mountains, and the aurora borealis. Scot-

land, Scandinavia, Sweden, Norway with its fiords, Spitzbergen with its solitudes, attracted me. Ruined towers, rocks, and wild gorges, somber fir trees through whose branches the north wind soughed, all these seemed, when I was on the Earth, to have some mysterious connection with my inmost thoughts. When I saw Ireland, it seemed to me as if I had lived there before. When, for the first time, I made the ascent of the Rhigi, and the Finster-Aarhorn, and witnessed the splendors of the sunrise on the snowy peaks of the Alps, it seemed to me as if I had seen it all before. The spectacle of the Brocken did not seem new to me. This was because I had anteriorly inhabited regions similar to these on the Virginal planet. The life, with its actions, its circumstances, its conditions, was the same. Analogies, analogies! Almost all that I have seen, done, or thought on the Earth I had already seen done or thought a hundred years before in other worlds.

I had always suspected this to be the case.

My terrestrial life, as a whole, however, was superior to the life preceding it, as a whole. It is well known that every infant brings with it into the world at its birth, particular talents, special tendencies, peculiarities which can only be explained logically, and in accordance with eternal justice, by the supposition of

an anterior individual existence. But although my terrestrial life was superior to that which preceded it, especially as being marked by a more exact and a profounder knowledge of the system of the world, I must observe that on the Earth I was devoid of certain physical and moral faculties which I had anteriorly possessed. On the other hand I possessed on this planet faculties which I had not possessed formerly.

For example, among the physical faculties in which I was wanting on the Earth, was the power of flying. On the Virginal planet, I saw that I flew as often as I walked, and this without any aëronautic apparatus and without wings, propelling myself with my arms and legs, as I would do in swimming. Examining minutely this mode of locomotion, which I distinctly saw myself employing on that planet, I plainly perceived that I am (that I was, I would say) provided neither with wings, nor a balloon, nor a screw. At a given moment, I rose from the ground, by a vigorous leap, as it were, and spreading my arms, swam, without fatigue, through the air. Again, walking down the sides of a steep mountain I sprang forward into space, with my feet together, and descended slowly in an oblique direction, by the exercise of my will, to a spot where my feet touched the ground and I stood up. Yet again, I flew slowly

around in circles, like a dove circling around its cote. All this I saw myself very distinctly performing on that world.

Well, not once only, but a hundred, a thousand times, perhaps, have I felt myself borne along in this way in my terrestrial dreams; precisely thus, gently, naturally, and without apparatus of any description. Why should such apparent impossibilities present themselves to our minds in dreams? There is nothing to justify them; nothing analogous to them exists on the terrestrial globe. Obeying instinctively this innate tendency I have many times sprung into the atmosphere, attached to the gas-filled globe of an aëronaut; but the sensation was not the same in a balloon; one *does not feel* that one is flying; one seems to be almost motionless. Here I find the explanation of my dreams—during the sleep of my terrestrial senses my soul had reminiscences of its anterior existence.

Quærens.—But I, too, have often seen and felt myself flying in dreams, and exactly as you describe, by a movement of the body due to the will alone, without wings and without apparatus. Have I, too, then, lived on the Virginal planet?

Lumen.—That I cannot tell. If you were provided with good eyes or sufficiently powerful instruments

you might, even from your globe, perceive that planet, examine its surface, and if you had by chance existed on it at the time when the light which now reaches you on the earth proceeded from it you might perhaps see yourself on it. But your vision is much too feeble to attempt these researches. Besides it is not at all necessary that you should have inhabited that world in order to be endowed with the faculty of volitation. There is a considerable number of worlds where flying is the normal mode of locomotion, and where the human race live only by this faculty. In reality there are few planets whose inhabitants walk as do those on the Earth.

Quærens.—It would seem from your former observations that your terrestrial existence was not your first existence, and that, before living on the Earth, you had already lived on another world. Do you believe, then, in a plurality of existences for the soul?

Lumen.—Do you forget that you are speaking to a disincarnated spirit? I must well believe this, bearing in mind my terrestrial life and my life on the Virginal planet. I remember, besides, several other existences.

Quærens.—Ah, that is precisely the proof that is wanting in my case, to produce a similar conviction

in my mind. I remember absolutely nothing of what may have preceded my terrestrial birth.

Lumen.—You are still incarnate. You must wait for your freedom, to remember your spiritual life. The soul has complete memory, full possession of herself, only during her normal life, her celestial life, that is to say, between her incarnations. She sees then not only her terrestrial life but also her other anterior existences.

How is it possible for a soul trammled by the gross bonds of terrestrial flesh, in which she is imprisoned for a transitory work, to remember her spiritual life? How hurtful this remembrance would be to her! How would it not impede her in her acts if the soul could behold her beginning and her end! How would it profit her to know her destiny beforehand? Souls incarnated on the Earth have not yet progressed sufficiently to make the remembrance of their anterior states useful to them. Permanency of spiritual impressions does not manifest itself in this world, which is our temporary abiding-place. The caterpillar does not remember its rudimentary existence in the egg. The sleeping chrysalis does not remember the period of active life during which it crept among the herbage. The butterfly, that flies from flower to flower, cannot recall the time when

the chrysalis slept suspended from a thread, nor the twilight existence during which its larva crawled from plant to plant, nor the night during which it lay entombed in the shell. This does not prevent the egg, the caterpillar, the chrysalis, and the butterfly from being one and the same being.

Quærens.—But, master, if we had lived before this life we should retain some recollection of it. Otherwise those anterior existences would be as if they had not been.

Lumen.—Is it nothing, then, to come to the Earth with innate aptitudes? Two children are born of the same father and mother, receive exactly the same education, are surrounded by the same care, live in the same environment. Compare them together. Do they resemble each other? Not at all. Similarity of souls does not exist. One will bring with him peaceable instincts and a vast intelligence; he will be a good, learned, wise, an illustrious thinker, perhaps; the other will, perhaps, bring with him instincts of domination, of envy, of brutality. His natural tendencies, growing stronger and more marked with time, may place him at the head of armies, indeed, and confer upon him that glory (so little desirable and yet so greatly admired on the earth) which attaches to the title of professional assassin. In a greater or less

degree this dissimilarity of character, which depends neither on family, nor race, nor education, nor bodily constitution, is observable among all men. But however much you may meditate upon it, you will arrive at the conclusion that there is no possible explanation for it except in anterior states of the soul.

Quærens.—The greater number of philosophers and theologians have taught, however, that the soul was created at the same time as the body.

Lumen.—And at what precise moment, I pray you? At the moment of birth? But the law, as well as anatomical physiology, decides that the infant has life before it is delivered from its uterine prison, and to destroy a fetus of eight months is a murder. At what moment, then, do you suppose that the soul suddenly makes its appearance in the fluid brain of the fetus or the embryo?

Quærens.—Some of the Fathers of the Church declare it to be at the sixth week of gestation. Others incline to fix it, rather, at the very moment of conception.

Lumen.—Oh, mockery! You would have the eternal designs of the Creator dependent for their execution on the capricious desires, the intermittent ardor of two amorous hearts. Are you willing to believe that the Supreme Mind that governs the universe

would place itself at the disposal of chance, of intrigue, of passion, and at times of crime? Is not such a doctrine, such a supposition, a blasphemy against the divine dignity, against the spiritual grandeur of our soul itself? And besides, would it not be the complete materialization of our intellectual faculty?

Quærens.—I confess that it would, in fact, be strange that an event so important as the creation of an immortal soul should be the fortuitous result of a more or less legitimate union. I confess also that the differences between the aptitudes brought with them into the world at their birth by different individuals are not explained by organic causes. But I ask myself what purpose a plurality of existence would serve, if, on beginning a new life, we lose the recollection of the preceding one. I ask myself, also, if it would be really desirable that we should have in perspective a journey without end through the worlds and an infinite series of transmigrations. For, after all, there must be a limit to all this, and, after a certain number of ages of journeying in this way, we must rest at last. Would it not be as well, then, to rest after a single existence?

Lumen.—Oh, man! You do not know what space and time are; you do not know that beyond the movements of the stars time does not exist, and that

eternity is not measured ; you do not know that in the infinitude of the sidereal realms space has no meaning, is no longer measurable ; you are ignorant of everything—beginning, cause, end ; an atom on a revolving atom, you have no exact appreciation of the Universe ; and with this ignorance, this mental obscurity, you wish to understand everything, to penetrate everything, to grasp everything. But it would be easier to inclose the Ocean in a nutshell than to make the law of destinies comprehensible to your poor terrestrial brain. Applying the reasoning faculties with which you are endowed to their legitimate use, can you not perceive the direct results of your inductions? Inductive reasoning proves to us that we are not all equal when we come into the world ; that the past resembles the future, and that the same eternity which is before us lies equally behind us ; that nothing is created in nature and that nothing is destroyed ; that nature embraces all existing things, and that God, spirit, law, number, are no more outside nature than matter, weight, motion ; that moral truth, justice, wisdom, virtue, have existed through the ages as really as matter exists ; that justice demands that there should be equality in human destinies ; that our destinies are not accomplished on the terrestrial planet ; that the empyrean does not exist, and that

the Earth is a star in the sky ; that other inhabited planets move with ours in space, opening to the wings of the soul an illimitable field, and that the infinity of the Universe corresponds, in the material creation, to the eternity of our intelligences in the spiritual creation. Are not such certainties, accompanied by the conclusions they suggest, sufficient to free your mind from antiquated prejudices, and to present to its unbiased judgment a panorama worthy of the vague and infinite longings of the soul?

I might illustrate this general sketch by examples and details which would, perhaps, impress you more forcibly. Let it suffice to add that there are in nature other forces than those with which you are acquainted, which, in their essence as well as in their mode of action, are altogether different from electricity, the attraction of gravitation, light, etc. But among these still unknown natural forces there is one in particular, the study of which will, in time, bring about wonderful discoveries tending to elucidate the problems of the soul and of life. This invisible fluidic force is the mysterious bond which, unconsciously to them, perhaps, connects living beings, and which has already manifested itself under a variety of circumstances. Consider two beings who *love each other*. It is impossible for them to live apart. If circumstances

separate them, our two lovers are lost, and their souls, abandoning their bodies, will traverse time and space to come together. The thoughts of one are shared by the other; the emotions of the one are felt by the other, and they live united, though apart. If misfortune strikes the one the other suffers the rebound of the blow. These separations have been known even to cause death. With how many authentic instances are you not familiar, of the apparition of a person being seen by an intimate friend, a wife by a husband, a mother by her son, and *vice versa*, at the very instant when the person thus seen was dying, often many miles away. The most determined skeptic cannot now deny the authenticity of these facts. Two twin children living ten leagues apart, under very dissimilar conditions, will suffer, at the same time, the same disease, or, if the one chances to tire himself excessively, the other will feel fatigue which he has done nothing to produce. Facts like these, of which there are many, prove the existence of bonds of sympathy between souls, and even between bodies, and confirm the reflection that we are far indeed from being acquainted with all the forces in action in nature.

If I open up these views to your mind, O my friend, it is chiefly for the purpose of demonstrating to you that you can, even before death, have a fore-

knowledge of truth, and that terrestrial existence is not so enveloped in obscurity that one may not by the exercise of reason attain to a knowledge of the principal features of the moral world. And then, all these truths will be made more clear to you in the course of my narrative, when you shall have learned that it was not my penultimate existence only that I actually reviewed, owing to the tardy progress of light, but also my antepenultimate planetary life, and, thus far, more than ten existences which preceded that in which we knew each other on the Earth.

II.

Quærens.—Reflection and study, O Lumen, had already inclined me to believe in a plurality of existences for the soul. But as this doctrine is far from being supported by logical, moral, or even material proofs, as numerous or as convincing as those in favor of the plurality of inhabited worlds, I confess that up to the present I have held it in doubt. Modern optics and the higher mathematics, which enable us to touch with our hands, as it were, the other world, make us acquainted with their motions, the length of their years, their seasons, and their days, and bring under our observation the varieties of living nature on their surface; all these elements have enabled modern astronomy to place the doctrine of human existence on other planets on a solid and imperishable basis. But, I repeat again that this is not the case with palingenesis, and although strongly inclined to a belief in the transmigration of souls to a material heaven, since that is the only mode under which we can conceive eternal life, my aspirations demand, to support and strengthen them, a light which I have not yet received.

Lumen.—To find this light, and to make it visible, is precisely the purpose of our conversation to-day. I have, I confess, an advantage over you, since I speak *de visu* and since I confine myself strictly to being the exact interpreter of the terrestrial events with which my spiritual life is at present woven. But since your mind is capable of understanding the reasonableness of my scientific explanations it must necessarily, as you listen, become more enlightened and increase in knowledge.

Quærens.—It is for this reason more than any other that I am eager to hear you.

Lumen.—It is the office of light, you understand, to present to the disincarnated soul the *direct view* of its planetary existences.

After I had reviewed my terrestrial existence I reviewed my penultimate life on one of the planets of Gamma Virginis. Light bringing me the former existence only after seventy-two years, and the latter only after one hundred and seventy-two years, I now saw myself from Capella as I was on the Earth seventy-two years ago. Here, then, were two *past* existences, *the one following the other*, placed before my view, *present and simultaneous*, by virtue of the laws of light which transmitted them to me.

About five hundred years ago I lived on a world

whose astronomical position, seen from the Earth, is precisely that of the breast of Andromeda—the left breast. Assuredly the inhabitants of that world are far from suspecting that the inhabitants of a little planet in space have connected the stars by imaginary lines, traced the figures of men, women, animals, and various other objects and grouped all the stars (for the purpose of giving them names) in these more or less curious figures. The inhabitants of the planets would be greatly surprised if they were told that on the Earth certain stars are called: the Heart of the Scorpion (what a heart!), the Head of the Dog, the Tail of the Great Bear, the Neck of the Dragon, the Forehead of the Goat, and the Eye of the Bull. You are aware that the constellations represented on the celestial sphere and the positions of the stars on that sphere are not real or absolute, but are formed merely by the Earth's position in space, and are thus solely a matter of *perspective*. The observer, who, stationing himself on the summit of a mountain, should take the circular panorama and fix on his plan the respective positions of all the mountain peaks, the hills, the valleys, the villages, the lakes, which are visible to him, would construct a chart which should serve only for the locality where he then was. If he were to remove to a distance of twenty

leagues, the same mountain peaks would be visible, but their respective positions would be altogether different, owing to the change of perspective. The panorama of the Alps and the Oberland, seen from Lucerne and Mount Pilatus, resembles in no respect that seen from the Faulhorn or the Scheinige Platte, above Interlaken. Yet they are the same mountain peaks and the same lakes. The same thing precisely happens with respect to the stars. The same stars are seen from the Star Delta of Andromeda as from the Earth, but not a single constellation is recognizable; all the celestial perspectives are changed; the stars of the first magnitude have become stars of the second or third magnitude; many stars of an inferior order, seen nearer, have become brilliant, and, more than all, the relative positions of the stars to one another has varied completely in consequence of the difference of position between this star and the Earth.

Quærens.—So, then, the constellations, which for so long a time have been regarded as ineffaceably traced on the celestial vault, are due only to perspective. In changing one's position perspectives change, and the heavens do not continue the same. But should not we on the Earth, also, then, have a change of celestial perspective every six months, since in that space of time the Earth changes her position noticeably,

moving to a point 74 millions of leagues distant from the point which she occupied six months previously?

Lumen.—This objection proves to me that you have a perfect comprehension of the principle of the deformation of the constellations, according as the point of view from which they are observed is changed. It would be as you say, in effect, if the terrestrial orbit were so vast that the distance between two opposite points of this orbit should be sufficiently great to change the aspect of the celestial landscape.

Quærens.—Seventy-four millions of leagues—

Lumen.—Are as nothing in the measure of celestial distances, and can no more change the perspective of the stars than a step taken on the lantern of the Panthéon can change for the observer the apparent position of the edifices of Paris.

Quærens.—Some charts of the Middle Ages gives the Zodiac as the arch of the empyrean and place certain constellations, as Andromeda, the Lyre, Cassiopeia, the Eagle, in the same region as the Seraphim, the Cherubim, and the Thrones. This was evidently a purely fanciful arrangement, since the constellations do not really exist and are merely apparent, their forms being due to perspective.

Lumen.—Evidently. The ancient theological heaven has no longer a *raison d'être*, and plain common sense

shows that it does not exist. Since two truths cannot be opposed to each other, the spiritual heaven must, of necessity, accord with the material heaven; to demonstrate this fact to you is the special object of these conversations.

On the world of Andromeda, of which I speak, as a matter of fact, no part of the constellation of Andromeda really exists. The stars which, seen from the Earth, seem clustered together and have served to represent in the celestial scene the daughter of Cephus and Cassiopeia, are scattered at different distances and in various directions throughout space. Neither there nor elsewhere does there remain the slightest vestige of terrestrial mythology.

Quærens.—And poetry loses thereby. I should experience a sweet satisfaction, in truth, in knowing that I had resided during an entire lifetime on the bosom of Andromeda. There is something romantic in the thought—a perfume of mythology and a quickening emotion at the same time. It would certainly be a pleasure to me to be transported there, feeling neither fear of the monster nor anxiety for the young Perseus, with his head of Medusa and his famous Pegasus. But now, thanks to the scalpel of science, there is no longer either a princess exposed unveiled on the rock washed by the waves, nor a virgin carrying golden

grain, nor Orion pursuing the Pleiades; Venus has disappeared from our evening sky, and old Saturn has dropped his scythe in the darkness of the night. Science has made them all disappear! I regret this result of progress.

