



HEAVEN AND EARTH

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BY

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URANIA
Muse of Astronomy
represented pointing to the disc
of the sun.

A National Festival of Astronomy was celebrated in France
during the Revolution on the 10th of October 1791.

INTRODUCTION

THE various considerations which are set forth in the following pages seem, in the first place, to need an apology, in view of the fact that they completely revolutionize existing astronomical concepts. It may be said in this connection that scientific evolution, which does not specially aim at destroying previous supposed knowledge, although it does so in the end, is the result of the progressive influence of the age which makes it inevitable, and if the change, therefore, had not taken place to-day, it would unavoidably have occurred sooner or later in the course of time.

The system of gravitation which makes the sun the moving centre of the Universe, the awkward principles of which are anything but certain since they apply to invisible circumstances so that they cannot be checked, is here replaced by the old geocentric system, universally accepted until the 17th century in view, of course, of its undisputable obviousness, and in which the earth, in a state of immobility and surrounded by the planets visibly moving round it including the sun, is at the centre of our Universe.

It has been said that there is nothing new under the sun, but it could be added—except the manner of interpreting those very facts which, indeed, are not new. Thus, this system comprises two important features already known to the ancients, which had been inconsiderately discarded or even completely ignored, but which, by a different interpretation put on data obtained through certain modern discoveries, have been recognised to be absolutely true in spite of their apparent improbability. These two facts which explain almost everything are firstly, the positive existence above the earth of a solid dome constituting the sky; and secondly, the non-material nature of the planets and constellations, which are not physical masses, but merely luminous manifestations without substance. These are the two circumstances which lead to-day to the fundamental transformation of astronomy.

Further, the study of non-European cosmographies has provided a fresh outlook on the problem of the Universe, and has furnished logical solutions

to certain astronomical phenomena which could not be explained in the past.

It is obvious that this work is incomplete, and also that it may be improved. It is, therefore, hoped that the assistance of various technicians, particularly in the field of optics, will help in due course to solve the remaining problems, as the important thing is not to try and prove one's infallibility, but to arrive at the truth.

It is usual in the exposition of a new system to try and disprove the preceding theories which are now considered to be impracticable and obsolete, and it is to this end that the comments on gravitation and other hypotheses have been made. They should not be regarded as being directed against anyone in particular.

The author acknowledges her indebtedness to all those who from the earliest times throughout the ages, have by their accumulated labour and efforts, made possible the realization of this work to-day.

CHAPTER ONE. ON THE NON REVOLUTION OF THE EARTH ROUND THE SUN AND ON THE EXISTENCE OF A SUMMER AND OF A WINTER COSMIC BREATH STREAM

COPERNICUS put forward the hypothesis of the revolution of the earth round the sun in order to explain the cycle of the seasons. His theory is not very satisfactory seeing that the earth is supposed to be at its greatest distance from the sun in the summer during the hot weather, and at its shortest distance in the winter when the temperature is at its lowest. These unusual conditions which clearly contradict the laws of nature as regards the effects of heat, are it is said, due to the angle formed by the rays of the sun as they fall on the earth's surface. It is also stated that the opposition of the seasons north and south of the equator is due to a tilt of the earth, first on one side, and then on the other, which conveniently occurs at the right moment. Nothing is said, however, of the shifting of the waters of the sea and rivers which this change in the centre of gravity and in the position of the earth would inevitably bring twice a year. It might also be assumed that under those conditions, very high constructions would swerve from the vertical. The American sky-scrapers and the Eiffel Tower, for instance, cannot be seen to lean right or left according to the seasons, although this should be a logical and natural consequence of the alternate inclination attributed to the earth.

It must reasonably be said that the circumstances which readily explain in the most extraordinary and unlikely way the cause of the seasons are not credible, especially in view of the fact that Copernicus, when he published his theories on the movement of the earth in his Treaty on the Revolution of the Celestial Spheres in 1543, insisted on their purely hypothetical nature. He said: "The hypothesis of the movement of the earth is only one which is useful to explain phenomena, but it should not be considered as an absolute truth." It was never his intention, it seems, that his theories should be taken in earnest by his successors.

The motion of the earth in space can be disproved by a comparison between the supposed speed of the earth and that of the other planets, if we base our considerations on the principle that a body in motion creates an apparent speed equal to its own, in bodies it encounters, which is usually demonstrated by the experiment of a moving vehicle, such as a train. It is difficult to judge at first sight whether it is the train, or what can be seen outside which is moving away, but one fact is certain, i.e. that the two speeds, one of which is real and the other apparent, are equal. For this reason, if the earth were in motion, it would create in the planets and constellations an initial apparent speed equal to its own. Consequently, there can be no speed in the heavens lower than that of the earth's, since it represents a basic speed from which the apparent motions would be derived; but as it can be seen, the displacement of the constellations and of the planets, with the exception of Mercury and Venus, is slower than the supposed speed of the earth, which under the circumstances stated above, is a material impossibility. It should, moreover, be considered that the real speeds of the planets have to be added to the apparent motions created by the supposed movement of the earth, with the result that the planets ought to pass before us like a flash of lightning. The absence of these mathematical circumstances which, surely, have no reason to be invisible, ought to be sufficient to prove that the hypothesis of the revolution of the earth round the sun as put forward by Copernicus, has no basis in fact, and is not admissible, even if such theory could not be replaced by anything more logical, as it is. An entirely different and more rational explanation of the cycle of the seasons, based on a reasoned investigation of existing conditions can, however, be given, so that it will no longer be necessary to send the earth travelling into space to this end.

The essential feature of the year is its division into two equal periods of six months, based first on the predominating length of the days over that of the nights, and vice versa, conditions which are governed by the varying hours of sunrise and sunset; and secondly, by the either high or low height reached by the sun in the heavens at mid-day. The first cycle, during which the days are longer than the nights and the sun reaches its culminating point of the year, extends from the spring equinox to the autumn equinox, i.e. March 21st to September 22nd; and the second cycle during which, inversely,

the duration of the nights exceeds that of the days, and the sun descends to its lowest point of the year, extends from the autumn equinox to the spring equinox, i.e. September 23rd to March 20th.

These two six-month periods are also characterized by an opposition of temperature. During the first cycle which corresponds to spring and summer, the heat gradually rises and falls, while during the second cycle which comprises autumn and winter, it is the intensity of the cold which progressively increases and decreases. It might be said that it is evident that the heat of the summer and the low temperatures of the winter result from either the high or low height reached by the sun at mid-day, and also from the alternate predominating length of the days over the nights, although it might not be absolutely certain that the variations of temperature are entirely due to these particular circumstances. But to what reason must be attributed the variations which exist in regard to the sun's daily height and the hours at which it rises and sets, which seem to determine the various temperatures of the year? These regular fluctuations must, necessarily, have an origin, and it might be remarked that no scientific research or speculation has ever been attempted in this direction.

The sun has been compared by the ancients to a chariot drawn by steeds and to a boat manned by rowers, meaning by this that it is not self propelled. Its movement, therefore, is derived from some external power, and in that case it would appear that the variations in the height of the sun and its hours of rising and setting are due to the passage and to the impulsion of two regulating successive currents, or cosmic breath streams, of six months each, i.e. of a warm increasing and decreasing breath stream prevailing from the spring equinox to the autumn equinox, followed by a cold, increasing and decreasing breath stream from the autumn equinox to the spring equinox; and the conclusion is that the impulsion of these two summer and winter cosmic breaths govern the height of the sun, and that they also have the effect of either advancing or retarding the hours of sunrise and sunset on which depend the respective lengths of days and nights.

It is, therefore, the arrival and growing intensity of the warm summer breath stream which from March 21st causes the sun to gradually ascend to its

culminating point of the year at the June solstice, and the decreasing intensity of this same warm stream which, after the solstice, causes the height of the sun to decline steadily until the 22nd of September, moment of the equinox, when the cold current sets in. At the same time, the impulse of this warm cosmic breath stream has the effect of advancing the hour of sunrise and of retarding that of sunset, so that the days become longer than the nights. On the other hand, it is the arrival and growing intensity of the cold winter breath stream about the 23rd of September which causes the sun to further descend to its lowest point of the year at the December solstice, and the decreasing intensity of this cold breath which, after the winter solstice, causes the sun to rise again until the 21st of March when the warm breath takes over. At the same time, the cold current has the effect of retarding the hour of sunrise and of advancing that of sunset, whereby the nights become longer than the days.

As it can be seen, these two semi-annual cosmic currents or streams, warm and cold, each represent a complete breath comprising a rising phase of inspiration from the equinox to the solstice, and a falling phase of expiration from the solstice to the following equinox; and it is these two double phases of a duration of three months each, controlling the daily height of the sun and the hours of its rising and setting, which cause the four seasons.

It may be explained that the principle of the existence of cosmic breaths is not new, and that it is to be found in the cosmogonies of the Orient. It has, here in particular, been borrowed from a French translation of Hindu texts in which the movement of the sun was said to respond to the influence of universal breath streams. The author has adapted this theory to existing circumstances, thus permitting the specific respiratory nature of these cosmic breaths to be discovered. This fact is completely demonstrated, apart from the obvious parallel of the phases of inspiration and expiration rhythmically governing the lengths of days and nights and the height of the sun, by a comparison with another factor which is the pause existing between inspiration and expiration. This pause is precisely reproduced by the solstice which corresponds to the stoppage of the cosmic breath between the two phases. The existence of a breath governing the movement of the sun becomes here manifest, since the height of the latter

at mid-day does not vary during the solstice interval, nor do the hours of its rising and setting. The respective lengths of the day and of the night remain unchanged, the sun rising and setting at the same hours for no less than five days.¹

It could be added as a further proof of the existence of a cosmic breath, that the high temperatures of July and August which are really abnormal, since it should be cooler as they occur when the days become shorter and the height of the sun decreases, are due to the fact that, as in the function of respiration, the pressure of the breathing out is greater towards the middle of the expiration phase, and consequently, the temperature rises. On the other hand, it is observed that the cold becomes more intense in January and February, although the days are growing longer and the decrease in the intensity of the cold breath is causing the sun to rise. This recrudescence of the cold is due to the same reason of pressure increase in the middle of the phase of expiration, and the cosmic breath being cold, it follows that there is a further drop of temperature during this period; from which it can be seen that the pressure of the respective cosmic breath streams is susceptible of warming, or cooling the atmosphere as the case may be, regardless of the height of the sun.

