

When is 'Seed Chaos'

V3 - the friendly version

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Introduction

Within Dr Steiner's Biodynamics there is a quirky 'idea' entitled 'Seed Chaos'. This is the period in a plants growth when the Star forces, which carry the 'architectural' species impulse of a plant, joins with the growing plant to direct the new seed and its subsequent plant, through its growth cycle. It is fair to ask, why is this important? It is important because if it is possible to influence the architectural plans of a species, then it would be possible to make dramatic steps in plant development, such as having a perennial coriander plant, that will not rush off to seed immediately, or some other significant trait we might like. Biodynamic plant breeding has been taking place for many years. However there are only a few examples of plant development, mostly 'golden wheat' which has achieved such things as greater spacing between the seeds in the head. However there are no examples of dramatic changes such as annual plants becoming perennials and vice versa. So comparatively small changes have been achieved over long periods of time, which some might say are comparable to changes achieved through hybridisation.

It is very common to hear that this 'seed chaos' event takes place at germination. It is safe to say that 98% of the biodynamic teachers and all of the biodynamic 'planting by the moon' calendars, I have seen, say this. Most 'big names' - Thun, Proctor, Podolinski - I understand also promote this. In the case of Enzo Nastati, he makes it the central premise of his '9 Introductory lectures in Biodynamic Agriculture'. Most of the 'big ideas' presented there, hang off this belief. This collective belief, gives the 'moon planting' movement a 'glittering' philosophic justification, for the many scientific trials that show the time of sowing seed, has some influence upon the subsequent growth of the plant. A keen observer of plant growth, however will have noted that there are many such possible moments in a plants development. Whether there is light or not, whether it is a wet season or not, and what BD sprays are applied and when, all can be seen to have a significant effect on the subsequent plant development. So yes, sowing time does influence plant growth, but is this the event that can influence the way in which a species expresses itself. Is RS's description of this seed chaos event, talking about germination?

My study of RS comments regarding '**seed chaos**', shows he saw it as **occurring at fertilisation**. The 'money shot' is in the Agriculture Course, in the Discussion after Lecture IV — "**If there is fertilised seed at all, the chaos is complete.**" (1) I would have thought this would be the end of the matter, however as we can see, the 'germination' belief is very much alive and well. Sadly this is not unusual in this movement. My website (2) has many articles addressing unsubstantiated 'BD beliefs' that are being passed from one generation to another, based upon 'the guru says'.

I have been concerned with 'larger issues', over recent years. So it is only now that I have time to address this somewhat 'small' but vital, esoteric question. During 2018, while addressing Enzo's lectures (3) and RS's Plant Growth story (4) I had a discussion with Stewart Lundy on this topic. He was very helpful with various lecture quotes and has compiled his version of that conversation into an essay entitled "Bringing Order to Seed Chaos". (5) He gives a more scholarly presentation than I, and provides a broader context of other instances of 'Diffused Chaos' discussed by RS. This is a good contribution to the conversation and well worth reading.

Texts

As the accompanying references show, I understand RS to be saying **Seed Chaos - when the immediate structural plans from the Stars, for the next cycle, are given to the plant, and inscribed as Spirit forces into its energetic matrix - occurs during the Pollination period of a**

(1) https://wn.rsarchive.org/Lectures/GA327/English/BDA1958/Ag1958_discuss4.html

(2) www.garudabd.org

(3) <http://garudabd.org/2019/03/27/in-response-to-enzo-nastati-intro-to-bd-in-9-meetings/>

(4) <http://garudabd.org/dr-steiners-plant-story/>

(5) https://docs.google.com/document/d/1hPurMuiCaBpkFKKo12ITiZHxW8VLbZmk7_nIKcnWqpU/edit?usp=sharing

plants growth cycle. There are several quite direct statements in this regard.

