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SPIRITUAL
ASTRONOMY,



OUR SOLAR SYSTEM,

FROM A SPIRITUAL STANDPOINT

BY A CELEBRATED ASTRONOMER,

NOW CALLED

THE LAW EXPOUNDER
OF THE UNIVERSE.

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1881.

COMMUNICATION FROM

“THE LAW EXPOUNDER
OF THE UNIVERSE.”

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My beloved friends and seekers after knowledge: if, during my labours amongst you, I shall be instrumental in leading your thoughts to a true conception of that mighty Power from whence all things spring,—the sole Cause of all effect, the Creator of the universe; if, as I say, I should be instrumental in leading you to a higher knowledge of that mighty Being, the great I Am of all eternity, I shall be more richly rewarded than I could hope to deserve. I also wish to state that this course of addresses will not embody the more abstruse and mathematical phases of astronomy, deeming it the wiser course to pursue to keep aloof from those scientific regions where your circle could not clearly follow me, and only intending to notice such matters as may find ready access to your mind—truths, which I trust will not only increase your knowledge of the mighty grandeur of that wondrous system and structure of the heavens, but will give a clearer understanding, a higher knowledge, of the illimitable power and infinite wisdom which constructed the mechanism of the universe; facts which are wholly unknown to the many astronomers of your age, and but vaguely conjectured, indeed, by the few.

Friends; do not think me vainglorious in thus speaking, for it is not I, Isaac Newton, the *mortal*, who speaketh to you, but the *power* and *glory* of God which

speaketh *in and through me*; for as the material universe is the visible evidence of God's power and glory, so is the universe of mind the invisible evidence of a higher power—a greater glory. Oh! that the astronomers of your day could but view the heavens in that light!

Dear friends, I shall now, without any delay, plunge at once into the first subject that is to come under discussion at this sitting, viz.: The general aspect which the heavens present when viewed in spirit life, and the position and movements of your sun. The heavens, when contemplated from spirit life, when the material part of our organisation has been cast aside to recombine with the elements from whence it came, and the vision of the soul is no longer obscured by the conditions of matter, present to us a spectacle of unspeakable grandeur. The so-called *space* is one endless ocean of ether, surcharged with immense forces; and at innumerable points in the celestial regions there have been produced, and are being continually produced, myriads of suns and worlds inconceivable in their complexity of formation, differences of aspect, and variety of colouring. Stratum after stratum of worlds, rolling in their elliptical orbits with marvellous rapidity and accuracy of motion; nebulous matter, condensing into planets; planets in every stage of progress, from the fiery mass to the perfected and habitable planet.

Yes, my friends, the nebular theory of the great Laplace was correct: elemental matter condensing into nuclei, and through various and wonderful stages of progress, becoming habitable worlds;—galaxy after galaxy of marvellous splendour scattered through space, bewildering our astonished gaze, to be succeeded by others so much more marvellous as to dwarf into insignificance the wonders which passed before our vision the moment before;—systems and systems of comets, not distributed at random, not wandering lawlessly through space, but obeying the beautiful and wondrous laws which govern the order of creation to which they belong, and moving through the immense waves of ether with tremendous velocity;—cometary systems of such

exceeding variety of fantastic forms and complexity of shapes, that the human mind would be unable to form any adequate conception thereof ;—gaseous systems of floating light, surcharged with electricity from the solar orbs, and distributing it among the planets belonging to their several systems ;—meteoric bodies rushing seemingly headlong through the waves of ether in ethereal space, leaving lurid streaks of light in their paths through the heavens—these paths being nearly always rectilinear, and the streaks of light forming waves of transcendent beauty and brilliancy; and meteors of every size, of every degree of luminosity, and however insignificant, performing their allotted duty in the wondrous economy of creation, and, however apparently erratic in their movements, never deviating by a single hair's breadth from the course marked out for them by the All-wise Creator.

And these stupendous designs are moving towards the great centre of gravity—each system having a centre of gravity belonging to itself—but not moving towards one central sun, as many have supposed, but towards what may be more accurately defined as the centre of gravity of your universe.

That key of knowledge which unlocks the mysteries of all creation, and which has been defined in spirit life as the will of the Creator, is as necessary to the existence of the monad as to that of the mightiest orbs which move in space ; for what are atoms and molecules but magnets, each furnished with two poles, one of attraction and the other of repulsion ; and thus, are not the loftiest things explained by the lowliest, and do not the lowliest find expression and reality in the very highest ?—so that every atom embodies in its infinitesimal existence a part of the power which binds all creation in one vast bond of unity. And thus, through vista after vista of unspeakable beauty, wanders the vision of the soul, moving along the starry path, beholding inexhaustible marvels for eternal contemplation, and is confronted at every turn by the two great ideas, boundless creation and endless eternity ; mighty facts, which compel the understanding to own their existence, while

conception completely fails to grasp them. O mighty thought! which begins with creation and ends with the Creator. And as the eye wanders through these regions and sees system after system pass across its view, thought rests most lovingly on that system, the third planet of which awakens in me stirring memories of a past existence—that system which has been called the solar system; large in itself, but small when compared with the distance which separates it from the next system, and exceedingly small when compared with other systems scattered throughout the celestial vault.

We will now proceed to examine the position and movements of that immense luminous orb which has been called the *heat* and *life-giver* of your system.

The sun, when viewed by mortals from the distance which separates it from them, presents the appearance of a large, round, flat, luminous disc; but, my friends, every luminous spherical body must of necessity do so when viewed from the great distance which separates it from your planet. This luminous orb, the centre of gravity of your globe, and around which your earth and its companion planets, attended by their satellites, revolve, when viewed from spirit life, presents the appearance of an immense dark globe immersed in an ocean of light, surrounded by what I shall call atmospheres or wrappings. It is an opaque body surrounded by several of these atmospheres, composed chiefly of nitrogen, oxygen, and aqueous vapours, and some of transparent elastic media, enveloped in gaseous matter, each of which increases in luminosity as it is further removed from the dark body of the sun, until externally, owing to the revolution of meteoric bodies around it, it assumes, as seen through the telescope, that degree of luminosity which is visible to you on the earth. Thus you may perceive that the theory of a dark nucleus in the sun is approximately true, and nullifies the theory that the sun is a vast mass of gaseous matter in a state of intense combustion. There are nine wrappers or atmospheres around the sun, but these may be subdivided until they reach an immense number; but I

find I am digressing, and I shall treat of this more fully in my next.

We are now to define the exact position of your sun, his planets, and satellites; in fact, the whole of the system. The sun is a large single star, forming one of a cluster of stars, constituting part of a large nebula, situated in that immense zone of irregular streams of whitish light which stretching across the celestial vault is lost in the infinity of space, called the Milky Way; but there is such an uniformity throughout the whole system as to show that in its path through the heavens it is moving towards a definite goal, but not, as I have already said, towards a central sun. And here I would refer, in passing, to the gradual separation of the zone of suns which form the Milky Way; the myriads of suns composing which, will be scattered in the ages to come through the infinitude of space. You will, therefore, see from this that your sun is not an attendant sun, but one of the regulating orbs of this great stellar scheme. That which many astronomers have vaguely conjectured is perfectly true, viz.: the breaking up and separating of that immense zone of stars and nebulae known as the Milky Way. Your system is a very small one in dimension as compared with the space which separates it from the next system, and also as compared with the systems beyond it; and the poet of your planet who addressed you so beautifully on a previous occasion, used language to express his thoughts somewhat in this strain:—
 “O mighty system with worlds diverse, filling infinite space forming the endless universe.” Now, friends, that may be very beautiful poetry, but when applied to the heavens it is not astronomically correct, for there are in reality immense spaces in this boundless ocean of ether which have yet to be filled with worlds.

This leads us to consider, can it be that your universe is comparatively speaking very young; but some inspiration above and beyond myself tells me to declare that our universe is very young; and that there are universes older than we can imagine, whose age defies all calculation; but were there not these immense spaces, that which is so evident would arise: there

would be endless confusion, matter taking dominion over chaos. Endless worlds in process of formation from the innumerable nebulae are visible from all parts of the heavens. Truly, how wonderfully has the Master Architect of our universe met all demands! Contemplate one mass of these nebulae forming slowly into systems, while God, the Creator impresses on the elemental germs of these embryonic worlds the fundamental principles which shall eventually develop into the innumerable forms of life for whose benefit they are intended! O mystery within mystery! bewildering us all!