It is also obvious that the opposition of the seasons north and south of the equator result from a corresponding opposition in the circulation of the two breaths round the earth, i.e. when the warm breath is in the northern hemisphere, the cold one is in the other, and vice versa, so that it is simultaneously summer in one part of the world and winter in the other. Thus, the warm six month breath which commenced in the northern hemisphere at the spring equinox, comes to an end at the autumn equinox, about the 22nd of September, when the transposition of the warm and cold

¹ It may be remarked that during the time of the solstices when the height of the sun at mid-day is stabilized for a few days either at its highest or lowest point in the heavens, man, by reflex, follows the cosmic conditions by stopping his working activities and taking a rest. These particular moments are also the occasion of great religious Christie festivals; Christmas at the winter solstice and Corpus Christi at the time of the summer solstice, which points undoubtedly to the existence of an association between the sun and Christ. This association exists also in the case of the Easter festival of the resurrection of Christ, which in reality celebrates the solar new year. Easter takes place on the Sunday following the new moon after the spring equinox on March 21st, which date marks the beginning of the spring and summer cycle of the sun, when the height of the latter at noon begins to rise over the equator according to the actual astronomical way of reckoning the solar declination.

breaths takes place. The warm breath passes in the southern hemisphere for the spring-summer cycle, and at the same time the cold breath leaving said hemisphere enters ours for the autumn-winter cycle. The respective intensities of the two breaths, both at the end of their expiration phase at the moment are, thus, equalized so as to permit their transposition, and at the same time, the lengths of the day and night find themselves also equalized to twelve hours each in both hemispheres. It is also most probable that the atmospheric disturbances which prevail at the time of the equinoxes are due to the mutual replacement of the breaths, and to their passage in a different part of the world.

It should be added, however, that in the above theory concerning the cycle of the seasons, the cosmic breaths do not act directly on the sun, but that there are intermediate circumstances which will be dealt with later on with regard to the origin itself of the sun.

CHAPTER TWO. ON THE FACT THAT THE EARTH DOES NOT ROTATE AND ON THE EXISTENCE OF A DAY AND OF A NIGHT COSMIC BREATH STREAM

COPERNICUS had evolved another theory, which he also explains in his Treatise on the Revolution of the Celestial Spheres, that if a body is to revolve round another, the first one must have a spherical shape and rotate about its axis in the manner of a spinning top. Consequently, in order to make this notion fit in with the movement of the earth round the sun which he had devised in order to explain the seasons, he suddenly decreed that the earth was round, contrary to the general opinion at the time, and then proclaimed that it had a movement of rotation about its axis. The great inconvenience in this proposition is that the rotation of the earth cannot be seen to exist, either with regard to the position of the sun or clouds during the day, or of the moon and other planets by night. On the other hand, the fact of the immobility of the earth has an immense advantage over the theory of the rotation in that it can positively be recognized as such, and it can safely be said that if the earth cannot be seen to move, there are hundred chances in a hundred that it does not do so.

The theory of the rotation of the earth, however, may once for all be definitely disposed of as impracticable by pointing out the following inadvertence. It is said that the rotation takes twenty-four hours and that its speed is uniform, in which case, necessarily, days and nights should have an identical duration of twelve hours each all the year round. The sun should invariably rise in the morning and set in the evening at the same hours, with the result that it would be the equinox every day from the 1st of January to the 31st of December. One should stop and reflect on this before saying that the earth has a movement of rotation. How does the system of gravitation account for the seasonal variations in the lengths of days and nights if the earth rotates at a uniform speed in twenty-four hours? At all events, we have previously seen that there is no such movement as the revolution of the earth round the sun; and as the rotation was its *sine qua non*, it

automatically fails at the same time. There is also reciprocal invalidity; if the rotation is manifestly impossible as demonstrated above, the translation which was uniquely derived from this movement, becomes void.

Further, if flying had been invented at the time of Copernicus, there is no doubt that he would have soon realized that his contention regarding the rotation of the earth was wrong, on account of the relation existing between the speed of an aircraft and that of the earth's rotation. The distance covered by an aircraft would be reduced or increased by the speed of the rotation according to whether such aircraft travelled in the same direction, or against it. Thus, if the earth rotates, as it is said, at 1,000 kilometers an hour, and a plane flies in the same direction at only 500 kilometers, it is obvious that its place of destination will be farther removed every minute. On the other hand, if flying took place in the direction opposite to that of the rotation, a distance of 1,500 kilometers would be covered in one hour, instead of 500, since the speed of the rotation is to be added to that of the plane. It could also be pointed out that such a flying speed of 1,000 kilometers an hour, which is supposed to be that of the earth's rotation, has recently been achieved, so that an aircraft flying at this rate in the same direction as that of the rotation could not cover any ground at all. It would remain suspended in mid-air over the spot from which it took off, since both speeds are equal. There would, in addition, be no need to fly from one place to another situated on the same latitude. The aircraft could just rise and wait for the desired country to arrive in the ordinary course of the rotation, and then land; although it is difficult to see how any plane can manage to touch ground at all on an airfield which is slipping away at the rate of 1,000 kilometers an hour. It might certainly be useful to know what people who fly think of the rotation of the earth.

It could also be said that if the earth did rotate, such motion, as in the case of its assumed revolution round the sun, would create in all directions apparent, fast and erratic movements of the planets and constellations, whereas, in fact, the movements ruling in the heavens are extremely slow and perfectly orderly; and notwithstanding the artless explanation that has been offered that everything goes so fast that nothing can be seen to move at all.

It has also been endeavoured to explain day and night, probably by way of giving an opportune and additional utility to the rotation, apart from its indispensable role in the assumed revolution round the sun, by the fact that the two halves of the earth are alternately exposed to the rays of the sun in twenty-four hours. But day and night do not result from a play of light and shade caused by a turn of the earth. As it can be realized by anyone, daylight is produced by the arrival and passage of the sun, and night by the disappearance of the latter. It is daylight when the sun rises, and night when it sets. There is no need at all for the earth to revolve in order to create these facts of nature, the cause of which is evident and sufficient unto itself.

A factor, however, other than the presence and absence of the sun, might be taken into account in the alternation of day and night. It is known that the ancients insisted on the fact that day was caused by a luminous vapour, and night by an opaque sort of fog; but this explanation is not satisfactory as far as night is concerned, as the stars would not be visible, or at least, they would be obscured. What may be assumed, in reality, is the presence of a warm cosmic breath during the day, and of a cold one during the night, to correspond respectively to the warm breath of the summer and the cold breath of the winter as, no doubt, day and night are on a small scale what the two main divisions of the year are on a large one. There is, moreover, a noticeable increase of temperature after mid-day, which points to the existence of a breath in its phase of expiration. The passage of this breath of day would begin in the early morning at dawn, the usual pause between inspiration and expiration taking place about mid-day; and we have, in this connection, the infallible test of the behaviour of man, who by reflex action, stops work at this moment for a time. The passage of the warm day breath would, then, end at dusk upon the arrival of the cold night breath stream.

It might be considered that the breath of day has a certain luminosity in view of the fact that it is daylight long before sunrise, and also that the light persists after sunset, as well as during total eclipses of the sun. It can be seen from photographs taken during such eclipses that the details of the landscape, buildings and objects remain visible, so that the presence of a luminous factor not dependent on the sun, but provided by the breath of day can be assumed.

The cold breath of night would, inversely, flow from nightfall to dawn, with the usual interval some time after midnight. There is a sharp drop of temperature about this hour, which corresponds to the increased intensity of the cold night breath in its breathing out phase.

There is an opposition in the circulation of the day and night breaths round the world, so that when one is north of the equator, the other is south of the equator, and vice versa.

The day and night breaths are certainly connected with, and influenced by the greater breaths of summer and winter, and it is, therefore, their combined actions which regulate the height of the sun and the hours of its rising and setting; but not directly, as said before, but through intermediate circumstances which are explained later on.

As to the origin of these breath streams, it may only be surmised that they emanate from living cosmic centres possessing the organic function of respiration, and that they are situated in some distant regions outside our immediate Universe.

It is also possible that there may be a connection between the winds and these cosmic breaths. There are winds which prevail regularly during certain seasons of the year and which, under the circumstances, might correspond to the semi-yearly breaths of summer and winter. Further, high-flying American airmen have reported the existence of a vast, high altitude current of air, six miles deep and three hundred miles wide, circling at a fantastic speed round the northern hemisphere; and from Australia similar reports indicate the presence of a corresponding high velocity air stream south of the equator. There might be an analogy between these recently discovered air currents and the semi-annual cosmic breath streams. As to the breath of day, it might have a connection with the lesser winds which rise in the morning and drop in the evening.

It would also appear that the breath streams are accompanied by vibrations or cosmic pulsations; the breaths of day and night, by twelve pulsations each, which are the hours; and the semi-annual breaths of summer and winter, by six great pulsations each, of a duration of thirty days. These are the months.

It could be added that it is probably the regular and constant flow of these cosmic breaths which constitutes the passage of time.

CHAPTER THREE. ON THE REVOLUTION OF THE PLANETS ROUND THE EARTH AND NOT ROUND THE SUN

ALL the planets, including the sun, revolve round the earth. These circumstances cannot be denied since they are plainly visible, either in the ordinary way with the naked eye, or with the help of the telescope. It can be said, in this connection, that in the case of a science which should be based exclusively on observation and not on speculation such as astronomy, the evidence of the senses is the only factor upon which conclusions can, and must be, based. This method of investigation by means of the senses is neither primitive nor naive, as has been suggested; it is used in all existing sciences, except in occult research, where invisible phenomena are described as real, and exactly, it may be remarked, as in the case of the gravitation system. If the planets can be seen revolving round the earth, it is for the decisive factor that they do revolve in such a way. It is asserted that this is not so, and it is maintained that the earth and the planets revolve round the sun.

We note with astonishment, however, the bizarre and definitely suspicious fact that these planetary movements are not visible. They cannot be seen and yet they are called real ! How then can these movements be proved and their speed be ascertained since they are invisible? On the other hand, the existing geocentric planetary motions which can be observed and measured, and which, consequently, constitute a perfectly valid system, are condemned as unreal and apparent! A pertinent remark may, incidentally, be made on the subject. Why do the astronomical tables which are published year after year, give the so-called apparent movements of the planets in the zodiac? Why take the trouble of calculating and putting them on record at all if they are not real? Why is it also that no mention is made of the so-called real movements of the planets ? To make sense, it would seem that it is just these and not the former which ought to be shown in official astronomical publications.

A single example would be sufficient to prove that the laws of gravitation are not in conformity with existing circumstances. It is known that Mercury and Venus transit the face of the sun on several occasions during the course of a century. These phenomena last several hours and they are even observed with great interest by astronomers the world over, but without any special reaction, it seems, as to their material possibility. The shortest distance of Mercury from the sun is said to be somewhere in the region of 50 million kilometers, and that of Venus, 100 million kilometers. Consequently, if these two planets do really revolve the sun, they cannot transit it except by means of an enormous distortion of their orbits, lasting several hours. This constitutes, therefore, a serious deviation from the laws of gravitation, and their impracticability is exposed. The transit of the sun by Mercury and Venus is only possible through a general motion of revolution of these planets round a central point, which, in the circumstances, is the earth.