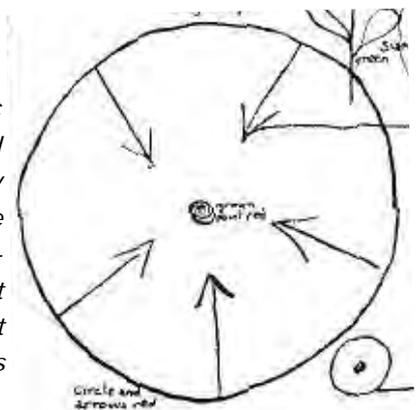
The context of this discussion has to be placed within RS general understanding of how plants grow. My 'RS Plant Growth Story' (4) provides an overview. I identified 7 different parts of the story, all of which are based upon the fundamental observation that a plant can not just be seen as growing within the season that we see it in front of us. Much of what is in front of us this season, is the result of all that occurred in the previous growing season, along with what occurred during the Autumn and Winter just passed. The seed has quite a journey. Once it is pollinated, it goes through the ripening process, where some seeds develop defined primary leaves and root shoots, within themselves. They dehydrate and become stable while moving through the winter. RS calls this phase , when the seed is lingering in the Earth, the 'Fructification' time, before the upward Spring surge, sees the seed germinate and push upwards. The Light processes from above stimulate the leaf development up to the flowering, where DNA splitting and cell division / Seed Chaos occurs, and on the cycle goes. This story is told in several different ways in various lectures and I have attempted to summarise all the relevant lectures.

For the 'Seed Chaos' phase of this process we have the following from Lecture 2 of the Ag Course.

*"Now with regard to the cultivation of the soil there is a point of great importance which must be thoroughly understood. It is a point I have often dealt with amongst Anthroposophists. It is that we know the conditions which the forces of the cosmic spaces can work upon the earthly realm. Let us begin with **seed formation**. The **seed which gives rise to the embryo** of the plant is generally regarded as a molecular structure of exceptional complexity, and science lays great stress upon this interpretation. The molecules it is said have a certain structure, in simple molecules it is simple, in complicated molecules it becomes more and more complex, until we come to the extreme complexity of the albuminous or protein molecule. People stand in wonder and astonishment at the enormous complexity of the structure supposed to exist in the seed. They do so because they reason as follows. The albumen (or protein) molecule, they say, must be enormously complex, and since its structure was determined by the embryonic conditions of the seed, the latter's microscopic or ultra-microscopic content must also have a structure of enormous complexity. Well it is complex indeed in the beginning. As the earthly albumen is formed, its molecular structure is driven to the utmost complexity; but this alone would never give rise to a new organism. For the organism arising from the seed does not proceed by a mere continuation in the off- spring of what was present in the parent plant or animal.*

*What happens is that when the **embryonic structure** has reached the highest stage of complexity in the earth domain **it falls to pieces and becomes a "little chaos"**. It breaks up and dissolves, one might say, into "world-dust". (**DNA splitting**) And when this little chaos of world-dust is there, the whole surrounding cosmos begins to work upon it to stamp it with its own image and to build up in it a structure conditioned by the forces of the Universe, working in upon it from every side (see drawing no. 3). Thus the seed becomes an image of the Cosmos. Every time this happens, and seed formation is carried through to the point of chaos, the new organism is built up from the seed-chaos by the activity of the cosmos. The parent organism has only the tendency to bring the seed to such cosmic position that through its affinity with this cosmic position **the cosmic forces will act in the proper direction so that, eg a dandelion will give rise to another dandelion and not a berberis.***

*But the new thing that is built up is always the image of some cosmic constellation. It is built up out of the cosmos. And if in the Earth we would make effective the forces of the cosmos, we must drive the earthly elements into the state of greatest possible chaos. This has to be the case whenever we want the cosmos to act upon our Earth. In the case of plant-growth this is in a certain sense provided for by nature herself. But just because every new organism is built up by the Cosmos it is necessary that the cosmic principles must be allowed freedom to work in the organisms **until the seed-formation is completed.***