Now to return to the more practical part of astronomy: we would have you remember that the curves described by the planets around the sun are not *circles*, as Aristotle and many ancient philosophers have erroneously supposed, but are *ellipses*; the sun, however, does not occupy the centre of the ellipse, but a point known as the focus; which point is more removed from the centre in proportion as the ellipse is more oblong.

We will now proceed to notice the movements of this immense luminary. The sun performs two great movements, or what may be better defined as a double movement, as it participates in the great diurnal motion and has a movement proper to itself. It will be for us now to prove indubitably these two great movements of the sun. The whole celestial vault which forms your universe has one great movement from east to west, carrying with it all the heavenly bodies without in the least altering their relative positions; and it is owing to this great movement that the stars rise and set, disappearing beneath the plane of the horizon, and reappearing day by day at different altitudes above the plane of the horizon, and continuing to ascend until they reach the plane of the meridian at a given altitude, which does not vary, and continuing to descend until they reach the plane of the horizon. Now the sun being a partaker in this great movement, rises and sets, appears at a different point and reaches the meridian at a different altitude every day throughout the annual revolution of the earth; so that, you see, the stars always maintain the same altitude when they reach the plane of the

meridian, whilst the solar orb obtains a different altitude each day, thus proving that whilst the sun partakes of the great diurnal motion common to the whole stellar scheme, it has, besides, a movement proper to itself, which may be called, without sensible error, a movement from west to east. Let us now ascertain the accuracy of this statement. This will be best done by comparing the sun's movements with those stars in the heavens which set after him. If we observe these, we shall find that the distance or space which separates him from those stars *diminishes* gradually until they disappear in the solar radiance; furthermore, those which disappear in the solar rays will reappear at the same point of the horizon every day. They suffer no change whatever in that respect, whereas that of the sun will vary materially. During the first half of the earth's annual revolution the sun rises towards the north; during the second he will have a contrary movement; and it will be seen by comparison, that in this motion he is removing from those stars which have a more westerly aspect, while his distance from those which have an easterly aspect is gradually diminishing. Therefore we are justified in saying that the sun has a movement from west to east. Besides this great double movement of the sun, the solar luminary has also an onward movement through space, bearing with him his gorgeous retinue; and the path along which he is traveling is towards a point in the heavens which, so far as it has been ascertained, has a right ascension of 250 deg. 9 $\frac{1}{2}$ min., and a north declination of 34 deg. 36 min.; and this movement of the sun through the stellar vault has been called by terrestrial astronomers the translation of the solar system through space, and by us, in spiritual life, the grand motion of the sun through the heavens.

It is erroneously supposed that the rate at which the sun travels, bearing with him his cortege of planets, is 5 miles per second. It is, however, 7 $\frac{1}{2}$ miles per second. Truly a very slow rate of progress when compared with the rate at which other systems travel; for there are some which have a velocity of 50 and even 70 miles a second; but not slow when we consider the enormous

distance of the point towards which he is travelling, and also the immensity of the system he is bearing with him. At present he is travelling through a thin vaporous, chilly, raw region in the heavens. In coming ages—far, far in the future—the climate of your earth will differ as much from the climate of to-day as the climate of to-day differs from that of the glacial epoch. In those days there will be comparatively different beings inhabiting your globe; for though Nature reproduces the type, she diversifies the species, owing to the external conditions and surrounding circumstances in which they are placed. As the sun passes through more salubrious regions, there will be higher forms of both animal and vegetable life upon the surface of your planet. The flowers will be richer in colour and more delicate in fragrance; the plumage of the birds will be more gorgeous; and while men and animals will be superior to those with which you are now familiar, they will be strictly analogous to existing types.

In conclusion he said: I trust the minds of the dear friends of the circle when they look abroad over the heavens will always rise to that Mighty Being who brought forth these dazzling wonders; and may the Creator—the Mighty I Am—who has been from the endless ages past ruling in all things, and in whom alone there is no change, guide you and lead you upward to a knowledge of His infinite existence, and fill you with His love and wisdom. Farewell! Farewell!

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SECTION II.

DEAR friends and fellow-seekers after knowledge,—It gives me much pleasure to be enabled to hold communion with you in this manner; thanks to that All-beneficent Creator, who hath found the means for communication with earth, or rather, who has given us a means of communication with earth, for of all the gifts which that All-beneficent Providence has bestowed upon

both spirits and mortals, it is the sweetest thought that they can hold communion with those in the world which they have left. My friends, my last address embraced a rather wider range of matter than I was altogether justified in treating at one sitting; for to give each subject with the volume and completeness commensurate with its importance, would require many sittings, extensive power in the medium, and a close and patient attention on the part of the circle, combined with a certain amount of mathematical and mechanical training, so as to render each member perfectly familiar with the colder and more abstract details of the higher knowledge of astronomy.

I will now, my friends, with your permission, take a brief review of the subject that came under discussion at our last sitting. First: The general aspect which the heavens present when viewed from spirit life. Second: The position of your sun and his systems in the stellar vault, and the great double movement of the sun. In the first I endeavoured to present to your mental vision, through the vehicle of language, the picture of the gorgeous and indescribable scene of beauty which the celestial vault presents when viewed solely with the spiritual eyes; myriads after myriads of systems arranged with the most perfect symmetry, and each lustrous orb glowing with every conceivable variety of colouring, and every imaginable diversity of shade; and in the unity and harmony of their movements, presenting a kaleidoscope of ever-shifting wonders. In the second place we determined the exact position of your system in the heavens—that your sun is a single star, amidst a cluster of stars, which revolve around it as the centre of their gravity, and that they form part of a large nebula situated in that immense luminous tract called the Milky Way. I also referred on that occasion to the indisputable fact of the separating of that immense band of light of what might be called the breaking up and disseminating of the several orbs which compose that great luminous zone; every part in which, however remote or dim, contains within it myriads of systems. Now this fact can be demonstrated by obser-

ration alone of the immense distances through which your system is being conducted by the great luminary, the sun, as well as by certain other phenomena to which it is not necessary for me at present, more specifically to refer. In the third place I spoke of the great movement, or rather, of the great double movement of the sun, and stated that whilst it participates in a movement common to the whole of the sidereal scheme, it performs at the same time a movement proper to itself; this movement being from west to east, the luminary travelling along a great orbit called the elliptic. I omitted to mention upon that occasion that lest this movement of the sun should be attributed to the motion of the stars, it was only necessary to compare the movement of the sun with that of the stars; for this movement of the sun, differing so much from the movement of the stars, causes decided differences of time, causes what is called solar day and sidereal day. Solar day being counted as the interval of time which elapses between the consecutive transits of the sun across the plane of the meridian; while sidereal day is determined by two consecutive passages of the star across the plane of the meridian. Now if this star execute its passage across the plane of the meridian simultaneously with the sun on a given day, it will be found by observation that the transit of the former on the day following, across the same plane, will occur a moment of time before the transit of the sun; and it will be further found by continued observation that this minute interval of time will increase daily until it reaches twelve hours; and a similar interval will go on ere it again executes its transit simultaneously with that of the sun across the plane of the meridian.

We will now take into consideration certain phenomena which occur relatively to the grand motion of the solar system through space—phenomena subject to no known laws. As that system proceeds through space, certain stars are seen to disappear, while others suffer a relative parallax displacement. Let us examine these phenomena. The fact that certain stars in various con-

stellations are seen to disappear, while others suffer a displacement upon the approach of the sun, is susceptible of explanation by two simple hypotheses: either the intense luminosity of the sun renders their light imperceptible, or they suffer total displacement. It will be for us now to attentively examine each of these two hypotheses, and to accept that one which is most in accordance with ascertained facts.