Lumen.—Do you then prefer illusion to reality? And do you not yet know that truth is infinitely more beautiful, more grand, more admirable, and even more wonderful than the most ornate error? What is there in any mythology, past or present, comparable to the simple scientific aspect of the grandeurs of the heavens and the movements of nature? What spectacle could strike the mind more powerfully than the mere *fact* of the extent of space occupied by the heavenly bodies and the immensity of the sidereal system? What speech could be more eloquent than the silence of a starry night? What image could plunge the soul into profounder depths of amazement than the interstellar journey of light by which the transitory events of the life of each world are rendered eternal? Divest yourself, then, O my friend, of your ancient prejudices, and make yourself truly worthy of the majesty of Science. Hear what follows:

Owing to the length of time spent by light coming from the system of δ of Andromeda to Capella I

reviewed in this year, 1869, my antepenultimate existence, which ended 550 years ago. This world is strange for us; there is but one kingdom—the animal kingdom—on its surface. The vegetable kingdom does not exist there. But this animal kingdom is very different from ours, although its superior species, its intelligent species, possesses five senses, as do terrestrial human beings. It is a world in which sleep is unknown and in which nothing is stable. It is entirely covered by a rose-colored ocean, less dense than terrestrial water but more dense than the air—a substance midway, as a fluid, between air and water. Do not try to form to yourself an exact notion of it. You could not do so, as terrestrial chemistry presents no similar substance. Carbonic acid gas, which remains invisible at the bottom of a glass, and which can be poured from one vessel into another like water, may give you some idea of it. This state is due to the permanent presence on the globe of a determinate quantity of heat and electricity. You are aware that there are on the Earth, in the texture of all the beings—minerals, vegetables, and animals—upon it, only three physical conditions: the solid, the liquid, and the gaseous; and that these three conditions are produced solely by the heat diffused by the Sun over the surface of the Earth. The interior heat of the globe acts

imperceptibly at its surface. A less degree of solar heat would liquefy the gases and solidify the liquids. A greater degree would melt the solids and evaporate the liquids. A degree of heat a little greater or a little less would suffice to convert the air into a liquid (the air into a liquid, do you understand?), and marble into a gas. If, from some unforeseen cause, the terrestrial planet should one day fly off at a tangent from its orbit and rush into the glacial obscurity of space, you would see the water on the Earth become solid, and the gases, in their turn, become liquid, then solid also; you would see—no, you would not see it if you remained on the Earth, but from the bosom of space you would be able to witness this curious spectacle, if your globe should ever chance to fly off at a tangent. And observe, besides, that if this intense cold were to come suddenly, the beings on the Earth's surface would be suddenly frozen in their places, and the globe would carry into space the singular spectacle of all the human and animal species, frozen and motionless for all eternity in the various positions which they had each occupied at the moment of the occurrence of the catastrophe.

There are worlds which have arrived at this condition. There are certain habitable comets whose inhabitants, their existence suddenly arrested by the

rapid flight of the comet from the sun, remain motionless on its surface, like so many statues. Most of them are in a recumbent position, for this great change of temperature requires several days to accomplish. They are there by millions, huddled up, dead, or rather sunk in a profound lethargy. The cold preserves them. Three or four thousand years later, when the comet returns from its dark and icy aphe- lion to its brilliant perihelion, its vivifying and benefi- cent heat warms them ; this heat increases rapidly. When it reaches the degree of the natural temperature of those beings they return to life, at the same age as that at which they fell asleep ; they resume their oc- cupations of the day before (long past yesterday !) without being at all aware that they have slept (a dreamless sleep) during so many centuries. Some of them even resume an interrupted game or finish a phrase whose first words were uttered four thousand years before. All this is very simple. We have seen that time has no absolute existence.

This is, on a large scale, what takes place on a lesser scale, on your Earth, with the infusoria that revive under the rain after several years of apparent death.

But to return to our world of Andromeda : The rosy, quasi-liquid atmosphere which surrounds it com- pletely, like an ocean without islands, is the abode

of the animated beings of this globe. Without ever resting at the bottom of this ocean, which none of them has ever touched, they float perpetually on the bosom of the mobile element. From their birth to their death they have not a single moment's rest. Constant activity is the condition of their existence. If they pause, they perish. To breathe, that is, to cause the fluid element to penetrate their breasts, they are obliged to agitate their tentacles ceaselessly, and to keep their lungs (I use this word in order to make myself understood) constantly open. The external form of this human race is a little like that of the sirens of antiquity, but is less elegant, resembling somewhat that of the seal.

Do you perceive the essential difference which separates this organism from that of terrestrial man? It is this—that *on the Earth we breathe without perceiving it*, without making any effort to obtain our supply of oxygen, without having to effect with difficulty the transformation of venous into arterial blood by the absorption of oxygen. On that world, on the contrary, oxygen is a food *which is obtained only at the price of labor*, at the price of incessant effort.

Quærens.—This world, then, is less advanced than ours?

Lumen.—Certainly, since I lived upon it before

coming to the Earth. But do not imagine that the Earth is much superior to it because we breathe while we sleep. It is doubtless marvelous to be provided with a pneumatic mechanism which opens every second of itself to supply the need of our organism for air, and it is marvelous that this automaton should work even when those who possess it do not perceive its beauty or appreciate its value. But man does not live by air alone : the terrestrial organism requires a more solid complement, and this complement does not come of itself. What is the result ? Consider the Earth for a moment. What a sorrowful, what an afflicting spectacle ! What a world of misery and degradation ! All those multitudes bending over the soil, which they dig with labor, *demanding from it their daily bread !* All those heads bending toward the clay instead of being raised to contemplate nature ! All those efforts, those labors bringing with them exhaustion and disease ! All this traffic to amass a little gold at the expense of others ! The exploitation of man by man ! the castes, the aristocracies, the robberies, and the ruins ! the ambitions, the thrones, and the wars ! In a word, *personal interest*, always selfish, often sordid, and the rule of matter over spirit—such is the normal picture of the Earth ; a situation produced by the law which governs your bodies, which forces you to kill in order to live and to

prefer the possession of material treasures, which are not carried beyond the tomb, to the possession of intellectual treasures, whose inalienable wealth the soul keeps forever.

Quærens.—You speak, O master, as if you thought it would be possible to live without eating.

Lumen.—What! Do you suppose that the inhabitants of all the other worlds in space are trammelled by so ridiculous a necessity? Fortunately, on the greater number of worlds the spirit is not obliged to suffer such ignominy.

It is not so unreasonable, as might appear at first sight, to believe in the possibility of atmospheric foods. The maintenance of life in men and animals depends on respiration and nutrition. The former requires air, the latter, food. From food the blood is formed; from the blood are formed the tissues, the muscles, the bones, the cartilages, the flesh, the brain, the nerves, in a word the organic constitution of the body. The oxygen which we breathe may itself be considered as a nutritive substance, since, in combining with the alimentary substance absorbed by the stomach, it accomplishes the sanguification and the development of the tissues.

But in order to imagine nutrition as altogether obtained from the atmosphere, it is only necessary to

consider that, in fact, a complete food is composed of albumen, sugar, fat, and salt, and to suppose an atmospheric fluid, which, instead of being composed solely of nitrogen and oxygen, shall be formed of various substances in a gaseous state.

In the actual condition of things these aliments are found in solid bodies, which you eat, and on digestion devolves the task of separating and assimilating them to the organism. When you eat a piece of bread, for example, you introduce into the stomach fecula and starch, a substance which is insoluble in water, and which is not found in the blood. The saliva and the pancreatic juice transform the insoluble starch into soluble sugar. The bile, the pancreatic juice, and the intestinal secretions change the sugar into fat. In the blood are found sugar and fat, and it is thus by the process of alimentation that substances are separated and assimilated to your bodies.

You are astonished, my friend, that in the celestial world in which I have lived for five terrestrial years, I should still remember these material terms and descend to this way of speaking. The recollections which I took with me of the Earth are far from being effaced, and since we are discussing, incidentally, a question of organic physiology, I feel no false shame in calling these things by their names.

If, then, we suppose that, instead of being combined in the constitution of solid or liquid bodies, aliments were to exist in a gaseous state in the constitution of the atmosphere, we create in this way nutritive atmospheres which exempt us from digestion and its gross and ridiculous functions.

Whatever man, in the restricted sphere of his observation, is capable of imagining, nature at some point in the universe has realized.

I assure you, besides, that when one is no longer accustomed to this material operation of introducing nourishment into the stomach, one cannot avoid being struck by its grossness. This is the reflection I made to myself a few days ago when, letting my gaze wander over one of the richest landscapes of your planet, I was struck by the tender and angelic beauty of a young girl reclining in a gondola which glided gently over the blue waters of the Bosphorus, at Constantinople. Red velvet cushions embroidered with bright-colored silks, and adorned with heavy golden tassels which hung down to the water's edge, formed the couch of this young Circassian. Before her knelt a little black slave who was playing on a stringed instrument.

Her form was so youthful and so graceful, the arm on which she leaned was so beautiful, her eyes were so clear and so candid, and her already thoughtful brow

appeared so calm in the light of heaven, that I allowed myself for an instant to be captivated by a sort of retrospective admiration for this masterpiece of living nature. Well, while this innocence of awakening youth, this sweetness of the flower opening to the dawn of existence, held me under a transitory spell, the bark was moored to a wharf, and the young girl, assisted by the slave, went and sat down on a divan near a table abundantly spread, around which several persons were already seated. She began to eat. Yes, *she ate*. During an hour, perhaps, I was unable to tolerate what my terrestrial recollections showed me to be a necessity. What a ridiculous spectacle! A being like this carrying food to her mouth and putting I knew not what substances into the interior of her charming body! What grossness! And the morsels of some base animal which those pearly teeth had the courage to masticate! And the fragments of some other animal which those virginal lips opened, without hesitation, to receive. What a diet! A mixture of ingredients obtained from domestic or wild animals, which had passed their lives wallowing in the mire perhaps, to die slaughtered. Horrible! I turned my gaze with sadness away from the strange contrast presented to it toward Jupiter, where humanity is not subjected to so vile a necessity.

The floating beings belonging to a world of Andromeda, where my antepenultimate existence was spent, are still more servilely subjected to the labor of nutrition than the inhabitants of the Earth. They have not an atmosphere which supplies them with three-fourths of their nutrition, as you have on your globe; they must earn what may be called their oxygen, and they are condemned to work their lungs ceaselessly to supply themselves with nutritive air, without ever sleeping, and without ever obtaining a sufficiency of air; for, notwithstanding all their labor, they can absorb but very little of it at a time. They spend their entire lives thus, and die, succumbing to their task.

Quærens.—It would be as well for them if they had never been born.

Lumen.—The same reflection would apply to the Earth. What is the use of being born, of toiling at a thousand diverse tasks, of going round in the same circle daily for sixty or a hundred years—sleeping, eating, working, speaking, wandering about, running, agitating one's self, dreaming, etc., etc.? Of what use is all this? And would not one be as far advanced if one had died the day after one's birth, or, better still, if one had not been born? Nature would get on none the worse—would not even miss one; and, we might add, what purpose does Nature herself

serve, and why does the universe exist? To all these questions the observing spirit can give only one answer: all things must accomplish their destiny.

I have often asked myself, in my secret soul, these same unanswerable questions, my friend, and I remember that I often discussed those same questions with a noble being whom I had known in an anterior existence, precisely on this same world of Andromeda, and whom I had the delight of seeing again, though but for a too brief period, on the Earth—the virtuous Princess Carolath, whom you also knew. She strove to elevate the minds of the people over whom she reigned with so much ability, but met with only moderate success. The people of Andromeda are extremely material, and could not comprehend her teachings.

To give you an idea of the intellectual feebleness of this humanity, I shall select the two subjects which generally give the measure of a people's worth—religion and politics. In religion, instead of seeing God in nature, of basing their judgment on science, of seeking after truth, of using their eyes to see and their reason to comprehend—in a word, instead of founding their philosophy on a knowledge as exact as possible of the divine order which governs the world—willfully blind, they have divided themselves into sects,

believing they rendered homage to their pretended God by ceasing to reason, and thinking they adored him by asserting that theirs is the only inhabited world, by reciting vain forms, by reviling all who differ from them in belief, and, alas ! by glorifying the sword, by kindling the fires of persecution, by sanctioning massacre and war. There are certain dogmas among their doctrines which seem expressly fabricated to outrage common sense. They are precisely those which constitute the articles of faith of their religion.

They are equally feeble in politics. Even the most intelligent and the purest among them cannot come into harmony ; thus the republic seems there an unattainable form of government. As far back as we can go in the annals of their history, we see the peoples, cowardly and indifferent, preferring to be led by individuals who proclaim themselves their rulers, to governing themselves. This chief takes from them three-fourths of their resources, causes the rosier essence of their atmosphere (that is to say the best of whatever there is in that world) to be set aside for himself and his family, numbers them all, and, from time to time, sends them to fight with the neighboring people, governed by a similar Basileus. Like shoals of herrings, both parties rush toward a battlefield which they call the *field of honor*, and

destroy each other like madmen, without knowing why, and without being able to understand each other, even, since they do not speak the same language. Some few, favored by chance, return from it. Do you think that these bring back with them a hatred to their Basileus? By no means. On returning to their mobile hearths, the remnant of the army hasten to offer up thanks, in the company of the dignitaries of their sect, supplicating their God to bestow a long and happy life on the worthy man who calls himself their paternal Basileus.

Quærens.—It would appear from this that the inhabitants of Delta Andromedæ are, physically and intellectually, greatly inferior to us; for on the Earth we are far from behaving in that way. To sum up, then, there is on that globe only an animal kingdom, a mobile kingdom, without rest, without sleep, condemned to perpetual strife by an inexorable fate. Such a world seems to me very strange.

Lumen.—What would you say of the world on which I lived fifteen centuries ago? A world also consisting of a single kingdom, but not a mobile kingdom; on the contrary, a fixed kingdom, like your vegetable kingdom?

Quærens.—Animals and men rooted to the soil?

III.

Lumen.--My existence anterior to my existence on the world Andromeda was spent on the planet Venus, the neighbor of the Earth, where I remember that I was a woman. Therefore I did not behold it actually imaged in the light, since light takes the same time to come from Venus as from the Earth to Capella ; and that, consequently, when I looked at Venus I saw her as she was 72 years ago, and not 900 years ago, the epoch of my existence on that planet.

My fourth life anterior to my terrestrial life passed on an immense annular planet belonging to the constellation of the Swan and situated in the zone of the Milky Way. But this singular world is inhabited only by trees.

Quærens.—That is to say that there are no animals there, no intelligent beings endowed with speech, but only plants.

Lumen.—Not so. There are only plants there, it is true. But in that vast world of plants there are vegetable races more advanced than those which live like you and me, which feel, think, reason and speak.

Quærens.—But such a thing is impossible. Forgive me, extraordinary, I would say ; incomprehensible ! unheard of !

Lumen.—These intelligent vegetable races exist so really that I myself belonged to one of them fifteen centuries ago, when I was a reasoning tree.

Quærens.—But how can a plant reason without a brain, or speak without a tongue ?

Lumen.—Tell me, I pray you, by what secret process your material brain gives birth to intellectual ideas, and by what operation your soul translates her silent thoughts into audible words ?

Quærens.—I search in vain, O master, for a satisfactory explanation of this extraordinary fact.

Lumen.—One who is thus ignorant of the laws which govern his own being has no right to declare a fact to be impossible because he has never heard of it before. Because the brain is the terrestrial organ of intelligence on the Earth, do you therefore think that there must be similar brains, cerebellums, and spinal columns on all the worlds in space ? That would be too simple an error. The law of progress governs the vital system of each of the worlds. These vital systems differ according to the internal nature and the particular forces of each world. When it has progressed sufficiently to be capable of entering into

the service of the moral world, the *spirit*, more or less developed, appears there. Do not suppose that the Eternal Father creates by a direct act a human race on each globe. No ; the first grade in the scale of animal being is transformed into the human by the very force of things, by the natural law which ennobles it when it has reached a comparative degree of superiority.

Do you know why you have a chest, a stomach, two legs, two arms, and a head provided with the senses of sight, of hearing, and of smell? It is because the quadrupeds, the mammifera which preceded the appearance of man on the Earth, were made thus. Apes, dogs, lions, bears, horses, oxen, tigers, cats, etc. ; and before them the rhinoceros tichorynus, the hyena in his cave, the stag with his gigantic antlers, the mastodon, the opposum, etc., and before them again the plesiosaurus, the ichthyosaurus, the iguanodon, the pterodactyl, etc., and still again before these the tortoise, the crustacea, etc., were the products of vital forces then in action on the Earth, depended on the state of the soil and of the atmosphere, on organic chemistry, on the quantity of heat and of terrestrial gravity. The terrestrial animal kingdom had followed since its beginning this continuous and progressive march toward the perfection of form typical of the

mammifera, freeing itself more and more from the grossness of matter. Man is more beautiful than the horse, the horse is more beautiful than the bear, the bear is more beautiful than the tortoise. A similar law governed the vegetable kingdom. Coarse, clumsy plants, without leaves or flowers, began the series. Then, with the progress of time, forms became more elegant and perfect. Leaves made their appearance, casting in the wood a silent shade. Flowers, in their turn, came to embellish the garden of the Earth and to diffuse their sweet perfumes in the atmosphere until then scentless. This coequal progress of the two kingdoms is retraced to-day in the tertiary, secondary, and primary formations, by the keen eye of the geologist.

There came a time on the Earth when a few islands lifted their heads above the surface of the warm waters into the abundant vapors with which the atmosphere was surcharged; there were no beings distinguishable from the inorganic kingdom, but long filaments floating in the waters. Algæ, fucus—such were the first plants. On the rocks grew beings for which the mind is puzzled to find names. Sponges there swelled with moisture. Here rose a coral tree. Further away jelly-fishes broke asunder, like gelatinous hemispheres. Were they animals?

Were they plants? Science gives no answer to this question. They were animal plants, zoöphytes.

But life did not remain fixed in these forms. Beings not less primitive and equally simple appeared, which marked the formation of a particular species of life. These were the annelida, worms, fishes, reduced to the condition of a tube, beings without eyes, without ears, without blood, without nerves, without will, vegetable species which were, however, endowed with the power of locomotion.

Later appeared the rudiments of visual organs, the rudiments of the organs of locomotion, the rudiments of a freer life. Fishes, amphibians, followed each other. The terrestrial animal kingdom formed itself.

What would have happened if the first being had not quitted the rock to which it was attached—if those primitive elements of terrestrial life had remained fixed to the point of their formation, and if, from whatever cause, the faculty of locomotion had not had a beginning?

The terrestrial vital system, in this case, instead of manifesting itself in two different directions—as a world of plants and a world of animals—would have continued to manifest itself only in the former direction. There would have been only one king-

dom instead of two. And creative progress, operating in this kingdom as it operated in the animal kingdom, would not have stopped at the formation of sensitives, superior plants which are endowed with a veritable nervous system; it would not have stopped at the formation of flowers, which resemble us so strongly in their organic acts, but continuing its ascent, that which took place in the animal kingdom would have taken place in the vegetable kingdom. There were already plants which could feel and move; there would have been thinking and talking plants. The Earth would not therefore have been deprived of the human species. Only the human species, instead of being endowed with the faculty of locomotion as it is, would have been held stationary by the feet.

Such was the state of the annular world, in the bosom of the Milky Way, on which I lived fifteen centuries ago.

