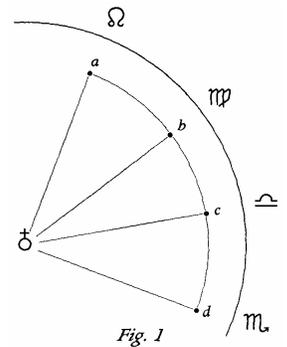


LECTURE FOUR - 12 January 1956
(SUPPLEMENTARY LECTURE)

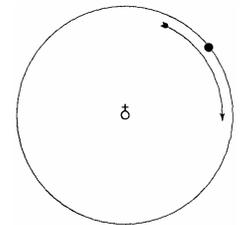
Tonight I should like to speak about movement in our solar universe. This is a very important point, because only through movement will we understand an aspect of life—an aspect of the working of the solar cosmos into our picture.

Movement brings the planets of the solar universe into an ever-changing relationship with the constellations of the Zodiac. In Fig. 1, we take the constellations of Lion, Virgin, Scales, and Scorpion. Then we take Saturn, which I draw as a dot to indicate its movement, and let us imagine that in the center is the Earth. If we had looked out in Sept. 1947, we would have seen the planet Saturn move into Lion (position *a*). About three years later, in Sept. 1950, we saw Saturn in the constellation of Virgin (position *b*), and then about three and a half years later we saw Saturn move into Scales at the end of January 1954 (position *c*); and finally into Scorpion end of December 1955 (position *d*). At present we see it in front of Scorpion.



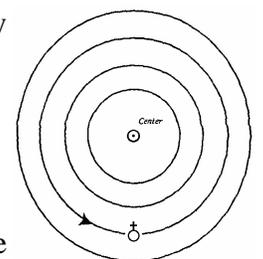
You see through the movement of the planets we get their ever changing relationship to the constellations. They are, so to speak, kinds of messengers, intermediaries between the Zodiac and the Earth. Thus they can work, as we very briefly indicated last night, into earthly substances from various directions of the Zodiac, constantly altering them by their impact.

In the course of time, humanity has developed views on how the planets move in the solar universe, and these have changed over the course of time. If we go back to very ancient times, for instance Ancient Greece, we still find the viewpoint that a planet is “fixed”, as it were, to its sphere. The Earth was swimming, therefore, in the sphere of a planet, for instance, the sphere of Saturn (Fig. 2), and Saturn was fixed to that sphere which rotated around the Earth. This was the viewpoint of the pupils of Pythagoras. The planets were fixed to the spheres, and as the spheres rotated, the planets also moved.



These spheres were still regarded in those times as the dwelling places of the divine hierarchies. They moved the spheres, and thereby the planets were moved. This was lost in later times, and when we come to the time of Ptolemy, that is, the second century after Christ, we still find the planets moving round the Earth, but the concept of the sphere is more or less lost in the Ptolemaic system. The Earth was still the center of the universe and the planets, including the Sun, were taken just as they appeared in the sky, apparently moving around the Earth. The Sun was also conceived as a celestial entity which moved round the Earth through such an orbit. That viewpoint was one which was entirely developed on the foundation of observation.

There is a long story of observation and the changes it necessitated in the conception and structure of such a universe in the time between Pythagoras and Ptolemy. However, it is a viewpoint which takes the cosmos as it appears, and the point where we stand—the Earth—is taken as the point in the universe on which all these planets work from all sides, wherever they stand in the cosmos. So it is a viewpoint better suited to the idea that cosmic forces work into earthly substances and, to a certain extent, into human existence. The Ptolemaic system lends a hand to such a conception of planetary workings, and I believe that Rudolf Steiner regarded this aspect of Ptolemy, where the Earth is the center, as the viewpoint of the cosmos from the Moon. I believe he intended to say this: from the point of view of the Moon, cosmic substances work creatively into the Earth. It is a viewpoint of creation and most of all creation in the sense of embryological development. Thus the Earth is in the center and receives the full impact of these forces. Behind such a view as this, we would have that wonderful picture of a cosmos which was moved by the divine hierarchies. Now that lasted up to the time of Copernicus, who came to a different outlook. He did not regard the Earth as being in the center. He took the view that the Sun is in the center of the universe. Let this be the Sun here in the center (Fig. 3), then the Earth would move around the Sun, and all the planets would also