Here the mathematical and mechanical training which I referred to at the beginning of the present address, combined with a knowledge of the science of optics, is necessary to demonstrate the fact that all luminous bodies having sensible diameters preserve their intrinsic brightness at every distance, and also to enable us to ascertain what is the relation which ought to subsist between two lights seen in the same direction, in order that the brighter may cause the total disappearance of the fainter. It were useless here to enter into the scientific details necessary to demonstrate these problems. Suffice it to say that our photometrical experiments—I say “our,” for although photometry was unknown in my day, it was afterwards given by spiritual impression—demonstrate the fact that on a comparison between two lights at certain distances, the velocity renders perceptible differences of intensity only under the 64th part of the value. Therefore we cannot, in accordance with the demands of the laws of light, sustain the theory that the disappearance of these stars is due to the fact of their being rendered imperceptible owing to the superior luminosity of the sun.

Now we will discuss the other hypotheses supporting the assumption that the disappearance of these stars is due to actual displacement. First, it must be observed that the motion of the translation of the solar system through space produces a succession of changes attributable to no laws of periodicity, whilst under the actual and fully ascertained movements, there are orderly and well-established returns of periodic phenomena subject to those laws: therefore we know that your system is approaching a certain point in the heavens. For, again, in one constellation in the heavens, the distances be-

tween the stars are sensibly becoming more apparent, whilst in the opposite point of the heavens the distances are as rapidly diminishing, and the stars suffering a proportionate diminution in their sizes. Then, again, we find that of the many stars recorded by the ancients, who also noted their position in the heavens, some have suffered displacement, whilst others have totally disappeared.

My friends, will you kindly follow me closely in this line of argument? In one point of the heavens certain stars have disappeared in the neighbourhood of the constellation Hercules; a point towards which your sun is advancing in its journey towards its great centre of gravity. Now, what are we to conclude from this but that the motion of the solar system through space is indicative also of a similar motion in the other systems, for numbers of these are seen to recede at the advance of the sun; and that all are partakers in a great bond of union, harmoniously working with each other in their several movements; these various systems likewise obeying a law of attraction towards a great centre, and travelling along paths in the heavens, determined by their great centre of gravity? For it is one of the laws of force that if two globes, both free and quiescent, be projected into space through the centre of gravity, they will revolve each in its orbit at a certain distance, for a certain time, but that after a given period they will gradually return to the centre of gravity, each by a determinate path. Thus you see that these single suns, as they are erroneously called—these luminous orbs which are scattered throughout the immensities of space are not single suns, but each belongs to a system of planets, not one is solitary or apart, and it is owing to these grand movements that your universe is enabled to maintain its condition of dynamical stability.

The translation of the solar system through space is supposed by latter-day astronomers upon your earth to be due to the force of attraction of a great central sun; a theory which is wholly inadmissible, for if the sun and his retinue of planets be advancing towards a central sun, as a point of gravity, it certainly is not in the

region towards which the solar system is advancing, but in a transverse direction. There is, indeed, no central sun. Now it is fully ascertained that the movements, or lines described by the motion of the solar system, must be curvilinear, that its movements are by a succession of curves or circles, or what indeed might be better described as a series of delicate spirals; every second or moment of time being tangential to the great centre. Therefore the sun and his system are not approaching this centre of gravity in a perpendicular line as bodies are attracted by the force of terrestrial gravity to the earth's surface, but in a series of movements which I have well defined as delicate spirals. Now, again, if the centre of attraction were a great central sun, there would be of necessity a sympathetic movement. To prove this, let us suppose an immense body, larger than your sun. Well, now, let us take this immense body and give it an annual parallax, say of less than half a second. We could then easily correct the differences in the alteration of the position of the sun. It would not subtend to an angle equal to the three hundred millionth part of a second. That alone proves indisputably that the centre is not, cannot be, a central sun. It is a point around which the masses which compose your universe will be balanced. Where that point is, we know not; it is unknown even to the celestials. We can only give you such knowledge of it as we can deduce from theory. The slow approach of the solar system towards its great centre of gravity is owing to the immense distance which still separates it from this great centre. We have computed the speed at which the sun is conducting his system towards this centre, to be at the rate of seven miles and three-quarters per second. Now as the sun's distance from this great centre is over 99,000,767 times the radius of the earth's orbit—even supposing that as it nears the centre of attraction the force is doubled—even then it would take 100,579,000 years ere your sun could reach its definite goal. Therefore the duration of his course through space must be over 700,000,000 at least; I give it at 745,000,000 of years ere it can reach the great centre of gravity.

Now let us briefly consider how long your earth has been illumined and warmed by its great heat and life-giver. According, if I remember rightly, to the Christian theory the earth is only six thousand years old. Now as the earth was then created, according to the Mosaic scriptures, why the sun must be something, say a day, younger than the earth. That was the serious error in my earthly existence. Instead of looking this difficulty straight in the face, I was deterred somewhat by theological fear—the fear of attacking a faith which I believed was necessary to the welfare of mankind; and this was fatal to my arriving at many conclusions highly beneficial to the advancement of the science of astronomy.

Geologists upon your planet say that the earth's crust indicates the length of time during which it has been acted upon by the solar rays. Not so, for as each stratum becomes influenced by the great luminary, it is subject to a transformation, owing to the operation of the great central gases. That is a subject, or rather a fact, which geologists have omitted to take into consideration. Now we know that your sun has been illuminating his system of planets for considerably over 100,000,000 of years, and that at one time your earth was part of that immense luminary; but as a ring of matter was flung off into space, and being sent through the centre of gravity was obliged to revolve around its centre successively with the various planets which form your system.

Upon this subject I will speak more definitely at a future time.

Now my friends, in conclusion, there is one great truth, the greatest perhaps that astronomical inquiry has shown us: That a contemplation of the myriads of systems which are scattered throughout the immensities of that great ocean called space, leads to a more perfect knowledge of the truth, harmony, and beauty of that great Creator at whose bidding those myriad orbs appear; and Who, having created them, sustains, guides, and governs them by the great expression of His will; and that amidst vast cycles of change—change ever onward to higher and greater existences—He, the

Omnipotent One, remaineth changeless for ever; and that to mortals the contemplation of the sublime works of creation will serve to raise their minds from low and perishable objects. It will exalt, purify, and inspire them to a knowledge of the high destiny awaiting those capable of them.

Dear friends, brothers, and sisters, through the bond of spiritual thought may the harmony which alone can proceed from pure lives and great and noble aspirations pervade your life upon earth, that you may experience them a thousand-fold in the life to come. Farewell!



SECTION III.

DEAR Friends, and fellow seekers after truth, fellow labourers in the fields of knowledge, we will on the present occasion continue the cosmogenic theory, or nebular hypothesis as it is still denominated by terrestrial astronomers, but verified by spiritual observation and spiritual science the theory can no longer be considered hypothesis it having passed from hypothesis into fully ascertained and indisputable fact. But the laws of cosmical progress and the agglomeration of the ethereal atoms into suns and planets, cannot be fully understood until the mind passes from mortality to immortality. It requires spiritual development and spiritual science to unravel the phenomena of creation and fully understand the laws—both simple and sublime—which Infinite wisdom has impressed upon matter, and to discern the stamp of divine perfection in the wonderful laws and the unalterable harmony of the order of the universe.

In my last address which I was compelled to terminate somewhat abruptly, I referred to the fact of the etheric atoms forming a body of successive layers of unequal density around the central nucleus of the forming star, the densest matter gravitating to the centre, and the lightest, or the most volatile, reaching the surface, then mutual repulsion intervening, compelling the great action

of the centrifugal force repulsing energy, to overcome the gravitating power of centripetal, compelling three great actions—condensation, evaporation and precipitation, (nature's processes are miracles more stupendous than the human mind can grasp.)