It is not either explained how the laws of gravitation manage to adapt themselves to the retrograde motion of the planets. Mercury, several times per year retrogresses and becomes stationary altogether for a month. This also occurs, less frequently but at regular intervals, in the case of Venus and Mars, and for the heavier planets during much longer periods. These numerous and prolonged retrogradations and interruptions in the movements of the planets ought, therefore, to dislocate the orbits and the speeds, since the movements around the sun are supposed to be elliptical and uniform, but no mention is ever made of these difficulties.

Another inconsistency can be pointed out. The fact that the planets move round the earth is rejected on the strength that these revolutions are only apparent; but, on the other hand, the motion of the moon round the earth is accepted as real. There is, however, no difference, whatsoever, between the course of the moon and that of the other planets. They can be seen all together and at the same time moving round the earth. Why should it be decreed against all evidence that the moon alone does so, and what is the motive which underlies these illogical exceptions?

Is it also possible to unravel, in some way, the tangle of the movements of the sun?

Although it can be seen moving from east to west, the sun is said to advance with the constellations in the opposite direction at a speed of one degree per day, which signifies that it stays practically for twenty-four hours (one day and one night) in the same part of the heavens.

It is, further, retrograding, also with the constellations, by fifty seconds of a degree per year, at the present moment in the sign of Pisces, which thus becomes its domicile for a period of 2,160 years, which means that it will stay 72 years at each of the thirty degrees of this sign.

It has an apparent motion from east to west of one degree in four minutes.

It rotates on its axis in twenty-four days in the region of its equator, but in twenty-five days at the poles.

It proceeds at a prodigious pace, and this is its principal motion, in the direction of a particular spot of the sidereal expanse which has been identified as being the constellation of Hercules in the sign of Scorpio, which it will reach in X-million years; while we learn from the astronomical ephemeris that it moves through this sign in its entirety every year from October 24th to November 23rd.

How can it be said that the sun, unless it is endowed with the faculty of ubiquity, is simultaneously, invisibly present in different parts of the Universe, moving forward and backward all at once, when it can be seen every day moving across the heavens above the earth? One is now able to understand the reasons why no reference at all is made to the movements of the sun in certain modern encyclopaedias.

Of all these multiple solar movements nothing at all can be seen. The only thing that one does see, in fact, is that the sun rises in the east in the morning and sets in the west in the evening, after having slowly moved across the dome of the sky during the day at the real speed, since it is observed and measured, of one degree per day. The sun has absolutely no other movement.

To any well balanced mind, the conclusion is that the system of gravitation, in view of all its contradictions and inconsistencies, is imaginary and not acceptable. Galileo's reaction in this connection may be recalled, when in a

letter of the 4th of August 1597 to Kepler who was pressing him to support the new dogmas, he replied that he would not hesitate to do so if he were not afraid of being loaded with ridicule. It should also be remembered that the principles of gravitation, such as they were definitely formulated by Newton in 1686, were not accepted in scientific circles, particularly in France, without resistance. The theory made its way only with the greatest difficulty, continuous objections being for a considerable time raised from all sides. It appears, however, that pressure and the policy of *laissez faire* gave it a clear scope in the end. It would, nevertheless, be most instructive and interesting to read the contemporary comments on this question.

The objection could be raised that master minds, scientists and academicians the world over, have for nearly three hundred years accepted these theories without hesitation, and that it is inconceivable that they could have been mistaken, or that they should have been deceived. Without meaning to cast any reflection on the intellectual faculties, or on the judgment, of these leading figures in the world of science, it can be said, either, that they were not competent in astronomical matters, a fact which does not constitute mental inferiority, or they lacked the moral courage to admit what they thought in their conscience of these incomprehensible abstractions, Galileo as well as the others. Without doubt he was convinced of the immobility of the earth, but he had to submit to the diktat of error in order to escape from the difficulties which would have assailed him till the end of his days, as he implied in one of his letters, if he had not given in.

We repeat that all the planets including the sun, whether their composition be material or not, revolve round the earth which, as stated by tradition immemorial, the word of Scripture and the authority of the Church, is in a complete state of immobility at the centre of our Universe.

The revolution of the planets takes place in a direction which we describe as from east to west, but it should be noted that in the paintings which cover the walls of very ancient Egyptian tombs, the sun is seen to rise in the west and set in the east. It is probably from this fact that Plato evolved his theory that during certain periods of time, the revolution of the planets takes place in the opposite direction; but the rational explanation which can be attached to this supposed reversal of the planets' motion assumed by Plato,

is simply that the Greek geographers reproduced the maps of the world, as it was known in those days, the wrong way up, so that the poles and the four points of the compass were reversed; and this error would not be surprising considering the lack of accurate topographical information in those times. Thus, if a mistake has been made in the orientation of the earth by the Greeks, the result would be that the southern hemisphere and its constellations, is really the northern hemisphere, and vice versa. Australia would then be at the top of the world and Canada at its lower end. It should be noted that there are several maps dating from the Middle Ages where the earth is shown in the manner of the ancient Egyptians, the opposite way up for us, and consequently France appears, reversed, at the north of England and Scotland, also reversed, in what would be the austral hemisphere.

The satellites of the earth are also free from any movement of rotation. We can take, for instance, the case of the planet Jupiter which is said to accomplish one complete rotation in ten hours, so that its day and night have an equal duration of five hours. It can be observed, however, without a telescope, that there is no change whatever in the luminosity of this satellite all through the night, so that it does not have a movement of rotation; neither have the other satellites to which the same theory applies. It may also be remarked that the reverse side of the satellites cannot be seen, and this fact cannot very well be reconciled with the idea of a possible rotation.

The stupendous invisible speeds which have been attributed to the satellites of the earth are also fictitious. These latter move at the slow speeds which can be observed and measured and which, consequently, are real speeds.

CHAPTER FOUR. ON THE SOLID DOME OF THE SKY

FROM the earliest times it has been believed and said that the heavens were not an empty space, but a solid surface. The Chaldeans and Egyptians regarded the sky as the massive cover of the world; and in India and Persia it was thought to be a metallic lid, flat or convex, or even pyramidal. Up to the 17th century the earth was always regarded as the centre of an empty sphere with solid walls; and on this account, it was always represented with a cover. This indispensable complement, however, was eliminated upon the advent of the theory of gravitation, for convenience sake, as a solid dome limiting the space round the earth would have rendered impossible the extravagant motions of the planets which were sent revolving in the air at phenomenal distances. Thus from this time, the fact universally accepted for thousands of years that the sky is a firm surface, completely disappeared.²

Nevertheless, the possible existence of a solid vault over the earth is a question of great importance in view of the tremendous consequences which would result from this fact, if it happened to be true. There is no doubt that the general reaction is one of incredulity; but, on the other hand, it can be considered that it is not without reason that the ancients believed in the existence of the material vault of heaven; nor without reason, either, that this notion should have been consistently handed down through the ages since the earliest times up to the 17th century, in all parts of the world. The only alternative would be to be able to prove the fact, but it would certainly appear at the present time that there is no means of doing so. It may be discovered, however, that a solid dome effectively exists above our heads, in an indirect and quite unexpected manner, which the erroneous interpretation put on the composition of the planets had not so far permitted to do. It can be stated at this juncture, by anticipating on the next chapter which deals with this particular subject, that the planets are not solid, opaque masses of matter, as is believed. They are simply immaterial,

² It should be noted, however, that the notion of the massive nature of the sky still subsists in the language. The word firmament means firm surface and the French word "ciel" is derived from coelum which signifies chiselled material.

luminous and transparent discs; and in view of these circumstances, it is plain that the craters, asperities, mountains and valleys which were thought to exist on the surface of these imaginary masses, are the topographic features of the solid vault of the sky which are illuminated and thrown into relief by the luminous and transparent discs which we call planets. It is also to be realized that the lens of the telescope creates an appearance of convexity which, standing out in relief, conveys the impression of a spherical mass, but this convexity effect is merely an optical illusion.

The dome of the sky can be seen not only through the transparent satellite discs of the earth with the help of the telescope, but also with the naked eye, in rare circumstances, it is true, i.e. when it is lighted by flashes of lightning during night thunderstorms. By a remarkable chance and in similar conditions, the author has seen the vault of heaven entirely illuminated, and has even been able to observe it steadily for several minutes, due to a rapid succession of sheet lightning discharges providing a perfect and continuous visibility. The remark may now be made that, if the ancients maintained that the sky was a solid mass, it was for the reason that they had ascertained the fact in the same circumstances, as many observers will now be able to do in the future. The possibility, therefore, of taking photographs by night of large areas of the vault of heaven can now be foreseen, particularly in those parts of the world where owing to the frequency of thunderstorms, there are numerous opportunities of doing so.

The aspect of the vault was that of a rather steep, slightly sloping dome of pyramidal shape, and it appeared to be composed of a bright metallic dark grey matter, uniformly showing small regular inequalities like lead which has been beaten or chiselled. The larger details, particularly the craters, were clearly visible against the background; but the most impressive circumstance yet, was the incredible nearness of the vault, the highest point of which did not appear to be, at the most, any more than sixty kilometers from the earth. It may be recalled in this connection that in one of the texts of Homer, it is stated that the height of the bell-shaped vault which surrounds the earth is only twice that of Mount Olympus, approximately six kilometers. This estimation, evidently impossible, and which must have probably resulted from the exceptional purity of the atmosphere in Greece

which may be deceptive, gives, nevertheless, an idea of the manner in which this question of the distance of the vault of the sky from the earth, to which we shall return later on, is to be envisaged.

It results, therefore, from the foregoing explanations, that the existence of a dome of matter encircling the earth cannot be denied; and this fact completely revolutionizes the present day concepts on the outer world. The earth is not freely suspended in space, but it is resting on the floor of a cavity whose walls surround it on all sides. The sidereal expanse does no longer extend over unlimited and undetermined distances. The dimensions of our Universe are now known to be restricted, and they are confined by the circular wall which encircles the earth. It is by this obstacle that the radar waves are reflected; and we may also recall, in this respect, the theory of Heaviside leading to the existence of an upper, wave-resisting atmospheric layer, which is no other than the solid vault of the sky. There is absolutely no solid body between the earth and the dome of heaven, since the constellations, like the planets, are nothing but luminous phenomena.

The meteorites are obviously fragments which become detached from the vault and reach the earth. These masses when analysed prove to include a high percentage of metal, from which we can conclude that the inherent brilliance of the sky is due to the presence of metals in its composition. The fact is that the earth, at the beginning of time, must necessarily have become separated from the adjoining mass which constitutes now the vault of heaven; and, therefore, the parts now divided must contain the same elements. All the metals and ores of the earth are consequently present in the surface of the sky. An association is actually made between metals and the sky, since the latter is instinctively compared to lead and copper in very hot countries where broiling temperatures intensify its metallic action and render it more perceptible.