If for example, **we plant the seed of a given plant in the earth, the seed contains the impress of the whole cosmos from a particular cosmic direction , which means that it came under the influence of a particular constellation and received its particular form.** At the moment when the seed is placed in the soil it is strongly worked upon by **the terrestrial ("belly Ed.) forces**, and it is filled with the longing to deny the cosmic forces, in order that it may **spread and grow in all directions.** For the forces above the surface of the Earth do not want the plant to retain this cosmic form. The seed had to be driven to the point of chaos; but now that the plant is sprouting it is necessary to **oppose the terrestrial to the cosmic forces** which live as the form of the plant inside the seed. For the cosmic forces must be opposed and balanced, as it were, by the terrestrial forces. We must help the plant to become more akin to the Earth in its growth. This can only be done by introducing into the plant some form of living earthly matter **which has not yet reached the state of chaos and seed formation**, life which has been held up in a plant before the seeds have been formed. For this purpose a rich **humus** formation comes to man's assistance In those districts that are fortunate enough to possess it. Man can hardly find any artificial substitute for the fertility given to the soil by Nature through humus. What causes formation of humus? It arises from the absorption of remnants of living plants into the whole process of Nature, These remnants have not yet reached the state of chaos and respect the cosmic forces, as it were. **If humus is used for the growth of plants the terrestrial forces are held fast within them.** (Earthly Forces) The Cosmic Forces then work only (with the help of clay) in the upward stream, that terminates in seed-formation. While the terrestrial forces work in the development of flowers, leaf and so on, the cosmos only radiates its influence into all this.....

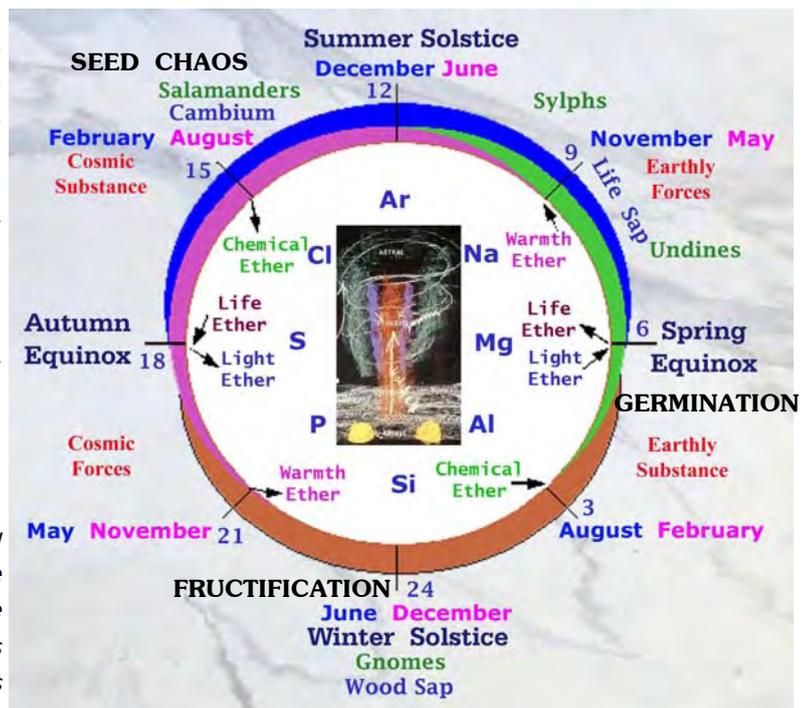
Lec 2 Ag course — 1938 edition"

Then in lecture 3 whilst talking of Hydrogen , the Spirits carrier, RS says 'and the other is when the hydrogen drives the basic element of the protein (for albumen) **into the seed formation** and there makes them independent of each other so that they become receptive of the influences of the Cosmos. In the tiny seed, there is chaos, and in the wide periphery of the Cosmos there is another chaos, and whenever the chaos at the periphery works upon the chaos within the seed, new life comes into being.

