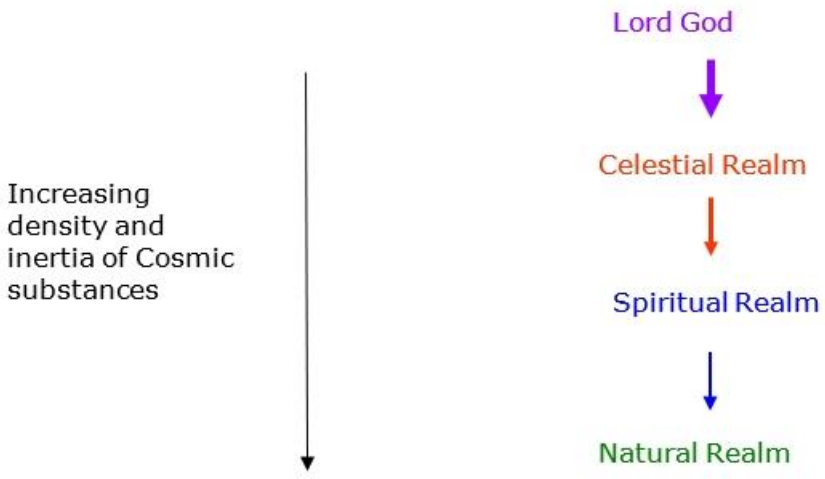
The Spiritual dimensions of Biology

Transcript of Dr Philip W Groves talk
The Spiritual dimensions of Biology given on 31/7/1993.

With Swedenborg's vast vast system of psycho-cosmology we have a framework within which to establish a psychological view, a material view and a spiritual view of reality. Many people who read Swedenborg don't appreciate the many dimensions that he covers in his huge presentation of what the real universe is like. And it's very important for the thinking person, the person who wants to understand, who wants to know, to pursue Swedenborg into all these dimensions and directions that he has pursued and studied with direct perception, and try to build a similar sort of framework within themselves. We cannot afford to bring small scale thinking into these deep and ponderous studies.

I find that a lot of people read Swedenborg but they read him literally and yet all through his writings he's talking about thinking correspondentially. He writes correspondentially. You've got to go beyond the written word. It's one thing to go beyond the written word of the Word of God itself but you must go beyond the written word of Swedenborg. If you take Swedenborg literally your sunk. Your sunk as though you are a literalist in spiritual writings. So we must see Swedenborg as opening a whole series of doors to a vaster universe. We belong to something immense, something great. One has to feel this, one has to know it, one has to intuit that it's there and explore it. Otherwise, if we just stick nice theories in our minds and sit in our armchairs with highest contentment, then we've become less than fly droppings. Think about it.

Now within this vast framework, Swedenborg makes it very very clear that the universe is a highly ordered structure. The Divine essence has so created things that there are high levels, intermediate levels and lower levels. And you know from the readings that you've done with Swedenborg, from studies that you've carried out, that his presentation is something like this.

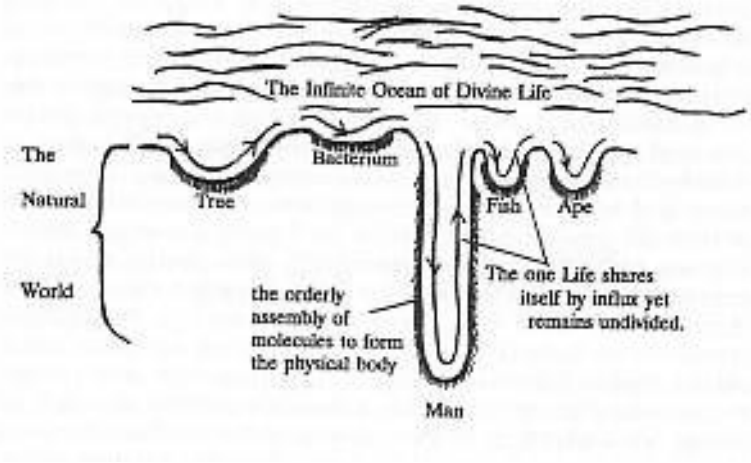


And the foundation is the Lord God. But the Divine is not some ethereal, evaporating gaseous substance. It is a real tangible substance in its own right, at its own level. And from that there comes by Divine Will, by Divine Wisdom, by Divine consciring or visualizing interactivity a whole series of progressive condensations, crystallizations so that you have world upon world being built. First there is the ultrafine celestial, then that gives rise to the somewhat denser, less mobile, spiritual and that in turn leads to the ultimate which is the natural physical world in which we exist.