move around this central Sun. Now, at first, this all seems very plausible, but something tremendous had happened to the consciousness of humanity during this time. Humanity had moved away completely from such viewpoints as the followers of the Pythagoreans and their later pupils, namely, that the cosmos was moved by the divine hierarchies. More and more the cosmos became a machine. When the ideas of Copernicus were presented to humanity, then the time was ripe for humanity to look upon the cosmos as a machine. Gradually, after Copernicus, men such as Kepler, to a certain extent, but chiefly men like Newton and those British astronomers who followed him took this view of the Sun as the center.

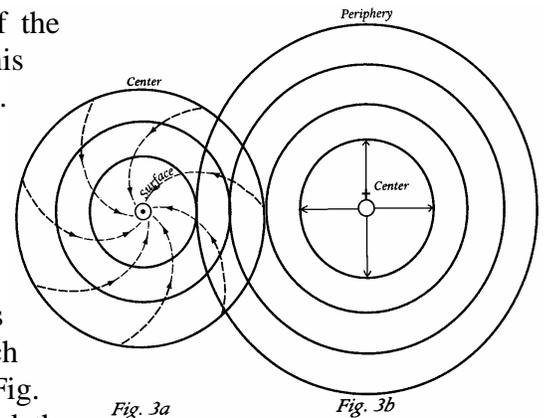
They used the Copernican picture of the world even to the extent that they regarded the whole cosmos as a machine; it became a machine, nothing else. You may have experienced that in school, because in school you are very often shown models of the Copernican universe, where you have the Sun in the center and the planets moving round it, which you demonstrate by simply turning a wheel. So you see, that is a machine, in a sense, a lifeless thing. The great difficulty which modern astronomy has is to explain how movement entered the cosmos, how movement was brought about. There is no explanation in a machine. It cannot set itself rotating; that cannot be! Yet modern astronomy is unable to accept a spiritual principle. That is outside the range of what is considered to be the safe and sure basis of modern natural science. Therefore, out of its own resources, modern astronomy can find no reasonable explanation for movement in the cosmos.

One may ask: How can it be possible that humanity can have such different views of the cosmos? How is it possible that in ancient times one thing was considered to be true and then in modern times something else—from Pythagoras, to Ptolemy, to Copernicus? And the fact is that tonight I shall have to speak about the possibility of looking at the cosmos in a totally different manner! How can this be so? When it is one and the same thing why should it present itself in different views? Surely we all see the same thing!

Here I should like you to permit me to use a comparison—the human being. You know that in modern times the human being is also considered as being a machine. In 1747, a Frenchman, Julien Offray de la Mettrie (1709-1751), wrote a book called *L' Homme Machine*, (*Man, the Machine*.), where he described the human being in the terms of a machine. Much of that has been developed further, and in modern popular science we often find diagrams of the human being in which the inner organs and functions are depicted as purely mechanical actions. For instance, the brain is a kind of telephone exchange that receives impulses from without and sends them on into the body, etc. The whole body is regarded as a machine. Now we know that this same human being, whose body we see, can be regarded quite differently, totally so. From our point of view, it must totally be regarded differently, namely, as a living being. Not only as a living being but also a being that has consciousness and self-consciousness.