Quærens.—Unquestionably this world of Men-Plants is even more wonderful than the preceding. But I can scarcely picture to myself the life and the customs of those singular beings.

Lumen.—This manner of life was, in fact, very different from yours. They built no cities, they made no journeys, they established no form of gov-

ernment. They knew nothing of war, that scourge of terrestrial humanity, and had none of that national vanity which characterizes you. Prudent, patient, and endowed with constancy of character, they had neither the mobility nor the frailness of terrestrial men. They lived, generally, from five to six centuries, a calm, gentle, uniform life, without any changes. But do not think that those Men-Plants had only a vegetative existence. On the contrary, they had an individual and independent existence. They were classed, not by castes, according to their birth or fortune, as on the Earth,—which is absurd,—but by families, whose natural worth differs precisely according to the species to which they belong. They have a social history, not written, for nothing can be lost among them, since there are neither emigrations nor conquests, but by tradition and by generation. Each one of them knows the history of his race. They have also two sexes, as on the Earth, and unions are accomplished there in a similar manner; but these are pure, unselfish, and always affectionate. They are not always consanguineous unions, however, there are also fecundations from a distance.

Quærens.—But how can they communicate their

thoughts to each other, if they indeed think? And you, master, how did you recognize yourself on that singular world?

Lumen.—The same answer will suffice for both your questions. I looked long at the ring of the constellation of the Swan, unable to remove my gaze from it, and I was surprised to see only plants on its surface. I was particularly struck by their singular grouping in the fields—here were groups of two or three, there groups of ten, elsewhere were larger groups; I saw plants which appeared to be seated on the brink of a fountain, others which seemed to be lying down, surrounded by little shoots; I looked for terrestrial species among them, as firs, oaks, poplars, willows, but I saw none of those botanic forms there. At last my attention was attracted by a plant resembling a fig tree, without leaves or fruits, but with scarlet flowers. Suddenly I saw this enormous fig tree stretch out a branch like a gigantic arm, raise the extremity of this arm toward its head, detach one of the magnificent flowers which adorned its locks, and present it, inclining the head, to another fig tree of graceful form, bearing fragrant blue flowers, which stood a little distance in front of it. This tree seemed to receive the red flower with a certain

pleasure, for it stretched out a branch—in a cordial hand-clasp, as one might say—to its neighbor, and they remained thus for a long time.

You know that a person may often be recognized by a familiar gesture. This is what happened to me as I looked at this scene. This gesture of the fig-tree of the Milky Way awakened in my mind a whole world of recollections. This Man-Plant was I myself, fifteen centuries ago, and in the fig trees with blue flowers which surrounded me I recognized my children, for I remembered that the color of the flower progeny is the result of the mixture of the two colors of the father and the mother.

These Men-Plants see, hear, and speak without eyes, without ears, and without a larynx. On the Earth you have flowers which can distinguish not only the day from the night, but even the different hours of the day, the height of the sun above the horizon, a clear from a cloudy sky, and which, besides, perceive various noises with an exquisite acuteness of sense; which, in short, are able to communicate with each other and even with the messenger butterflies. These rudiments are developed to a degree that might be called civilized on the world of which I speak to you, and these beings are as complete in their kind as you on the Earth are in yours. Their intelligence, it is

true, is less advanced than that of the average human intellect, but in their manners and their intercourse with one another they display in all things a gentleness and a delicacy which might serve as a model to the greater number of the inhabitants of the Earth.

Quærens.—Master, how is it possible for one to see without eyes and hear without ears?

Lumen.—You will cease to wonder at this, my old friend, if you will reflect that light and sound are only two *modes of motion*. To perceive either of these motions it is necessary (and this suffices) to be endowed with an apparatus in correspondence with it, were it only a simple nerve. The eye and the ear are these apparatuses for your terrestrial nature. In organizations of another nature the optic nerve and the auditory nerve are altogether different organs. And then there are other different motions in nature besides these two—motions of light and sound. I may even say that these qualifications are derived from your manner of feeling and not from reality. There are in nature not one only, but ten, twenty, a hundred, a thousand different modes of motion. On the Earth you are constructed to perceive chiefly these two, which constitute almost the whole of your social life. On other worlds there are other senses to perceive nature under other aspects, senses of which some take

the place of your eyes and ears and of which others are formed for perceptions altogether different from those which are accessible to terrestrial organisms.

Quærens.—When you spoke to me just now of the Men-Plants of the world of the Swan, it occurred to me to ask you if terrestrial plants have a soul.

Lumen.—Indisputably. Terrestrial plants are endowed with a soul, equally with men and animals. Without the potential soul no organization could exist. The *form* of a plant is created by its soul. Why do an acorn and a peach-stone planted side by side produce the one an oak, the other a peach-tree? Because an organic force residing in the oak will construct that special form of vegetable life, and another organic force, another soul residing in the peach-tree will attract toward it other elements to form in like manner its special form in the same way as the human soul forms its own body, making use of the means placed at its disposal by terrestrial nature. Only, the soul of the plant is not self-conscious.

The souls of plants, of animals, and of men are beings which have already reached a sufficiently high degree of individuality, of authority, to bend to their order, to dominate and govern non-personal forces distributed throughout nature. The human monad, for example, superior to the monad of salt, the monad

of coal, the monad of oxygen, absorbs these and incorporates them in its work. Our human soul in our terrestrial body rules on the Earth, without being conscious of it, a whole world of elementary souls, forming the constituent parts of its body. Matter is not a substance of absolute solidity and definite dimension ; it is an assemblage of centers of force. Substance is of no importance. Between one atom and another there is a space which may be called vast compared with the size of atoms. At the head of the various centers of force constituting the human body, the human soul governs all the ganglionic souls which are subordinate to it.

Quærens.—I confess, my learned instructor, that I do not very clearly understand this theory.

Lumen.—I shall therefore illustrate it by an example which will place it for you in the category of facts.

Quærens.—In the category of facts? Are you then a reincarnation of the Princess Scheherezade, and is this a new tale from the Arabian Nights with which you have been charming me?

IV.

Lumen.—Before being a *thinking-tree*, fifteen centuries ago, on the annular world of the constellation of the Swan, I was, about 2400 years ago, an inhabitant of the system θ (Theta) of Orion. You are familiar with the rich constellation which we have often admired together. The star θ is situated above the sword suspended from the Belt, and glitters on the edge of the famous nebula. It is much nearer to the celestial region in which we are than that nebula, hidden in the abysses of space. Its light takes 2400 years to traverse the distance which separates it from Capella, which is still my station of observation, the point around which our conversation centers.

This system θ of Orion is one of the most singular systems in the celestial jewel-case, great as is the variety of the diamonds it contains. It is composed of four principal suns arrayed in the form of a quadrilateral. Two of these suns, forming what I may call the base of the quadrilateral, are accompanied, besides, the one by a single sun, the other by two suns.

It is, then, a system of seven suns, around each of which gravitate inhabited planets.

I was, then, on a planet which revolved around a secondary sun. This latter sun revolves in its turn around one of the four principal suns. This in its turn, rotates, with the others, around an invisible center of gravity situated in the interior of the quadrilateral. I shall not dwell upon these motions. The science which treats of the stars has explained them to you.

I received, then, light and heat on my planet from seven suns at once : from one which seemed larger and more brilliant than any of the other six, from its nearness to me ; from a second sun, very large and also very brilliant ; from three suns of medium dimensions ; and from two small twin suns. The principal sun was indigo blue, the second was yellow-orange, the three small suns were white, and the two last resembled two ruby eyes.

Quærens.—What ! Are there in the heavens double and multiple colored suns such as you describe ?

Lumen.—There is a large number of them. The system of which I speak to you, among others, is known to the astronomers of the Earth, who now count by thousands in the catalogues the systems of double,

multiple and triple stars. You can observe it yourself through the telescope.

But on the planet Orion which I have just mentioned the beings are neither plants nor animals. There is no classification of terrestrial life, either in the animal or the vegetable kingdom, in which they could be placed. I do not, indeed, know what to compare them to in order to give you an idea of their form.

Have you seen the gigantic taper, the *cereus giganteus*, in the botanical gardens?

Quærens.—I know the plant you mention very well. It derives its name from its resemblance to the tapers with three or more branches which are used to illuminate the churches.

Lumen.—The men on θ Orionis resemble somewhat in appearance this plant. Only they move slowly and maintain themselves in an upright position. From the inferior portion of their vertical stalk, the portion which rests upon the ground, project small suckers, like those of the star-fish, which attach themselves to the soil by means of a vacuum. These beings often go in troops and change their latitude according to the season.

But now see the most curious point of their organization, that which exemplifies the principle of which I

just now spoke, of the reunion of elementary souls in human bodies.

Having examined this world on which I lived 2400 years ago, and whose light takes that length of time to reach us here, I recognized myself as one of those beings. I saw myself standing alone in the midst of an Orionic landscape. I looked at myself and remembered the distant time when I had inhabited that world. I then resembled a plant ten meters in stature, without leaves or flowers, consisting chiefly of a cylindrical stalk terminating at its upper extremity in a number of branches, like the branches of a chandelier. The diameter of the central stalk, like that of the branches, might measure a foot. The upper extremities of the stalk and of the branches were crowned by diadems of silvery fringe.

Suddenly I saw this being wave its branches and then disappear.

Then I remembered that in that world individuals in a perfect state of health often literally crumble away in an instant.

The molecules constituting them fall, altogether, to the ground. The individual ceases to exist as an individual. Its molecules scatter themselves over the surface of the ground and disappear.

Quærens.—They become disintegrated and play truant for a while, so to say?

Lumen.—In a manner. I remembered that this decomposition of the body often happens during life. Sometimes it is the result of an annoyance, sometimes of an organic want of harmony among its different parts. The individual exists as a whole, as you do, and then is suddenly reduced to its simplest expression. The cerebral molecule, which is the essential part of your organism, falls, along with its sister molecules, to the ground, which it reaches alone and independent.

Quærens.—This mode of disappearance would sometimes be a very convenient method to follow here below. To escape from an embarrassing position, for instance, a conjugal scene *à la Molière*, a disagreeable quarter of an hour, like that of Rabelais, or a painful situation, such as the steps of a scaffold, it would only be necessary for the constituent atoms of an individual to dissolve partnership and—bid good-by to the company.

Lumen.—You take the matter as a jest, but I assure you that the process I have described is absolutely real. It would take place on the Earth, as it does on the planet Orion, if the principle of authority did not possess so much weight among you. It takes place here in an elementary manner. Your body is formed

of animated molecules. Your vertebral column is, as one of your most eminent physiologists has said, a linear series of centers, at once independent and subject to authority. The essential constituents of your blood, of your muscles, and of your bones, are in the same case. They are provinces with an autonomous government, but subject to a superior authority.

The exercise of this superior authority is a condition of human existence, a condition which is less imperative among the inferior animals. In each ring of the earthworm there is a complete worm, so that an earthworm represents a series of like beings, constituting a veritable co-operative vital society. Cut into rings the worm becomes as many independent individuals as there are rings. The leech is also a being formed of individuals linked together. Cut into five separate parts the leech becomes five individual leeches. In the same way that the limb broken from a tree will renew itself, the claw of a crab or the tail of a lizard will renew itself. In reality, the tree of life, the spinal narrow, and its prolongation in the brain of the vertebrate animals—such as man, for example—is composed of segments, placed in juxtaposition, of nervous centers, each one of which is endowed with an elementary soul.

The law of authority in force on the Earth has determined in the animal series one preponderating direction. You are composed of a multitude of beings grouped together and governed by the plastic attraction of your individual souls which, working from the center of your being, has formed your body in the embryo and has gathered around it in its microcosm a whole world of beings all as yet unconscious of their individuality.

Quærens.—Nature herself, then, on the planet Orion, is in the condition of an absolute republic?

Lumen.—A republic governed by *law*.

Quærens.—But when a being has been thus disintegrated, how is he enabled to form himself again?

Lumen.—By the will, and often without the slightest effort, perhaps by a half-conscious desire merely. The corporeal molecules are none the less intimately connected with the cerebral molecule because they are separated from it. At a given moment they come together and each one resumes its place. The governing molecule attracts the others from a distance, as the loadstone attracts the particle of iron.

Quærens.—I can picture to myself the members of this Lilliputian army, summoned to their places by a whistle, gathering together to form themselves into a body; the little soldiers, climbing agilely, one over

another, to reconstitute, in the twinkling of an eye, the man-taper which you have just described. One must indeed quit the Earth, as you say, to see so strange a sight.

Lumen.—You still judge of universal nature by the atom which you have under your eyes, and you are able to comprehend only the facts which lie within the sphere of your observation. But, I repeat, the Earth is not the type of the universe.

The world of θ Orionis, with its seven revolving stars, is peopled by organisms similar to those which I have just described. I lived on it 2400 years ago, and I saw myself again bodily in consequence of the slow transmission of light from that point in space to Capella. I knew there the spirit, incarnated in the present century on the Earth, who published the results of his researches under the name of Allen Kardec. During our terrestrial life we did not remember having known each other, but we felt ourselves at times drawn toward each other by a strange similarity of thought. Now that he, like me, has returned to the spirit world, he too remembers the singular republic of Orion and has the power of seeing it again. Yes, strange indeed, and yet true. You have no idea, on your planet, of the immeasurable differences that exist between the worlds, both in their geological structure and in

the animal organisms that exist upon them. These conversations may serve to enlighten your understanding regarding the general fact, a knowledge of which is so important to a just conception of the universe.

But the main purpose of these conversations, from a scientific point of view, is to teach you that light is the mode of transmission of the history of the universe. With the powerful visual faculty which we enjoy here we can distinguish the surface of distant worlds. The eye of our *perispirit* is not identical with the eye of the body. To the corporeal sight rays diverge so that a very small body placed close to the eye fills the interval between two visual rays, while at a greater distance a larger body is necessary to fill the space, proportionately increased, which separates the same rays. Visual rays enter our eyes, on the contrary, in parallel lines, so that we see every object in its actual proportions and its real dimensions, its apparent size not being at all influenced by its distance. We do not see certain large objects in their entirety, but only in sections proportioned to the opening of our particular retina, and these parts are visible to us with equal clearness, seen from whatever distance (when we have no atmosphere to veil this distance), and a tree on a meadow of a celestial body as distant as θ Orionis is from Capella would be distinctly visible to us.

Besides, according to the law of the successive transmission of light, all the events of nature, the history of all the worlds, are spread through space as the truest and grandest panoramic history of the universe.

Soon the dawn, which puts spirits to flight, will come to put an end to our conversation, as the light of Venus fades in the heavens at the approach of the terrestrial day. I should like, however, to add to the preceding views an interesting remark suggested by the same observations. It is this: If you were to leave the Earth at the moment when a flash of lightning bursts, and to travel for an hour or more with the swiftness of light, you would see the flash so long as you continued to gaze at it. This fact is established by the principles laid down above. But if, instead of traveling with exactly the velocity of light, you traveled with a slightly inferior velocity, this is what you would see: Let us suppose that the journey from the Earth, during which you observe the lightning, lasts for a minute. Let us suppose that the flash of lightning lasts a thousandth part of a second. You will continue to see the lightning during 60,000 times its actual duration. In our first supposition the journey is identical with that of light. Light has employed 60,000 tenths of a second to travel from the Earth to

the point in space at which you are situated—your journey and the journey of the light have been co-existent. But if, instead of moving with a velocity equal to that of light, you had moved a little less swiftly, and that, for instance, you had employed a thousandth part of a second more to reach the same point, instead of seeing the lightning always at the same moment of its duration, you would see, one after another, the several moments of the total duration of the lightning, equal to the thousandth part of a second. During this one minute you would have had the time, first, to see the flash burst forth, then to observe the various phases of its development and decrease, and finally its end. Think what strange discoveries you might make regarding the secret nature of the lightning, prolonged 60,000 times in its duration! What terrific battles you would have the time to perceive among its flames! What a pandemonium! What disasters among its atoms! What a world, hidden by its fugacity from the imperfect eyes of mortals!

When you travel with the velocity of light you have constantly before you the picture which existed at the moment of your departure. If you continue to be carried on for a year with the same velocity you have

the same event before your eyes for a year. But if, in order the better to observe an event which should last only for a few seconds, as, for instance, the fall of a mountain, an avalanche, an earthquake, you should leave the Earth in time to see the beginning of the catastrophe, and, retarding your progress slightly in proportion to that of the light, so as not to see the beginning only, but all the moments of its duration successively, seeing the end only after an hour's observation, almost following the progress of the light, the event would last for you an hour instead of a few seconds ; you would see the rocks or stones suspended in air, and you could thus comprehend the mode of production of the phenomenon and its retarded incidents.

I see that you are comparing this process in your mind with that of a microscope which should enlarge time. It is precisely this. We thus see time amplified. This process cannot, strictly speaking, be called microscopic, but rather, *chronoscopic*, or chrono-telescopic (seeing time from a distance).

The duration of a reign might, by the same process, be prolonged according to the good pleasure of a political party. Thus, for example, Napoleon II., having reigned for only three hours, might be seen to

reign for fifteen successive years, by spreading the 180 minutes composing those three hours over 180 months, moving from the Earth with a velocity slightly inferior to that of light, so that, beginning by the first moment at which the Chambers recognized Napoleon II. the last minute of his fictitious reign would not be reached until fifteen years afterward. Each minute would be seen for a month, each second for twelve hours.

The conclusion of this conversation, my dear Quærens, is contained in its entirety in its beginning. I wished to teach you that the physical law of the *successive transmission of light* in space is one of the *fundamental elements of the conditions of eternal life*. By this law events are imperishable and the past is always present. The image of the Earth of 6000 years ago exists at the present moment in space at the distance from it traversed by light in 6000 years—the worlds situated in that region see the Earth of that epoch. We can see again our own existences actually, as well as our various *anterior existences*; for this it suffices to be situated at a suitable distance from the worlds where we have lived. There are stars which you see from the Earth although they are no longer in existence, because they became extinct after having

emitted the luminous rays which reach you only now ; just as you might hear a cry uttered by a man at a distance from you, who was already dead, supposing, for instance, that he had been struck by apoplexy immediately after uttering his cry.