And so we have in effect a descending scale of what we can call vibratory rate and increasing inertia. The lower we come down the scale, the more inert substances become, the less autonomy they have. They have a lower frequency of vibration. Now it's within this framework that the whole drama of cosmic life is enacted. Swedenborg stresses that the whole system is imbued with life, it's this Divine essence which penetrates and supports and sustains all things. But it's not only Swedenborg who has perceived this. Throughout the ages there have been visionaries and seers who also in elevated states of consciousness noticed this Divine presence in and through all things. Just listen to this quotation from the Bhagavad Gita which is one of the great Indian classics "With a share of myself I pervade and support this entire universe". Now that's a marvelous statement. And Swedenborg is saying the same things. Perhaps a little less poetically but the same process is there—that somehow in ways that are very difficult for us to understand, the Divine extends its fundamental presence, its fundamental wisdoms and energies and affections through the whole lot. And Swedenborg stresses the universe could only hang together because these lawful, orderly, conscious processes are deliberately placed there to make the universe what it is. The universe is not a self-organizing structure. You don't map out in a jangling manner of colliding atoms assemble itself into beings like us. That's low grade scientific assumption. The reality is when we use our inner perceptions, when we use the enlightened inner perceptions of people throughout the ages, that the universe is this. It is a living orderly system. Life becomes less universal, it becomes less vibrant and less conscious as we come down the scale. So in the natural world, we are living in a series of end effects. But what is the relationship between us and this creative source? What is it that causes us to live?

Life is the active essence of Divine being and that one being, it cannot divide itself into little chunks or particles. It is quite impossible for God to break himself up into tiny little gods. That doesn't happen because the Divine is infinite. The infinite cannot partition itself. It's because of the wholeness of its infinity it is what it is. Now that's not meant to be a play of words. We're trying to describe the indescribable. If life consists in the totality of the wholeness of those potencies and powers and affections and wisdoms and consciousness and potentials that are there. It's that totality that is the oneness of life. And that life cannot be broken. Hence in that quotation from the Bhagavad Gita 'With a share of myself'. The Sanskrit word is ansha which means I share. I don't divide, I don't break up in chunks. I share.

Now let's try to use another diagram to illustrate how this sharing can possibly take place. Now we have to use our mental visualization because it is impossible with any sort of diagram to describe reality. We are only trying to get the mind to look in a certain direction, to get a certain feel about this. So we'll not pretend that these diagrams explain reality. They don't, they're only like signposts to point the direction in which to go.



But we shall say that this is the infinite ocean of Divine Life, its indivisible, it cannot be broken up into parts. How then do individual organisms which have life in them arise? Well it’s something like this. Between the Divine itself and the whole orderly system of creation there is a kind of an interface. Something like the surface of a sea. Now imagine that each point on this interface we have little waves being generated. Some are larger than others, some are quite small, some may be even trivial. But imagine a series of waves and this one unbroken, living, vibrating, flowing Divine Energy pours itself into these wave like structures. That means that this energy does not divide itself but it shares itself.

Now let us give a name to each one of these. Let us say that this is a plant, that this is an ape, this may be a bacterium, this may be a man, and this may be a tree. This is just a way of trying to illustrate how the appearance of individualized lives as seen from the outside, whereas in truth they are not divided lives, they are individual manifestations of this one reality which finds its creative syntheses, its delight, its expressiveness, in generating a very great abundance of forms through which its own immense, inexhaustible potentials are brought into powerful manifestation through each one of these forms and the various functions associated with these forms. It is the one life that shares itself but it's not divided into tiny little life bits.

Now this is an important theme. It has practical implications for us. We may feel that we are separate little life units. We are not. We are sharers of this one unbroken life. Although we often feel weak and insignificant. If we can raise our consciousness inwardly just a little, we shall begin to realize that we belong to an immense order, we belong to an infinite order of existence. Not that we can expect infinite power to suddenly rush through us and we become like Mandrake the magician, far from it, but to realize that although on the outside we are relatively weak, nevertheless something is flowing in all the time to sustain us, to energize us, and we belong to something

that can never be run down. Something that can never be exhausted, something that can never be depleted. And it is this flow, this constant flow of life into us, that which Swedenborg refers to as influx.

Influx is a very real ongoing dynamic process and there are times when we get into an appropriate state of emotional sensitivity, calmness, quiescence. If we learn to discipline ourselves. It requires a lot of work to do this. We can sometimes feel the influx as an ongoing process. Swedenborg says and it was true that he said very few people felt it but certain people did feel it. That's the important thing. Today because many people are looking towards the spiritual process of transforming their lives; they've practiced yoga, they've practiced tantra, they've practiced Sufi methods, they practice all sorts of things and they become a little more sensitised. More people today can learn to feel this influx. It's part of our being duty to ourselves to do so.