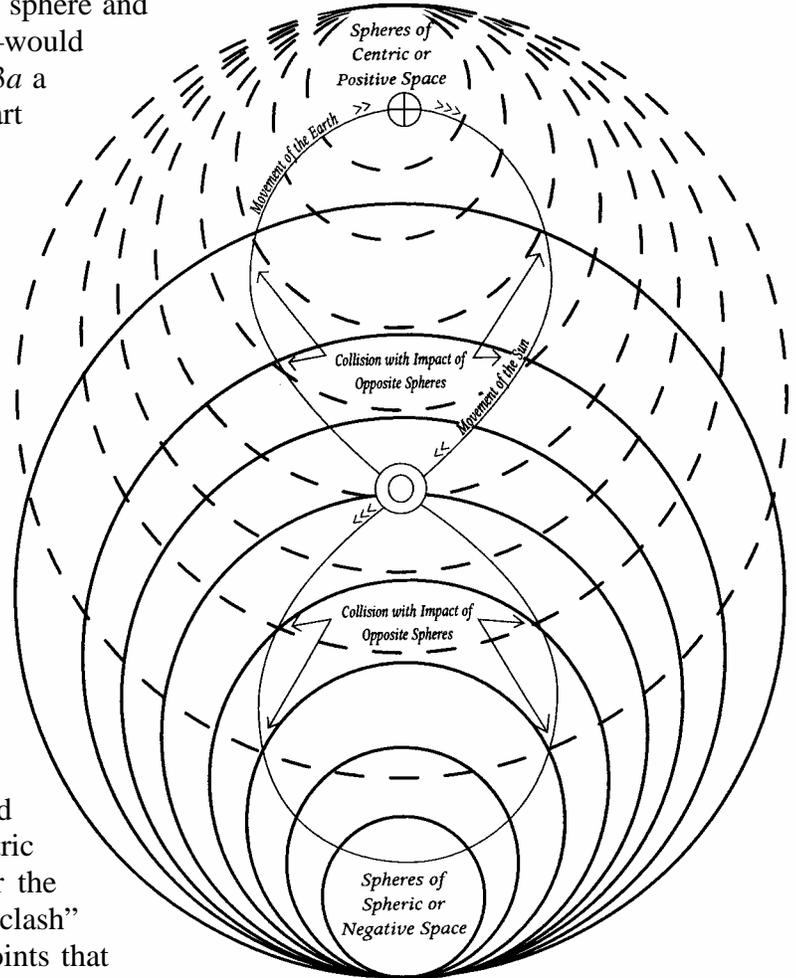
You see how on that level the very same thing can be looked at from different angles, and this also applies to the cosmos. It is very much a matter of viewpoint, of the inner attitude which a human being takes; we will all see the same thing, namely the cosmos of stars out there on a clear night, which can be regarded from different angles. Now, as we have come to this age where the Copernican view of a mechanical universe is generally accepted, in time there must arise the question: Is there no way forward through which we can find once more a view of the cosmos which will give us the certainty that it is a living being? Rudolf Steiner has suggested and developed ideas concerning this which are the foundation of what you see here, this model of a lemniscate (see Fig. 5 below).

Now, first of all, I should like to work a little on the idea of the lemniscate. Why just this form? Why of all forms in the cosmos this particular one? You see, it is bound up with the very principle of life. If we think of two spheres of different quality in the cosmos, for instance, of that sphere of emptiness we have been speaking of, the Sun, that “hole” in the cosmos. What kind of Sun would that be? It is very interesting to go right through this idea. We have that “hole” in space, the Sun in the heavens which we see in Fig. 3a. It would draw in the sidereal zodiacal substance which is out here beyond this circle. This is obviously a sphere with a negative character, which does not do what you expect from this second sphere, indicated in Fig. 3b, a sphere which starts from a center point and goes out toward the



periphery—this is the general aspect we develop if we speak of a sphere. But this Sun in 3a is just the reverse, it comes in from what we would ordinarily call a periphery, though it's not exactly so, and finally comes to what we can call a surface. I mean, this outer circle is not really a periphery in 3a. If we take a circle and turn it inside out, obviously the center moves out of the middle, doesn't it? Where would it move to? Into what we see in 3b as the periphery. Out in 3a it is the center of that sphere and this center point—if you think of it as a globe—would be its surface. Can you follow? Now I shall call 3a a negative sphere and the sphere which would start from its center and move out, expanding toward the periphery, a positive sphere (3b).