I am glad that the limits of this conversation have permitted me to give you at one and the same time a picture of the diversity of those existences and of the *possibility of the existence of forms of life unknown on the Earth*. And, in this respect, the revelations of Urania are grander and more profound than those of any of her sisters. *The earth is but an atom in the universe.*

I must stop here : the numerous and various applications of the laws of light which I have described were unknown to you. On the Earth, in this "dark cave," as it is so justly called by Plato, you vegetate in ignorance of the gigantic forces in action in the universe. The day will come when physical science will reveal to you in the light the principle of every motion and the hidden causes of things. Spectrum analysis has already taught you to seek in the luminous rays coming from the Sun or from a star the constituent substances of those bodies ; you can now de-

termine, across a distance of millions and trillions of leagues, the nature of the celestial bodies whose light you receive. The study of light is destined to bring about results still more magnificent in experimental science and its applications to the philosophy of the universe.

FIFTH CONVERSATION.

INGENIUM AUDAX. NATURA AUDACIOR.

As you have learned from these conversations, I have visited a great many different countries in the heavens, and I am now pursuing my investigations in space without remaining permanently at any one point. I hope, in the course of the next century to become reincarnated on a world belonging to the retinue of Sirius. Humanity is more beautiful there than on the Earth. Births take place according to an organic process less ridiculous and less brutal than the terrestrial process; but the most remarkable characteristic of the life of that world is that man perceives there the physico-chemical operations carried on in the nutrition of the body. In your terrestrial organism you do not see how, for instance, foods are assimilated, how the blood, the tissues, the bones, are renewed; all the functions are performed unconsciously, without the mind perceiving them. Thus there are numberless diseases whose origin is unknown and often unknowable. There man feels

the processes of life as they go on, as you feel pleasures or pains. From each molecule of the body, so to speak, proceeds a nerve which transmits to the brain the various impressions it receives. If the terrestrial man were endowed with a similar nervous system, by concentrating his gaze on the interior of his organism, by the intermediary of the nerves, he would see how food is transformed into chyle, chyle into blood, blood into bile, saliva, nervous matter, etc.; he would behold himself. But this is far from being the case, the vital center of your perceptions being already embarrassed by the multiplied nerves of the brain and of the optic couches.

On this globe of the system of Sirius human eyes are so organized that they are *luminous* during the night and shine as if some phosphorescent emanation radiated from their strange depths. A nocturnal assemblage of many persons presents a truly fantastic appearance, because the color, as well as the brightness of their eyes, changes according to the passions by which they are animated. In addition, their gaze exercises an *electric* and magnetic influence of varying intensity, so that in certain cases it can strike dead, as by a stroke of lightning, the victim on whom they concentrate their will power.

Another precious characteristic of the vital organi-

zation of the Sirian world is that the soul may change its body without passing through the circumstance of death, often disagreeable and always sad. A *savant*, who has labored all his life for the instruction of humanity and sees the end draw near without having accomplished his noble enterprises, may change bodies with a young man and begin a new life still more useful than the previous one. For this transformation all that is necessary is the consent of the young man and a magnetic operation performed by a competent physician. Two beings united in the strong and tender bonds of love sometimes thus change bodies after several years of union; the soul of the husband goes to inhabit the soul of the wife, and *vice versa*. The intimate experience of life thus becomes incomparably more complete for each of them.

On a neighboring star, very curious in this respect, the plants are all composed of a substance similar to *asbestos*, as silicum and magnesium are its principal constituents. The animals subsist on this substance alone. Almost all the beings inhabiting this world are *incombustible*.

I remember also that on a planet lighted by the brilliant hydrogenous sun Vega of the Lyre, thought does not need to be clothed in words to manifest

itself. How many times has it not happened to you, to have a luminous or ingenious idea visit your brain, to wish to give utterance to it in speech or in writing, and, before you are able to do so, to have the idea vanish, become obscured or metamorphosed. The inhabitants of this world have a sixth sense, which might be called telegraphic, electric, by virtue of which, if its author is so disposed, thought manifests itself externally and may be read on a special organ which occupies very nearly the place of your foreheads. These silent conversations are often the most profound and the most precious; they are always the most sincere.

In a world where phosphorus plays so important a part, where the atmosphere is constantly charged with electricity, and where the inhabitants have had no necessity to devise means of clothing themselves, certain passions reveal themselves by the illumination of a part of the body. This is on a large scale what takes place on a small scale in your terrestrial fields where, during the mild summer evenings, glowworms silently burn with an amorous flame. The appearance of luminous couples is curious to see in the evening in the great cities. The color of the phosphorescence differs according to the sex, and its intensity varies according to age and temperament.

The stronger sex burns with a red flame, more or less diffused, and the fair sex with a bluish flame, at times pale and modest. Only your glowworms would be able to form some faint idea of the nature of the feelings of these peculiar beings.

But, my dear friend, it is impossible for me to discourse with you on all the wonders of the universe. Let it suffice to have raised the veil sufficiently to allow you to catch a glimpse of the incalculable diversity which exists among the animated productions of all the systems scattered throughout space.

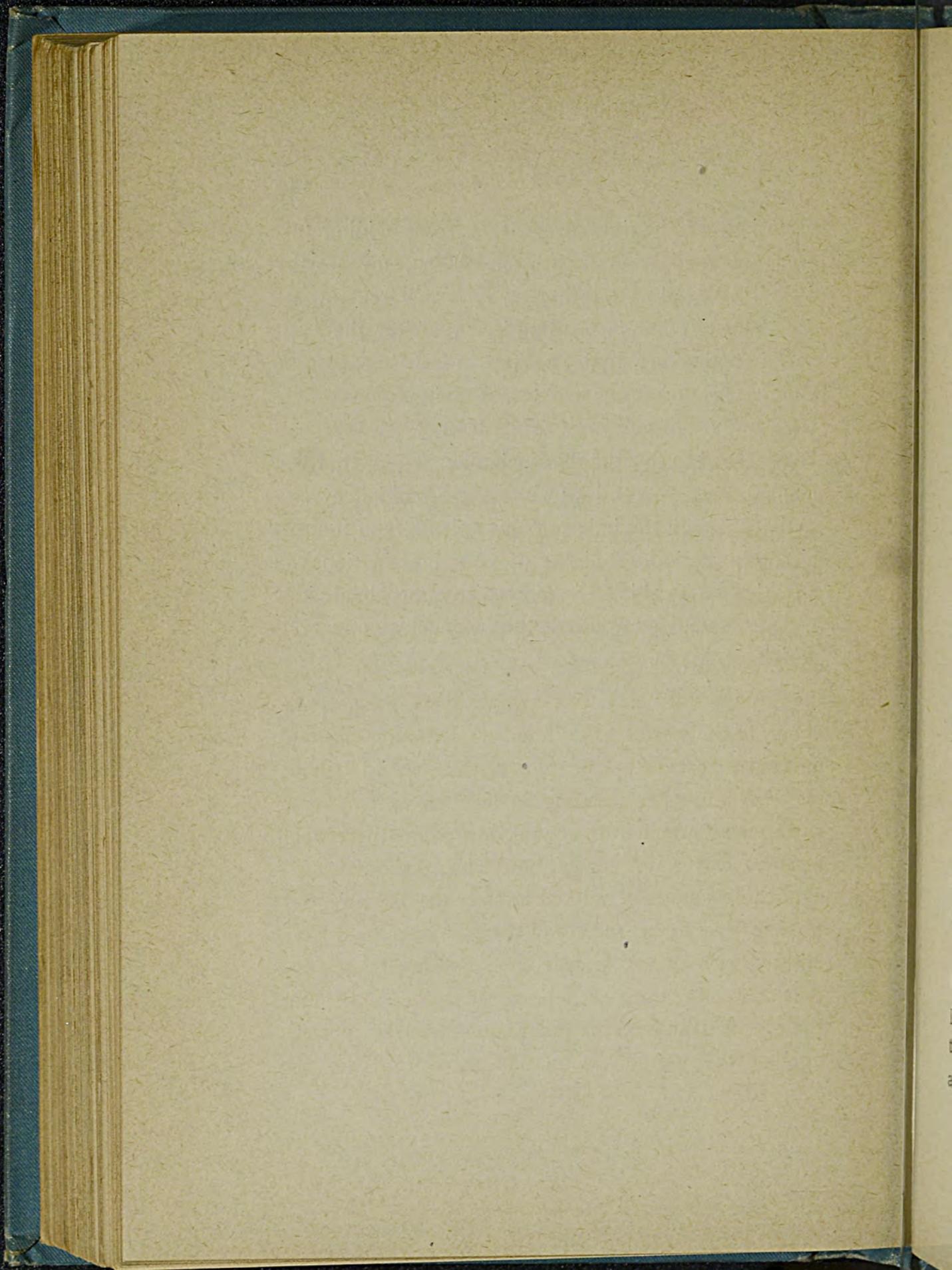
In accompanying me in spirit in this interstellar journey you have spent some hours away from the Earth. It is well to wander thus at times in celestial paths. The soul obtains more complete possession of herself, and, in her solitary meditations, penetrates more deeply the realities of the universe. Terrestrial humanity, you have seen, is the resultant of the potential forces of the Earth. The human form, its height, its weight, depends on these forces. The functions of the organs are determined by the planet. If life here is divided between labor and rest, between activity and sleep, it is because of the rotation of the globe and the existence of night; in the globes which are luminous, or which are lighted by several alternating suns, the inhabitants do not sleep. If you

eat and drink here it is because of the imperfect state of the atmosphere. The bodies of beings who do not eat are not constructed like yours, since they have no need either of a stomach or intestines. The terrestrial eye causes you to behold the universe in a certain fashion; the Saturnian eye sees it in a different fashion; there are senses which perceive things you do not perceive and which do not see what you see in nature. Each world is inhabited by races differing essentially from each other, some of which are neither vegetable nor animal. There are men of every possible form, of all sizes, of all colors, of all sensations, and of all characters. The universe is infinite; our terrestrial existence is but one phase in infinity. An inexhaustible variety enriches this marvelous field of the Eternal Sower.

It is the part of science to investigate what the terrestrial senses are capable of perceiving. It is the part of philosophy to synthesize restricted and determinate conceptions, and to enlarge the sphere of thought. Now, my dear terrestrial friend, you know what the Earth is in the universe; you know, elementarily, what are the heavens, and you know also what is life—and what is death.

But the refraction of the terrestrial atmosphere casts beyond the zenith the light of the distant Sun. The

vibrations of the light prevent me from holding further communication with you. Adieu, my worthy friend. Adieu! Or rather, *au revoir*. Great events are about to take place around you. After the tempest I shall return again, perhaps a last time, to give you a sign of my existence, to show you that I have not forgotten you. Then later, when you shall have ceased to live on this insignificant planet, I will come to meet you and we will make a real journey together through the indescribable splendors of immensity. In the wildest flights of your imagination you would never be able to form even an approximate idea of the stupendous wonders, the inconceivable marvels which await you.



IN SPACE.

PNEUMATOLOGY.

MANY years had elapsed since I had received any communication from *Lumen*, although my thoughts had often recurred to his strange revelations concerning light and the panorama revealed by it of past events and anterior existences, when, one evening, at the hour in which we had been in the habit of holding our conversations together—when the crescent Moon, then in her third day, was sailing, silent and melancholy, in the western sky, hour of all hours sweetest and most peaceful—I heard a rustling sound behind me as of a footstep treading on dead leaves, but I was sitting in an armchair in my balcony, where there were no dead leaves. A second time I heard the same inexplicable sound. I walked around the balcony, but no one was to be seen, and then, no one could have entered without my knowledge. Passing by the cupola containing the great telescope, the idea of turning the eye of Urania on the lunar landscapes, so remarkable at the period of lunation when they are ob-

liquely illuminated by the Sun's rays, came suddenly to my mind, and occupied it so completely as to make me forget the strange noise which had roused me from my reverie. I spent a full hour in this study of the Moon, applying myself more especially to the task of taking a sketch of the precipitous shores of the Sea of Serenity. When the Moon had set I turned the telescope toward Jupiter and remarked more particularly than I had ever done before the brilliancy of the white zones that cross his disk ; zones at the time so brilliant that one of the satellites passing across the planet looked black by contrast, although beyond the disk it was white.

As there were at that period many spots upon the Sun, and as some time previously the attention of all Europe had been attracted by the appearance of a magnificent aurora borealis, the coincidence of the number of solar spots with the frequency of the appearance of these lights for some years past made me imagine that there may be also on Jupiter auroræ boreales which add to the brilliancy of that planet a light of its own, distinct from the light which it receives from the Sun and which it radiates through space.

I had thus spent the evening in astronomical obser-

vations. At about ten o'clock, the temperature having fallen sensibly, a fire was lighted in the faïence stove in the adjoining room, and I went there from time to time, between my observations, for the purpose of warming my feet. You are no doubt thinking here, dear reader, that these are unimportant details which are of little consequence to you. You are mistaken, however, and if I take the trouble to note these details here it is because it is necessary to do so for a clear understanding of what follows. One of my colleagues came to me toward midnight to speak to me regarding a double star which was about to pass southward. While we were talking, it occurred to me to show him the sketch I had made of the precipitous shores of the Sea of Serenity and ask him if he thought it exact. I looked at first for the drawing upon my desk, and was not a little astonished at not finding it there. It was, however, lying on the stove. "Here it is," I said to him, "under our eyes, while I have been looking for it everywhere. See, Mount Roëmer is well lighted up. The great crater of Posidonius is as yet only faintly illuminated and the shores of the Lake of Dreams are full of dark ravines. The amphitheater of Le Monnier and that of Vitruvius stand out marvelously. But I do not know why I am keeping this sheet, instead of

showing it to you at once. Take it, and examine at your leisure the meridian of our satellite, for which the sun is now rising."

My colleague took the sheet and I went and pointed the telescope toward the double star of which he had spoken to me. It took me fully five minutes to place the instrument in position, and during all that time he did not utter a single word, either in approval or in criticism of my sketch. When I turned toward him to ask him to observe the double star he burst out laughing, and cried :

"Why, my dear fellow, have you turned crazy? Where the deuce is the sketch you speak of? This is no lunar landscape, but some astrologer's or alchemist's gibberish, which not even the magicians of old Albert le Grand would be able to make anything out of."

"What do you mean?" I replied. "My sketch is not so badly done as all that, and you are aware that for some time past I have been observing with special attention those very regions of the Moon. To-morrow we shall see whether the little mountain of Linnæus has changed; the Sun will have just begun to light it up."

"Well, do me the favor to show me the crater of Posidonius on this paper."

And he handed me the paper.

When I looked at it I was struck with the most profound amazement. I asked myself seriously if this were not a dream. You will be able to judge of my stupefaction when I tell you that the sheet *bore not a trace of my pencil sketch* but was covered with a series of fantastic characters written with ink, from which I could extract no meaning whatever.

My first thought was that I had given my colleague another sheet of paper instead of the sketch. But, recollecting that I had examined it carefully before handing him the sheet, I was obliged to reject this explanation. Besides, I had never seen those hieroglyphics before. How had they found their way into my room? And finally, the paper was the same kind of paper as that on which I had made my sketch—a half-sheet of letter paper marked with my cipher, which was perfectly white when I had begun to draw.

How explain this phenomenon?

Here are the characters which had so strangely taken the place of my lunar landscape :

!Π ⊙√ δ Δ + ∽ Π ? 2 ? + ! > 2 ⊕ δ 2 ☆ ✕ ☾ ⊙
 δ' ? √ 2 ⊙ ☆ ? & ⊙ Π ! ? 2 2 √.
 δ' ☾ + ⊕ ☾ + ☾ & δ' 2 ! ? > + ☾ ! 2 : δ ? Π 2
 2 R √ 2 > ? √ δ ☾ 2 ⊕ ☾ ☆ ☾ δ ? √ ⊙
 ⊙ 2 2 > Δ ⊕ Δ + δ ☾ >.

$\sqrt{\text{C}} !\text{II} \odot \sqrt{\text{C}} \text{C} \odot \varphi \Delta \text{C} \Delta + ! \text{C} \delta' \odot 2 \star > \Delta \text{C} -$
 $! > ? ! \Delta + \sqrt{\odot \varphi \Delta \text{C}} > \text{C} \odot + \sqrt{\star ? 2 ! ?}$
 $\text{C} \text{C} > ? \star ! \text{C} \Delta +,$
 $\text{C} > \text{C} \text{C} \odot > ? ! \Delta \text{C} \odot \text{C} \star \Delta \text{II} ! ? > \text{II} + ? \sqrt{-}$
 $\text{C} > \text{C} ! \square \text{II} \text{C} \sqrt{\odot \text{C}} ! \Omega ? \odot \text{II} \star \Delta \text{II} \text{C}.$
 $\odot 2 \text{C} + \text{II} \text{C} !, \text{C} \odot + \sqrt{\text{II} + ? \text{C} \text{II} + \odot \text{C} -}$
 $\sqrt{\Delta +}, ! \text{II} \text{C}' ? + ! ? + \text{C} > \odot \sqrt{\star \Delta 2 2 ?} ! \text{II}$
 $2' \odot \sqrt{\odot \text{II} !} > ? \oplus \Delta \text{C} \sqrt{? + ! ? + \text{C} \text{II}. \star ?}$
 $+ ? \sqrt{? > \odot \text{C} \text{C} \text{II} \sqrt{2 \Delta \text{C}}, \star \odot > ++ ?}$
 $+ ? \text{C} \Delta \text{C} \sqrt{\text{C} \text{C} \text{II} \sqrt{! ? + ! > ? ! ? + \text{C} > .}$

$\text{C} \text{II} 2 ? + .$

It is plain that in these figures not the least trace was to be seen of my sketch. It was no doubt writing, but cabalistic and unintelligible writing, it must be confessed. I was much more astonished than I allowed to appear by this singular transformation. I acknowledged to my friend that the matter was beyond my comprehension and I let him suppose that my sketch had been made on another sheet of paper and had been mislaid.

When he was gone, I took up the paper again and turning it on the other side (which, I know not why, I had not done before), I saw my sketch there, although not very distinct, indeed, for it was only a faint sketch in pencil. But how was it that I had not noticed the cabalistic characters so clearly marked on

the other side, when I was drawing it? Evidently they had not been there. I wearied myself with conjectures until bed-time, when, remembering the old saying, "Night brings counsel," I put off further investigation till the following day.

When I awoke on the following morning my first thought was to examine again the mysterious sheet of paper in the hope of discovering some solution of the problem. A fresh wonder! My lunar sketch was there, perfectly visible. As to the hieroglyphics, there remained not the slightest trace of them.

Now then! I cried, here is a successful trick of my familiar spirit. But what can be the meaning of all this?