When the nucleus is sufficiently formed to be wholly influenced by the central repulsion and *not* until then are successive reacting zones of volatile molecules thrown off, which form the planets of the solar system. These zones commencing their cosmic progress by forming concentric rings uniting into spheres, and the great resistance of the ether compelling them to develop a resisting medium in cosmic space. Reciprocal attraction must, in all parts of the nucleus which is being condensed by the coolness of the ether, leave in the plane of the equator zones of vaporish molecules, which require a greater or less degree of cold to return to a liquid or solid state. These in after ages form the satellites and rings; the orbital motion of the satellites and rings being the same as the rotatory motion of the planets, the motion of the planets being coincident with the rotatory motion of the sun. This agreement of the orbital motion of the sun, planets, satellites and rings, shows the unity and sympathy which unites the whole of the solar system. The Creator having forged a chain of harmony uniting together the whole system, and placing the last link in its progenitor the sun, that he may conduct them towards some great goal, or great centre of attraction. Thus the law of gravity becomes the primordial law of all the heavenly bodies, linking them in one vast bond of unity, the necessary consequence being an equilibrium of the originally fluid suns and planets. A relationship exists between the radius vector and the surface of the nucleus in the different stages of condensation through which it has passed, and thus stratum after stratum of the condensation will press against the bodies' surface with a force diminishing with the square of the bodies' surface, and in the forming planets may be seen matter (if I said etheric atoms I should explain myself better), subject to great conflicting forces; those which central-

ise, and their opposites, which manifest their existence in disturbing and dispersing influences, the sympathy with the radius vector arising from the first condensation of the forming planet; and thus the radius vector sweeps over equal spaces in equal times. Thus, according to dynamical principles, the nucleus must have formed in the nebulosity of the sun ere those zones of matter were flung off which form the planets of the solar system. Thus the cosmogenic theory is not alone applicable to the solar system, but extends to the formation of the innumerable suns and worlds throughout the universe, and reveals the origin of all the heavenly bodies, while science discloses the method of creation; and what are the heavenly bodies but divergent branches of the mighty tree of creation, a constant succession of phenomena—ever-progressing changes into higher and higher forms of life. The creative power is ever at work. God the Creator is continually creating new universes. In the deeps beyond the deeps lie universes untold; and what is all creation but the visible evidence of the power and glory of the Creator? Oh! seekers after spiritual knowledge, pray that your understandings may be enlightened to behold the infinite wisdom and illimitable love which is everywhere manifest in the works of God.

Terrestrial astronomical science admits that the sun is very much larger than the solar planets with regard to magnitude, but assigns it a mass or weight four times less than the weight assigned to your earth. This theory which is deduced partly from observation and partly from calculations from experiments with the pendulum, is altogether erroneous; the error partly arising from the position of the observer and partly from atmospheric or other media through which the observations are made; while it is also explicable, in some degree, by errors arising from the terrestrial influence on the pendulum. Since I have entered spirit-life I have had much to unlearn, and I have learned much; I have learned to know now, and to regard the sun as being as weighty as any of the cosmical bodies of the solar system. It were in vain to explain to you the

experiments and observations which have enabled me to arrive at this result, suffice it to say that it is so. To assign the sun a density only equal to that given to it by terrestrial astronomers, would be to consider it a mass of glowing hydrogen — this being bulk without weight.

The sun, with regard to its physical constitution, is a solid non-luminous body with nine different coatings, or atmospheres, each one more luminous by comparison as it is further from the opaque body of the sun.

I will now enumerate for you these different atmospheres. I have said each is more luminous, but there is an exception. First.—An atmosphere which corresponds very much with the atmosphere of the earth when the earth's atmosphere is occupied by dense strata of dark and light clouds. This atmosphere is superimposed upon the dark body of the sun, and surrounds it to a great height. Next comes an elastic medium, extremely rarified, which separates the first from the third. The latter is a vaporous atmosphere; it is analogous to, but not exactly the same as, the vaporous atmosphere above the first stratum of the earth's atmosphere. Fourthly.—A condensing atmosphere; that is, a composition of dark or cloudy elements. This is the solitary exception. It is not so luminous as the preceding ones, removed from the dark body of the surface of the sun. Then we have what we term the refrigerating or intensely cool atmosphere, which intervening between the next, which is an extremely luminous one, to which terrestrial astronomy has assigned the name of photosphere, the condensation of the vaporous atmosphere intervening between the body of the sun, renders the sun cool and enjoyable. Then we have the photosphere, an intensely luminous atmosphere, and in this revolve immense rings and belts of cosmical bodies, which becoming heated by their revolutions around the photosphere, give it that luminous appearance it presents and are the foundation of the phenomena of *feculae* and *luculli*. Then we have next a reflecting atmosphere, which catching these extreme rays sends them forth towards the earth in an intenser state; *i. e.*, surcharged.

with magnetism. We have next an extremely transparent atmosphere, which, so far as spiritual science supplies us with knowledge, acts as a medium between that and the external surface of the sun, which is extremely gaseous. Indeed we may consider that what is called the transparent atmosphere to be an extremely subtle fluid, constituting a higher, more sublimated and refined medium than the second, removed from the dark body of the sun. It is an elastic medium, between the other atmosphere and the external atmosphere of the sun, which is the last. These have all movements independent of each other, the photosphere giving the sun that appearance of extreme incandescence which it presents when viewed with telescopic assistance.

The sun has also a rotatory motion upon its axis. This terrestrial science has become cognisant of by observation of those immense black spots on the solar surface which, appearing on the eastern border pass across the sun's disk and become less as they move across to the western border.

We will presently consider what it is that produces dynamical phenomena on a scale so vast as the various spots which the sun presents. I will first remark with regard to the rotatory motion of the sun, that like the orbital motion of the planets, it does not vary, but always occurs in the same interval of time, namely: twenty-five days, nine hours, forty-seven minutes, and five seconds. You will see, my friends, that spiritual science differs from terrestrial astronomy by two hours, sixty-three seconds in the rotatory motion of the sun. That may seem a small matter to you, but to the man of science it means a great deal indeed. I do not by that assign to the sun a less velocity of rotatory motion than terrestrial astronomy does, but I attribute to it a much greater bulk than they do. We will, in concluding the present address, just ascertain what it is that gives rise to the phenomena of the solar spots. I have already spoken of those meteoric rings which revolve in the photosphere, as producing those bright spots known to science as faculæ and luculli. Now it is well known that these usually precede the appearance

of a spot—that a spot is seen sometimes without a nucleus, and penumbra, and sometimes with a nucleus and penumbra. These phenomena have given rise to much diversity of opinion amongst terrestrial astronomers; some considering them as transparent bodies, floating in the sun's surface, which bodies coming into conjunction towards the centre, produce the appearance of these spots. This is not so, because they would then have unequal appearances, and extremely unequal velocities, whereas they have varied appearances, but their velocity usually the same. The various spots would not have an equal velocity, for one spot would have a greater velocity than another. Another theory assumes that they are volcanic eruptions, and that the smoke constitutes the dark spots. Another, that they are the craters of extinct volcanos, situated on high eminences, and being seen through the luminous surface of the sun present the appearance of nuclei and penumbrae.

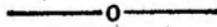
It is a fact that faculae usually precede the appearance of spots. On the gaseous atmosphere of the sun are strong electro-magnetic currents; and as the rays are obliquely towards the borders of the sun, the current commences there, and gaining force as it traverses the sun's disk, where it comes into contact with the various atmospheres, this electric current sweeping down, discovers the dark body of the sun. When it has a nucleus, or when there is a seeming nucleus and no penumbra, the dark body is wholly disclosed to view. When this is the case—say penumbrae without nuclei—the electro-magnetic current has only reached the condensing atmosphere of the sun below the other strata that lead to the surface. It is then a penumbra without a nucleus. Sometimes this seems to be the case when the interior of the cloudy spot is brighter than the shadow. This is easily explained. Sometimes an electro-magnetic current, cleaving aside the whole of the solar atmospheres, leaves exposed to view the solar sea, when the surface catching the reflected light of the photosphere renders the interior of the dark or cloudy spot of great brightness, but

still dim and shadowy when compared with the extreme splendour of the sun's photosphere.

In reference to the solar spots. I take it for granted that you all know that the discovery of the rotation of the sun on its axis is due to the observation of the solar spots. Astronomers have disputed concerning their augmentation and diminution. If a spot appears in the eastern edge of the sun's disc it will seem like a small oval, being seen obliquely. As it nears the centre, it will appear like a circle enlarged in size; as it nears the western border it will present a forshortened appearance, and will do so during 56 or 57 revolutions. They are confined to two zones, one 35 north declination, the other 35 south declination. By us they are often seen as low as 46 south. These are divided from the equator by two zones, which are quite free from these magnetic excavations. Sometimes the sun will be thickly covered with, and at others quite free from them. Sometimes a vast spot, millions of miles in area, will be visible for two or three revolutions. Again, immense spots will break up into innumerable smaller ones, and will disappear near the centre of the solar disc. Others are traversed by rills of luminous matter: these are incandescent particles fused in gaseous modia. With regard to faculæ—the solar atmospheres at the surface are full of tremendous disturbances, which cause immense fissures, producing spots and penumbæ. In the equatorial regions of your earth are similar disturbances, which, viewed from a distance, would lead to a belief that it was uninhabited. The belts of Jupiter are attributable to the same cause. There is also a correlation between solar spots and terrestrial magnetism. With respect to the corona of the sun, I will speak of that hereafter. I will merely add that sun spots were intended for several purposes by the Creator, who foresees all wants; while the sun itself is the great magnetiser as well as the light-giver and heat-developer, the comets receive magnetism from the sun by the agency of these "spots," and distribute it through the solar system.