In classical literature there are two specific references to the metallic nature of the sky, apart from the one to be found in the Egyptian cosmology, but the former may not be independent of the latter. First, we read in the poems of Homer that star-strewn Olympus, dwelling of the Gods, is made of glittering bronze; and secondly, in the Old Testament, the prophet Job gives what may be regarded as an exact definition of the sky when he proclaims it

to be a mirror of metal. It is to be observed, in this connection, that when poetical reference is made to the silver mirror of the moon, it is the metallic surface of the dome appearing under the transparent disc which, in reality, may be described as a silver mirror. It may further be remarked that in the mythology of the Orient the attribute of the sun goddess is the sacred mirror. This is another association with the true nature of the vault; and it must be admitted that the latter, especially when it shines and sparkles under the sun, undoubtedly looks like a mirror.

It has frequently been observed that there is a resemblance between glass and the sun. In the 6th century B.C. Empedocles regarded the sun as a vitreous body which collects and reflects the light of the ether, but has no luminous power of its own. The British astronomer Palmer, in the last century, held the view that the sun is a lens which, he also said, transmits to us the rays emanating from the Almighty. It is further known that Ptolemy in his system of the constitution of the Universe, speaks of the existence of a crystalline sky, i.e. a sky in the nature of a transparent mineral substance. One may think, in this connection, that it is not impossible that due to the heat developed by the passage of the sun's disc, there may be a fusion and vitrification of the siliceous materials contained in the vault, so that it becomes coated in certain places with a layer of glass, which would communicate to the solar disc by transparency, identical properties, so that it might become similar to a lens. The presence of dross or slag similar to that formed on fused metal has also been observed on the surface of the sun, which is really, owing to its transparency, the foundation of the sky, and this seems to confirm the possibility of thermal and chemical reactions taking place among the elements which compose the vault.

It can now be understood that the light and the heat which appeared to be produced by the sun do not proceed from this source, but are due to a burning glass effect which is generated by the brilliant metallic surface of the vault under the luminous disc. Under these conditions, all the vivifying and beneficial properties which are attributed to the sun must be transferred to the solid dome of the sky, as well as the rays. These are not the sun's rays, but they are the rays of the metallic surface of the vault.

It is also obvious that the electrical discharges which produce lightning take place between the mass of the earth and that of the dome of the sky. It can further be surmised that parts of the dome expand, and split or explode under the stress of the passage of the intense electrical currents and of their discharge; hence the short detonations called thunder claps, which are later amplified into loud rumblings, and reverberated in the interior of the vast cavern which contains the earth. It can further be remarked that crashes of thunder are always immediately followed by a metallic resonance similar to that of bronze or brass; and it can be said that this particular resounding, which is clearly perceptible, is certainly produced by the metallic walls of the vault which are made to shake and vibrate under the stress of the detonations.

The ancients have said that rain is part of the waters which exist on the other side of the vault and which pass on to this side through cracks. It may be remarked, in this connection, that rain is always discharged at the end of a thunderstorm, that is, after the sound of the splitting of the dome, otherwise the thunder, has been heard; and this fact would seem to substantiate the theory of the ancients concerning rain.

Lightning is a phenomenon which results from the electrification of the vault; but it must be explained that the luminous branches and ramifications which are observed in what is called forked lightning, are not lightning at all, strictly speaking; neither do they traverse the atmosphere as is believed. They correspond to luminous electrical currents which travel in the vault of the sky itself where they follow irregular tracks, probably metallic veins; and it can also be seen that they adopt the convex shape of the vault.

These currents contribute eventually to the accumulation at a certain spot of the quantity of electricity which is required to cause a discharge towards the earth, which occurs then in a direct line.

The comets, meteors and shooting stars are phenomena which also have their origin, like the so-called forked lightning, in the mass of the vault. The author, definitely, knows this to be the case. Comets are spontaneous luminous manifestations which are created by electrical reactions occurring in the vault of the sky, and this explains their unexpected and sudden

appearances, as well as their rapid and erratic movements, indifferently direct or retrograde. The passage of a comet is not accompanied by sound, that is to say that there is no electrical discharge like in the case of lightning which causes the vault to split and detonate. It can be surmised that lightning takes place in the thickness of the vault, whereas a comet is a surface phenomenon. The orbit of comets which may be seen to sweep across the vast expanse of the sky is described as parabolic. This means, in fact, since the passage takes place on the surface of the dome, that the orbit follows exactly the curvature of same and acquires, therefore, a seemingly parabolic shape.

The formation of comets seems to be due to the influence of the satellite discs of the earth as they pass at certain points of the vault of the sky; otherwise, when they occupy certain degrees of the zodiac, particularly the 29th degree of Sagittarius. In the case of Encke's comet of December 21st, 1795, the sun was at the 29th degree of Sagittarius. In that of Brook's comet of November 11th, 1911, Mercury was passing at the same degree, and again for Donati's comet, October 2nd, 1858, it was Mars which was effecting its passage at this very spot. The same remark applies, moreover, to the 3rd degree of various signs, particularly Gemini. In the last case mentioned, that of Donati's comet, Uranus was at the 3rd degree of Gemini. For Hailey's comet which returned on March 4th, 1910, Mercury was at the same degree; Venus at the 2nd degree of Libra; Mars at the 2nd degree of Cancer; while simultaneously Saturn passed at the 29th degree of Aries, etc. All these circumstances, which cannot be coincidences, point evidently to the existence of a mathematical law governing the formation of comets, through the combined agencies of the satellites when they pass simultaneously at various degrees of the zodiac ; and since the satellites have a regular motion, it follows that the periodicity of comets, if it does exist, may be due to this fact.

Shooting stars are not to be confused with the stars in the ordinary sense, which form the constellations and move at a very slow pace. They are luminous manifestations which glide rapidly on the surface of the vault of heaven, without any electrical discharge towards the earth. They are, thus,

related to vault lightning, especially as they sometimes can be heard to emit crackling sounds like sparks.

Meteors are also luminous phenomena resulting from electrical reactions which occur in the vault of the sky. It has been observed that they are frequently accompanied by detonations and by a sound similar to that of thunder, which is, therefore, caused by the splitting of the dome, so that there can be no doubt as to their real origin. It has been calculated that the height of meteors never exceeds 90 kilometers, and this figure confirms the estimate which is given further on of the probable distance of the vault of the sky from the surface of the earth.

From the ancients we know that the heavens at the beginning of time were adjacent to the earth, which is consistent with the primeval dislocation from the surrounding mass; and that they were progressively lifted in the course of ages. This rising of the vault could not have been very great. The mere fact that the latter can be seen through a telescope under the satellite discs of the earth, as well as with the unaided eye, as stated previously, indicates that it cannot be very far away. It is not true, either, that man's eyesight can cover an infinite distance, even with the help of the most powerful instruments, keeping in mind at the same time a possible magnifying effect due to the different densities of the various atmospheric layers, so that it must be accepted that the dome of the sky is incredibly low. If it were at an enormous distance, meteorites would disintegrate and become pulverised, and rain be volatilised before reaching the earth.

There is not, and there never will be, an absolutely reliable method whereby the exact distance separating the surface of the earth from the sky may be ascertained. It is very doubtful, as a matter of fact, whether the laws of physics which apply to terrestrial conditions, would be still valid in the case of the upper atmosphere and of the spaces adjacent to the top of the dome, but certain data can be taken into account.

The height of the Heaviside layer, which is the dome of the sky, has been measured by the time taken by radar waves to return to earth. This distance has been given as being from 40 to 50 kilometers in the day-time, and 90 kilometers during night-time; but the figure obtained for the day may be

considered unreliable, since it may well be believed that an acceleration takes place in the propagation of the waves due to the heat of the sun.

It is known, on the other hand, that the thickness of the atmosphere has also been measured. But the atmosphere is invisible, and since the dome is the only surface on which the eye can rest, it is clear that the thickness of the atmosphere means the height of the dome. In the 11th century the Arabs, by measuring the duration of twilight, assuming that their method is acceptable, established that this thickness is 92 kilometers; and nowadays, by the same method, a figure of 64 kilometers has been obtained. A similar indication comes from Ceylon where the inhabitants claim that the dome is there particularly low, being only 40 miles high, i.e. 60 kilometers from the earth; and it does not necessarily follow, whether this statement is based on conviction only or not, that it is untrue. This figure is also consistent with the impression of the author who has seen and observed the dome of the sky during a sufficiently long period of time to enable its probable distance to be judged, as well as humanly possible; and the conclusion is that the distance separating the surface of the earth from the sky, and which may vary in some places, does not exceed 80 to 90 kilometers. The first telescope used by Galileo, which was of his own construction, had only a three-fold magnifying power. Nevertheless, he could with this small instrument see the eminences of the vault, described by him as being the mountains of the moon; that is to say, that instead of saying 80 to 90 kilometers, 50 to 60 might be nearer the mark.

The vault of the sky may not be absolutely rigid, but may at intervals, alternately recede and advance, so that under these conditions the changes of atmospheric pressure would obviously result from the varying heights of the vault.

The azure colour of the atmosphere may be due to the presence in the surface of the sky of certain metals or of their alloys, which provide a blue colouring matter, such as copper oxide or cobalt. This latter metal, particularly, which is used for producing blue coloured glass, is found in very large quantities in meteorites, and its colour could be diffused by the sun on to the atmospheric layers, even if they do not completely reach the top of the dome as the latter could cast a reflection from a distance.

It might also be inferred that the reddish tint of the transparent disc of Mars is due to the fact that the part of the dome which underlies its orbit contains iron oxide which provides a compound of this colour.

CHAPTER FIVE. ON THE IMMATERIAL NATURE OF THE SATELLITES OF THE EARTH

THE satellites of the earth are not masses of matter.

They are luminous and transparent discs without substance. The moon, in particular, conveys the impression of being an ethereal manifestation, and the uncertain and illusive character which is usually associated with this satellite results precisely from its immaterial nature.

As already stated, the surface irregularities which were thought to exist on the imaginary masses called planets, are those of the dome of the sky, such as they are seen through the transparent discs. The so-called mountains, craters and depressions of the moon are details of the structure of the dome. It may be remarked in this connection that the astronomers at the Mount Palomar Observatory in America have recently reported that striking alterations have taken place on the surface of the moon. Gigantic craters and fissures of more than five hundred kilometers are said to have appeared; and ranges of mountains as important as the Alps have disappeared without leaving a trace; but all those supposed alterations correspond clearly to the successive structural features of the dome which are progressively revealed by the luminous and transparent disc of the moon as it moves on.

This explanation applies also in the case of Mars. The canals are most likely cracks, or may be dark veins existing in the surface of the vault which are seen through the disc. It has been observed that from time to time the canals multiply and change their form and their width, and that the dark regions, called cases, which are also to be seen, expand or shrink; but, as already said above, these changes relate in fact to the gradual exposure of the vault structure under the advancing disc. The same remarks apply also to Jupiter which is said to have undergone similar transformations. The notion that the satellites of the earth are masses of matter, which originated with Aristotle in the 3rd century B.C., has to be abandoned. There are no

solid bodies travelling in space, and the use in the vocabulary of the word planet which has this erroneous meaning is no longer justified.