And I formed a thousand conjectures as to what could be the explanation of the mystery. At last the thought of the warm stove bringing to my mind the properties of sympathetic ink, it suddenly occurred to me that perhaps the hieroglyphics were written with a substance of this nature. To verify my supposition I warmed the paper; and it afforded me no slight satisfaction to see the mysterious characters gradually make their appearance as the paper grew warmer. When the writing was perfectly visible I set myself to the task of transcribing it in order to study it and *to try to read it* by applying to it the rules of cryptography.

The first point that struck me on examining the writing was the signature. This word, which was composed of five characters, made me think of *Lumen*, and the thought came to me that it was perhaps my spiritual, ultra-terrestrial friend who was the author of the writing. I remembered all at once the strange noise I had heard twice in succession the evening before, while thinking of him, and I came to the conclusion that this was a conjecture not unworthy of attention. Besides, I might accept it simply as a provisional hypothesis and try whether, with its help, I could not succeed in reading the monogram $\diamond \Pi \mathcal{M} ? +$.

If this signature is the name Lumen, I said to myself, each of those five characters will correspond to one of the five letters of his name. I supposed then that

$$\diamond = L$$

$$\Pi = U$$

$$\mathcal{M} = M$$

$$? = E$$

$$+ = N$$

and I proceeded to substitute for each of these signs wherever they occurred, its corresponding letter, noticing whether this substitution threw any light upon the mystery. The first word written above would thus be :

!u

The two characters composing the second word not occurring among the five of the probable signature which served me as a basis for the deciphering of the hieroglyphics, I was obliged to pass them over. My hypothesis of substitution gave me seven known letters to substitute in the third word, and I wrote as follows :

l Δ n ∩ uemen!

When I had written this word, it seemed to me that the sign ! must be a *t*, as being an adverbial termination. The first word, very probably, then, was *tu*, and the third ended in *ument*. The construction of these two words made clear to me two very important points in my research ; the first that the signature was really the name of Lumen, the second that the hieroglyphic was constructed for the French language. I continued my investigation hopefully.

On the fourth word no light was thrown by the substitution for its fourth letter of *l*. The same was the case unhappily with those that followed.

The last word of the first sentence was written :

tem ∩ √

I conjectured that these two last characters could hardly be other than a *p* and an *s*, and trying whether my supposition was tenable I found that the second word of this first phrase encouraged the hypothesis.

Re-writing again, then, this first sentence I had the following fragments, substituting points for the unknown characters :

Tu .s l.n.ue ment ...l.... . l'esp..e et .u temps

A logical examination of this unfinished phrase showed that the principal word which preceded the word *temps* (time) must be *l'espace* (space). In making this supposition the sign \odot became *a* and the sign \star became *c*. I tried whether the hypothesis was correct, re-writing the phrase with these new substitutions :

Tu as l.n.ue ment ...l.c.. à l'espace et au temps

Evidently it was.

I continued for about an hour longer to turn this sentence over and over, without being able to discover the two letters which were still wanting in the third word, or the six letters which were wanting in the fourth. Then I set myself to analyze by the same method the second sentence of my singular logogriph.

The first result of this analysis was to draw my attention to the frequent recurrence of the sign € . From its position I conjectured that it must be a vowel, and as I had already *u*, *a*, and *e*, I tried *o*, and wrote the first word of the second phrase as follows :

l'on.ono

This supposition did not lead me to the discovery of the word by substituting all the consonants in turn for the missing letter. But as the sign representing the vowel *i* was also wanting, I tried it and wrote as follows :

l'in.ini

Substituting the consonants in this way, I found with indescribable pleasure that, by filling the lacuna with the consonant *f*, I obtained :

l'infini

Which demonstrated: 1st, that the sign C represented the vowel *i*; 2d, that the sign \oplus was the consonant *f*. I continued my interpretation with the growing pleasure of the algebraist who finds himself nearing the solution of an equation. I now wrote the two following words, using the two signs whose meaning I had not yet discovered :

et l'.te.nit.

L'éternité! (eternity) I cried. But I immediately asked myself how it was that the vowel *e*, whose representative sign (?) I knew, was not designated by that sign, but by the sign h . Having found *a*, *i*, and *u*, I tried *o* and *y*, simply to prove to myself that these vowels did not fit in. The word could be no other than *l'éternité*. I saw, then, that the sound *é* not having at all the same sound as *e*, the spirit had

represented each of these two sounds by a different character, instead of using an accent. I continued.

The next word was :

♁ ? Π ♁

of which I knew neither the first nor the last letter. I wrote .eu., without discovering the word.

I then wrote the rest of the sentence :

mRst ♁ res ♁ izficles à azpr Δ f Δ n ♁ ir

2 *f* and 2 *p*, I said to myself, must be simply a doubling of consonants. In that case the second word of this fragment was :

♁ *ifficles*

The sign ♁ was a *d*: substituting for it the letter which it represented I was able to write anew the phrase :

deu. m.st.res difficiles à appr.f.ndir

Approfondir! (to fathom), I cried. The sign Δ is the vowel *o*. I had now all the vowels. But no! Between the *m* and the *s* of the second word there could be only a vowel. It was neither *a*, nor *e*, nor *i*, nor *o*, nor *u*, since it was *R*. But what was *R*? might it not be *y*?

deu. myst.res

Deux mystères! (two mysteries); here was the solution of the enigma. The ♁ being a different sound

from either *é* or *e* was represented by the sign γ ; there were eight vowels in this cabalistic language. Further, the sign ϕ was *x*.

With the aid of these new links I went over the first sentence again, in the hope of being able to decipher now the words which I had not before succeeded in deciphering. I saw on this second trial that I could read both this sentence and the second almost without hesitation. I then constructed an alphabet of all these planetary, zodiacal, astronomical, and other signs, and by degrees I succeeded in discovering the meaning of every one of the characters. Nor was my labor in vain ; for in the end I succeeded in reading the document which the spirit had so singularly framed. It had now a perfectly intelligible meaning. It read as follows :

Tu as longuement réfléchi à l'espace et au temps.
 L'infini et l'éternité : deux mystères difficiles à approfondir.
 Si tu as la volonté d'accroître ton savoir dans cette direction,
 Prepare toi à écouter un Esprit qui sait beaucoup.
 A minuit, dans une lunaison, tu l'entendras comme tu m'as autrefois entendu. Ce ne sera plus moi, car je ne dois plus t'entretenir.

LUMEN.

TRANSLATION :

Space and time have long formed the subject of your meditations.

Infinity and eternity—two mysteries difficult to fathom.

If you have the will to increase your knowledge in that direction,

Prepare yourself to listen to a Spirit who knows much.

At midnight, in a lunation, you will hear him as you formerly heard me. It will be no longer I, for I must no longer converse with you.

LUMEN.

It was a month, or, to speak more correctly, 29 days, since this singular adventure had occurred to me, when, on a magnificent moonlight night, balmy and still, like the former one, I found myself alone on a terrace of the Observatory. I was standing leaning against the little northern building in which the glass used in the observation of comets is placed, and from this high stone terrace I looked down on the great city of Paris, now brightly illuminated, whose confused noises sounded like the distant murmur of the sea. As the Chaldeans formerly contemplated the gay and brilliant city of Babylon from the summit of the black tower of Babel, so did I now contemplate the vast and brilliantly lighted city of Paris. The crescent moon faintly illuminated the

buildings which rise above the middle level of the gray roofs of the houses. The Val-de-Grâce, with its beautiful sculptures, stood out against the background of the northern sky, the Panthéon raised its high cupola in the air, the tower of Clovis recalled Abelard lecturing on Mount Sainte-Geneviève, Saint-Sulpice showed its somber nave and its two massive pillars, the little cupola of the Chapel of the Visitation shone silvery in the light of the Queen of Night. The majestic chestnut trees of the avenue stood silent and motionless, and the only sound to be heard was the murmur of the perfume-laden breeze blowing over the fields, to the southwest.

Sir Humphrey Davy relates that, sitting one moonlight evening amid the ruins of the Coliseum at Rome, he was suddenly enveloped in a flood of light, he heard melodious sounds similar to those produced by a harp, and he fell into a sort of ecstasy, during which a spirit *showed* him the successive epochs of the history of humanity, from the time of the savages of the age of stone to the brilliant products of modern civilization. At the same time that the spirit showed him these scenes, wherein he saw even the actual state of habitation of many of the planets of our system, he *related to him in an audible voice* the history of terrestrial humanity and that of the other humanities of the

neighboring spheres.* A sensation similar to that described by the learned chemist took possession of my mind, already plunged in profound reverie. But I received only half of the privilege enjoyed by the illustrious President of the Royal Society, for my sense of sight was in no wise affected and I saw only what was before my eyes, which remained open. My hearing alone was affected, and I heard a human voice, slow, deep, and yet agreeable, a truly sympathetic voice, uttering the discourse which I reproduce below. I felt something like a breath of air pass over my forehead, I turned my head instinctively to the left, and I knew that the spirit announced by Lumen was beside me. In effect, reminding me of my own investigations into the problems of nature and my conversations with Lumen, he announced to me that he was going to unfold before me celestial prospects never hitherto comprehended in all their grandeur. The reader will judge of this for himself by the following discourse, which lasted for an hour, and which I reproduce almost in its entirety :

*The Last Days of a Philosopher, 1st Dialogue, p. 20.

IN SPACE.

DISCOURSE ON TIME AND SPACE, BY A SPIRIT.

I HAVE just journeyed from a star with the velocity of a bird flying through the upper air, a velocity which is superior to that of your most rapid express trains. I flew more swiftly than the swallow, more swiftly than the carrier dove, more swiftly than the falcon or the hawk, more swiftly than the condor descending on his prey. I sped through space with a rapidity greater than that of the only locomotive which travels at the rate of a league a minute, a rapidity greater than that of the balloon borne along by the cyclone, which traverses 80 meters a second when it devours space crossing the Atlantic. I journeyed, without pausing, at the rate of *one hundred leagues* an hour.

Notwithstanding this continuous velocity, I have been traveling for 138,690,394,600 centuries. That is to say, that, as there are 8766 hours in a year, I have traveled over 12 quintillions, 157 quatrillions, 600 trillions of leagues since I set out. These numbers are easy

to verify, for I come, in short, from a universe similar to yours, from a nebula of the same dimensions as the Milky Way, and which, appearing to you only at an angle of 10 minutes, like those distant clusters of stars, is distant from you 334 times the major diameter of the Milky Way, which is about 36,400 trillions of leagues (700 times the distance from the Earth to Sirius).

I came in a straight line.

Those are the limits of your visible sidereal universe. You cannot distinguish the stars there with the naked eye, but, thanks to your optical inventions, which have increased a hundred-fold your range of vision, and to your methods of calculation, you have been enabled through your investigations—to know that the Earth is a planet gravitating with several other planets around a star, which is your Sun—to ascertain that every star is a sun shining by its own light—to learn that the measure of the distance of the star nearest to you is 8 trillions of leagues—to see that all the stars form one single whole, one single nebula—to guess that there is an immense extent of desert space outside your nebula—to observe other distant clusters of stars, not less populous than yours—to learn that the most distant of those known nebulæ lie at the distance I have mentioned, a limit beyond which creation continues to the infinite, but be-

yond which your wearied imagination can conceive nothing.

But I have traversed this sidereal universe from confine to confine. I come from a nebula situated in the constellation of Orion and I am traveling to a nebula situated in the constellation of Ophiuchus, exactly opposite to the former, as viewed from the Earth ; you see that I am traversing the universe from end to end. I have paused for an instant at your solar system, which lies almost in the middle of my route. This journey will give you an idea of the dimensions of the universe as revealed by the discoveries of modern astronomy.

Notwithstanding your long meditations on the subject of the universe, you are not fully conscious of its real grandeur, and your notions of it cannot be as exact as those of one who judges of it for himself. Situated in pure space I judge better than you, and my measurements will impress you more forcibly than your own. I have often taken note of your unexpressed desire for knowledge, and when Lumen requested me to hold brief converse with you some day on the truths of the skies, I willingly acceded to his wishes, for I knew that the words I should address to your spirit would not be lost, but would be understood.

And first, do you know what the infinite is? Space, my friend, is without end, without measure, and without dimensions. Do you understand what that means? Without dimensions. That is to say that you set out from the Earth for any given point in the apparent heavens, and that no matter how swiftly you travel, for no matter what length of time, in the direction of that point, after the longest series of ages that you can imagine, you will have made *no* progress, absolutely no progress toward the ever-receding bounds of the Infinite. Let us take, if you prefer it, another illustration. Let us suppose the Earth on which you dwell at the present time to fall into space—and this is what happens to her with reference to the Sun and the cluster of stars of which the Sun forms a part. Well, let us suppose her to fall in a straight or a spiral line during as many thousand millions of centuries as you will, after a frightful fall which would drag her toward the ever-yawning abyss with a velocity of a million leagues a day, or greater, if you can imagine it, after thousands of millions of thousands of millions of centuries of falling, not only would she not have reached the bottom of the abyss, but she would be, with reference to infinite space, exactly as if she had remained motionless.

In this infinite, eternal, increate, necessary space

it might have been that nothing had existed, and that during eternity this infinity had remained void. To what cause is it due that there are luminous spheres and opaque spheres, and that there are on these latter solid minerals, vegetables, animals, men of every species, of every form and of every size? This is indeed a profound mystery that it would be useless now to attempt to fathom. Whatever be the cause of the existence of the universe, we must confine ourselves now to recognize its existence and to make ourselves acquainted with its laws.

Your first effort must be to endeavor to picture to yourself this infinite space, on which I have just requested you to concentrate your intellectual gaze, and in this immensity to figure to yourself isolated, luminous globes suspended without support of any kind. These are the stars, or the suns, for the two words are identical, scattered throughout space at immense distances from one another.

What supports those globes in space? No force is needed for this. Let us suppose them to be inert matter, deprived of every property; those globes, however large, however heavy they might be, would remain motionless in the spot where they were originally placed or formed. In the absence of every property of matter and of every influencing force, what

cause would draw them from their repose, would take them out of their places? None. The word *fall*, you already know, does not express an absolute idea, it can be used only to express a relative idea, since there is *neither high nor low* in the universe. Thus one cannot even speculate as to what forces would prevent the stars from falling, for this would be to presuppose an inferior region in the universe toward which objects, unsupported, would fall. But no such relations exist. The Earth seems to you to constitute the inferior regions of the universe because you dwell upon its surface, but if you consider that it rotates on its axis once in 24 hours, and that all the stars thus pass successively above your heads, you will see that it would be absurd to suppose that this pretended base of the universe changed its place to one diametrically opposite, every day. The deceptive evidence of the senses would suggest the idea that the Earth may be a globe situated at the center of the universe, a center toward which all the parts of the celestial sphere would tend. But when it is known that the Earth revolves once every year around the Sun, one is forced to reject this second theory as false also, and to regard all the celestial globes, the Earth among them, as isolated and self-supported in space.

The inhabitants of each world are carried through

space as the aëronaut is carried in his car, as atoms of dust adhering to a cannon-ball accompany it in its course. The space we see around us is the heavens.

I have said that if there were no forces in nature those inert material bodies would necessarily remain motionless, at the respective points where the Creator's hand had suspended them. But there are forces ; and the most common, the most important, of all these forces, that which puts the universe in motion, and maintains it in equilibrium, is *attraction*.

The heavenly bodies attract each other in direct ratio to their mass, and in inverse ratio to the squares of their distances.

This force being given, it results from it that all the stars scattered through space mutually attract each other. If we were to suppose that they had been created, already formed, at the different points in space where they are placed, and then abandoned to the force of attraction, they would all have been instantaneously set in motion, each of them undergoing the attraction of the largest and nearest of its neighbors—this neighbor being situated at a distance, perhaps, of several thousands of thousands of millions of leagues. Each of the stars, as I have said, would experience a slight oscillation, then another, and then another, for it is not the attraction of one single body

that each would have felt, but that of two, ten, a hundred, a thousand bodies, this attraction diminishing in proportion as the distance from which it proceeded increased.

This first motion of all the heavenly bodies would have been followed by a universal movement among them, each one moving in the direction of that which should have the strongest attraction for it. The stars of largest magnitude would have attracted toward them the less dense stars, and the attraction would be exerted in proportion to the squares of their distances. According to this hypothesis the general march of the stars would tend to bring them all together. They would rush toward each other, and although two suns, moving the one toward the other, would employ millions of years in reaching each other, the final result would be that all the heavenly bodies would rush madly into one another. Thus, for example, the Moon is attracted by the Earth; if from the height at which she is situated (96,000 leagues) she were to fall upon the Earth, which is her center of attraction, she would occupy in her fall 4 days, 19 hours, 55 minutes, she would pass over $1\frac{2}{3}$ millimeters in the first second of her fall, would accelerate her velocity progressively, and would arrive at the surface of the globe with a velocity a hundred times greater than that of a cannon-

ball. The moon weighs 72 sextillion kilogrammes, and the Earth 5875 sextillion kilogrammes. Another illustration : the Earth is attracted by the Sun ; if from the height at which she is situated (37,000,000 leagues) she were to fall into the Sun, which is her center of attraction, she would employ 64 days, 12 hours in falling, passing over 3 millimeters in the first second of her fall, gradually accelerating her velocity, and finally rushing with a speed equal to 600,000 meters a second. You may imagine the shock this mass of 5875 sextillions of kilogrammes would produce upon the Sun, who himself weighs 2 nonillions—2,000,000,000,000,000,000,000,000,000,000. Let us suppose that there is a star sufficiently near you to have a second of parallax (in reality there is not a single star so near you), and suppose this star to be of the same importance as your Sun (in reality many are much more important). Well, if this star and your Sun were to begin to-day to move toward each other, obeying their mutual attraction, they would one day meet midway between the points from which they had started—that is to say, after each body had traversed a distance of three trillions, seven hundred billions of leagues, a journey occupying more than a million of years ! The shock of those two colossi, thus rushing into each other, would be sufficient to shatter them both to pieces.

The sudden arrest of their motion would produce a heat sufficient to reduce them to vapor. They would form, thenceforth, one single star, an immense gaseous body. Such collisions have already taken place. You have observed from your planet, without knowing its cause, the great and sudden brilliancy produced by them in that part of the heavens where they have come together. Many of the stars called *new*, which have burst into brilliancy to disappear after a few years or even a few months, are due to sidereal collisions more or less powerful. But let us return to the motions of the heavenly bodies.