May the Infinite Wisdom guide you in your lives.

May the Creator, Our Father, send his harmony into your lives, that by their purity and nobleness you may show to the world the greatness of Spiritual knowledge and Spiritual truth. Farewell!



No. IV.

MY FRIENDS,—The close of the last century and the beginning of the present—you observe that when I speak to you I am referring to the mode of reckoning that is in use in earthly life—therefore I say, that the close of the last century and the beginning of the present, saw the greatest strides in observational astronomy that have been made for nearly two centuries. For, perhaps, you are not aware that observational astronomy was not cultivated by me to the same extent during my earthly existence that mathematical astronomy and the laws of physics were. But the beginning of the next century will mark an important epoch in the history of terrestrial astronomical science. There will be a revelation of discoveries of the most startling kind—discoveries which will be not only of the highest possible importance to terrestrial astronomical science, but will partly revolutionise astronomy and induce new modes of scientific thought. For since Copernicus, in obedience to spiritual impression, swept the heavens with his far-searching glance, and receiving confirmatory evidence of the inspired thought, undeterred by the fear of theological tyranny, dauntlessly told the world that the planets, the earth included, were all revolving in vast orbits around the sun, science will have experienced no greater change. At that epoch human thought became paralysed. “Infamously blasphemous and impious,” thundered the Church; “because, if the world is turning round, what is there to prevent the inhabit-

ants from falling off, when the world is turned upside down?"

That was a question that Copernicus could not answer; but, in defiance of theological tyranny and the hatred which he incurred from the priestcraft of his time, he nobly maintained the truth of his theory. Firm and immoveable as a rock in the midst of the surging, foaming, dashing waves which break around it, stood the champion of truth, while the billows of persecution and hatred rolled against him in vain. And in his great, great work *De Revolutionibus Orbium Celestium*, he gave the fruits of his labours to the world, well knowing that it would stand the most rigorous examination by posterity, and that the science of the future would maintain the truth of his theories, and place his name where it deserves to be—foremost in the ranks of those pioneers of truth who have immortalised themselves by their labours for the advancement of human knowledge. Nevertheless, his work was condemned by the *Congregation of the Index* as being heretical, blasphemous, contrary to all knowledge, and written at the instigation of the evil one!

Ah! great and noble and aspiring spirit! with what a smile of love, of thankfulness, and pity thou recallest the fearful memory of the dark and terrible days of superstition on the earth when thou stoodest on thy solitary eminence of scientific grandeur, removed by thy superior knowledge alike from human sympathy and human love; and yet thou heededst not the terrible doom which threatened to destroy thee from off the face of the earth—from amongst thy fellow-mortals whose spiritual advancement was the highest aspiration of thy soul. Let the world know how he is venerated among us—the beings of immortality.

For a time astronomical knowledge stood transfixed. Then Kepler succeeded Copernicus, and applying certain theories to the phenomena of the heavenly bodies, ascertained the laws which govern the planetary motions and the great principle of unity.

Next, I was the instrument selected for the transmission of knowledge; and, applying a method of

analysis spiritually impressed upon me, I had the honour to demonstrate to the world the truths of the sublime theories of my illustrious predecessors.

The transit of Venus which will take place in 2004 will lay the foundation of a series of startling discoveries, which will partly revolutionise astronomy—that is to say, terrestrial astronomy—for I draw a broad line of demarcation between terrestrial science and spiritual science. A great stride will mark that epoch of astronomical science, and one of the great facts discovered will be the ascertainment of the true parallax of the sun, and consequently the exact distances of all the heavenly bodies. For, according to terrestrial, mathematical astronomy, the squares of the times of the revolutions of the planets are equal to the cubes of their mean distances from the sun. Nevertheless, the true parallax of the sun will be determined by an accurate knowledge of the velocity of light and the laws of refraction.

This is a subject far too complicated to be entered on at this present time, as it involves calculations too intricate for the minds of the friends present. Neither will I weary the circle with minute details or heavy technicalities. I will simply remark that the atmospheric portion of the etheric ocean which envelopes, rests upon, and surrounds your globe to a certain height, decreases in density in proportion to its distance from the surface of the earth; and as a ray of light passing from the rarer into the denser atmosphere is deflected from the perpendicular, each deflection increasing with the differences of the density of the layers of etheric atoms through which the light of the sun or stars must cleave its way ere it reaches the earth. The amount of this deflection will be determined by the velocity with which that light reaches the surface of the earth. The knowledge of this alone will lead to and determine the parallax of the sun; but, in order to arrive at this, there will be required a most consummate mathematical skill and a correct and intimate knowledge of the science of optics. By these means, however, will the noblest and most difficult problems in astronomy be resolved, and

with a precision so minute that it will not be liable to an error greater than a mere fractional difference.

The next great fact to be deduced from the solution of this problem, namely, the true parallax of the sun will be the discovery of a new planet belonging to the solar system, and whose path in the heavens is beyond that latest discovered planet of the solar system, Neptune. And this planet will determine the bounds of the whole of the solar system, and still further set at nought the empirical law of planetary distances.

Even spiritual science at the present time has not a very accurate knowledge of this planet, or of its movements, etc. We just became aware of its existence by mathematical calculations as to other phenomena; for, as the great Kepler truly said, "In the arrangement of the heavens the Creator had regard to the principles of geometry." Secondly, we learned it from astronomical and spiritual observation; and, therefore, I have no hesitation in giving this knowledge to you as accurate, or in asserting that the future will confirm my words.

The third great discovery will be that the force of gravity does not act wholly and independently of itself, but that it has a mutual relationship with another great undiscovered force—I say undiscovered relatively to terrestrial science. It is not undiscovered with regard to spiritual astronomy, for there is a correlation of physical force, or rather a co-operation of physical agencies which compels the fixedness of that law which binds the cosmos together, and without which the force of gravity would be ineffectual for the stupendous purposes for which it is required. For weight or gravity is really a mere phenomenon of matter. This may appear to be a strange admission coming from me, but I am fully assured that the phenomena of a correlation of forces agree with observed facts, and that the force of gravity has a mutual relationship with another great force which it admits in explanation of its existence. The affinity of forces [I use the plural term, although there is really only one force] is only in the primal knowledge among terrestrial scientists.

The next fact which will startle the world is, that the sun, which from time immemorial has been looked upon as the heat as well as the light giver of the solar planets, is not absolutely so, for the solar rays or propulsions of matter from the radiant orb are not in themselves sufficient to cause planetary heat, but that they act as a provocative to a reciprocal element contained in the masses of the planets—a correlation of physical forces producing calorific effects. For instance, the solar rays require a definite time to produce a given effect. Again, the earth is nearest to the sun in winter, and further from it in summer. Terrestrial astronomy accounts for these phenomena by the obliquity and perpendicularity with which the sun's rays fall on the earth's surface. Now, the greater the altitude to which the sun attains, the less obliquely will its rays fall on the surface of the earth. Therefore, when the sun attains its maximum altitude, how are we to account for the fact that the longest day is not the hottest, nor the shortest the coldest? Again, how account for the phenomenon that in the Equatorial regions of the earth, the summit of the highest mountains are covered with snow, while exposed to the fierce glare of the solar rays. This you will say is owing to the extreme cold of the interplanetary spaces. In that case, if the sun's surface were a mass of glowing hydrogen, to which terrestrial astronomy assigns a heat 250 times greater than metal at a white heat, the extreme cold of those interplanetary spaces—even allowing for the immense velocity with which the solar rays travel to the earth—would materially reduce, if not altogether deprive them of, calorific effect.