Now we have this idea of a dynamic universe. That means that the universe is filled with action. God is not inactive. God doesn't sit back on a great throne, occasionally curling his beard and just seeing how vast creation is. It's not like that. God never goes on strike. If God did so the whole universe would instantly collapse because it is the Divine action that supports, energizes, and sustains all things. It animates living things and it activates inorganic things like electrons and atoms to be active and vibrant. Indeed it is action which shows up throughout all levels of the universe. Action is one of the key words.

Now for physicists, action is a very important process. There are various mathematical definitions of it. We talk about the law of least action and so on but physically action to defined as—Action is the time integral of energy.

$$A = \int E \, dt$$

Never mind about the equation if you don't understand calculus. It’s only an expression of energy combined with time creates action. Action is the way that things work. We act. Every time we act, we use energy over a time interval. But the universe is in a state of action. It cannot help but be in a state of action because this is the Divine conatus, the Divine striving to generate movement, to translate possibilities into actualities, to realize, to fulfill all these visual possibilities that are conceived and conscired and to actualize and manifest. And it is this action which we see at work even in things like stars and planets.

For example, suppose we have a radiant sun.

Such is the action of the sun; it acts upon surrounding space-time and causes it to curve. And it is that curvature of space-time that is the gravitational field. And the gravitational field helps to hold the universe together. You see, action is occurring at all levels. Now once we catch an image of a dynamic, vibrant, moving universe, then we can relate ourselves to all this ongoing process. And what is important about this universe of action is that it is not a chaotic, disorderly state of affairs. In the final analysis it is orderly and in that order there is the effort to produce and manifest uses. Swedenborg is very strong on the doctrine of uses. He states that everything that comes into existence is for the sake of carrying out functions that are serviceable. Everything helps everything else in this universe if we look far enough. Everything feeds upon everything else. That's the law of reciprocal feeding, well known to the ancients, forgotten by modern man. Everything in a way is supporting everything else. But the Darwinists and so on, they see that everything is struggling against everything else, nature red in tooth and claw. That's true up to a point but it's not the whole truth. Mutual cooperation between organisms, and we will give you some examples a little later on, show that there is a cooperative, functional usefulness at work in this cosmos.

Now uses are a way in which Divine Love and Divine Wisdom come into manifestation. So there we have the Divine triad. It's not three persons. It's the three-fold action of one creative prime source reality. It manifests as love; it manifests as wisdom and manifests as functional uses. Everything has its proper place, its proper activities to carry out. The challenge is for each one of us ‘What is my use?’ ‘What is my functionality in this world?’ ‘What am I capable of?’ We have to keep challenging ourselves with this. It’s no good saying ‘Well I'm a mathematician, I'm a research scientist, I'm a writer, I'm a composer’. That is not enough. That's just a career we are following. It may be a partial fulfillment of our uses but there is so much more that we are assimilated in.

Now Swedenborg tells us that uses are so important because uses shape the forms that we see in the visible world. Behind these flowing energies we have spiritual uses or tendencies to manifest in the world in particular ways. And its the uses that he says generates the form of the organism.

An earthworm is long and slender, it has a hydraulic skeleton within itself.

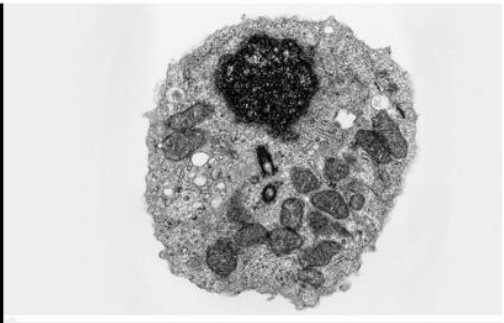
https://www.freepik.com/premium-photo/wriggling-earthworm-white-background_26741597.htm

It has little bristles on the side of its body. It has mucus around its body so that it can burrow through soft soil and create tunnels. And the way in which its longitudinal muscles and the hydrostatic skeleton work together is just right for that shape. No other creature can do quite what an earthworm does. An earthworm is turning the soil over. They help the soil become fertile. And without their action our soil would be in a very very poor state on the face of this earth. But the shape of the organism is expressive of the function it carries out in tunnelling and helping oxygen to circulate through the soil and taking organic matter into the soil. So we must see that uses help to generate the forms that are there. Swedenborg says this 'It is use that commands the forms. This shows that the use existed before the organic forms of the body came forth'.