If attraction were the sole directing force of the universe, and the stars should put themselves in motion in obedience to it, the entire universe would finally be drawn together into a single mass, and would at last form a solid whole. But such is not the end of creation. The stars move, not in straight lines, but in curves. Besides, the stars whose course has been completely calculated are found to move in elliptical orbits. A certain number of comets are the only exception to this rule, and these capricious vagabonds of the skies fly somewhat after the fashion of bats, which will rush against a turret and suddenly retrace their course, describing a parabola, to fly off in an entirely new direction. In this way the haired comets fly from

system to system. But the solid globes which chiefly constitute systems move in elliptical orbits, satellites around planets, planets around suns, and suns in their turn around more important centers of gravity.

These ellipses give rise to a second force, contrary to the force of attraction—centrifugal force, which tends, as its name indicates, to cause the stars to fly from the centers around which they gravitate. As the stone tends to fly off from the sling, so the planets tend to fly off from solar attraction, and the satellites from the attraction of the planets. If this centrifugal force existed alone or if it even preponderated over the force of attraction, there would result a general tendency of the universe opposite to that which we have just been considering—all the heavenly bodies would tend to fly off at a tangent and, instead of the convergence which, according to our first hypothesis, would have drawn all the bodies into a single mass, there would be a divergence causing the stars to fly outward in ever-widening spirals, and impelling them, like waves receding from the shore, toward the confines of space. But as space is without limits, this withdrawal from the center, this removal from their original positions, might be indefinitely perpetuated, making, in some sort, a vacuum at the center of the

universe and impelling all the stars toward a never reached, ever receding external circumference.

But centrifugal force does not attract the stars exclusively any more than centripetal force attracts them exclusively. These two contrary forces are *equal*. Owing to the Sun's attraction, the Earth tends to approach him with a velocity of 3 millimeters in the first second of her motion. Owing to the repulsion caused by her revolution, she tends to recede from him with exactly the same velocity of 3 millimeters in the first second of this motion in an opposite direction. From this double attraction results a perfect equilibrium, thanks to which the planets can neither approach nor recede from the Sun. It is this equilibrium which sustains the Earth and all the other heavenly bodies in space. So, my friend, I hope you now comprehend exactly this ideal organization. Neither the Earth nor any of the myriads of inhabited worlds which exist is sustained in its place by any material force. It is, in some sort, on *an idea* that the heavenly bodies rest. And they rest more securely on this invisible force than they would rest on the strongest foundations of iron or brass which the ancients supposed necessary to secure the stability of the world.

But this magical equilibrium is possible only on condition of perpetual and universal *motion*. For this

reason it is that not a single atom in the universe is at rest. Everything is in motion, in perpetual motion. The Earth revolves on its axis in 24 hours. The Moon revolves around the Earth in 27 days. The Earth moves at the same time in an orbit whose center is the Sun, in 365 days. Each planet moves in the same way around the Sun in an orbit proportioned to its distance from him ; the nearest planet, Mercury, occupying 88 days, the furthest, Neptune, 165 years. Now the Sun, which appears to be comparatively motionless in the center of the planetary system, turns on its own axis in $25\frac{1}{2}$ days, from west to east, in the same direction as that in which the other planets revolve. In addition the Sun himself moves in space, drawing with him the whole of the planetary system. In its annual revolution around the Sun, the Earth moves at the rate of 664,000 leagues a day, and each planet is carried in its course with a similar movement, proportioned to its distance and to the space it has to travel in its revolution. The Sun and its system are carried through space with a velocity of 60 millions of leagues a year. At this rate it has moved since it has been in existence, directing its course at the present time toward the stars of the constellation Hercules. This velocity is considerable, according to your measures, but space is so vast that even suppos-

ing the Sun to move in a straight line, toward Hercules, after a million of years he would not yet have reached any of the stars of the constellation Hercules, for they are situated at a distance of more than 60,000,000,000,000 leagues from him.

Each star, each sun in space, accompanied by its system of planets, moves thus swiftly. And it is by this rapid motion of all the stars in space that they are held in equilibrium, distant one from another, sustained in the indestructible, inextricable network of universal attraction. It is by this motion that they exist. Our Sun is one of the stars which moves with least velocity. The velocity of Arcturus is 1,800,000 leagues a day. The velocity of the star marked 1830 in the catalogue of Groombridge is 2,822,000 a day. And so with the other stars. And yet these stars seem to be motionless in the silent depths of night, and during the centuries on centuries for which they have been observed do not seem to have changed their places; the Earth seems to be motionless under your feet, the Sun seems to be at rest in the center of the planetary system. Why is this illusory appearance of peace and immobility? Because these immense motions are accomplished in a space of so vast an extent, at distances so great, that they are imperceptible. At the distance of the star nearest to you, the breadth of the

Earth's path in her annual revolution around the Sun, the circle of the terrestrial orbit, which measures 74 millions of leagues in diameter, would be hidden by a thread a millimeter in thickness, placed at a distance of 125 meters from the eye of the observer.

The seventy-five millions of suns which constitute your cluster of stars sustain each one various systems, bearing in the deserts of space humanities born on the surface of their worlds ; the greatest diversity reigns among these productions of the skies. On the star which you inhabit the light of the Sun is white, its average annual heat does not exceed 30 degrees centigrade, the year is 365 days, and the day 24 hours long ; the average weight of man is 60 kilogrammes ; his average height is 5 feet 9 inches ; his vital heat is $36\frac{1}{2}$ degrees ; his average duration of life is 39 years ; and the race multiplies at the rate of three generations in a century. On another world the light of the Sun is blue, which is the only color there, its mean heat is 50 degrees below zero ; the year is 60,000 days, and the day 7 hours long ; the average weight of man is 1500 kilogrammes ; his height 50 meters ; the blood that circulates in his veins is colder than ice, and his average life is four centuries. On another world, again, there are three Suns, two red and one violet, twelve Moons of different colors ; the temperature of

the blood is 300 degrees and man resembles a gaseous globe, floating in the atmosphere like a soap bubble. Matter, weight, density, heat, light, years, seasons, measures, vary infinitely throughout the innumerable diversity of systems of worlds.

The stars are not all bodies of equal dimensions, nor of equal brightness, and it is not alone to the differences in their distances that the differences in their apparent sizes are due. The brightest stars, those which you call stars of the first magnitude, are not the nearest, nor are the smallest stars the most remote. There is a far greater variety in the productions of the heavens than in those of the Earth. Many of the other stars greatly surpass your Sun in magnitude and in brightness; others are greatly inferior to it. The Earth, in her annual revolution around the Sun, describes an orbit whose diameter is 74 millions of leagues; her motion produces a slight apparent motion in the nearer stars; as, when you are carried along a road, the trees seem to change their places on the horizon in inverse direction to your motion; thus, the nearer stars describe annually before the more remote stars, which remain motionless, a small ellipse corresponding to the perspective of the terrestrial orbit. The nearest star, that of the Centaur, describes an ellipse whose length is hardly the 900th part of the apparent

diameter of the Moon. It is extremely small. But this distance (the least) is so great that even the orbit of Neptune, having a radius 300 times greater than that of the terrestrial orbit, is scarcely comparable to it. If we were to suppose a sun so vast as to describe an orbit of this diameter its disk would still appear, viewed from this star, nine times smaller than it actually does. If the sun, just as it is, were transported to the distance of Alpha of the Centaur its brightness would be only $\frac{1}{52,900,000,000}$ part of its actual brightness. But the light which you receive from Alpha of the Centaur is $\frac{1}{16,950,000,000}$ part of that of the Sun. Thus this star emits nearly three times more light than your Sun. Its magnitude is in the same proportion, and its diameter is to that of your Sun as 17 is to 10.

The two brightest stars of your sky are Canopus and Sirius. The former star is three times brighter than Alpha of the Centaur, and as the annual change of place of the terrestrial observatory does not produce the slightest change of position in that star, it follows that it is incalculably more distant from you and incalculably larger and more luminous. Sirius is more than four times brighter than Alpha of the Centaur, and has an annual change of position which has enabled you to determine its distance. Reckoning by this distance it will be seen that its own

brightness is 64 times that of the Sun of the Centaur, and 192 times that of your Sun. The diameter of this star is fourteen times greater than that of your Sun, and its magnitude 2688 times greater, although your Sun is 1,279,000 times larger than the Earth.

On the other hand the star 61 Cygni—more distant than Alpha of the Centaur and nearer than Sirius—is a double star, each star composing which sends you only the hundredth part of the light of this latter star. This latter, removed to the same distance, would appear nine times less brilliant than it appears and would be eleven times brighter than either of the twin stars. The diameter of each of them is less than a third of that of Alpha of the Centaur and their magnitude less than a thirtieth. The sum of their magnitudes is only a third of that of the Sun. Here, then, are two twin Suns which are much smaller than yours.

From these examples, which I recommend to your attention, you can understand how great is the diversity existing among Suns. Sirius is 2688 times larger than your Sun, which is six times larger than either of the two twin Suns of Cygnus, which gives to the Sun Sirius a volume 16,000 times greater than that of the Suns of Cygnus. There is a still greater diversity among the suns of your sidereal universe than among the planets of your solar system, in

which you have a globe like Jupiter, 1400 times larger than the Earth, and diminutive planets, like Sylvia and Camilla, each of which is hardly larger than one of the Departments of France.

But the quantity of light of a planet is not always an indication of its magnitude, for there are stars of all degrees of brightness, of all chemical conditions, of all physical states, and of all densities. Some are large and light, some are small and heavy. Some, gigantic in size, are almost or entirely dark, emitting now only heat. Some, of smaller dimensions, shine with a dazzling light which comes across illimitable distances. These various chemical, calorific, and electric states produce among the Suns the greatest diversity of colors, from gold and orange to emerald and sapphire ; and flowers of every color, from brilliant rose to modest violet, bloom in the celestial parterre.

A journey through those vast regions changes their aspect for us completely. On my journey here I crossed three clusters of stars which dotted the ocean of the skies like vast archipelagoes. The clusters of stars, the universes, are composed of several millions of Suns and planetary systems, and surrounded by unexplorable deserts. Thus the first of those sidereal universes which I crossed in this journey was 2, the second 5, and the third 9 quintillions of leagues dis-

tant from the point from which I started. On arriving within 36 or 37 quadrillions of leagues distance from the Earth, I began to meet the outlying houses of your village, or rather, of the suburbs of your stellar city, and in all this time I have only traversed the half of your universe, although I entered it 415 millions of centuries ago and traveled one hundred leagues an hour. I encountered upon my passage in turn double, triple, multiple Suns, revolving with their systems around each other; insulated Suns flying through space with incredible velocity, drawing with them the worlds under their sway; colored Suns shedding on their planets the strangest mixtures of colors; systems entirely gaseous and composed solely of vaporous globes; stars of azote and comets of carbonic acid.

The relative positions of the stars in space vary according to the place they occupy. The lines, straight or broken, the various figures—right angles, squares, arches, crowns—which they form, viewed from a certain point, exist no longer when they are viewed from another point. On reaching your solar system I remarked the apparent arrangement of the celestial sphere, your constellations. They are the same whether seen from the Moon or from the Earth, from Venus, from Mars, or even from

Neptune, because the celestial perspectives do not change on account of a simple change of place of a few hundreds of millions of leagues. But if we count by trillions, or by hundreds of trillions of leagues, the difference becomes perceptible and the constellations change their apparent places, especially when one approaches or enters them.

Here the Spirit paused. After a long silence he resumed in the following terms :

We come now to your own solar system. The preceding numbers, if you have been properly impressed by their simple eloquence, will have opened up to your spirit vistas so vast that you will easily be able to form an idea of the extent of the domain of the Sun. And hitherto, notwithstanding your study of the subject, you had not formed an exact idea of it.

I shall take as one illustration of the vastness of this extent, the orbit of the great comet which passed near the Earth in 1680. This comet receded to a distance equal to 28 times that of Neptune, which itself revolves, as you know, in an orbit whose radius is 30 times greater than that of the terrestrial orbit. The distance of the star Alpha of the Centaur is 270 times greater than the aphelic radius of this comet, which you may consider as representing, at its minimum, the

radius of the solar system. You see that, taking for unities of comparison immense distances, space may be measured without the employment of series of figures, which cannot be grasped by the mind.

In coming, not from the star I have mentioned, for I do not come from that quarter of the heavens, but from the star nearest the Earth, I have spent nine million eight hundred thousand years. In coming from the aphelion of this great comet I have spent thirty-six thousand three hundred years. This comet retreats from the Sun to a distance of 32 thousand millions of leagues, and at this distance the solar star has still the power to summon from the depths of space this feeble cometary nebulosity, so light, notwithstanding its extent, so tenuous, so insignificant, compared to the great Sun, and which thrills when, having reached the end of its course, he sends it the order to return, an order which it cannot fulfill, notwithstanding its obedience, and notwithstanding the ever increasing velocity with which it rushes toward the flaming Sun that summons it—which it cannot fulfill, I repeat, in less than forty-four centuries.

During the nine million seven hundred and sixty-four thousand years which I spent in crossing the space that surrounds the solar domain and isolates it, in some sort, from that of the Centaur—a similar desert sur-

rounds each system, making each Sun king in his domain—I encountered no heavenly body whose attraction could interfere with that of the Sun on the stars which he governs, but only the *débris* of extinct worlds, which fall in space with such extreme slowness as to appear motionless, for in these intermediary zones there is scarcely any attraction. At the aphelic distance of the comet of 1680 solar attraction is only .000,000,008,333 of a meter, and the comet is attracted by a force which would cause it to pass through a distance of only .000,416 of a millimeter in the first second of its fall! Thus it hangs like the phantom of a dead world in the gloomy void. The bodies that wander into those regions form a slow procession of sepulchral shadows. At a hundred times the aphelic distance of the same comet the solar attraction is no greater than .000,000,000,000,833,3 of a meter. Thus, between the two spheres of attraction of the Sun and of Alpha of the Centaur, the force of attraction of the heavenly motions is, so to say, null, and a body placed at that distance would remain suspended motionless in space for millions of years. You think you are approaching nothingness or chaos, but after crossing those solitudes you enter still other systems.

To conclude, when I had crossed the orbit of several planets posterior to Neptune, of which the last,

Hyperion, lies at distance of 48 radii of the Earth's orbit, and performs its revolution in 335 years, I arrived at Neptune, situated at a distance of 1147 millions of leagues from the Earth. That was thirteen centuries ago.

Here the Spirit paused, as if he had ended his discourse. And he had, indeed, in describing his journey, caused to pass before me in review the whole constitution of the heavens, from the confines of the stellar cluster of which our Sun forms a part, and the distant universes which lie beyond us, to our own planetary system, to his arrival in which he had brought down his narrative. I had listened attentively, and pondered deeply on the vastness of the regions he had successively traversed, from the remote depths of infinite space to that region of the heavens in which we live, and when he had informed me that he had arrived at Neptune, the latest discovered planet, thirteen centuries ago, I fancied that this event had consequently taken place in the sixth century of our calendar and I said to him :

“We are now in the year 1872 of the Christian era. You passed by Neptune, then, in the time of the reign of Chilperic and Fredegonde. Since that epoch you have been traveling at the rate of a hundred leagues

an hour, and you have only just now reached the Earth!"

"In space," responded the Spirit, "there is no time, as I have already explained to you. The history of the terrestrial planet and of its political dynasties is of the most absolute insignificance. The Christian era itself, which it would appear, for many reasons, ought to exist in the heavens, as it exists among the evangelical nations, is unknown in the other worlds. But making use of terrestrial terms, it is really 1308 years since I passed Neptune."

"So then," I said, to make this measurement of space by time still clearer to my mind, "if a man could set out to-day from the Earth, proceeding in the direction of the planet Neptune, the known limit of the planetary stars, he would not arrive at those frontiers, traveling with the extreme velocity of a hundred leagues an hour, for 1308 years, that is to say, not until the year 3180."

"Precisely so. That is the measure of the semidiameter of the orbit of the latest discovered planet. These 1308 terrestrial years are, however, only 8 Neptunian years. The calendars of the planets are totally different one from another. Yet a year on Neptune is no longer for the inhabitants of that planet than a year on the Earth is for you. From the point of view of the

absolute, for a non-incarnated spirit, those two measures of time are *nothing*, are equal in their nothingness. Time is formed by the periodic movements of material bodies, and the material bodies which change with time are alone subject to time. The forces, real entities independent of matter, imponderable dynamic powers which sustain material bodies, are almost independent of time, for they are transmitted with a rapidity which approximates to instantaneity. The soul of man, although it is enveloped with the fluidic substance which forms here a necessary intermediary between the body and herself, and which, surviving the death of the terrestrial body, remains attached to the spiritual monad, the soul, I repeat, can transport herself from one point to another in space with a rapidity greater than that of light or electricity, and, so to say, instantaneously."

"But, O Spirit! if the soul can journey with so great a rapidity through space, why have you employed so many centuries in coming from the confines of the astral universe?"

"I might have accomplished the same journey in a few days," replied the Spirit indulgently. "But, I repeat, days and centuries are of equal length for a spirit. And I have been no *longer* making my journey than if I had come instantaneously.

“Pre-existent to life, the soul is of no age at the time of her incarnation. She is of no age when, life ceasing, she detaches herself from her earthly vestment. She is no older when she is again incarnated, whether on the Earth or on another planet. She grows no older through all eternity. Centuries, as they roll over her, leave less trace upon her than the rain falling from heaven leaves on the white shoulders of a marble statue.

“It is not the same with animated bodies, with combinations of atoms, aggregations of molecules, material worlds and the stars which constitute the physical universe. Time exists for these worlds and by them. The suns have no night, and enjoying a perpetual day, approximate already to the conditions of eternity. But they suffer changes of place, modifications of temperature, and variations which give them a measure of time, slow, it is true, but real. They do not last forever, but grow old and die. The planetary worlds have days and nights, months, seasons, years. The motions they describe form their various calendars, giving to the Earth years 365 days long, by which all the lives born on that planet are measured, to Jupiter years consisting of 10,400 days, to Saturn years of 25,421 days, to the Sun and to the planetary system a revolution of more than 200,000 of

your years. With time the stars change their places, the constellations deform, systems perish, planets crumble into dust, and suns become extinct. Time, that is to say, motion, exists only for material objects.

“It does not exist from the point of view of the absolute, for in pure space, among the heavenly bodies, there exists neither time nor measurement. Spirit is not then subjected to time ; it can measure it only by means of the planetary motions, secular pendulums of the heavens.

“Thus the 138 billions of centuries which I employed in my sidereal journey do not count for me as they count for the material worlds, and I am no older than I was at the moment of my departure. Such is the great principle to which I would here call your attention. The material universe is the mutable abode of Spirits who do not grow old.