Here, my friends, my remarks about the physics of light would apply, to a certain extent, to the physics of heat. There is a correlation of forces—a co-operation of physical agencies—which produce the phenomenon of heat, and this principal is governed by laws similar to those which govern the operations of all other physical agencies.

The theory that a planet moves fastest when nearest the sun, and decreases in proportion to its distance from

it (a theory fully verified by spiritual science), and that there is a rapid increase in the changes of the sun's longitude never accounted satisfactorily to my mind, when on earth, for the changes of temperature to which your globe is subjected during its annual revolution. But I now know that it is owing to the reciprocal principles contained in the masses of the planets, and that, without these, the heating power of the sun's rays—the solar radiance—would be ineffectual for the generation of planetary heat. If heat were generated solely by solar radiance, the upper strata of the atmosphere would be hotter than the lower; whereas we know it is precisely the reverse, the heat increasing with the density. One hundred thousand years ago the earth was nearest to the sun in summer, and furthest from it in winter. At that time there was a short period of extreme heat, followed by a long period of extreme cold; and it required a much longer time to complete the annual revolution of the earth than it does now, as the eccentricity of its orbit was much greater. Your globe brought forth a different kind of vegetation then. Different species of animals existed, and different beings peopled your planet at that distant period, which was the glacial epoch. And the snow-clad mountains of the tropical regions, of which I spoke just now, are remnants of that epoch, and have survived all the varied changes of temperature which the earth has undergone, and still attest the occurrence of the epoch I have named. I have given it as 100,000 years ago, but the earth was in the same condition 50,000 years ago.

I have not deviated in this wise from the sequence of my addresses without a special object, not only with regard to the physical constitution of the sun, but also with respect to those subjects which may come under consideration at a future time, namely, the physical constitution of the solar planets, and the probabilities of their being inhabited.

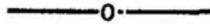
I spoke in my last address of the nine atmospheres of the sun, and that these atmospheres have a movement independent of each other. I also spoke of solar seas and mentioned that the solar terrestrial atmosphere is a

life-sustaining medium to the inhabitants of the sun. Let me add that I know that there is land and water in the sun as assuredly as if I had been there and touched both, and that this land and water are distributed similarly to the distributions of land and water on your globe. There are mountains and valleys, lakes and islands, continents and oceans, similar to those of your earth. But remember, I say similar; it is analagous to that which forms your globe, but it is matter more refined, pure, and sublimated. For, if I hold the globe, or dark body of the sun to be as weighty as any of the planetary bodies—and weight, I would remind you, is simply a mathematical conception, and not a reality—you must remember that the mass or density of the sun is by no means commensurate with its extraordinary magnitude or volume. That it is inhabited by beings analagous to the human race I am fully assured—intelligences of a higher order, clothed with a frame of etherealised and attenuated matter—intelligences of such an order, with terrestrial organisms, as far transcending the human race as the human being in the scale of creation transcends the animal.

The condensing atmosphere of the sun, and the cloudy atmosphere which intervenes between the first and second atmospheres of the solar globe refine and tone the luminosity of the incandescent photosphere until there is a permanent Aurora Borealis illuminating the globe of the sun; but this Aurora Borealis is as much brighter and as much more transcendently beautiful than the renowned Aurora Borealis of the Northern regions as the solar inhabitants transcend the mortals of earth.

In conclusion I would remark that the climate of the globe of the sun must be so delightful to the senses that the mere consciousness of existence constitutes an intense pleasure—the various atmospheres softening and refining the external sunshine; and the immediate atmosphere of the solar globe being free from moisture, necessarily presents a transparent and crystalline appearance: and thus distant objects lose half their remoteness, the visual organ of the inhabitants being

so constructed as to meet all the requirements of their position; and life passes with an indefinable sense of joy amidst transcendent splendour and ineffable beauty.



No. V.



MY FRIENDS,—Before entering on my explanations of the solar corona and zodiacal light, which I propose to make the subject of my principal remarks at this sitting, I find it necessary to refer first to that portion of my last communication which had reference to the spiritually-impressed thought of the illustrious Copernicus. That similar opinions relative to the movements of the planets were entertained by certain ancient philosophers, this illustrious philosopher and astronomer fully admitted; for does he not make mention in the beginning of his great work this important fact in the following manner: "I found in Cicero that Nicæus maintained that the earth was in motion." And, referring to the writings of Plutarch, he says: "Philosophers in general maintain that the earth is at rest in the centre of the celestial sphere; but Cleanthus of Assus and Philolæus the Pythagorean, opposed the opinion of these philosophers and asserted the earth's movement around the central fire. This central fire was the then supposed focus of the universe;" following the same path in the celestial sphere as the sun and moon. Also Aristarchus of Samos taught that the earth was not only imbued with an annual motion round the sun, but also with a diurnal rotatory movement on its own axis. This would seem to indicate that Copernicus was not the discoverer of the system which bears his name, but that he founded his theory upon the opinions maintained by these ancient philosophers.

Nevertheless, he asserts, and I know justly maintains, that such was not the case, but that he rightly sought among the writings of the ancients for such records as would tend to confirm the impression. But these opinions were entertained only by the few, and well and learnedly argued against by the great analytical and pre-eminently logical mind of Aristotle; therefore, wholly to the spiritually impressed thought of Copernicus do mankind owe the restoration of the true system of the universe. But that the planets were regular and harmonious in their movements, and therefore governed by fixed laws, does not seem to have suggested itself to the seers of antiquity; and it was reserved for Kepler, who immortalised the age in which he lived on earth, to shed undying lustre on his name by the discovery of those laws which govern the movements of the planets. That a wonderful forecasting of knowledge existed among the ancients, there can be no doubt whatever; for with what marvellous prescience Anaxagoras propounds some remarkable views relative to the existence of an attracting principle inherent in all bodies. These were great truths, mighty discoveries, dimly foreshadowing their existence in the classical minds of antiquity; just as I foretold the existence of properties yet unthought of, and which later discoveries have fully verified. But these spiritual impressions have been the mysteries of science — sublime mysteries, which it was reserved for Spiritualism to accurately define and trace to their true source.

It now becomes necessary for me to explain why I referred so particularly to a matter which may possibly require neither assurance nor explanation namely that the greatest benefits which have accrued to the human race have had their origin in spiritual impression. Independently of the great and pleasing interest which must ever attach itself to such heaven-born knowledge, we must take it into consideration, that as my communications are given forth to the world, it behoves me to distinguish between two classes of minds in the world — the spiritualistic, and that class which I shall term the non-spiritualistic — under whose notice these communi-

cations may fall. To the former, my remark on the spiritually-impressed thoughts of Copernicus will seem so natural and to spring so directly from the nature of things, that it is not necessary to reassure them upon the subject; but to the non-spiritualistic, who are blind to the intellectual grandeur of such a simple truth of nature, it will appear fallacious from every point of view, and they will class the remark amongst the aberrations of the human mind. Alas! there are those whom nothing could convince. This is but another example of the struggles between prejudice and truth, and affords a still stronger evidence of the suitability of the spiritual creed to the complex wants of the human mind.

Spiritual impression has been for ages a life-giving power to the human intellect, and thereby shows its adaptation to all conditions of the human race and to all ages of the world. As there is a great spirit of incredulity abroad among the masses of mankind, it behoves me to show by my knowledge of antecedent facts the evidence which may be brought against it.