A similar story is told in (6) however a bit abstractly. This is a story of the Warmth stream, that is sourced from the Stars and works inward through the Spheres. The other passages provided, talk of the specific Seed Chaos event, while here we have the Warmth stream physically manifesting within the plant fluids. It is this same Warmth Star stream, talked of as the functional activity in the Seed Chaos, but further down the story, as it moves through the plant, as Cambium and into the soil below. This whole stream is involved in the manifestation of the Star's plan throughout the plants life. The ripening process of the seed will be supported by the Cambium 'process'. Seed Chaos is a 'railway stop' along the way on the plants Star / World Spirit's journey, through Cambium and onto the centre of the Earth.

This reference is a bit of a distraction, however I want to use this diagram, to provide you with the Big Picture, and the 'Sap Story' is an important part of that Story.

"When you look at the tree from above, you have first the pith inside: this gives the direction. Then layers of wood form round the pith. Towards the autumn the gum appears from the other side, and fastens the layers



(6) Cosmic Workings in Earth and Man Lecture 5 31 October 1923 - <http://wn.rsarchive.org/Lectures/Dates/19231031p01.html>

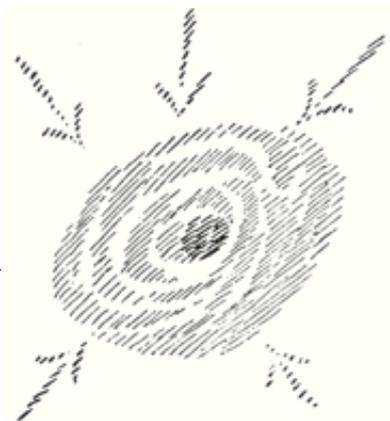
together. So we have the gummy wood of one year. In the next year this is repeated. Wood forms somewhere else, is again gummed together in the autumn, and so the yearly rings are formed. So you see everything clearly if only you understand that there are three things: wood sap, life sap, and cambium. The wood sap is the most fluid, it is really a chemical; the life sap is the giver of life; it is really, if I may so express myself, a living thing. And as for the cambium, there the whole plant is sketched out from the stars. It is really so. The wood sap rises and dies, then life again arises; and now comes the influence of the stars, so that from the thick, sticky cambium the new plant is sketched out. In the cambium one has a sketch, a sculptural activity. The stars model in it from the whole universe the complete plant form. So you see, we come from Life into the Spirit. What is modelled there is modelled from out of the World-Spirit. The earth first gives up her life to the plant, the plant dies, the air environment along with its light once more gives it life, and the World Spirit implants the new plant form. This is preserved in the seed and grows again in the same way. "

"You see, the wood sap is formed in the earthy-fluidic, the life sap in the fluidic-airy, and the cambium in the warm air, in the warm damp, or the airy-warmth. The plant develops warmth while it takes up life from outside. This warmth goes inward and develops the cambium inside. Or if the cambium does not yet develop, there is first of all developed a thicker substance: the plant gum. Plants form this plant gum in their inner warmth, and this, under certain conditions, is a powerful means of healing . This the plant gives back to the earth: Pitch, Resin, Amber. And if the plant retains it, it becomes cambium. Through the Wood sap the plant is connected with the earth; the life-sap brings the plant into connection with what circulates round the earth — with the airy-moist circumference of the earth. **But the cambium brings the plant into connection with the stars, with what is above, and in such a way that within this cambium the form of the next plant develops. This passes over to the seeds and in this way the next plant is born, so that the stars indirectly through the cambium create the next plant!** So that the plant is not merely created from the seed — that is to say, naturally it is created from the seed, but the seed must first be worked on by the cambium, that is: by the whole heavens."

This Star process is taking place in the existing plant, coming from Above as a result of the plant growing well. Not when the seed germinates.