It could further be said, concerning the true composition of the satellites of the earth, that it might have been discovered before to-day that the latter are not masses of matter, in view of the fact that they are able to remain at a standstill for several days during the pause which follows their retrogradation, irrespective of whether they are held to revolve round the earth or the sun. It is obvious that during this time, the supposed compensating forces which are said to result from the movements of the planets, and thereby hold them in space, would cease to operate, due to the absence of motion. The only physical law to which the planets would then be subjected would be that of gravity and, under the circumstances, they would normally be precipitated on earth, or on the sun as the case might be. The fact that the satellites are able to remain suspended in space for days during the stationary period which follows retrogradation indicates that they are not masses of matter, and that they can only be luminous manifestations, which fact is compatible with the impressive silence ruling in the heavens.

It was recognised from the earliest times that the satellites of the earth, particularly the sun and the moon, were not solid, opaque bodies. They were first, until Aristotle, considered to be souls or spirits, which does not imply a physical nature. To the ancients, they were simply lights, and they gave the sun and the moon a very apt name. They called them luminaries. Xenophanes, in the 6th century B.C. thought that the sun was an accumulation of sparks resulting from the influence of the earth. Several other physicists believed that it was a vitreous body, or a lens reflecting the light of the ether, and this theory which is based on observation is logical, considering that the metallic nature of the surface of the dome of the sky was probably unknown at that time. As for the moon, it is said that ages ago, long before the beginning of the Christian era, the Babylonian astronomer-priests were teaching in their temples that it was a reflection of the earth. This supposition of reflection is exact, but that of the origin of the reflection is not, for the lunar disc, which is as perfectly circular as possible, cannot be a reflection of the earth since the latter is not round. Copernicus

was the first to assign this shape to the earth in order to support the rotation. It should, moreover, be borne in mind that the circular shape which the earth appears to affect is merely due to the convexity of the dome of the sky which bounds the horizon. The ancients have always said that the earth is flat and this is confirmed by the photographic records of a large number of airmen, and also by the declaration of Prof. Piccard when he ascended in the stratosphere. It is, further, difficult to believe as it has been explained, that the inhabitants of the Antipodes, as a natural consequence of the rotundity of the earth, are able to stand and walk, feet on earth and head down in the manner of insects crawling on a ceiling. We may reasonably think that the inhabitants of the whole world walk in the same manner as we do, and on the same plane, which is the horizontal surface of the earth; and it is undoubtedly that which would be seen if Australia could be reached by television. Since concrete notions have now been obtained concerning the existence of a circular vault round the earth, it logically follows that the latter is a plane surface, apart, of course, from the irregularities of the mountains, which fills with the oceans the lower part of the cavity in which it is situated. The polar regions would, therefore, lie flat and extend to the base of some of the circular walls surrounding the earth.

It would, thus, appear that the satellite discs are not reflections of the earth like the Babylonians believed in the case of the moon, since the earth is not round. They are either direct projections emanating from luminous centres, or reflections on the vault of the sky, of primary luminous projections. It has been, in fact, said by the ancients, speaking of the sun, that it is only a reflection of a much greater and more powerful sun existing in an exterior Universe. If either of these two alternatives is correct, the great difficulty, however, which still remains to be solved in a satisfactory manner, is the motion itself of the satellites. Now, in the course of research on light, the author has come across certain experiments carried out in the last century by the French physicist Lissajou³ whereby a spot of light reflected on a screen is made to move, simply by imparting a vibration to the surface from which this spot of light is reflected; and the experiments in question seem to supply the mechanism of the motion, including even retrogradation, of

³ Jules, Antoine Lissajou, born in Versailles in 1822. Died 1880. Carried out important research work on sound and optic. His reputation was established by his *Etude Optique des Mouvements Vibratoires*, 1873.

reflected luminous projections on the vault of heaven corresponding to the discs.

In these demonstrations, rays of light are allowed to fall on a mirror fixed to one branch of a tuning fork. The spot of light thus obtained is reflected from the mirror on to a second one similarly attached to another tuning fork, and from there again reflected on a screen. The screen, in this comparison, corresponds to the vault of the sky, and the spot of light to the various satellite discs of the earth. By letting either fork vibrate alone, the motion of its attached mirror will cause the spot to travel to and fro in a straight line on the screen; but on account of the persistence of vision we then see an unbroken line of light. We now come to the important part of the demonstration. If the two forks, with mirrors attached, vibrate together, the spot of light then describes a curve, the form of which varies according to the rate of vibration. The continuous luminous curve is also created by a fast to and fro motion of the spot of light, like the straight line obtained previously by the vibration of one of the reflecting mirrors only. Under these conditions the satellite discs of the earth may result from similar circumstances, i.e. two successive reflections (the last one on to the vault of the sky) of a primary luminous projection, the motion being automatically created, as well as the curved line of the orbit, by the vibratory modes of the surfaces from which they are reflected, as per the demonstration. If we suppose the existence of slow vibrations, the retrogradation, which corresponds to the to and fro motion of the spot of light as reflected on the screen, would be obtained; but in the case of the sun and the moon, which do not retrograde, the vibrations of the reflecting surfaces would be fast in order to conform to that part of the experiment, where due to the persistence of vision created by the rapidity of the vibrations, a continuous curve is produced. It would, thus, appear that since the results obtained by Lissajou reproduce the characteristics displayed by the satellite discs of the earth as regards their origin and their motion, this explanation could be accepted. If experiments were carried out thereby ascertaining the suitable vibratory motions to be applied to the reflecting surfaces, it is probable that a complete reconstitution of the cosmic device could be effected. Before becoming aware of the Lissajou tests, which now seem conclusive, the author was of opinion that the motion of the disc satellites of the earth was

due to a natural, although unexplainable, moving projection device, since the fast or slow, either direct or retrograde movements, as well as the period of immobility of the satellites, can all be reproduced by the mechanism of cinematography.

As to the origin of the vibratory agents, the author's theory is that they result from the passage of the semi-annual and daily cosmic breath streams, of which they follow the increasing and decreasing phases. It is stated in the Hindu texts, to which reference has already been made, that the chariot (of the sun) becomes restless upon the arrival of dawn, signifying here the breath of day, which sets it in motion ; and this might indicate that the simultaneous vibrating of the two reflecting surfaces which determine the ascending and descending movement of the sun, is produced and governed by the breath of day. In that case, there would be a new sun every morning, and this could perhaps explain the reason of its obvious weakness upon rising and setting; in the latter circumstance the usual flickering which precedes the extinction of a light can readily be observed. The passage of the semi-annual increasing and decreasing summer and winter breath streams would also create in the reflecting surfaces correspondingly increasing and decreasing vibrations, affecting, thus, the yearly height of the sun. These hypotheses may only constitute an imperfect solution of the problem, but they may lead in the future, by means of suitable research and experiments, to a more concrete explanation.

The origin and situation of the luminous projector centres would still have to be elucidated. Their size may be very small, but the projections would be greatly enlarged by the successive reflections, particularly the last one on the vault of the sky. These primary sources of light may be situated, as the ancients thought in the case of the sun, in an exterior Universe communicating with the interior of the cavity which contains the earth by means of openings, as early cosmogonies include many references to the existence of doors and windows in the vault of the sky. It is improbable that the exploration of sidereal space, as far as it can be carried, will ever permit to clear up the difficulty, or furnish information as to the situation of the vibrating surfaces from which the discs are reflected on the vault of the sky.

It can also now be understood that, since they are reflections, the satellite discs of the earth cannot, of their own, produce any sort of phenomenon; and if spots or shadows appear in their circumference it is clear that these modifications occur in the first place either in the primary projector centre or on the reflecting surfaces, or, perhaps, on the vault of the sky; and that these modifications are reproduced eventually in the interior of the discs. Circular currents moving at unequal speeds at various latitudes have been observed in the sun; and as these appear to represent a rotary motion, it has been assumed that the latter rotates on its axis at a speed of twenty-four days in the region of its equator, and of twenty-five days in the case of its other latitudes; but it can be understood that these currents, or vortices, exist either in the primary projector centre, or in the reflecting surfaces, and that they are represented in the interior of the solar disc, although these manifestations might also be due to the disc's motion on the reflecting convex walls of the sky.

Some secondary satellites, or moons, are also said to have been discovered round the satellite discs of the earth, but they can be assumed to be optical illusions; and that if they are not caused by a distortion of vision in the objective, they may result from a multiple refraction of the primary disc on the adjacent walls of the dome.

It is necessary to recall what has previously been said concerning the short distance of the vault; consequently the luminous discs, called planets, which move on the latter, are also less than one hundred kilometers from the earth.

CHAPTER SIX. ON THE ACTION OF THE VAULT OF HEAVEN AND ON COSMIC RAYS

IT cannot be doubted that in virtue of its great mass and short distance from the earth, the vault of heaven exercises a powerful influence not only on the earth itself, but also on all it contains and everything living on its surface. The vault generates and discharges the energies which, under the name of cosmic waves, rays or radiations, are day and night incessantly received from outer space. These waves are believed to emanate from the stars, although it has been observed that they also come from a direction where there are no stars at all; and this has given rise to the theory of the existence of invisible stars, but, necessarily, all radiations received from the exterior emanate from the vault of heaven.

It may be thought that the latter, in a general way, acts on the climate and the temperature depending on its composition and its distance. It may well be assumed that the very high temperatures of the equator are due to the fact that the vault is nearer the earth in this part of the world.

The influence of the vault is principally exercised through the medium of the satellite discs of the earth moving on its surface, by the particular action they exert on the latter. The discs stimulate and reveal its characteristics. We have seen, for instance, in this connection, that heat and light rays are developed by the vault under the sun. All the discs are conductors of the radiations which proceed from those parts of the vault which underlie the path of their orbit, and it may be understood that these radiations are not all of the same variety, nor do they have the same intensity, since the composition of the vault is likely to vary according to its height, and also that the nature, size and speed of the discs are different. It is therefore due to this function of transmission of the radiations from the vault, that the ancients had given the satellite discs of the earth the name of interpreters. It is now possible to assume that life, with its phases of incarnation, birth, growth, decay and death results from cycles combining earth energies and

the cosmic forces which are received from the vault of the sky through the medium of the satellite discs of the earth.