Now this is again a tremendous concept. It's not just a nice neat little explanation 'We say Oh yeah, yeah, I agree with that'. It is something which should start a whole congeries of mental associations, researches, reading, study, observations, so we can verify these principles for ourselves. Swedenborg is stating cosmic principles. Our job is to verify these principles. He was a great verifier, a great observer. Even in his private garden he planted seeds, he waited until they germinated and then when they flowered he would collect the seeds from the plants and count the seeds and relate it to the general fertility of the plant. He was interested in everything. This is the only way to live. We've got to be interested in everything that's taking place otherwise how can we relate to creation? How can we bring our dormant potentials into manifestation if we don't do something about it? Action, action is necessary, spiritual action, psychological action, biological action. We have to be like the things that are around us. They are an active manifestation and so must we be to become a full being.

Now when we look closely at living things we find that amongst their many properties there are two features that are outstanding. And thanks to the findings of modern science, and modern science has given us a tremendous number of insights and benefits. There are two things that stand out and the first is that living things have a fine structure. And by means of the optical microscope, the electron microscope and some of the new tunnelling ion microscopes and field ion microscopes and so on, incredible insights are being gained into the fine structure of things.

Photo credit from Microscopy4Kids



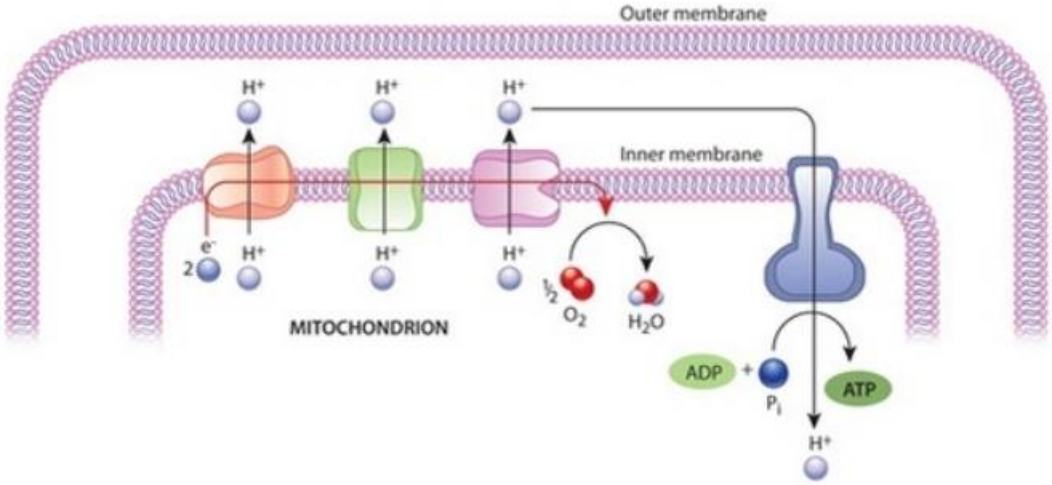
A human lymphocyte white blood cell as seen with a transmission electron microscope

https://www.thegreatestgarden.com/animal-cell-microscope-structure-anatomy/

Just to give a simple example. Under the optical microscope years ago we stained cells with certain types of dye stuffs in an animal cell, so we can see a nucleus with its chromosomes, and these little thread-like structures, the mitochondria, the power houses of the cell. Not enough was known about it. In my university days they used to say 'Oh, they carry digestive enzymes.' That's all that was known and that was a guess. It was completely wrong. But with the electron microscope you can blow a mitochondria up and you can show it has a magnificent structure with folded membranes and you've even got a strand of DNA molecule inside there and you've got spaces between the membranes and that's for a purpose.

https://www.researchgate.net/figure/The-morphology-of-mitochondria-a-Thin-section-electron-micrograph-of-a-mitochondrion_fig1_26645686

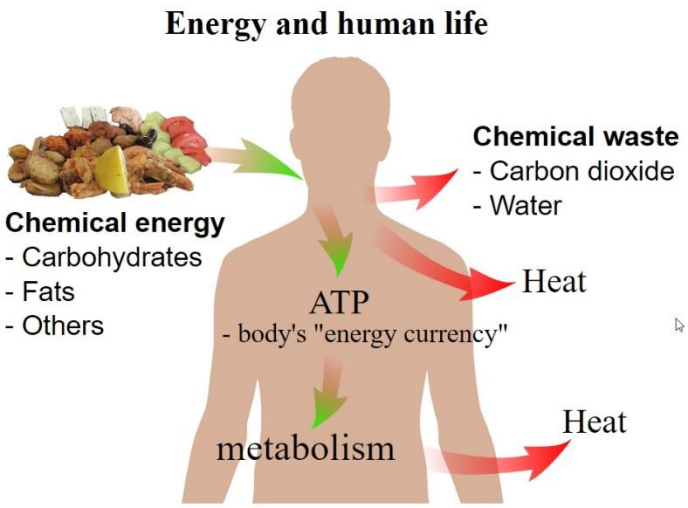
When certain substances enter the mitochondria, protons, that is hydrogen ions are pumped into the outer membrane or in between those two membranes and they're stored there for a little while. And then when the synthesis of a substance called ATP takes place these protons are pumped back in, causing ADP, Adenosine Diphosphate to combine with inorganic phosphate and these merge together, so a chemical synthesis takes place.