From another angle (7)

Something has always been taken for granted in this, namely that the molecules, as they are called, become more and more complicated the more we ascend from mineral, inorganic substance to organic substance. We say that the organic molecule, the cellular molecule, consists of carbon, oxygen, nitrogen, hydrogen, and sulfur. It is said that they are connected in some way but in a very complicated way. One of the ideals of natural science is to discover how these individual atoms in the complicated organic molecules are connected. Nevertheless, science admits that it will still be some time before we shall discover how one atom is connected with another within organic substance, within the living molecule. The mystery here, however, is this, that the more organic a substance is, the less one atom will be chemically connected with another, for the substances are whirled about chaotically, and even ordinary protein molecules, for instance in the nerve substance or blood substance, are in reality inwardly amorphous forms; they are not complicated molecules but inorganic matter inwardly torn asunder, inorganic matter that has rid itself of the crystallization forces, the forces that hold molecules together and connect the atoms with one another. This is already the case in the ordinary molecules of the organs, and it is most of all the case in the embryonic molecules, in the protein of the germ.



(7) Therapeutic Insights: Earthly and Cosmic Laws— Lecture 3 , Dornach, July 1, 1921

If I draw the organism here (see [drawing](#)), and here the germ — and therefore the beginning of the embryo — the germ is the most chaotic of all as far as the conglomeration of material substance is concerned. This germ is something that has emancipated itself from all forces of crystallization, from all chemical forces of the mineral kingdom, and so on. Absolute chaos has arisen in this one spot, which is held together only by the rest of the organism. Because of the fact that here this chaotic protein has appeared, there is the possibility **for the forces of the entire universe to act upon this protein**, so that this protein is in fact **a copy of the forces of the entire universe**. Precisely those forces that then become formative forces for the etheric body and for the astral body are present in the female egg cell, without fertilization yet having taken place. **Through fertilization**, this formation also acquires the physical body and the I, the sheath of the I, and therefore that which constitutes the formation of the I. **This arises through fertilization**, and this here (see [drawing](#)) is a pure cosmic picture, is a picture from the cosmos, because the protein emancipates itself from all earthly forces and thus can be determined by what is extraterrestrial. In the female egg cell, earthly substance is in fact subject to cosmic forces. The cosmic forces create their own image in the female egg cell.

Note the similarity of this story and the picture, to the story and picture told in the Ag course quote.

A similar story is told in a Lecture to young doctors in 1924 (8)

*“Let us try to picture the plants. How do people proceed today when they picture the plants? There is the soil of the earth. The seed is pictured as being laid into the soil and then the plant grows out of this. People are naive enough to think as follows: Hydrogen is a very simple molecule, consisting of two atoms. All kinds of things are imagined to form combinations. Alcohol is certainly a very complicated molecule. Carbon is there combined with hydrogen and oxygen and then one has something more complex. And now there come still more complicated substances with more and more complicated molecules. There was a period during the eighties and nineties of the last century when the titles of these were very complicated, consisting of more than three lines in length. Yes, the molecule has become terribly complicated! And now still more so. Then it becomes a seed, and a seed is a most highly complicated combination. Then the plant grows out of the seed. But all this is nonsense. The basis of the seed formation is, in reality, **that earthly matter tears itself away from the principle of structure and passes over into chaos, becomes chaotic, contains no more forces of matter in itself. Then, when no earthly structure is present, what is working out of the cosmos can assert itself.** The cosmic declares its readiness to mirror the cosmic structure in the minute. **In the seed formation the “nothingness” asserts itself over against the earthly and the cosmos works into the nothingness.***

*Take a quartz crystal. It is an earthly thing. Why? Why is the quartz crystal an earthly thing, retaining its form really in a very pedantic, rigid way? The quartz gets its form from an inner force and if you break it apart with a hammer the single parts always retain the tendency to be six-sided prisms, self-contained, six-sided pyramids. This tendency is present. You can as little rid the quartz of this tendency as you can get pedantry out of a man who is pedantic by nature. You may atomize a pedantic person, but he will still remain pedantic. The quartz does not allow itself to come to the point where the cosmos can do anything with its forces. Therefore the quartz has no life. **If the quartz could be pulverized to such a degree that in the single fragments it no longer had the tendency to be governed, in the single fragment, by its own forces, something living and cosmic would grow out of the quartz.** This is what happens in the formation of a seed. In the seed, matter is driven out to such a degree that the cosmos can intervene with its etheric forces. The world must be seen as a perpetual entering into chaos and again an emergence from chaos. What is contained in quartz also came at one time from the cosmos, but it remained at a standstill, has become Ahrimanic. It no longer exposes itself to the cosmic forces. As soon as anything enters into the realm of the living it must always pass through chaos. (consider these comments in regard to Horn Silica 501)*