“In the life of a spirit, or, to speak with more exactness, in one phase of the eternal existence of a spirit, a world of the importance of the Earth, or even of Saturn or Jupiter, may be born, live, and die, and its whole history be accomplished, its humanity appear, become civilized, progress, reach its apogee, and disappear, while each one of the spirits inhabiting it will remain intact, reincarnating himself several times on this same planet, and passing from one

planet to another, sojourning in space, without growing old.

“There are two worlds differing greatly from each other in creation—the spiritual world, for which material conditions, such as time, space, volume, weight, density, color, do not exist, but in which exist the principles of justice, of truth, of goodness, of beauty, which are coëternal with God ; and the physical world, for which neither good nor bad, just nor unjust, handsome nor ugly exist, but which rests on the principles of material reality—time, space, dimensions, weight, etc.”

“Master !” I replied, on hearing this classification, “if the elements of the physical world are absolutely foreign to the world of spirits, how can those spirits know the universe, see the worlds, travel from the one to the other? How, during its incarnation, can the soul even perceive the external universe?”

“By the intermediary principles,” responded the Invisible. “These intermediary principles are the *forces* : attraction, light, heat, electricity.

“The soul, even incarnated, can have no direct influence over matter. If your soul can occupy itself with astronomy, physics, chemistry, the exact sciences, in a word, it is not by its own intuitions, or its own power, but owing to the intermediary agents.

Your bodies, on the other hand, cannot act without these forces. These forces are the *substratum* of the universe, exist universally, through eternity, and occupy all space, in which the atoms only float. The constituent atoms of a piece of iron, of marble, or of clay, of a molecule of water, or of air, of oxygen or hydrogen, are not soldered solidly together, as they appear to be, but are isolated, separated, in the same manner as the planets, the worlds of the universe, are separated the one from the other. There is nothing absolutely solid; there are interstices, spaces relatively immense, between the constituent atoms of all bodies, animate and inanimate, so that calorific force, for instance, draws them together or separates them, expands or contracts their volume, produces apparently solid bodies, liquids, and gases, three different states of the same substance, which are due only to calorific force. An eye which could see the atomic structure of an object could not see that object itself; its vision would pass through it. Thus you see in your universe only its atoms, its stars; it would be necessary to observe it from afar to recognize the definite form of a universe, of a cluster of stars.

“When you perceive a ray of light, for example, this ray passes through your eyes, through the very structure of the organ to strike the nerve, which, on

the other hand, would transmit no sensation if, life being extinct, your soul were not there to interpret the shock, to give a meaning to the luminous vibrations transmitted by the optic nerve. Between the object seen and your soul there is the intermediary agent, the force, which in this case is light, without which your soul would not be placed *en rapport* with the object.

“But the actual organism which you possess is not required for this operation. Light, like electricity, like many other forces which are unknown to you, is transmitted by motion, by vibrations or undulations which your soul could receive without the intermediary of any of the senses possessed by you. The eye is not necessary in order to see. It might be replaced by another organ, an organ different from the eye, which would be, for instance, sensible to the slow waves and would perceive the heat, or to the rapid waves, and would perceive chemical action, conveying to the soul the notion of a multitude of things of which you have no knowledge, because you have not the senses to appreciate them. You live in the midst of an invisible world in which the spirits, endowed with other senses than yours, perceive an infinite number of realities of which you can have no knowledge.

“You are then to behold in the universe : 1st, the

element *matter*, subject to the finite conditions of space, subdivided into minute atoms, invariable in size and mass: 2d, the *dynamic* element, which, on the contrary, is not subject to finite conditions; 3d, the *vital* element, spirit, essentially individualized in space and, contrariwise to the element *matter*, incompatible with all idea of form or definite limits."

"Unknown Spirit, who speak to me," I rejoined, "whosoever you be, I have listened to you with attention, and I am happy to add that I understand your synthesis. I have a clear conception of stars and atoms, of the forces which sustain and govern ponderable bodies, the spirits who live upon the worlds or who sojourn in space; a new light has been thrown for me upon the universe which enables me to judge of its greatness and its beauty. But you have not shown me God."

"That is because it is impossible for even the spirits themselves to know the Infinite Being," responded the voice. "You have been taught heretofore to worship a God created in the image and likeness of man, or you have boldly denied the existence of the Author of Nature because you were not able to comprehend him. Neither the dogmas of official theologies nor the negations of atheism are true.

"God exists no more in any one point in the

heavens than he exists on the Earth, or to speak with more exactness, he is in no place more visible than he is on the Earth. There is not in any region of space a fixed place paved with precious stones, on which is raised the throne of the Most High. The empyrean of the Middle Ages exists no more than the Greek Olympus, The Paradise of Mohammed has never displayed its splendors except in the glowing imagination of the disciples of the Prophet. The Seven Heavens of Buddha have no more reality than that which has been given to them in the fantastic Chinese and Japanese designs which depict them to you. To see God face to face is a purely symbolical expression. The eyes of the most angelic glorified body could neither see nor admire any part of this invisible form. Heaven has no existence. The space of astronomy is infinity. God is a pure Spirit or rather *the* pure Spirit, self-conscious and conscious of each infinitesimal part of the entire universe, personal but without form, infinite and eternal, that is to say without duration, as really present here, in the midst of Paris, where I am now speaking to you, as on the brightest stars, as active in the operations of terrestrial nature as in the sublime manifestations of the superior spiritual spheres.

“ The Infinite Being, cause of causes, principle of

all that is, life and support of the universe, absolute, eternal, is then utterly incomprehensible by you or me or any other being. His existence is incontestable, for without it it would be impossible to explain the existence of intelligence in the creation of mathematics (which man has not invented but discovered), of intellectual and moral truth. But the Author and supreme Judge of all things is above our conception. We can, indeed, understand that for him there is neither time nor space, that he is all-seeing. Astronomy has demonstrated to you that the light emanating from every sun and every planet carries the history of those suns and planets into space, so that in supposing yourself situated at that point at which the luminous ray reflected from the Earth a hundred years ago arrives to-day, you would see the Earth of that epoch with the people then living upon it, and so with regard to the whole past of the Earth, which might be seen by retreating to a sufficient distance, and so with regard to the history of all the worlds, which thus remains permanently in the infinite, in God. We can conceive also that the future should be present for him as well as the past, for the events which are to follow one another are also contained in the actual state of the universe, as the past is contained in it in its results. But to seek to comprehend the essential nature and

the mode of action of the Infinite Being would be absolutely useless.

“And now, my son, your soul has received the idea, has formed a conception of the infinity of space. Has it also formed an exact conception of the infinity of duration? Do you fully comprehend the grandeur of the idea, of the fact represented by the word Eternity?”

“Duration without end,” I answered, “seems to me more difficult to conceive than space without end. I can easily imagine myself to have arrived at a supposed limit in space, to see space beyond this limit, to suppose a still more distant limit, to reach this limit, to see space still beyond this, and so on forever, without ever being able to reach, anywhere, a limit which does not exist. But, I confess, the idea of time without end, or to speak more correctly, eternity without limits, terrifies me even more than it astonishes me, so that my mind has scarcely the courage to contemplate such a thought.”

“Your illustration of an ever receding barrier in space,” replied the spirit, “may be applied to the notion of eternity. Whatever the length of time you might suppose, you might imagine yourself to have reached it, and see that after this period of time had expired time would still continue to roll on. Removing still

further the supposed limit, there would still be time beyond this, and so on without a possible end. But bear well in mind that these are only comparisons intended to render these notions clearer, but that in reality infinity, like eternity, is without measure.

“In eternity without measure, without beginning and without end, the material universe produces, by its movements, the measures of time. But these measures themselves are in no sense absolute. If the Earth moved twice, a hundred times, more slowly than it does, the days, the years, would be twice, a hundred times, longer than they are, but they would be *the same* for you. If the Earth were to become a hundred, a thousand times, smaller than it is, and your monuments, your statues, a hundred, a thousand times smaller than they are, they would all still be *the same* for you—the meter would still be the ten-millionth part of the quarter of the terrestrial meridian ; you would behold objects at the same angle of vision, etc. All those notions, which have heretofore seemed absolute to you, are purely relative to your perishable planet.

“In immobile eternity the spirits remain, material things pass away.

“ But day is already beginning to dawn. A moment more and I shall resume my flight and continue my celestial journey. I have told you that I have crossed

the universe from end to end, and that, after pausing here, I shall now proceed in an opposite direction from Orion, toward Ophiuchus. I shall return here on my way back to the point from which I started.

“When I shall have returned to the quarter of the heavens where the solar system now moves, when, in my sidereal voyage I shall have again reached the port at which I have stopped for a moment to-day, this port will be no longer in existence. I direct my celestial course to the confines of your visible universe, and there will still be as great a distance to travel in order to arrive there as I have already traveled to arrive here; that is to say, that I shall not reach the end of my journey for nearly 138 billions of centuries, continuing to fly with the same constant velocity of 100 leagues an hour. I count upon remaining yonder for a hundred centuries, to direct the formation of a new humanity which will occupy with honor, I hope, that region in space. Then I shall return in a straight line, not here only, but to the point from which I started.

“But I shall not return here for 277,380,789,300 centuries. At that time the Earth will have ceased to exist.

“Yes, this beautiful planet, so full of life to-day, so full of activity, so noisy, so rich—on whose surface

generations succeed generations so rapidly, this planet will be dead, more—destroyed! Just as she conceals in her bosom to-day the elements and the dates of her beginnings, so she contains there the germs of her decadence and her end. And not only she but her companions also—Venus, her younger sister, who resembles her so closely and whose present humanity is so strange; Mercury, fiery and swift; Mars, whose geography is so curious; Jupiter, now pursuing his course with noble and majestic movement; Saturn, girdled with his triple ring and surrounded by his eight satellites; Uranus, slow and venerable; Neptune, whose years are centuries—all these worlds shall have ceased to exist. What do I say? They will have lost all heat: water, air, liquids, gases, cohesion, affinity—all the elements of existence and of life will have disappeared. Silent deserts rolling in melancholy space, they will present only ice and barren rocks to the enfeebled rays of the Sun. Meteors, winds, and rains will have leveled the mountains with the plains, dried up the beds of the lakes and gradually augmented the extent of the Ocean, which to-day covers three-quarters of the Earth's surface and which will at last cover it completely. The spots on the Sun will have increased in number, and this great luminary will have been exhausted of

his heat by his long radiation into space. At first those spots will be seen to spread themselves, like two dark zones, on either side of his equator, and meteorologists will observe a sensible diminution in his heat and his light. When millions of centuries shall have passed, this loss of heat will have become so great that the organisms on the planets will perish to give place to new beings constituted to live in the cold. But an age will come when the Sun, first growing dark red then obscure, will cease to be the source of heat to the family of planets who have so long drawn from him their magnetism and their life, and will shed around him only a livid and sinister light. The days shall be turned into nights and there will be no longer either spring or summer. The worlds, dark and heavy, will revolve like black balls around another black ball. Universal night will reign in this system. The Earth, the Moon, the planets will carry into immensity the fossil tombs of their latest inhabitants. At the same time many other Suns of the universe, which shine now like glittering stars, will be extinguished like yours, while new stars will be kindled. In addition, the stars which shall have remained will have changed their places in the heavens. The constellations will be deformed. The seven stars of the Great Bear, even though none of them shall have

become extinct, will no longer form the figure of a chariot, the stars of the Northern Wain will be displaced, and by virtue of their proper motion will have drawn apart from one another so as to form at first a trapeze, then an immense triangle, then an irregular broken line. Orion, the magnificent southern constellation, will have undergone the secular dismemberment of time, the Three Kings will be separated, Rigel will be extinct. Aldebaran will have fled far from the Pleiades, Sirius will have lost his scepter, and the stars of Hercules will have become stars of the first magnitude. The Heavens will have become unrecognizable, the Earth decrepid, dried up, disintegrated, will have fallen into fragments which, spreading themselves along her orbit, will continue to revolve around the dead Sun. Diminutive skeletons revolving around a giant skeleton, aërolites carrying into darkness the last fragments of a formerly inhabited Earth, they will, perhaps, be enveloped in its passage by some hyperbolic comet which, carrying some of them with it in its course, will scatter them in another system on some unknown planet whose inhabitants, gathering them up to preserve them under glass in a museum, will analyze them without finding in them any clew to the history of the globe from whence they came, as happens with the aërolites which you pre-

serve without being able to divine the mystery of their origin. This is what will have become of the Earth and its inhabitants when I shall have returned from my celestial mission. All life will have become extinct."

As the Spirit ceased speaking and I realized the awful import of his revelations, to which I had listened spell-bound, a shudder ran through my frame. I beheld the future—the stars changed in their places, the constellations broken up, the planetary system destroyed, the Sun extinct, the Earth—on which we now live tranquilly—the Earth itself annihilated, its place in the heavens vacant ; I felt that the picture he had drawn was a true one, and remembering that the Spirit had spoken of those countless ages without seeming to feel that he himself would be affected by the passage of time or that he would grow old, overwhelmed with the thought of what would be my fate and the fate of each one of our souls, Oh, my readers, I uttered this selfish cry, which told him very naïvely all the depth of my sudden anxiety, a cry which any one of you, no doubt, would have uttered, in the same circumstances :

"And I?"

"And you? Well, you are like me, you are immortal, indestructible."

"*Indestructible!*" I cried, feeling for the first time in my life the inestimable advantage of this privilege. "Where, then, shall I be in a century from to-day?"

"In space—no one can pass beyond its limits; it is infinite; you will still probably be in your planetary system."

"And in a thousand years?"

"You will still be in existence."

"And in a hundred thousand years?"

"You will still continue to exist. Doubtless you will be traveling. For an astronomer that is not a disagreeable prospect."

"You jest about these things, which are familiar to you, O Spirit! But as for me, I confess they terrify me. And where shall I be in a million years?" I added, trembling.

"You will continue to exist in infinite space. And so in ten million, in a hundred million years. And after a hundred million years you will be no older than you are to-day. You will begin another hundred million of years—and so on forever.

"Without being able to die?" I cried, terrified at the simple and positive manner in which the Spirit uttered these appalling truths.

"Immortal, indestructible for all eternity. No created soul can grow old or die. Bear well in mind

that the millions of myriads of ages are *nothing* in eternity, and that after they have rolled away they begin again as if they had never passed—and that your existence henceforth is *without a possible end.*”

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“Eternal life—without—a possible—end!” I repeated, trying to grasp the thought, and feeling my brain reel under its weight. “Ah!”

And I fell senseless to the ground.

NOTE.

CELESTIAL MEASUREMENTS.

Stars belonging to the Solar System.

	ASTRONOMICAL LEAGUES.
Diameter of the Earth,	3183
Height of the Earth's atmosphere,	12
Mean distance of the Moon,	96,109
Minimum distance of Venus,	10,700,000
" " " Mars,	14,000,000
" " " Mercury,	20,375,000
Mean distance of the Sun,	37,000,000
Minimum distance of Jupiter,	146,250,000
" " " Saturn,	315,000,000
" " " Uranus,	666,000,000
" " " Neptune,	1,073,000,000
Distance of Halley's Comet at its aphelion,	1,309,000,000
Distance of the Comet of 1811 at its aphelion,	15,387,800,000
Distance of the Comet of 1860 at its aphelion,	32,000,000,000

STARS.

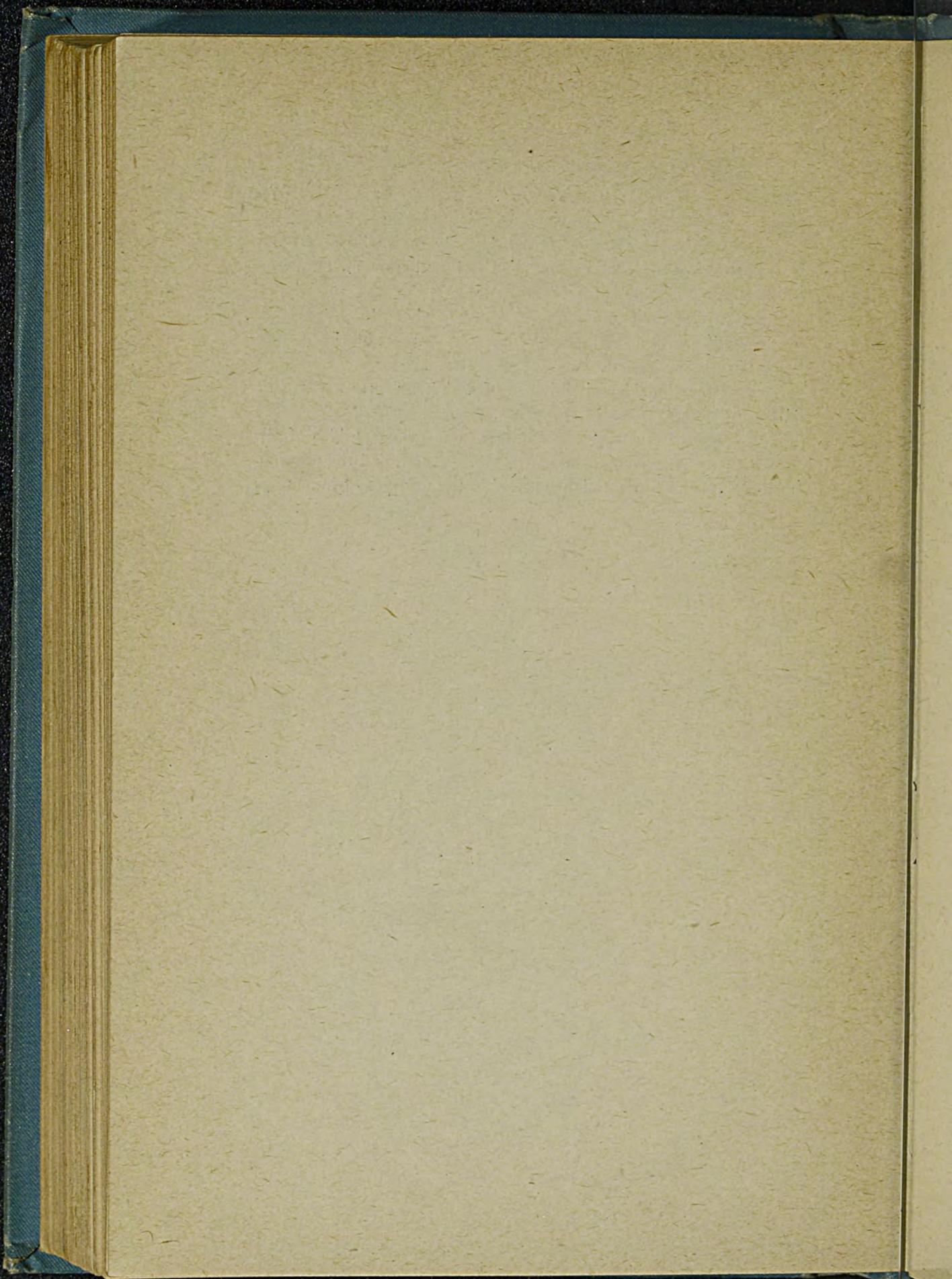
NAMES.	BRIGHT- NESS.	PARAL- LAX.	DISTANCES IN RADII OF THE EARTH'S ORBIT.	DISTANCES IN MILLIONS OF LEAGUES.	TIME TAKEN BY LIGHT TO REACH THE EARTH.	
					<i>yrs.</i>	<i>mos.</i>
Proxima (<i>α</i> Centaur)	1	0 ^o 919	224,700	8,318,900	3	6
61 Cygni	5 ^h ₁	0 ^o 511	404,000	14,948,000	6	2
21185 Lalande.	7 ^h ₁	0 ^o 501	412,000	15,244,000	6	10
<i>Bêta</i> of the Centaur	1	0 ^o 496	416,000	15,392,000	6	11
<i>Mu</i> Cassiopeia	5 ^h ₁	0 ^o 342	603,100	22,314,700	9	5
34 Groombridge.	8	0 ^o 307	671,900	24,860,300	10	6
21258 Lalande.	8 ^h ₁	0 ^o 271	761,100	28,157,000	11	10
17415 Oeltzen.	8	0 ^o 247	835,100	30,898,700	13	1
61 <i>Sigma</i> of Dragon..	5	0 ^o 246	838,000	31,006,000	13	3
SIRIUS.	1	0 ^o 193	1,068,000	39,516,000	16	8
VÉGA.	1	0 ^o 180	1,146,000	42,402,000	17	11
70 Ophiuchus.	5	0 ^o 169	1,220,500	45,150,000	19	1
<i>Eta</i> Cassiopeia	4	0 ^o 154	1,344,000	49,728,000	21	0
<i>Iota</i> Great Bear.	4	0 ^o 133	1,550,900	59,000,000	24	3
ARCTURUS	1	0 ^o 127	1,624,000	61,712,000	25	5
1830 Groombridge.	7	0 ^o 118	1,748,000	64,676,000	26	0
<i>Gamma</i> of the Drag- on.	3	0 ^o 092	2,242,000	85,196,000	35	9
Polar Star.	2	0 ^o 076	2,714,000	100,041,000	49	10
3077 Bradley.	6	0 ^o 070	2,946,000	109,000,000	52	7
85 Pegasus.	6	0 ^o 054	3,500,000	129,500,000	59	0
CAPELLA.	1	0 ^o 046	4,484,000	170,392,000	71	8