https://www.nature.com/scitable/topicpage/mitochondria-14053590/

The shape, the marvellous shape of the mitochondrion enables the function to be performed. The function according to Swedenborg precedes the form. The need to make Adenosine Triphosphate was seen as something necessary for the healthy functioning of the organism. That was the potential use so a form had to be generated so that that use could be carried out. This is only an illustration of the fine structure of things. With molecular biology, with biochemical tracing out of pathways of metabolism and transformation, incredibly fine details are now being revealed which further illustrates Swedenborg's principle that no matter how much you divide some whole object, you'll come to finer and finer parts, almost without limit. Infinite divisibility into finer and finer features. And this is certainly being shown by modern research. Now that's the first principle—we've only looked at it in an abbreviated way.

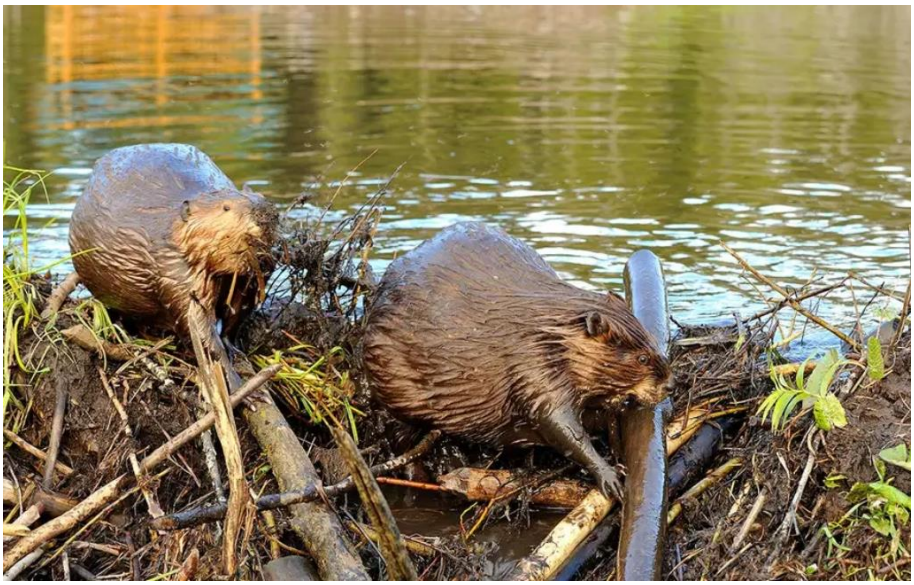
The second principle concerns energy. Now when we study any organism we find that all organisms without exception assimilate energy from a variety of sources, usually in the form of food, although plants get their basic energy from solar radiation. Organisms store energy, organisms transform energy into shall we say heat energy or chemical energy, metabolic energy, or whatever and also they expend energy.



https://en.wikipedia.org/wiki/Energy#/media/File:Energy_and_life.svg

So all living things are devices, cosmic devices and note the term, they are cosmic devices for turning energy over, for changing it from one form or manifestation into another. Now supposing you have the laziest man on the earth who does nothing. He's too lazy even to draw the dole. How's that? Even the laziest person on earth by the very fact of his existence is turning energy over. He is fulfilling these cosmic processes. So even if he does nothing from himself he is still doing a little good in the universe. In the East they call such people little bits of cosmic manure. They have their uses even though they don't voluntarily contribute anything to the ongoing harmony of reality. But when we realize that we have a fine structure in us, a very great detailed fine structure the goes from coarse substances into strands of finer and finer substances, we see there must be a progression towards the spiritual, eventually towards the celestial and ultimately towards the Divine. It is a gradation. Every level is different from the proceeding and the succeeding level. Each level carries out functions and operations in its own right but they are linked together in a meaningful way. That's what characterizes this universe.