*This again is something which will help you to meditate in the sense of medicine. And you can also picture the developed plant—how it grows from leaf to leaf, and so on. You come to **the formation of the seed** in*

(8) Course for Young Doctors - Lecture 1 , Dornach, April 21, 1924

(9) Man as Symphony of the Creative Word - Lecture 7, 2nd November, 1923 <http://wn.rsarchive.org/Lectures/Dates/19231102p01>.

the fruit. Whereas you otherwise picture the seed plant as brightness it now becomes dark, quite dark. Then again comes the light, **when the forces from outside take hold**. In this way, too, you can make an imaginative picture from the being of the plant. “

Fructification

We can not talk of the Seed Chaos period without setting it into the whole plant cycle. Pollination can be seen as the ‘male’ reproductive phase, but is only the start of the new plants journey. It reaches a certain fulfillment when it combines with the ‘female’ Earthly growth forces active during the winter, and reaches its birth point at germination.

This story is best told in Lecture 7 of Man as a Symphony of the Creative World (9)

“After it has passed through the sphere of the sylphs, the plant comes into the sphere of the elemental fire-spirits. These fire-spirits are the inhabitants of the warmth-light element. When the warmth of the earth is at its height, or is otherwise suitable, they gather the warmth together. Just as the sylphs gather up the light, so do the fire-spirits gather up the warmth and **carry it into the blossoms of the plants**.

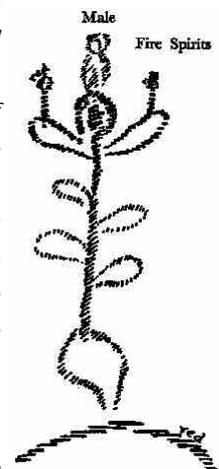
Undines carry the action of the chemical ether into the plants, sylphs the action of the light-ether into the plant’s blossoms. And the pollen now provides what may be called little air-ships, to enable **the fire-spirits to carry the warmth into the seed**.

Everywhere warmth is collected with the help of the stamens, and is carried by means of the pollen from the anthers to the seeds and the seed vessels. And **what is formed here in the seed-bud is entirely the male element which comes from the cosmos**. It is not a case of the seed-vessel being female and the anthers of the stamens being male. In no way does fructification occur in the blossom, but only the pre-forming of the male seed. **The fructifying force is what the fire-spirits in the blossom take from the warmth of the world-all as the cosmic male seed, which is united with the female element**. This element, drawn from the forming of the plant has, as I told you, already earlier seeped down into the ground as ideal form, and is resting there below.

For plants the earth is the mother, the heavens the father. And all that takes place outside the domain of the earth is not the mother-womb for the plant. It is a colossal error to believe that the mother-principle of the plant is in the seed-bud. The fact is that this is the male-principle, which is drawn forth from the universe with the aid of the fire-spirits. The mother comes from the cambium, which spreads from the bark to the wood, and is carried down from above as ideal form. And what now results from **the combined working of gnome-activity and fire-spirit activity — this is fructification**. The gnomes are, in fact, the spiritual midwives of plant-reproduction. **Fructification takes place below in the earth during the winter**, when the seed comes into the earth and meets with the forms which the gnomes have received from the activities of the sylphs and undines and now carry to where these forms can meet with the fructifying seeds.

You see, because people do not recognize what is spiritual, do not know how gnomes, undines, sylphs and fire-spirits — which were formerly called salamanders — weave and live together with plant-growth, there is complete lack of clarity about the process of fructification in the plant world. There, outside the earth nothing of fructification takes place, but **the earth is the mother of the plant-world, the heavens the father**. This is the case in a quite literal sense. Plant-fructification takes place through the fact that the gnomes take from the fire-spirits what the fire-spirits have carried into the **seed bud as concentrated cosmic warmth** on the little airships of the anther-pollen. Thus the fire-spirits are the bearers of warmth.