Can we see now what the Sun really is. We say that out there, what we see in the heavens, is the Sun. According to the above view, this is not quite correct. The Sun is everywhere; we do not see it, we do not call it the Sun, but we are in the “middle” of the Sun—the Earth is within the Sun! Let's imagine this is the sphere of the Sun (3a) and this the sphere of the Earth (3b). In this regard, we obviously have the Earth globe, and we have the center of the Earth that serves gravity, gravitation in all directions. It's that which reaches out and attempts to pull everything toward the Earth's surface. Now if we have two such spheres intersecting, (we cannot do it tonight geometrically, it would lead too far—that would be a geometry lesson!), and if these two entities were made to move, we would get a lemniscate. In the points, where the concentric circles clash, you would find the foundation for the drawing of a lemniscate (Fig. 4). The “points of clash” between these concentric circles would be the points that



you would have to use in order to draw a Cassini Curve or lemniscate—a figure eight. Thus we would get such a figure if the two cosmic bodies, or entities—Sun and Earth—were forced to move in the above manner; they would move in lemniscates.

What does this really mean? It sounds so terribly complicated, doesn't it? But see, this is the foundation for a living universe, not a machine. One doesn't get it cheaply! It is sometimes very complicated; however, the world is complicated. You know the story of a King of Spain who, when the working of the stars was demonstrated to him by an astronomer, said that if he had made the universe he would have done it more simply. He considered it much too complicated! Well, the cosmos is complicated, and to find the truth one sometimes has to do “hard labor”. In the lemniscate you clearly have the fact that it is built out of two polarities, that is, a negative and positive sphere. That's life!

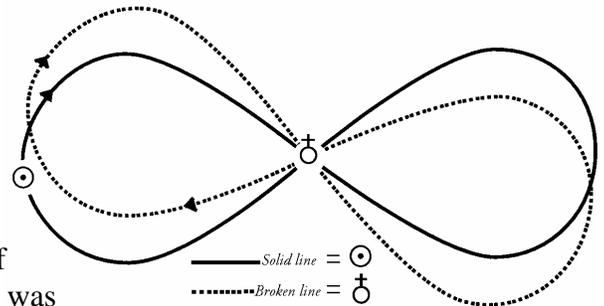
What is life? Life is obviously something that develops between becoming and dying away. Between these two, or speaking in human terms, between birth and death, you have life. Life is a battle between something which wants to come into existence and remain so, and from the other side something is working that wants to terminate that existence, which constantly wants to cut life short. So, if we want to find a viewpoint of the universe, then we have to somehow accept such a principle of movement in the lemniscate, in its form.

Rudolf Steiner suggested the lemniscate movement for the Sun and Earth and also for the other planets in the so called *Astronomy Course*. (Titled: *Rudolf Steiner on Astronomy*, 18 lectures given between 1-18 January, 1921, GA203. It has been translated into English and is now available in book form, published by The Rudolf Steiner Research Foundation, PO Box 1760, Redondo Beach, California 90278 U.S.A.) There he speaks about this principle and develops it, showing how one arrives at such conclusions in the direction I have briefly tried

to indicate. He spoke about this in 1921, and it took many years—decades—until one really found possible solutions. Because, if you imagine the Sun moving through a lemniscate that is static in the cosmos, you will never get what you actually observe in the sky from the Earth. What do we actually see? In the course of the year you see the Sun, you observe it—actually you cannot observe it, but you can calculate it and establish its position. In the course of the year the Sun is moving through the ecliptic round the Earth, which is what we observe and nothing more. We do not observe that the Earth is moving around the Sun; that is thought out. Now the question was: How can one see cosmic movement in a lemniscatory form so that it tallies with actual observations, with the facts of observation? That took us an endlessly long time!

In another lecture, in a long series about cosmic history given during the First World War, Rudolf Steiner again speaks about the Sun and Earth movement in two lemniscates. (See *Inner Impulses of Evolution. The Mexican Mysteries. The Knights Templar* by Rudolf Steiner; 7 lectures given between 16 September and 1 October, 1916, GA171.)

In the last of seven lectures, he gives this picture: something like two intersecting lemniscates (Fig. 5). The broken line would be the Earth's lemniscate and the solid line that of the Sun. Now remember we spoke about the Sun as a sucking entity in the cosmos, a kind of super-vacuum which sucks cosmic substance into our solar universe and would also suck the Earth behind it. It would be sucked behind the moving Sun. Now we can see, in a sense, this is a reconciliation of Ptolemy with Copernicus. In the Copernican system the Sun was fixed in the center and the Earth moved. With Ptolemy the Earth was in the center and the Sun moved. Here in this picture both are moving.