It is from the Divine source, that meaning comes forth. Life means everything to the Divine. What it generates is full of meaning. Down at this level we see all sorts of events and phenomena taking place. We can't figure them out. We say well they don't have any meaning. And far too many second rate scientific brains in learning things like evolution and child's expectation, in a purely rote fashion, they are only quoting their theorems, only quoting their lecturers when they say there is no purpose, there is no meaning in life. That's an affront to human intelligence. We know that we can generate meanings and values and qualities in our lives. Even animals act at times as though there is a purpose. The beaver which builds its dams and then builds its community of logs and so on within that dam is built with a purpose.



https://www.newscientist.com/question/beavers-build-dams/

The bee that lays up honey to tide it through the winter months.

https://rtrfm.com.au/tags/honey-bees/

There is a purpose in its activities. Every study of biological phenomena—there are millions of them—we begin to see that there is a meaningfulness that runs through the framework of things. And because life is an indivisible oneness, that meaning must come from that higher source that manifests itself in a variety of related ways according to the level of degree of our understanding. So these are important principles for us to consider. We have to build our thinking, our living and our aspiring on the basis of these foundations.

Now if we can get the idea that there is a creative intelligent, orderly wisdom that runs through the universe then we're going to be able to build for ourselves a new understanding of the nature and meaning of our life. But when we say ‘Oh, there's no meaning to things’ we run into difficulties as many of the physicists have done so. The big bang theory was a great adventure in the intellectual interpretation of how the stars and galaxies got into their position but there's a huge deficit in the theory because the theory cannot tell you where the laws of nature come from. And this worries the scientists. It's one thing to say where the atoms, the electrons, the

muons, the pions and so on came from this ultra hot cloud within a tenth of the minus 30 of a second of the big bang. But they can't explain where the laws of nature come from because the laws of nature are manifestations of meaning. That's the orderly meaningful way in which the universe operates. They can't say where it comes from. Well if the system cannot explain where the laws come from, the system is a failure. It's a great attempt and we have to make great attempts.

All the great theories of science are adventures in trying to understand reality. Sure mistakes are going to be made. We are only finite beings. We can correct our mistakes, we can build on the basis of new knowledge, new insights. But we've got to have a broad approach. We can't say 'Well let's go through this tunnel, let's try this particular snake-hole to see if this gives the answer to immortality and so on. We've got to see the whole spectrum of reality. We have to have a reach towards the heavens and we have to be able to reach into the finest details of the material world in which we exist. Unless we have a full octave or span, we can't sound the harmonies of the music of life within our soul.

Now the fact that in spiritual thought with all meaning, absolute meaning is in the Divine and in each level of reality lesser and lesser meanings become manifest. From this principle alone we should be able to reach into ourselves. Alright if something comes into manifestation here, organisms or processes, then in addition to being objects that transform energy and that have fine structures, these things must be the manifestation of some source of meaning, purpose or a use. Because those terms run together very closely. When we study things in isolation it's sometimes very hard to figure out the use of it. You can say to yourself 'What's the use of a flea that's just been biting the back of my neck or a mosquito which bites me and gives me malaria or dengue fever.' We don't see it as a useful creature. But somewhere in the economy of nature it is fulfilling a lifecycle of some sort.

Now let's have a look at some examples of nature in which we deal with pairs of things that interrelate to each other. A thing taken in isolation is very hard to understand but when we see the functional relationship with something else we begin to catch a meaning. Now what we're trying to show here is that behind many of the phenomena of nature there are meaningful, purposeful processes. Now these are only random samples out of the tens of thousands that we could choose. We could perhaps find much better ones than the ones that I'm using. But first of all let us consider the oil beetles.

https://en.wikipedia.org/wiki/Meloe

Now these are organisms that are found in parts of Europe and the United States of America. Now they are flightless beetles. They can't fly even though they've got extra wing cases and so on; they can't fly. So the female, she lays the eggs in little cracks in the soil. So here we have the soil, the eggs are laid there and when they hatch a large number of little larvae come out. The larvae then crawl onto the stems of nearby plants, make their way up and they settle on the flowers. So you've got all these little larvae settling on the flowers which of course are visited by a variety of insects. But the oil beetle larva must attach itself to just one single species of solitary bee. Now in different countries it's a different species of solitary bee but it's always just one species.
So of all the organisms that visits the flower it's only one species of solitary bee that will do. So along comes the bee, we'll just use a very very rough diagram and these larvae, they attach themselves to the legs of the bee and it flies off to its nest.

https://www.popularmechanics.com/science/animals/a23105266/blister-beetles-hitchhike-bees-eat-young/

There the larvae drop off and the larvae will soon find their way into these cells, little bits of honeycomb where there is an egg the bee has recently laid, and there'll be some nectar or some honey there and pollen grains. And each larva will enter one of these will eat the egg and so we have a developing larva instead of an egg now. And it starts to feed on the honey and the pollen. Now what is interesting, these larvae undergo several moults whilst they are in the nests. And in their later moults they develop a form in which the spiracles, the little inlets into their breathing tubes are on the upper surface so that these things can float on the surface of the sticky liquid and not drown. That in itself is a remarkable arrangement. Accidental? The idea of an accidental formation, who thinks it's a joke, it corresponds to certain types of politicians trying to be serious.