And now you will easily gain insight into the whole process of plant-growth. First, with the help of what comes from the fire-spirits, the **gnomes down below instill life into the plant and push it upwards**. They are the fosterers of life. They carry the life-ether to the root — the same life-ether in which they themselves live. The undines foster the chemical ether, the sylphs the light-ether, the fire-spirits the warmth ether. And then the fruit of the warmth-ether again unites with what is present below as life. Thus the plants can only be understood when they are considered in connection with all that is circling, weaving and living around them. And one only reaches the right interpretation of the most important process in the plant when one penetrates into these things in a spiritual way.



When once this has been understood, it is interesting to look again at that memorandum of Goethe's where, referring to another botanist, he is so terribly annoyed because people speak of the eternal marriage in the case of the plants above the earth. Goethe is affronted by the idea that marriages should be taking place over every meadow. This seemed to him something unnatural. In this Goethe had an instinctive but very true feeling. He could not as yet know the real facts of the matter, nevertheless he instinctively felt that fructification should not take place above in the blossom. Only he did not as yet know what goes on down below under the ground, he did not know that **the earth is the mother-womb of the plants**. But, that the process which takes place above in the blossom is not what all botanists hold it to be, this is something which Goethe instinctively felt.

You are now aware of the inner connection between plant and earth. But there is something else which you must take into account.

You see, when up above the fire-spirits are circling around the plant and transmitting the anther-pollen, then they have only one feeling, which they have in an enhanced degree, compared to the feeling of the sylphs. The sylphs experience their self, their ego, when they see the birds flying about. The fire-spirits have this experience, but to an intensified degree, in regard to the butterfly-world, and indeed the insect-world as a whole. And it is these fire-spirits which take the utmost delight in following in the tracks of the insects' flight so that they may bring about the distribution of warmth for the seed buds. In order to carry the concentrated warmth, which must descend into the earth so that it may be united with the ideal form, in order to do this the fire-spirits feel themselves inwardly related to the butterfly-world, and to the insect-creation in general. Everywhere they follow in the tracks of the insects as they buzz from blossom to blossom. And so one really has the feeling, when following the flight of insects, that each of these insects as it buzzes from blossom to blossom, has a quite special aura which cannot be entirely explained from the insect itself. Particularly the luminous, wonderfully radiant, shimmering, aura of bees, as they buzz from blossom to blossom, is unusually difficult to explain. And why? It is because the bee is everywhere accompanied by a fire-spirit which feels so closely related to it that, for spiritual vision, the bee is surrounded by an aura which is actually a fire-spirit. When a bee flies through the air from plant to plant, from tree to tree, it flies with an aura which is actually given to it by a fire-spirit. The fire-spirit does not only gain a feeling of its ego in the presence of the insect, but it wishes to be completely united with the insect.

Through this, however, insects also obtain that power about which I have spoken to you, and which shows itself in a shimmering forth of light into the cosmos. They obtain the power completely to spiritualize the physical matter which unites itself with them, and to allow the spiritualized physical substance to ray out into cosmic space. But just as with a flame it is the warmth in the first place which causes the light to shine, so, above the surface of the earth, when the insects shimmer forth into cosmic space what attracts the human being to descend again into physical incarnation, it is the fire spirits which inspire the insects to this activity, the fire-spirits which are circling and weaving around them. But if the fire-spirits are active in promoting the outstreaming of spiritualized matter into the cosmos, they are no less actively engaged in seeing to it that the concentrated fiery element, the concentrated warmth, goes into the interior of the earth, so that, with the help of the gnomes, the spirit-form, which sylphs and undines cause to seep down into the earth, may be awakened.