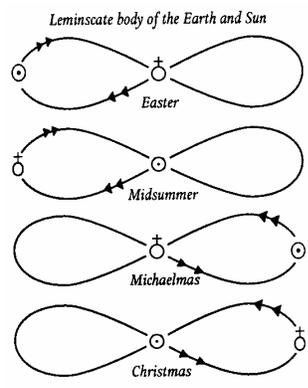
This becomes a kind of reconciliation of the two different views from the past. The Sun would move along the solid lemniscate and the Earth would always be one quarter of the lemniscate behind it. As the Sun moves, the Earth would be drawn along this part of the lemniscate, always one quarter behind. This is a very primitive model. [A wooden model was constructed that Willi used for this and other demonstrations, which now lives at the Astrosophy Research Center.] I have already discussed it with mathematicians in Dornach. Many people have worked this problem over, and we more or less agree! I mean that in its basic facts this principle is correct. Only, we can still have different views; for instance, we might have to alter the angle between the two lemniscates, it might be much wider, more than it is here which is an angle of 23°, but this was an experiment. You see it is still very much in the experimental stage, and such an instrument is no more than a primitive aid to help us imagine the situation.

I don't believe we can ever demonstrate such a conception of the universe solely by mechanical means, it is not possible! We can only hope to obtain one or the other viewpoint. You cannot demonstrate the living universe fully by mechanical means, only parts of it. (The movement of the Sun-Earth lemniscate was demonstrated. The axis was swung round 90° twice as the whole model was rotated once. This represented the movement during one year while the Sun and Earth moved around their respective lemniscatory paths.) Actually this is something wonderful, you see for yourself it is a very nice "toy", and we can go on for hours demonstrating with it and looking at it. What is perhaps more, you really feel it. I have experienced this frequently when I have demonstrated it—that people really feel something akin to a stream of life going through them. Just because of the fact that it is not a simple movement, merely a wheel going around. The movements of the Copernican system are only wheels, so to speak, a machine going around and around interminably with no hope that we will ever get out of this eternal circling! Here we have quite different possibilities; for instance, there is one thing I should like to show you to make it still more complicated! Not only do we have this movement, which I demonstrated, but at the same time the whole thing shifts in space toward the constellation of Hercules. Our solar universe is crawling, swimming through space, through the cosmic ocean toward Hercules. This fact is recognized by astronomy. Calculations indicate that in about 100,000 years the solar universe will arrive at the first star of the constellation of Hercules—it is actually the point between Hercules and the Lyre—but you know these computations in astronomy are a very critical matter. Things don't just move straight and with the same velocity by which they begin; acceleration can easily occur.

Now I will tell you of a remark that Rudolf Steiner once made when he was asked, “Will the Earth and Earth Evolution really arrive at that great goal which is described in the Revelation of St. John?, and his answer was, “As surely as our universe moves toward Hercules.” (Rudolf Steiner also speaks of this as the initial stages toward the Jupiter condition of the Earth.)

Here we could go into mythological matters. Hercules stands, or kneels, between the Dragon below, with one foot on the Dragon, and above his head is the Serpent. Does that ring a bell? Have you ever seen it in a picture? You have seen it in Rudolf Steiner’s statue, the dragon Ahriman held down in the depths by that mighty gesture of the Christ and Lucifer held up there in the heights. (Compare Rudolf Steiner’s statue of Christ and the constellation of Hercules - p. 193). So you can see what that remark of Rudolf Steiner really contains. You might think, why such a bother, isn’t it a bother? It is terribly hard work, why make such an enormous effort? The Copernican system is so much easier!

I shall try to show you how important it is for all fields of human activity, also very important for agriculture to have a picture of a living universe. In the long run, I don’t think we can do without it. We will have observed one thing, namely, at certain times the Earth is in the center and at certain times the Sun. If the Sun is in the top position in Fig. 6 on the 21st of March, and it moves along to this next position, then it would be at the Midsummer Point in the center of the universe. Moving on it would come to the position, again in the center, around Christmas. Likewise, the Earth would be in the center just before Easter. It would move along and come to this central position again around Michaelmas. So we cannot really say the Sun is the center of the universe, this center is shared by the Sun and the Earth, so to speak.