Now eventually that larva will hatch into a fully formed beetle, an oil-beetle. It will crawl out of the bee's nest, make its way across the soil to a plant, it will mate with another beetle, the eggs are laid and the whole life cycle is repeated. Now notice we have the larva of the oil-beetle and we should have a solitary bee. They must work together so that the life of the oil-beetle can continue. The larva doesn't have the brains, it doesn't have the intelligence within itself to say 'Ah, a solitary bee, it's just the right sort of aerial bus. I've got to catch this bus in order to survive.' The larva

doesn't have that capacity. Nor does the bee say to itself 'Oh poor little larva, it needs nourishing, it hasn't got a mother now. I'll take it home. I'll feed it upon the food that was intended for my young.' You don't have this individual working out an inter-relationship. That relationship is worked out by something which stands behind the organisms. This is where meaning, this is where purpose and where use comes into play. The suggestion is, there is an integrated spiritual principle which takes unlike organisms and brings them together in a unified functional form for the continuation of their existence.

Now that is only one example. There is a species of orchid called *Ophrys*. Now the *Ophrys* orchid is pollinated by a certain kind of bee. I think the species of bee is *Dielis,* I'm a little bit hazy on that. Now the orchid is shaped in such a way that the lip of the orchid and here we are just doing a very crude drawing. The lip of the orchid is arranged in such a way that it gives the appearance of being a bee.

https://en.wikipedia.org/wiki/Ophrys_apifera

And it's got the same markings as a female bee. Now that's the lip of the orchid. And seen from above, you look at it and hey, it looks a bit like a bee. Now a male bee comes along and he's thoroughly taken in, 'Wow, a female bee' he settles down in the right position and attempts to copulate with this bee which is only a flower, not even a pansy, it's a flower. Now in taking its abdomen down into the throat of the flower it picks up these pollen sacks on its abdomen unwittingly. The bee flies away and after going half a mile it comes across another flower. Being stupid it's taken in again and it repeats the act but it transfers the pollen to the stigmas of the next orchid, so cross-pollination is effected. Now can we honestly say to ourselves, "Ah the intelligent clever plant sees the bee and it says to itself 'I can imitate one of these, I'm going to make myself look like a female bee."' That doesn't happen. There's no nervous system. There is none of that sort of sensitivity in plants. Between the bee and the flower there is an integrating principle which sees both of them in operation and makes mutual use of both of them. This is an organizing principle. Female bees never visit these flowers, only the males, they're taken in because it looks remarkably like a female.

In Australia we have a certain type of orchid. I've just forgotten the name. We have *Cryptostylis* orchids. And these are pollinated by *Lissopimpla* wasps.

https://southernforestlife.net/happenings/2020/12/sexual_deception

Now the same sort of thing happens. Many of these orchids have flowers which resemble in three ways a female ~~bee~~ wasp, they resemble the form of the ~~bee~~ wasp, they greatly resemble the covering of the female wasp and they also give off aromas which are just like those of the female wasp. And the male wasp is tricked into attempting to copulate with the flowers and transmits the pollen just as the bee did. So we're not just looking at a one off incident with the *Ophrys* orchid. We are looking at something which is widespread. There are dozens and dozens of examples of this. A flower that is built to resemble the female of an insect species and the male insect is taken in. But it helps the pollination and the spread and the multiplication and fructification of these plants. And the bees profits because in due course it collects a little bit of the pollen for its own food and it gradually gets honey out of these flowers. So both are at a great advantage.

Now consider this. Rainforests especially in South America are sometimes devastated in parts by earthquakes, volcanic upheavals or very violent storms. If you have a great forest you have a large area, maybe several acres which are severely damaged by a natural disaster. Now the troublesome thing is here. That the root mat which is so important for the survival of these rainforests, the root mat becomes exposed to damaging solar radiation and unless something is done within a relative short period of time that part of the forest may not be able to regenerate itself into its original form. And so an amazing thing happens here. Scattered through this soil and it's usually about, between 11 and 50 seeds per square meter. There are the seeds of the plant known as *Cecropia.* There are several species of the *Cecropia*. Now once sunlight reaches it directly these seeds germinate and they grow very quickly, more than two meters a year. So here they are about this high in less than a year and they've got a quite a good spread of leaves.