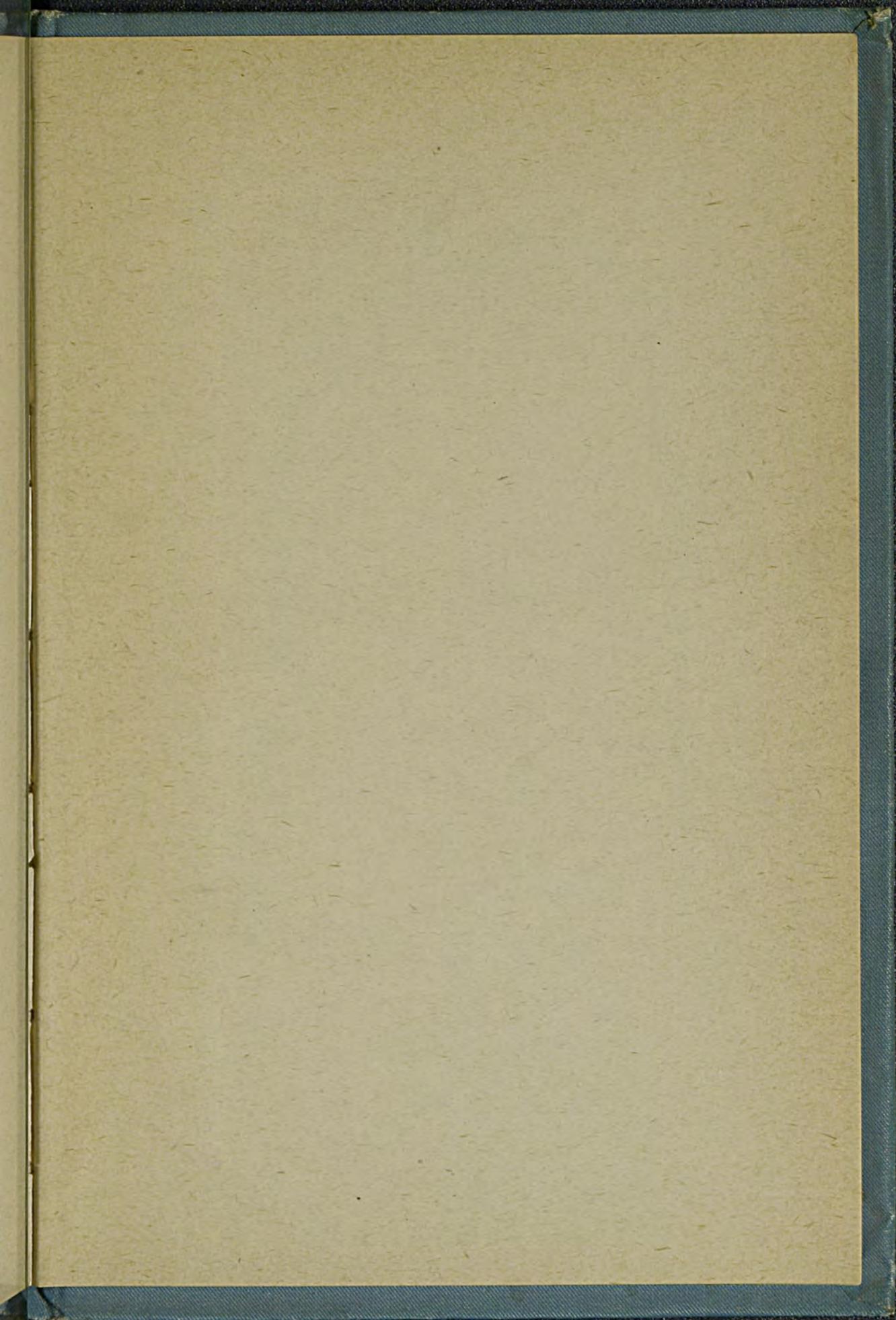
These are the stars *nearest* to us, the only ones whose distance it has been possible to determine. All the others, which number millions, are incalculably more distant.

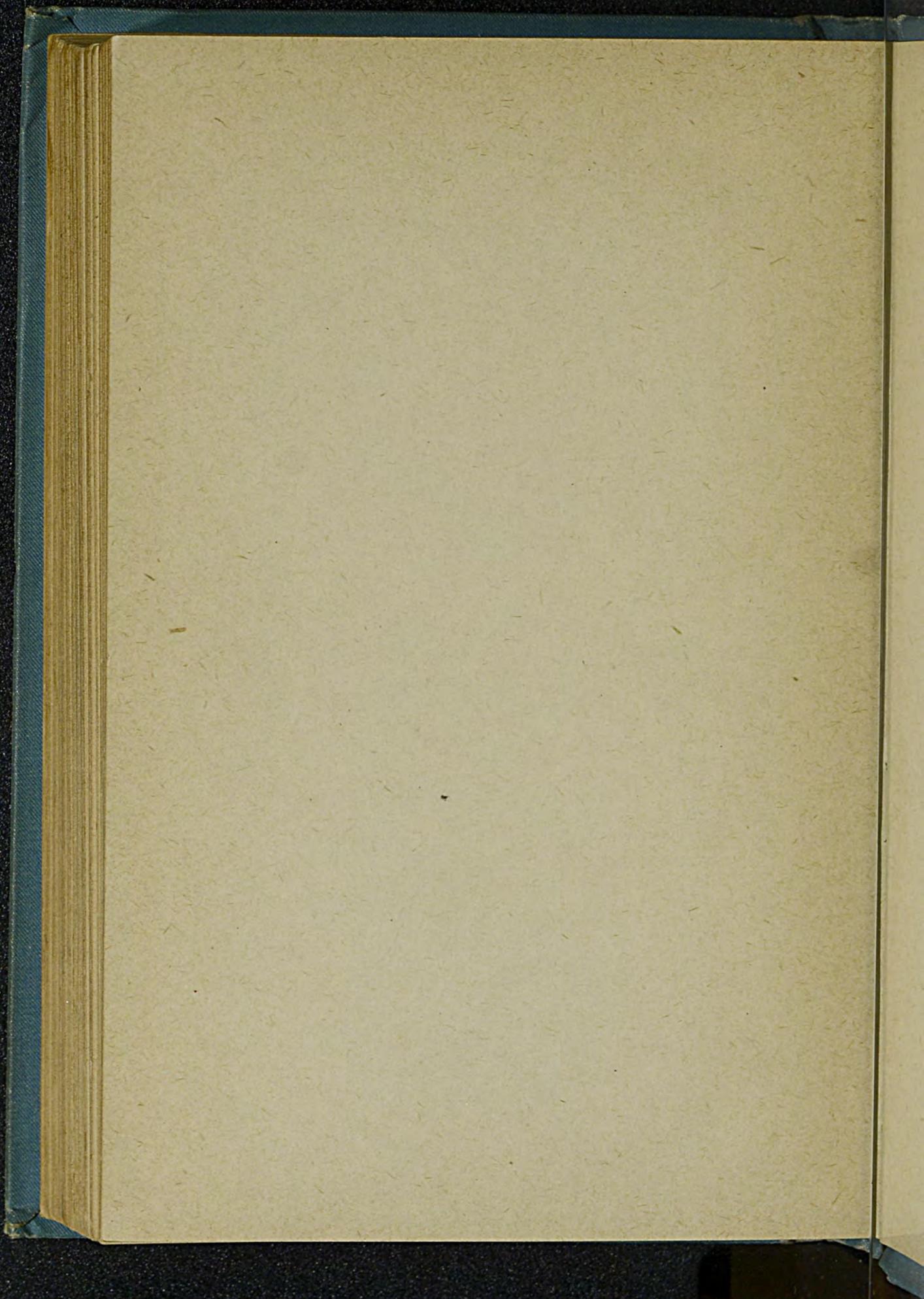
There are stars whose light does not reach us for a hundred, a thousand, ten thousand years of ceaseless travel at the rate of 75,000 leagues a second.

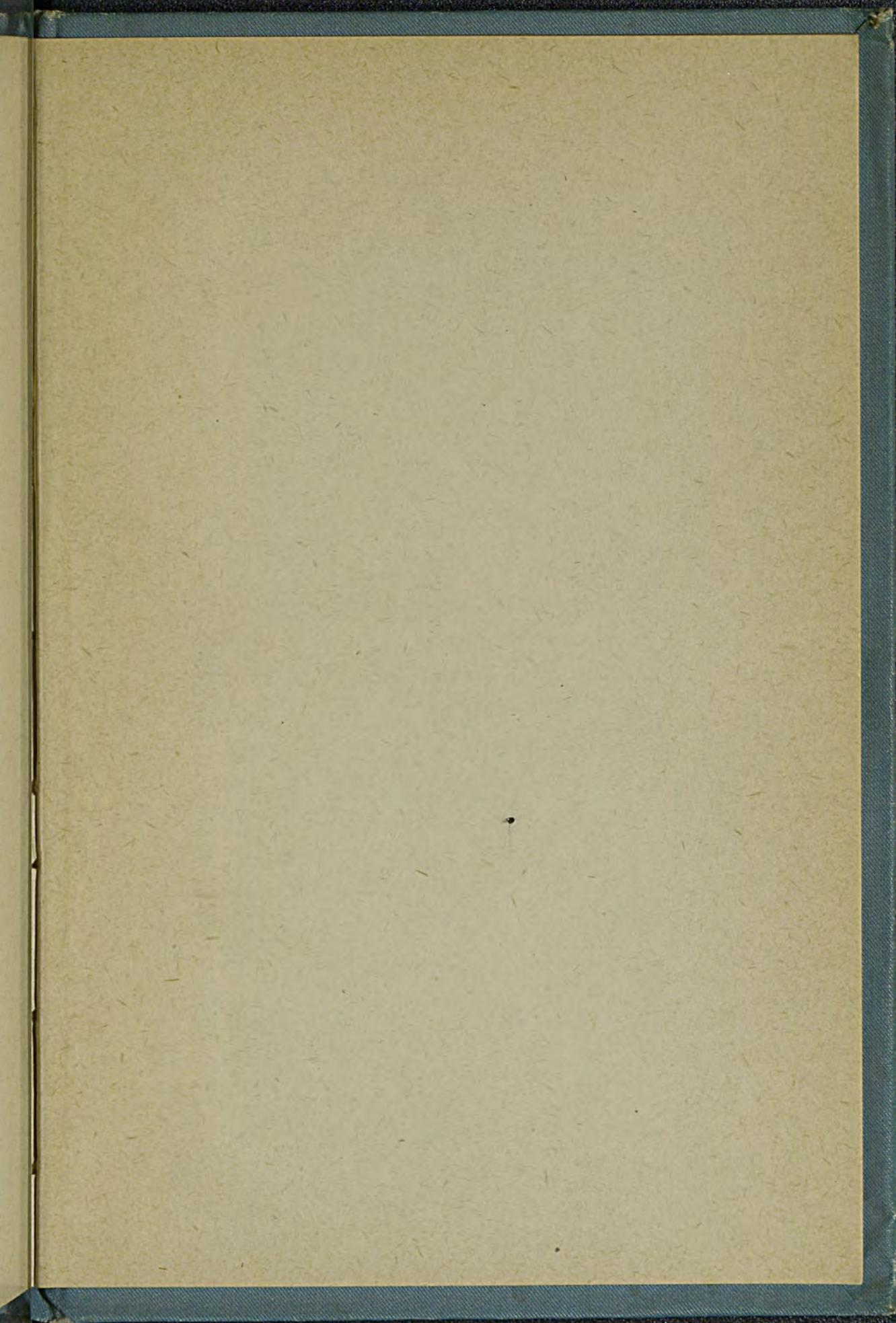
To traverse the sidereal universe of which we form a part (the Milky Way) light takes 15,000 years.

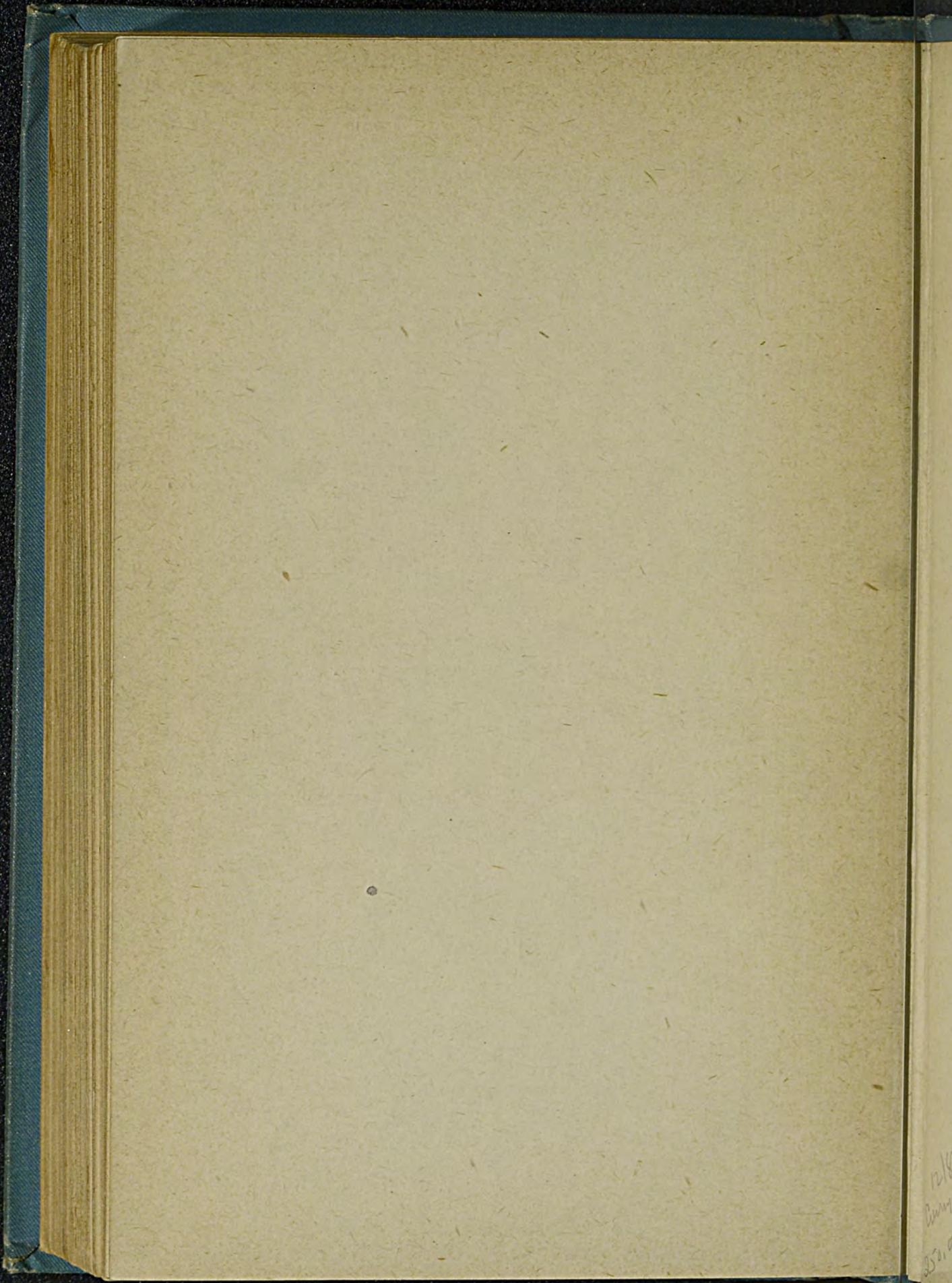
These facts will enable us to form a more exact idea of the grandeur of the universe, the majesty of its laws, and the absolute insignificance of terrestrial events and of the troubles of humanity.











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