Another important feature concerning the vault is the fact whereby, taking into consideration the metallic nature of its surface, it must possess a hypnotic non-vibratory influence, which, it may be expected, participates with the earth energies and the cosmic forces in the phenomenon of life. It is also, most probably, this hypnotic action exerted on the earth throughout the day by the vault, which induces sleep at night. Insomnia would, therefore, mainly result from an insufficient exposure of the body to its influence during the day. The dome of heaven must also constitute an important factor of physical and mental well-being, particularly when its presence is known and kept in mind. The author knows that healers transmit the vital energies it contains, and also, incidentally, that these operate through the correspondence existing between the shape of the body and the shape of the heavens, of which man is a small replica. It has been said before to-day, in this connection, that the Universe, signifying the heavens or the vault, is like the body of a man which, according to some texts, lies over the earth face downwards, with the head in the east and the other extremity in the west.

A much deeper implication must, however, be attributed to the vault of heaven on the religious plane, since some of the cosmic energies it contains and radiates must definitely be regarded as divine. They are the universal gods which were the object of primitive worship, and have since reappeared under different names in successive religions. It may be said at this point, that the fact of knowing the true origin of the energies which create the religious complex in man, does not in any way affect their divine nature, or prevent their being worshipped as in the past—on the contrary. The heavens, and this word has a single meaning which is that of the material and radiating vault which encircles the earth, was therefore described as being the dwelling of the gods. In all early theologies, the vault itself, under the names of God the Father, Lord Almighty, was the supreme deity personified, for instance, in Greece, by Zeus, the God on High, of whom all the other gods were only parts or manifestations, meaning by this the various radiations which proceed from the different parts of the vault. The

satellite discs of the earth, particularly the sun, were also regarded as gods due to their revealing and communicating the divine energies. We are, thus, gradually led to identify the triad of divinities which form, in a more or less confused way, the basis of all religions. The first is obviously the vault of heaven, God the Father. The second is the sun, true saviour of the world, classically described in early theologies as the Son; and since the third, or Holy Spirit, according to the theological definition, proceeds from the Father and is revealed by the Son, it is clear that the heat and light rays, as well as other energies which proceed from the vault, or Father, such as they are revealed and communicated by the intermediary of the sun, otherwise the Son, correspond to the rays or breath of the Holy Spirit.⁴

The Babylonian priest-astronomers had identified thirty-six gods or cosmic energies⁵ which, consequently, emanate from thirty-six specific points of the vault, if the figure is exact. But in what way were they able to discover the existence of these energies, or gods? Simply by observing the movements of the satellite discs of the earth on the vault, which they had, to this end, divided into 360 fixed degrees (twelve signs of thirty degrees), and recording the particular reactions, always the same, which the repeated passages of the discs over certain points of the vault, infallibly determined in the behaviour of man and in nature. In this way they could establish a systematic and accurate classification of the energies which are contained in the vault. These forces, considered as gods, were said to govern all terrestrial and human circumstances, including all diseases. It would, thus, appear that the cosmic rays emitted by a particular spot of the vault and personified by Ares, the god of war, through transmission by the discs, incite men and nations to fight one another; but when the discs, however, move away from the dangerous spot in the vault and the influence is no longer transmitted, the desire for war dies away. Or again, that the particular vault radiations personified by Apollo, confer what is called innate, poetical, musical or other artistic genius to the individual, and this, by means of an exact geometrical relation called aspect, existing on the day of birth between the position of the discs and a determining point of vault, say, in

⁴ One cannot help remarking in this connection that the assumption of the British astronomer Palmer, in the last century, that the sun transmits the rays which emanate from the Almighty, proves to be correct.

⁵ These correspond presumably to the 22 major arcana and to some of the minor arcana of the Tarot.

this instance, the 25th degree of Virgo. It may also be that the hypnotic action exercised by the vault compels man to blindly obey the cosmic impulses such as they are received through the medium of the satellite discs of the earth, but some of which it is said, may be resisted.

It should also be pointed out that since the heavens are in the shape of man, it is presumable that all the waves they discharge, whatever their length or speed of propagation, reproduce this pattern, and this has consequently led to the mythological belief that gods descend from heaven to earth to be born there as men, and also to the narratives of their discourses and actions in this world.

CHAPTER SEVEN. ON DEFECTS OF PROJECTION, FLYING DISCS AND THE RAINBOW

A REMARKABLE fact which cannot escape attention is the perfect stability of the orbits of the satellite discs of the earth, and also the mathematical regularity of their speeds which would result, as previously suggested, from the vibratory motions of the surfaces from which they are reflected; but this precision has not always been the case as, according to certain traditions, there was a time when the stars did not yet know their way. It is reported that Solon, when travelling in Africa in the 6th century B.C. went to the Egyptian priests to ask them what they knew about the earliest days of humanity. The priests stated that at long intervals there had been great changes around the earth and in the celestial movements, which caused the destruction of large numbers of human beings due to the devastating fires which destroyed all objects on the surface of the earth. The reason was that Phaeton, after having harnessed the horses to his father's chariot, could not drive it properly in its usual course, and it had practically destroyed everything on earth. This description seems to refer to an accidental slowing down of the sun's speed, whereby the heat generated by the metallic surface of the vault would be increased to such an extent as to cause the disastrous consequences referred to above.

The discs which have been observed travelling in space, sometimes at very high speeds, and which are called flying saucers, are also luminous manifestations. It must be agreed that they resemble, except as far as the speeds are concerned, the satellite discs of the earth, and they have the same origin; but it may be surmised in their case that, either the primary projections are imperfect, or that the vibratory motions of the surfaces from which they are reflected on the vault of the sky, are intermittent and irregular, thus producing short and erratic manifestations. It may be recalled that several observers who have seen flying discs from a short distance have described them as appearing to be metallic objects, that is to say that, here again, the vault of heaven is visible through the transparent discs. With

regard to the cigar-shaped saucers which have been taken for space ships, it is obvious that this oblong appearance merely represents a flattened disc. This deformation is presumably due to the shape of the vault, showing it, thus, at a different angle.

There are two facts which are to be mentioned concerning flying saucers. Firstly, that practically all cases occur when Mercury, Venus or Mars are either stationary or in slow motion, direct or retrograde. Secondly, that in all cases, invariably, the satellite discs effect a passage either at the 8—9—10th, 14th or 20—21st degrees of any of the twelve signs of the zodiac, so that it is possible to forecast the approximate date of the appearance of a saucer by the perusal of astronomical tables.

The rainbow is a greatly enlarged reprojection of the disc of the sun. It should be explained that only half of the iridescent border of the circle appears on the vault of the sky, but that the other half is always visible at the same time on the surface of the earth, where it can only be observed with difficulty as it is on the horizontal plane. It is only from a height such as the top of a hill that the complete reprojection of the solar disc can be seen in its entirety. The decomposition of the light is, therefore, effected by the vitreous or metallic surface of the dome of the sky acting, in the circumstance, as a prism.

CHAPTER EIGHT. ON THE PHASES OF THE MOON AND ECLIPSES

THE phases of the moon correspond to a twenty eight day eclipse which starts after the full moon, and becomes total for a few days after the phase which is called the last quarter. The end of the eclipse is marked in succession by the reappearance of the new moon followed by the first quarter; and the full moon corresponds to the end of the eclipse.

The explanation which has been furnished that lunar eclipses are caused by the shadow which is cast by the earth when the sun is situated behind it and in opposition to the moon, is not to be retained. The phases of the moon which constitute a true eclipse of long duration are not caused by the fact that the sun remains twenty-eight days behind the earth and in opposition to the moon, any more than in the case of an eclipse of only a few minutes duration; and even then, are we warned, in order that such an eclipse can be explained, it is necessary to assume that the earth has no atmosphere, which, considering existing circumstances, is not a very realistic proposition. It is also to be pointed out that the partisans of the system of gravitation show no scruples at all in having recourse to the geocentric system, although condemned by them as unacceptable, in order to explain and calculate eclipses; and as yet it would be useful to know whether the motion of a solar eclipse is at all real, since the motion of the sun in which the latter takes place is described as being only apparent.

It is said that eclipses of the sun occur when the latter and the moon, which are considered as solid, opaque bodies, are in conjunction, thus producing an obscuration; and that in lunar eclipses the luminaries are in opposition to each other, but it must be remembered that the position of the sun, as based on an in-existent advance of one degree per day, has no connection whatever with true circumstances, and, therefore, the conclusions which have been drawn from this are false from the very beginning in both cases of solar and lunar eclipses. We are also told, in this respect, that the black disc of the moon advances on the sun, and then recedes, but the moon is

never retrograde. Why should it become so now and again for a few minutes just for the purpose of an eclipse of the sun? Further, the moon is not an opaque body, and moreover, as it moves on the vault of heaven on the same surface as the sun, it cannot possibly pass between the latter and the earth.

Eclipses are not caused either, as it might be inferred at first, by a partial or total temporary extinction of the projector centre, thus provoking an interruption of luminosity on a corresponding surface of the projected disc, since the latter is extant behind the shadow, its circumference remaining visible throughout the whole duration of the obscuration. For the author, eclipses are due to an optical effect obtained by a modification in the slant of the vault of the sky, thus determining an inclination of the disc. It can be readily understood that the convexity of the vault confers an apparent volume to the transparent disc, thus giving it an optical thickness; and it is just the reason why the sun has been compared to a lens. Therefore, following an inclination of the vault by the disc, a shadow could be cast in the latter by its own edge, as there is no doubt that eclipses are self induced, i.e. that the sun and the moon cause their own eclipses, seeing that the obscuration occurs strictly within the limits of their circumference. As the luminous disc moves on, the optical circumstances being restored, the shadow is gradually eliminated. It is possible to effect an exact reconstitution of an eclipse by means of an ordinary magnifying glass representing the disc. It can be seen, by holding this magnifying glass vertically and moving it slowly forward in the manner of the movement of the satellites, that, by giving it a slight inclination, a shadow similar to that of an eclipse is cast in the interior of the magnifying glass by its edge, and without the interposition of any opaque obstacle.

There exists, further, an evident and important feature which has been overlooked so far concerning the position of the other satellites of the earth during eclipses. It can readily be observed that during these manifestations, certain zones of the vault are simultaneously aspected by the other satellites. The degrees in question are the 28th of Sagittarius, 8—9—10—11—12th of Capricorn, 14—17—21st of Virgo and 2nd of Aquarius. There cannot be an eclipse of the sun, or the moon, on any one date without these

degrees being simultaneously aspected by the other satellites; and it appears, consequently, that the combined influences of certain parts of the vault of the sky which become sensitive by the passage of the satellite discs, contribute to the formation of eclipses.⁶

The correspondences between the longitudes of the discs and the true position of the sun, or moon, during eclipses should be systematically investigated in order to discover the connection. It may, however, be regarded as certain that eclipses are not due to any intercalary passages taking place between the sun, the moon and the earth, nor to any shadow cast by the latter.