This, you see, is the spiritual process of plant-growth. And it is because the subconscious in man divines something of a special nature in the blossoming, sprouting plant that he experiences the being of the plant as full of mystery. The wonder is not spoiled, the magic is not brushed from the dust on the butterfly's wing. Rather is the instinctive delight in the plant raised to a higher level when not only the physical plant is seen, but also that wonderful working of the gnome-world below, with its immediate understanding and formative intelligence, the gnome-world which first pushes the plant upwards. Thus, just as human understanding is not subjected to gravity, just as the head is carried without our feeling its weight, so the gnomes with their light-imbued intellectuality overcome what is of the earth and push the plant upwards. Down below they prepare the life. But the life would die away were it not formed by chemical activity. This is brought to it by the undines. And this again must be imbued with light. And so we picture, from below upwards, in bluish, blackish shades the force of gravity, to which the impulse upwards is given by the gnomes; and weaving around the plant — indicated by the leaves — the undine-force blending and dispersing substances as the plant grows upwards. From above downwards, from the sylphs, light falls into the plants and shapes an

idealized plastic form which descends, and is taken up by the mother-womb of the earth; moreover this form is circled around by the fire-spirits which concentrate the cosmic warmth into the tiny seed-points. This warmth is also sent downwards to the gnomes, so that from out of fire and life, they can cause the plants to arise.

And further we now see that essentially the earth is indebted for its power of resistance and its density to the antipathy of the gnomes and undines towards amphibians and fishes. If the earth is dense, this density is due to the antipathy by means of which the gnomes and undines maintain their form. When light and warmth sink down on to the earth, this is first due to that power of sympathy, that sustaining power of sylph-love, which is carried through the air, and then to the sustaining sacrificial power of the fire-spirits, which causes them to incline downwards to what is below themselves. So we may say that, over the face of the earth, earth-density, earth-magnetism and earth-gravity, in their upward-striving aspect, unite with the downward-striving power of love and sacrifice. And in this inter-working of the downwards streaming force of love and sacrifice and the upwards streaming force of density, gravity and magnetism, in this inter-working, where the two streams meet, plant-life develops over the earth's surface. Plant-life is an outer expression of the inter-working of world-love and world-sacrifice with world-gravity and world-magnetism.

*From this you have seen with what we have to do when we direct our gaze to the plant-world, which so enchants, uplifts and inspires us. Here real insight can only be gained when our vision embraces the spiritual, the super-sensible, as well as what is accessible to the physical senses. This enables us to correct the capital error of materialistic botany, that fructification occurs above the earth. What occurs there is not the process of fructification, but **the preparation of the male heavenly seed for what is being made ready as the future Plant in the mother-womb of the earth.***

Germination is the plants birth. Conception is pollination, and 'pregnancy' is the journey through the autumn and winter to RS fructification, which has crystallisation, around mid winter, as its centre point. Quoting Goethe, RS makes several comments that the 'fertility' of the plant, is not complete till after mid winter. Fructification is the culmination of the Gnomes task of combining the Cosmic Forces coming from above during last season, with the Earthly Substances, growth forces active within the Earth. The seeds are imbued with both these sets of forces, for the season ahead. This 'Fructified Seed', is then germinated / birthed in the soil. In most cases this is a simple, just add water process, for what is already there to be set in motion. RS talks then in lecture 2 of how the Earthly Forces above try and steal the Cosmic Forces away from their destiny.....and so the Cosmic and Earthly dance begins once more.

Conclusion

The real benefit of this clarification is what can be achieved in plant breeding. This is another topic that requires a further investigation of all the forces active in plant growth. I commented that there are 7 different 'pathways' of activities RS describes. Each of these can be used as levers in bringing the plant to a desired 'subjective' condition, that can rewrite the Star blue print. So a separate essay is needed to outline the details of a way forward for plant development.

For now, I hope this literature will be enough to stop the Moon Planting cult, from wrongly using Seed Chaos as their philosophic crutch. The real humor of this, is how long this will take. So here we are in May 2020.....how long will it take for amendments to be made? Please ask your gurus and calendar makers for their justification for continuing the seed chaos at germination delusion, in the light of this literature.

Comments on this article can be sent to garuda@xtra.co.nz

"If there is fertilised seed at all, the chaos is complete."