Now Rudolf Steiner, in the *Knights Templars* lecture I mentioned, speaks about certain secrets of the ancient mystery temples. It is fairly obvious he is referring to the Isis Mysteries. He says that this fact of the Sun and Earth moving in a lemniscate was known in ancient times in the temples, and that it was very well known that the Earth always steps into the place where the Sun has been—in the center—a quarter of a year later. At Christmas the Sun was here (Fig. 6), at Easter the Earth steps into that place, into the aura of the Sun. Again at Michaelmas it steps into the place where the Sun had been at Midsummer. He says at those times—he actually does not say which season or festival, only indicating that it was connected with the Isis Festivals celebrated in ancient times—“The priests received valuable information regarding the weather conditions of the coming year”—the general conditions, and what needed to be done in agriculture for example. What did they do? At such times when the Earth stepped into the aura of the Sun, where it had been a quarter of a year before, a priestess in the temple was put into a kind of cataleptic condition, into a carefully prepared trance condition. In that state she could perceive what the Sun had left behind as information concerning the life on Earth. According to that information, many things in social life were organized and ordered.

You see how this holds good with regard to pre-Christian times, but the question is, does it also hold good in the post-Christian Era? Obviously after Christ came down to the Earth the character of the Sun has changed, and so has the relationship of the Earth to the whole cosmos. As a matter of fact, I could show you quite practically that we are, as it were, in a kind of condition of balance. On the one hand we constantly receive from the cosmos the ingredients we need to build up earthly life (all that is contained or working in our physical body and ether body is present in the stars of the cosmos, which we need, otherwise we could not have these bodies), but at the same time, toward death and at death, we give back something: the Imaginations, Inspirations, and Intuitions which are, so to speak, imprisoned in our organism. They are saturated by what the human being did upon Earth. Thus we are in a sort of balanced condition; we receive, but we also give back, and the cosmos is waiting for what we hand back. Therefore, the relationship between Sun and Earth, in the sense of the aura, of stepping into the place where the Sun had been, must have changed since the time of Christ, and indeed it has. Now let us see what we can do with it. Actually it concerns the seasons. At Midsummer, when the Sun is in the center (Fig. 6), then the Earth can take up that which has been radiated into the atmosphere, into the aura as the gift of Easter. This Earth event tinged, as it were, by the greatest Earth event, that of the Mystery of Golgotha, can then radiate—can be taken up by the Sun and communicated to the cosmos.

At Michaelmas the Sun would be on the right in the diagram, and the Earth in the center. Now you see that the Earth can receive something and at the same time give. It receives, as it were, the judgment. Here the deed is

communicated, the great Earth Deed, life through death, to put it in a nutshell. That is communicated to the cosmos in this position. Here it is received by the cosmos through the Sun, through that Sun which really reaches out to the periphery of the whole solar universe. So all of that universe would partake in that message. Now it remains to be seen if that message, which has been communicated to the cosmos holds good, whether it is really of the kind that is of value to the cosmos. Then the Earth steps into the center and can receive the judgment of the Earth Deed of the preceding Easter and make decisions on these grounds—Michaelmas decisions—decisions to really use the Sword of the Spirit in order to work still deeper into that which is the task and spirit purpose of the Earth. When we come then to Christmas, the Sun has moved into the center with the Earth on the right. Now the Sun can take up what has been born out of the Michaelmas decisions.

The time between Michaelmas and Christmas is always a time of preparation. It must really start with the Michaelmas decisions, the Sword of Michael must, as it were, clear the road toward Christmas so that something new can be born, and when the Sun then steps into the place where the Earth has been at Michaelmas, there can once more be communicated to the whole cosmos that which has been created upon Earth as Michaelmas decisions. So you see, it is something that one should expect to have a decisive bearing on all existence, which can go into many details or fields of human activity and be realized in them.

Again I must confess this is a very sketchy description. You see we have, for instance, to leave out the movements of the planets; that would really lead us too far, and we would need another hour to make it clear. But I believe if you only have the picture of the lemniscate and see behind that picture the seed of a conception of the universe as a living being, that is already a great achievement.