The fact that eclipses of the sun occur in certain conditions at the time of the new moon must be regarded merely as coincidences between the cycle of solar eclipses, the periodicity of the moon and the movement of an X-point of the wheel of constellations, which in this work is held to be an immaterial structure supporting the luminous manifestations called stars. It is this X-point of the wheel of constellations which, moving with it at the speed of one degree per day, should replace the sun which is supposed to move at this speed. This point would then pass in close conjunction with one of the lunar nodes at the time of the new moon. These coincidences permit effectively to calculate solar eclipses, but do not determine them. Natural manifestations should not necessarily be confused with their own causes, nor regarded as such.

⁶ It should be added that not only eclipses but also all luminous manifestations as well as atmospheric and geological phenomena, such as comets, flying saucers, falls of meteorites, earthquakes, volcanic eruptions, inundations, tornadoes and even thunderstorms, rain and snow, are always systematically accompanied by aspects formed by the satellite discs of the earth with certain fixed degrees. It may be easily checked, for instance, that earthquakes only occur when there are simultaneous aspects with the 8th degree of Aries, 10th of Capricorn, 29th of Sagittarius and 2nd of Aquarius.

CHAPTER NINE. ON THE STARS

THERE are definitely no solid bodies between the earth and the dome of the sky. The stars are not masses of matter, and they do not result either from projections like the satellite discs of the earth. Xenophanes in the 6th century B.C. thought that the humid exhalations of the earth contained latent sparks which, after some sort of condensation, formed the stars, and this explanation appears to be acceptable. The astronomers of ancient Egypt believed also that the stars were suspended from the dome of the sky by cables, like lamps, and the fact is that on very clear nights, filaments or lines connecting the stars of each constellation can be clearly distinguished; from this we may conclude that there exists above the earth a network of ethereal cords, certain parts of which, particularly at the intersections, condense and retain permanently the radio-active emanations from the earth, thus constituting the stars, in accordance with the theory of Xenophanes. This does not exclude the possibility of any effects resulting from the influence of the dome of the sky or from the presence of the sun during the day.⁷

It is also evident, since all the constellations are seen to move in bulk, that it is the frame or structure, acting as their support, which revolves and carries them along. It could, further, be surmised that this stellar network above the earth is, at intervals, subjected to phases of tension and relaxation, which would have the effect of enlarging or reducing the size of interstellar spaces; and also that the volume of the earth's radio-active emanations varies according to seasons or other causes, therefore increasing or diminishing the luminosity and the number of the stars.

The stars are, thus, nearer the earth than the satellite discs which move on the vault of the sky, and this fact is in accordance with the theory of both Anaximander and Parmenides. Concerning the supposed occultations of the stars by the moon, it can be said that it is not necessary that the latter

⁷ Shooting stars are not to be confused with stars in the ordinary sense. They are luminous manifestations which take place on the surface of the dome of the sky as previously explained.

should pass in front of a star to render it momentarily invisible, since the same result is achieved if the moon, the brighter light of which causes the disappearance of the star, passes at the back of it.

When we speak of a stellar network or system, it is self evident that there are two such networks, one over each half of the earth, which possess different signs and constellations and meet over the equator. It can be observed that the constellations make a complete circle of that part of the heavens in which they are situated, in one year, which is equivalent to an approximate speed of one degree per day, and it is this advancing motion of the constellations of one degree per day which, for some incomprehensible reason, has been attributed to the sun. In our regions north of the equator this movement takes place from west to east, in a direction opposite to that of the satellite discs of the earth. As to the possible origin of the motion of the stars, this could be determined by a magnet action exercised by the metallic dome of the sky, or perhaps by the passage of the daily and semi-annual cosmic breath streams.

It has been said that there exists a regular retrogression of the constellations of fifty seconds of degree per year, and that this movement was first noticed by Hipparchus in the 2nd century B.C. when comparing his notes with those which another observer, Timochris by name, had made one and a half centuries beforehand. It would be necessary, in the first place, to know whether the calculations these two investigators made at an interval of one hundred and fifty years are correct, and whether they must be accepted, which is by no means certain; but why, anyhow, has this retrogradation which was visible and measurable in the time of Hipparchus, been mysteriously transformed through the ages into an invisible retrogradation? A difference of fifty seconds per year is appreciable over a length of time, as it amounts to one degree in seventy-two years, and it should by now since the 2nd century B.C. equal about thirty degrees. It is, however, impossible nowadays to see this considerable difference in longitude in the position of the constellations. These always return to the exact spot they occupied in the heavens the preceding years at a given instant. That is to say that this retrogradation which Hipparchus thought he had discovered, does not exist, and if it does exist why, considering the

importance which is attached to it, does it not figure in any of the official astronomical publications?

There is, therefore, no retrograde motion of the zodiacal signs over each other. Aries, actually presumably occupied by Taurus, is not in Pisces, Pisces in Aquarius, etc. They are still, in the same order, at the place they occupied in the beginning of time. Further, the theory of the precession of the equinoctial point which was derived from this supposed retrogradation of the constellations, as extended to the sun, cannot be substantiated.

CHAPTER TEN. ON THE PRECESSION OF THE EQUINOCTIAL POINT

THIS theory consists of two erroneous propositions concerning invisible and inexistant movements of the sun, and of a corollary which would be logical if it did not defeat the theory itself. In the first place, the sun, although its motion takes place in the reverse direction, is said to accompany the constellations and to progress with them at a speed of one degree per day, and in this way to cross the line of the equator twice a year on the 21st of March and on the 22nd of September at an equal distance from the poles, so that one half of the earth receives the light of the sun while the other half remains in darkness, a circumstance which determines the equinox; and for this reason the point of intersection where the sun is supposed to cross the equator is called the equinoctial point.

But where, in the first place, is the need for the sun to pass on the line of the equator to create the equinox? This equal duration of day and night undoubtedly results from the undisputable fact whereby sunrise occurs exactly twelve hours after sunset. Why give an artificial cause to a circumstance of nature, the origin of which is as clear as daylight?⁸

According to the second proposition the sun, with the constellations, is said to have a retrograde motion of fifty seconds of a degree per year. We arrive now at the kernel of the theory whereby the sun, retrograding by fifty seconds per year, it follows that the point where it crosses the equator on March 21 st and September 22nd, also has a yearly retrograde motion, called precession, of an equal number of seconds, but in that case the conditions required for the equinox cease to exist.

⁸ It might also be added, incidentally, that at the moment of the equinoxes, on March 21st and September 22nd, the sun at mid-day reaches a point in the heavens which is equi-distant from the culminating height reached during the summer solstice, and the lowest point attained during the winter solstice'. Thus, to be intelligible, the height of the sun should, in the respective hemispheres, be measured on a horizontal line passing through this middle point reached by the sun at the equinox, and not on the line of the equator as is actually done, when for the six months from the autumn to the spring equinox, i.e. March 21st to September 22nd, we find the paradox by which the height of the sun is shown as below the equator at mid-day.

It should be pointed out here, first, that the theory should really be called precession of the equator. It is the equator which would have a retrograde motion since it is on its line that the point of intersection crossed by the sun, and called equinoctial, is situated. Further, the equal duration of day and night is said in this case to be only possible when the sun is on the line of the equator at an equal distance from the poles, whereby one half of the earth receives the light of the sun, the other half remaining in obscurity.

Therefore, if the line of the equator on which the equinoctial point is situated moves backward, as in this precession, the sun when crossing this point will no longer be at an equal distance from the poles; neither will the two halves of the earth be identical, and an equal distribution of light and darkness over the earth becomes impossible. The theory defeats its own end.

Further, in the scheme of the precession, the sun is said to cross the equator nowadays at the 6th degree of the sign of Pisces, which corresponds to the 24th of February. It should, therefore, be the equinox on that day, after which the days should normally start on their habitual increase. In the way of nature, however, the equinox invariably takes place twenty-six days later, on March 21st, the days beginning to grow longer from that date. As this fact obviously upsets the precession theory, it is declared that this annual retrogradation of the equinoctial point, which latter is crossed by the sun in order to form an equinox, which equinox marks the beginning of spring, has no effect on the seasons—and it would also seem, on the equinox itself. So, one may ask in the end, what the object of this riddle is at all, and why should any causes, even if they are invisible as in this case, be assigned to circumstances which fail to materialise?

It can thus be seen from the few remarks made above that the theory of the precession of the equinoctial point is an entirely artificial arrangement which, once unravelled and scrutinized, cannot be taken into account.

CHAPTER ELEVEN. ON THE FORMATION AND THE AGE OF THE EARTH

THE formation of the earth has resulted logically from its dislocation from the surrounding mass of matter which is now the vault of heaven. All the ancient cosmogonies are in agreement on this point. It is stated, for instance, in the Egyptian cosmogony that the sun rose from the waters and that a shaft of light created a fissure in the mass of matter, which separated the heavens from the earth. It may also be assumed that the weight of the bulk of the waters helped to cause the downfall or, perhaps, a succession of vibratory shocks.

The dislocation of the earth may not have taken place instantaneously in one block. It must have continued from place to place, sometimes with difficulty, over a period of several years. Hesiod, in his history of the war of the Titans, signifying the mountains, against the vault of heaven, has left us a striking picture of what must have been the birth of the earth or, at least, one of its phases. He describes the heavens falling from their height, shaking the earth on its base and crushing the bold Titans under enormous blocks of burning rock; the terrifying fracas of the thunder ; the flashes of lightning; the fire consuming the earth and emitting suffocating vapours in a blazing atmosphere. It could be added, the prodigious masses of water falling in cataracts from the depths of heaven on to the earth. Hesiod states that the revolt of the Titans, that is to say the length of time taken by the dislocation, lasted ten years. It is even probable that for a long time afterwards parts of the vault must have crashed from time to time, before its final consolidation.

It may be said that mountains did not result from volcanic upheavals, but that they were released in that shape, including summits and peaks, from the depths of heaven. Thus, the mountains of the earth find their counterparts in the valleys of the vault of the sky, and vice versa. In the same way, the deep and wide circular depressions which have been discovered, sometimes at very high altitudes, and are filled with water either

from atmospheric condensation or from rain and appear like lakes, have not been hollowed out as it is assumed, by the fall of gigantic meteorites of which no traces can be found, but are natural formations which result from the dislocation, and the mounts or circular eminences which exist in the vault are their counterparts.

The megalithic blocks, including the extraordinary specimens found in the Easter Islands, are also natural rock formations, the upper parts of which happened to be freed from, or broken off, the mass of the vault at the moment of the dislocation while their lower parts remained buried in the earth. The flat horizontal stones, called dolmens, which are laid on vertical stone supports, thus forming tables, have also been released in these particular arrangements from the vault of the sky. The megalithic blocks were never erected by man, nor were they either transported from one place to another. They were, however, fashioned, shaped and even cemented in situ by the hand of man to serve for religious and burial purposes. Their geometrical and symmetrical disposition is also a fact of nature. The pyramid must originally have been a single block of rock released in that shape from the vault of the sky, since it can be observed that quite a number of mountain summits affect this geometrical shape, and it may have been imitated by the Egyptians in view of its unusual appearance.