Having dealt fully, in the last sitting, with that transmitted thought which has been for years upon your earth, called inspirational knowledge, but what is better and more accurately defined by Spiritualism as spiritual impression, I have said sufficient on that matter for the spiritualistic portion of the world to collect my opinions therefrom, and shall conclude my remarks by saying that we, the spiritual beings of the inner life, all fervently hope that a truer appreciation of the ennobling fact will shortly prevail among the masses of mankind. I will now turn your attention, if you please, to the beautiful attendant phenomenon which solar eclipses reveal to the human view: that halo of bright light which surrounds the great leading orb of your system, and which has been well termed, in modern astronomical nomenclature, the corona of glory. The nature and origin of this singular phenomenon have been a subject of marked diversity of opinion among latter-day astronomers and physicists. But before proceeding further, I find it necessary to remark that the great question which doubtless will perplex many minds on earth, now

reveals itself clearly to me on the threshold of my exposition. Is it scientific to advance an explanation of natural problems which is not demonstrated by positive proof, or proved incontrovertibly by positive facts? I unhesitatingly answer in the affirmative; because, controlled and limited as spiritual beings are by natural conditions, to demonstrate this matter fully would compel me to enter upon a course of scientific abstract reasoning that would take us wholly into the regions of another science. Such a mode of demonstration must necessarily be based upon certain conditions; and these conditions, I regret exceedingly to say, are not available; or, in other words, the anomalous physiological construction of the cerebrum of the medium does not permit of the necessary conditions. It would, therefore, be unreasonable for mortals to impose conditions which are not accessible; but, were adequate means placed at our command, we could not only fully satisfy the most searching investigations of science in the completest manner, but communicate such knowledge, as far transcends the conception of the greatest scientists of your day, and which the minds of philosophers yet unborn—the great thinkers of the future—whose minds built upon the knowledge of the philosophers of your day, and with all the acquired wealth of thought which may be their heritage, could but feebly grasp.

Restricted by natural conditions, I can only hope to lay before you simple truths of nature, which can only be disclosed by facts of observation, which later observed phenomena will abundantly confirm. But remember I would not that you should accept one tittle of knowledge from me that will not bear the most penetrating scrutiny from the eye of reason, or the most searching investigation by rational scientific thought. Nevertheless, without the aid of mathematical investigation, without abstract scientific reasoning, or technical terms, I hope to unfold to your minds the true solution of the phenomenon: stripped, however, of such imposing accessories that I greatly fear my explanation will go forth to the world weighted with the great drawback of extreme simplicity.

No. VI.

You, my friends, will be enabled to judge from my opening remarks, at the last sitting, that the *corona* must be considered wholly as a solar phenomenon, and not as a lunar appendage; also that it is not, and cannot be considered as due to the effect of the glare of the earth's atmosphere, that is, that the coronal phenomenon is not an effect produced by the reflected light of those portions of the earth's atmosphere which, from their positions, are still exposed to the full rays of the sun. Those who possess a knowledge of the laws of optical phenomena, of the reflection of light and the foci formed by the reflection of light will better understand why a terrestrial atmospheric phenomenon has been assigned as the cause of the corona. This fact is not wholly irreconcilable with observations, but when such crude facts are properly analysed they cannot be rationalised into a symmetrical system. Nevertheless, both these hypotheses have found acceptance by eminent terrestrial astronomers. Although the orthographic presentation of the earth's disk towards its satellite during the time of complete obscuration should negative the fact, in regard to the latter hypothesis, it cannot be accepted, or rather it must be wholly rejected, for two very valid reasons. First, by taking into consideration the variation in form and structure which the corona presents when submitted to accurate terrestrial observation. We know that competent observations by skilled observers have accurately defined that the solar phenomenon cannot be a lunar appendage. The same accuracy of observation should demonstrate that it cannot be due, by the peculiarities of its shape, to terrestrial atmospheric phenomena. But I will refer more particularly to this matter later on. Next, philosophers should take into consideration the simple fact of how small a proportion planetary atmospheric glare could possibly bear, under the most favorable conditions, to solar brilliancy. To

spirits in the inner life this matter—in fact, both these hypotheses—seem sadly wanting in rational thought, for we can always behold the corona, shining with a glory far exceeding all conception of it upon your earth, while at best, and under the most favorable conditions the terrestrial observer can only see the external meteoric ringed system; for I must tell you that the existence of myriads of meteorites revolving with amazing rapidity around the sun to a distance of something more, though very little more, than a million of miles from the apparent surface of the solar disc, is the great leading cause of the extension in space of this grand solar appendage.

I cannot view these theories in the same light as those who would regard them with contempt, because I am sensibly aware how mistaken many of my theories were, that is, those given during my sojourn upon earth, to account for natural phenomena; for instance, the explanation of the phenomena of light by the theory of emission. All this but serves to show the imperfections and incompleteness of earthly existence, and the necessary limit which an allwise Providence has placed upon human knowledge. To those spirits who, in their former existence, were unaccustomed to observing objects, the difficulties which attend the perception of such phenomena whilst in terrestrial life, are altogether unknown. For remember, my friends—when you compare results with one another, when you analyse and discuss various theories which account for natural phenomena—that the perception of external phenomena is altogether dependent upon its correlation with internal phenomena. To give a physical definition; the sensorium, or organ which receives the impressions of the senses, is differently constructed in every single individual on your planet, and the perception of external events, or the consciousness of objective realities, is dependent upon the amount of impression, and the rapidity with which these impressions are conveyed to the sensorium by the senses. A variation to the extent of the millionth part of a hair's breadth in construction, or in the time of transmission, will materially alter the conditions under which

any external phenomenon becomes perceptible to the internal consciousness.

It is not necessary that we should discuss further the theories put forward by terrestrial science to account for the coronal phenomena. Each theory, as a rule, has been accompanied by arguments that, to the student of science, seem sufficiently powerful either to establish or to overthrow it, so that his mind emerges from the vain endeavour to acquire knowledge in a state of perplexity, confusion, and doubt, for he finds, after laborious research that the theories of one age which have been considered as firmly established, are in the next discovered to have been errors. Thus he realises, with a painful intensity, his own profound ignorance, and feels, in the present uncertain state of scientific knowledge on earth, how very unlikely he is ever to know. To such a one, good friends, Spiritualism would be a precious boon, a messenger whispering to his troubled soul of inexhaustible mines of precious knowledge, of deep wells of spiritual science, where he may slake his ardent thirst, in an existence freed from those material conditions which impede his powers on earth.

We will now, without further digression, take into consideration the form, structure, and nature of the great coronal problem—that insoluble problem to so many thinkers. This singular phenomenon has been well described as resembling great masses of clouds and streams of light, apparently issuing from the lunar disk during totality, but, when accurately observed in a later phase of the eclipse, they are found to be concentric with the solar disk, that is, the time after totality when the moon seems eccentrically placed in the corona, and compels a foreshortening of the radial part of the structure to observers on earth. I have denominated as radial structure that inner and brighter part of the corona where vast masses of clouds of cosmical matter, capable of an immense degree of illumination, are intermingled with the myriad meteoric ringed systems which have their perihelia, relatively considered, close to the terrestrially observed surface of the solar disk, thus giving them on close observation something of a conical appearance. Now, as

all matter in the universe is divided into three parts, some one or two of these must account for the nature of the corona.

It was a matter of great regret both to the guardian of your circle and myself that a failure of conditions would not permit me to complete the closing remarks which I desired to make on solar phenomena.

I remarked, at a previous sitting, that I held it the wiser part that we should deal fully in the first place with the structure and form of the corona before discussing those phenomena of radiation that transmit the luminous splendour constituting the glory of the phenomenon. The corona forms no exception in structure to the singularly complex duality which characterises all solar phenomena. Upon examination, we find this duality of structure so marked, and presenting such a body of complicated phenomena, that we can no longer consider these radial streamers, which extend for nearly a million and a half of miles into space, as forming but one appendage. These radial streamers, ascending outward from the terrestrially visible surface of the sun, encounter a broad dark band—dark only, remember, by comparison with the bright light of the inner corona—which interposes between that condensation of luminous radiations which forms the inner corona, and the phenomena which constitute the outer. I use the term “terrestrially visible surface of the sun” as distinguished, or presenting wholly different features, from its true surface; for its true surface no mortal eye has ever yet beheld, nor, so far as my knowledge of the transmutation of material phenomena holds good, ever will behold. Guided by that theoretical principle which is educed from proofs and severe reasoning applied to the laws of analogy, we know that, according to the inevitable law of progress all matter must undergo great and marked changes, and that different conditions, both solar and terrestrial, will cause a more complex and more highly refined structure of the visual organs, and that thus optical phenomena of a far higher order, more approaching perfection through completeness, will be discernible hereafter. For the correlation of ma-

terial and mental phenomena must constitute the perfection of nature. There will be thus a body of optical phenomena which could be but faintly prefigured by any antecedent representations of mine, and which will far transcend all efforts of the human imagination at present. Nevertheless, after carefully forecasting all these altered conditions, I see no valid reason that will justify me in departing from my antecedent conclusion.