There has been no addition, whatsoever, to the layers which constitute the earth's crust since the beginning. They all date naturally from the dislocation, although volcanic eruptions, earthquakes, and inundations may have caused some upheavals and shifting of the original layers. A transformation of the primary constituents resulting from the action of the vault may have also occurred through the ages, particularly in the case of coal, petrol, ores and precious stones.

The evolution of the earth was accomplished in several periods of time of undetermined duration which correspond to the days of Genesis; but this evolution has always resulted from the influences of the cosmic radiations which proceed from the vault, such as they are transmitted by the satellite discs of the earth. These may not either have appeared all at the same time, and their successive formations may have contributed to a large extent to

the evolution of the earth which, from a certain period, became exteriorized through the appearance of vegetation, animal species, human races and their various degrees of civilisation. It is impossible to speak with certainty of the different ages which have followed the dislocation of the earth, neither is it possible to estimate correctly their duration, but certain divisions may be established. In the first place, it may be remarked that the age of the earth does not run into millions of years. We may, in fact, consider that once the initial vital impulse was imparted, the earth's evolution was accomplished in a comparatively short span of time, but that it is rather the separation of our Universe from the amorphous chaos, its slow preparation and organisation, and also the descent of the cosmic scheme into matter, which must have previously required an infinite length of time.

It is stated in Nordic Mythology that the earth floated on the waters during 700 years, but this period of stabilisation must have been much longer and have taken at least 2,000 years; and even after its final consolidation, the earth must have been subjected to periodical cataclysms resulting from seismic shocks and submersion by water, but not volcanic eruptions since the internal fire of the earth may only have been in an early smouldering stage at this time. It would be interesting to know, in this connection, how this fire in the centre of the earth started at the beginning. It may have originated from a spontaneous ignition produced by the impact of burning rocks from heaven, or even lightning, but the fact of its existing in the interior of the earth may point to a natural slow combustion of matter, in which, however, vegetation could not have played a part.

This period of consolidation was followed by a transitional era. It is stated in very early texts that there was no retrogradation at the beginning of time, which means that the satellite discs of the earth which are subject to this particular motion had not yet made their appearance in the heavens, and that only the sun and the moon did exist, since their motion is always direct. The other discs, up to and including Saturn which all retrograde, may have started to appear successively a few hundred years after the dislocation of the earth. It is also said that the inclination of the earth did not exist and

that there were no eclipses. This early transitional period must have lasted a considerable time, and its duration be estimated at about 10,000 years.

The next great event in the evolution of the earth was its inclination. It is said in some Oriental cosmogonies that one of the pillars supporting the earth collapsed and made it lean in a south-westerly direction, while the heavens were then said to incline towards the north-east. We may consider that such an upheaval did really occur, as several Greek authors have recorded a tradition existing among very ancient people that a tremendous commotion shook the foundations of the earth at a very remote time. Anaxagoras, who lived in the 5th century B.C., was of opinion that the inclination of the earth was of a fairly recent date, but it must have occurred much earlier than he thought, and could be situated at 7,000 years B.C. Taking into consideration the 2,000 years which have elapsed since the Christian era, the actual age of the earth since the dislocation would be 21,000 years, which means that since the beginning the sun has risen over seven and a half million times over the earth, a staggering figure. The age of the substance of the earth itself, considered as part of the original mass of matter is, evidently, impossible to estimate.

Anaxagoras also states that vegetation, animal species and the human races had already appeared on the earth before its inclination. Nothing can be presumed, as may well be realised, on this question. The creation may have necessitated lengthy periods of time. On the other hand, it is also possible that all could have appeared in the space of a few months depending on the intensity of the creative forces, effects of the discs, suitable climatic conditions and time of the year, but there must certainly have been numerous cases of spontaneous generation. It may be estimated that the human and animal skeletons called prehistoric, as well as the most ancient vestiges of civilisation, and also the mural art of the cave age men, are not more than 4 to 5,000 years old—if they are that.

After its inclination the earth must have passed through several stages, the exact nature of which is impossible to ascertain, but which are made evident by their repercussion on the progress of civilisation in all its forms, particularly on the religious plane. The beginning of the Christian era, nearly 2,000 years ago, certainly corresponds to a physical evolution of the earth.

There are actually, however, precursory signs of the advent of a new age, that of atomic energy, which should also be interpreted as another step in the evolution of the earth itself, and which, like the preceding eras, will bring in its train new reactions in the fields of religion, ideology, culture, science and human society, the effects of which seem already to be perceptible. The new satellite disc, Pluto, may be of recent formation and have had an influence on the great inventions which characterize modern times. The flying saucers which seem to have recently become habitual features of the heavens, may well relate to the formation at an early stage of new satellite discs of the earth.

As to the end of the world, one of the perils to be faced would be the failure of the discs, particularly the sun. The strength and solidity of the vault may be held to be absolutely secure, and its downfall upon the earth should not be anticipated as our forbears used to fear, although the inertia of its surface or the disappearance of its reflecting power would prove calamitous; but barring celestial or geological disasters of any sort, we must realize that all life on the face of the earth might, and perhaps much sooner than could be expected, be completely wiped out, by accident, by the dangerous and powerful energies which are now being released in different parts of the world, especially taking into consideration the relatively small space in which the earth is confined.

A question arises: In case of total destruction of life, would there be a revival on earth after a certain interval of time? We might think so, and in the same pattern, since the great creative forces of the vault of heaven are said to be unchangeable, constantly active, and also immortal.

CHAPTER TWELVE. ON THE FUNCTION OF THE EARTH IN THE UNIVERSE AND ON VOLCANIC ERUPTIONS AND EARTHQUAKES

IF we try to discover the function of the earth in the Universe, the first thing to be noticed is the manifestation of life. The earth is not a cold mass without any reflexes. There is firstly the all important factor of its internal fire, the incessant activity of which is made evident by volcanic eruptions. There are also other symptoms of animation, such as earthquakes, tides, and winds. It should also be borne in mind that if life in all its forms is extant on the earth, it is only because it is part and parcel of the living body of the earth itself.

It follows that the only interpretation that could possibly be assigned to the earth in view of the evidence of life, is an organic one, a parallel of which could be found in the human body. If the different parts of the human body and their functions are examined, the most consistent relationship which is immediately apparent is that which exists between the heart and the earth. In the first place, there are the volcanoes which represent the apertures through which the blood is assumed to leave the heart and pass into the blood vessels. Furthermore, we have the volcanic eruptions which correspond to the expulsion of the blood. Another important point of resemblance is the inclination of the earth towards the left which reproduces the slant of the heart in this direction.

Under the circumstances the volcanic eruptions and the earthquakes would appear to represent cardiac phenomena, and to have a connection with movements of expansion and contraction. The volcanic eruptions resulting in the expulsion of a certain quantity of fiery matter from the centre of the earth, would correspond to the expansion; the earthquakes causing cracks and disturbances on the crust of the earth would represent the contraction. It is also almost certain that the loud subterranean rumblings which

accompany volcanic eruptions and earthquakes correspond to the sounds which are peculiar to the heart.

An objection which could be raised at this point against the analogy which has been established between the heart and the earth, and has so far been consistent, is in connection with the presence of the circulating element which is the blood, and is supposed to circulate and pass through the heart. This fact would imply parallel conditions in the case of the earth, and these conditions do not exist; but the circulation of the blood could be disclaimed seeing that it cannot be proved, as it is impossible to know exactly what the conditions are in the heart in vivo, and also that this circulation, by means of X-rays, cannot be seen to exist. It would rather appear that the blood is immobilised in the heart, veins and arteries in the same way as the marrow is enclosed in the bones, and the similarity of the arrangement seems to confirm this view. It should also be considered that it is a material impossibility for one and three-quarter pints of blood to pass every ten seconds, as it is said, through the heart which is the size of a man's fist. The speed of the blood, given as 50cm. per second, is also difficult to accept. Furthermore, it has been calculated that this speed is reduced to 5mm. per second in the capillaries; but since the volume of the blood which is said to issue from the heart is constant, it is obvious that if it circulates rapidly when leaving this organ, it cannot continue its assumed circuit at a considerably reduced speed in the capillaries without causing an obstruction resulting in an immediate blocking of the circulation. It is also evident that if there is no communication between the two halves of the heart, there cannot be any communication either between the capillaries to permit circulation. This points to the existence of two independent and opposite systems or networks of blood vessels. The valves, which are found in the veins, have nothing to do with the circulation of the blood. Their function is to support the weight of the venous blood which is heavy, and to keep it in place, particularly when the body is erect. The ancient Greek physicians thought that a kind of subtle air or spirit was transported by the blood in the arteries and veins, and it could be added that this subtle air may correspond to the cosmic breath streams mentioned previously; the breath of day in the arteries and the night breath in the veins.

Consequently, once the obstacle of the supposed circulation of the blood is removed, the analogy between the heart and the earth appears to be complete, taking into consideration the fact that this analogy is only an assumption, and also that the preceding remarks were only brought forward for the purpose of endeavouring to support same.

CHAPTER THIRTEEN. IS THE EARTH THE HEART OF A GIGANTIC MAN-WORLD?

IT has been said that the Universe is an organic body exactly like the human body, and that the interior, that is the hollow part of the body of man, is, and should be interpreted as the space between the stars and the earth. We have also previously seen, in this connection, that there appears to be an analogy between the earth and the heart. We may, further, consider the text of the first chapter of Genesis according to which Jehovah took one of Adam's ribs and made it into a woman. This does not mean that the female human body was evolved from a supplementary bone from the male's, but refers to the creation of the earth, the name of which is Eve,⁹ such as it became detached from the principal mass of matter, Adam, which means man, in the neighbourhood of the thorax which is formed by the ribs and also contains the heart. Thus, the earth may well be the heart of a gigantic Man-World possessing the characteristics of the human body which is the universal prototype, and which would be composed of the same elements as the earth itself, i.e. the substance of the earth proper, as well as minerals, metals, stones and rocks, and would also contain water, as reference is often made in ancient cosmogonies to the superior waters which exist on the other side of the vault of heaven. On the other hand, air and fire might be particular to the earth.

It is possible to calculate the height of the Man-World which would shelter the earth since the circumference of the latter, which is to be taken now as a flat expanse, is said to be 39,840 kilometers, and that the dimension of the heart is approximately 1/13th of that of the body; and this would give us the figure of 517,920 kilometers which, after all, does not seem so absolutely inconceivable, compared to the immensities to which we have been accustomed in the past.

⁹ Eve handing an apple to a man and inviting him to eat it, is merely the symbol of the earth feeding humanity. The serpent is a representation of hunger which tempts man to take food.

Finally, one must confess that the intelligence of man will for ever be defeated by the problems of the reason of the existence of the Cosmos, of its shape and method of organisation, its probable magnitude, antiquity and duration, and particularly its mode of support. Logic and imagination remain powerless in front of these unfathomable mysteries.

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