To return to coronal details, this broad darkish band, which is only observable from the earth's surface during certain eclipse phenomena, is composed of vapours containing a great number of elementary substances, as also the metallic vapours of barium, calcium, strontium, chromium, iron, zinc, copper, magnesium, sulphur, and cobalt. I may condense the sum of these metallic substances by remarking that though the presence of cobalt might be taken to indicate the absence of the higher metals, those vapours nevertheless contain the elementary substances of every metal which is found on your own planet. Terrestrial scientists are aware that an inner brighter and an outer radiated corona have been recognised by terrestrial astronomy, but we shall show a fuller value of the recognition by speaking of these luminous radiations which encompass the great central orb of your system as the solar coronæ. The nomenclature is by no means in excess of the phenomena, inasmuch as the continuation of these radial streamers is dependent on a cause wholly removed from those condensations of luminous radiations which constitute the inner brighter corona. Why I could only give an approximate value for the extension of these radiations in space, is due to a cause which I shall explain further on. The extreme irregularity or variability of extension in space of the coronal streamers is apparent to all observers, and is due to the variability of the movements of these meteoric phenomena which constitute the outer radiated corona; the variability of their movements not permitting us to give a decided value for their extension in space.

We will now take into consideration the forms of the corona. The sun itself cannot be considered as a strictly spherical globe, but as coming under the common law of

form, which rules all the planets of the solar system ;— nay, not only all the planetary bodies of the solar system, but, according to the laws of gravitation and the principles of dynamics, every star and planet in the universe,—that of a slight compression at the poles and a proportional equatorial convexity. I will digress a little here to explain that the laws of analogy show us that wherever the force of gravity prevails, every orb must be spheroidal and the curves ellipsoidal ; the laws of gravity determining the former and the force of attraction the latter, the principle of attraction also determining the velocity of the orbital movements. We know now that attraction must be considered apart from gravitation. Attraction might be well defined as waves of magnetic force radiating through so-called space with a velocity which dwarfs into insignificance all preconceived ideas of the amazing velocity of light. We assume then, that what is true of a part must be true of the whole, and that the form and movements associated with one phenomenon, present themselves in connection with all similar phenomena, and that these laws determine the mechanic relation and influences which planetary bodies exercise upon each other. But these laws, although true in the abstract, are subject to variation in the concrete ; the law of this variation being determined by the disturbing influences of other bodies. These two great powers (namely, of gravitation and attraction), then, may be thus looked upon as determining the configuration of each system, and consequently the order of the universe. And let me remark, in passing that all the phenomena of nature are as we view them, and not as they actually appear to you. This was the error of the Middle Ages in regard to the sun ; and the origin of the geocentric theory. Instead of adjusting theories to facts, they adjusted facts to theories. This must be so no longer. Inductive philosophy has had its day, and must now give place to deduction. The former fulfilled its purpose by laying the foundations of the temple of knowledge ; and deductive philosophy must erect the superstructure. Men must no longer reason from the particular to the general, from the little to the great,

from principles to things, from the abstract to the concrete, but must reverse the process. Do not think, oh my friends, that we would invest with a sovereign potency, a supreme power, the impalpable forces of nature, or that we,—following the scientific road,—reason downward till we thrust out God, or that we would put mechanic laws in the place of the Creator. I will utilise the poetic inspiration of the seer of old, and say,—“Could force bind the sweet influence of the Pleiades, or loosen the bands of Orion? Could force bring forth Amazzaroth in his season, or bind Arcturus with the stars?” No, these immaterial forces are but the warp and woof which in weaving the web of creation embody the design of the Creator, and make palpable the thought of God. There may be other creations where the forces of gravity or the principles of attraction reach not. The bounds, the limits of knowledge are not the limits of possibility. But here, at this stupendous thought of universes to which these forces reach not, we realise our own helplessness to comprehend such a profundity. Imagination shrinks back bewildered, and reason refuses to act. Faith alone could sustain the soul in those regions of thought, when it attempts to ascend to realms of such unfathomable immensity.

Though I have spoken of the sun as being spheroidal in form, the sum of the curvature of the equatorial convexity might be expressed by a fraction of the diameter of the great spheroid. It may simplify the matter to some present if I explain that the transverse or major axis exceeds the minor or polar axis simply by the sum of the convexity.

We will now take into consideration the physical nature of the solar coronæ. The more we rigidly examine, and thus arrive at a true knowledge of, our solar phenomena, the more we are struck by the analogy which exists between solar and terrestrial phenomena. This will be better explained by remarking that the earth is not the point from which *we* view the solar phenomena. Now, to illustrate the errors of observation, let us suppose an observer wholly unacquainted with the terrestrial atmospheric phenomena and the various

meteorological changes which are continually taking place upon your earth. Stationed at a given point in space, the earth would appear to him a scene of great disturbance. Our imaginary spectator would behold meteorological phenomena on a grand and singularly immense scale; luminous clouds being torn apart by every impulse of atmospherical phenomena, whilst it would seem impossible that planetary clouds could shield the subjacent mass from the apparent destructive elemental strife which raged above and around it. Consider therefore that meteorological processes, on a vastly grander and far more stupendous scale, are continually taking place on the terrestrially visible surface of the solar orb, that these are complicated by phenomena of eruptions, and that as there are great local differences of temperature on the solar globe, such temperature would attain its greatest elevation in those parts of the solar globe corresponding with the equatorial regions of your earth. I omitted to remark, relative to the forms of the coronæ, that they not only partake of the nature of form of the radiant orb which they encompass, but that owing to a cause which I shall now explain, there is a greater elongation or convexity in those parts of the coronæ which surround the equatorial regions. The solar surface—I should say the apparent solar surface—is a scene of great disturbances. Energies continually manifesting themselves, cause those violent meteorological processes, which compel the ascent of those phenomena of radiations that form the inner brighter corona; and, as I remarked that, owing to the great local differences of temperature of the solar globe, that temperature would attain its greatest elevation in those parts where these phenomena of eruptions attained their maxima, there will consequently be a greater bulging out of the inner corona in the equatorial regions, while the physical nature of the meteoric phenomena which form the outer radiated corona will naturally tend to gravitate towards the centre of the great solar orb. Moreover, while investigating solar meteorological phenomena, we behold clouds of luminous cosmical matter—transparent molecules capable of reflecting

an immensity of light, ascending from the effulgent surface of the solar orb. To simplify the explanation, we will consider this matter as divided into three portions, one of which is returned towards the solar surface, thus giving the inner coronal radiations that conical appearance which upon nearer examination is found to be illusory ; a second portion is absorbed by the band of vapours external to the inner corona ; while a third, exerted along the lines of least resistance, mingles with those myriad meteoric systems which have their perihelia at a given distance—the limit of this distance being determined by the resisting medium which encompasses the solar orb ; and thus we behold illuminated meteors,—meteors capable of reflecting rays of all degrees of refrangibility, mingling with the luminous cosmical matters propelled from the terrestrially apparent solar surface, giving us the impression of numberless ripples in a sea of light.

You thus understand that Spiritual science negatives the hypothesis of the expulsion of these meteoric systems from the surface of the sun, as being incompatible with our knowledge—our clearer and larger, because spiritual,—knowledge, of the constitution of the solar orb. It may seem strange to you that such a simple and natural explanation of coronal phenomena has not been arrived at before, but fanciful hypotheses find acceptance, where simple reliable theories are rejected with incredulity and scorn. The coronal problem is now solved, and the truths unfolded are consonant with spiritual science and with that mode of thought known as soul acting on soul, or rather, my friends shall we not reverently say it is the far off voice of God transmitting thro' disembodied souls waves of ideas flowing from the Eternal source of mind, like force-waves radiating from the centre of gravity of the universe. Simple as these conclusions are, they will sooner or later cause a prodigious change in men's views of the centre of the solar system ; and will engender true ideas concerning the physical nature of celestial bodies. Father, Creator, Preserver and keeper of all things, on Whose bosom

reclines the universe, and upon Whose paternal care, reposes all nature!—Great, Infinite, and Eternal Being! in adoration our souls reach out to Thee, because we know, oh our Creator! that because Thou art, therefore we are. Nor, in studying Thy sublime works, can we fail to discern the Infinite which permeates all, the infinite harmony which pervades all phenomena, both material and spiritual!