Now as these *Cecropias* grow, so all sorts of vines in the tropical forest, they begin to creep up on these growing stems. They tend to bend them over and damage them and interfere with the growth of these things. But something steps in to stop these creepers and climbers from ruining the growth of these protective trees. Because these trees, they produce a leafy canopy, they rather rapidly shelter the root mat from the sun's radiations. Now that's an important thing. By preserving that root mat or that organic mass that is so important for the cycling of nutrients in the tropical soil which is not well fertilized. If the root mat can be preserved and these *Cecropias* trees as they grow, even if they are very small, they provide a good coverage; they stop the Sun’s radiations getting in. But if you have these creepers which are getting up on the plant and they're beginning to bend the plants over and damage them, all the good that these young *Cecropias* trees are doing is ruined. But here is an astonishing thing. These *Cecropias* trees, they have hollows in them and in those hollow spaces there are these ants, *Azteca* ants, and there's about 40 species of these ants.

http://aztecacecropia.com/background

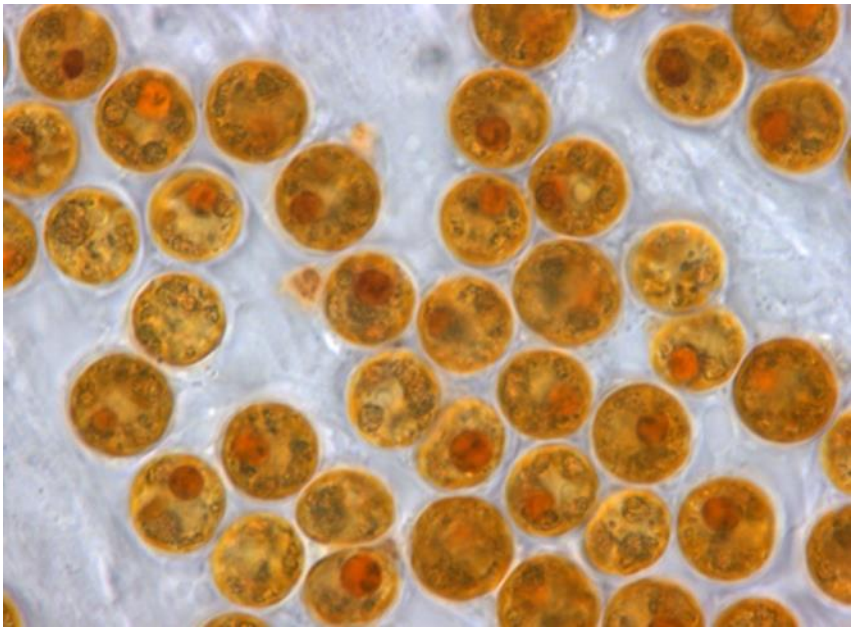
But these particular ones especially in South American forests, they are extraordinary. Because when they detect creepers making their way around the stems, out they come and they'll nip these creepers and they're actually cast them off the plant. They prune them. They prune the creepers. They don't prune the *Cecropias* tree, they prune the creepers. And if little epiphytic plants such as mosses and ferns begin to grow there they'll loosen up their roots and toss them overboard. These are real gardeners. But they do an extraordinary good job. That enables these *Cecropias* trees to grow into a good leafy plant. Now these trees, they only live about 30 to 50 years. After a while some of them die and as they die so you have little light spaces being produced. Through those light spaces that these genuine rainforest trees emerge and gradually establish themselves again. But that couldn't happen unless the *Azteca* ants help these *Cecropias* trees to function together. Now that's not all. In return the *Cecropias* trees on their leaves, they have nectaries and in those nectaries they produce nectar which the ants feed upon. And in the axils of these leaves there are these Mullerian bodies that are packed with proteins which only the ants take and digest. They help each other.

Now again we can't say the ants get together and say 'Listen boys, throw off the creepers and the tree will repay us with food and nectar'. And the tree doesn't say 'Dear little ants, come along, I've got a hollow body, if you live in me and if you keep me free of all these worries and troubles you've got plenty of food'. It is something greater than the plant, something greater than the ants which is the organiser. Now this goes on and on and on.

We'll just give one more example. We could quote thousands, we can spend a week just on these examples. There is something extraordinary taking place in this world, that we must see what is happening. If we take *Tridacna*. Now we find that's the big clam shell that grows in the Barrier Reef.

https://en.wikipedia.org/wiki/Tridacna_crocea

Now under water when the *Tridacna* clam opens it shell up it exposes this wonderful colored mantle. It's a mantle of flesh and it's brightly colored. Now the colouring is due to tiny little organisms called zooxanthellae. Now these zooxanthellae, they are very very small, they're microscopic.



https://en.wikipedia.org/wiki/Zooxanthellae

But they carry chlorophyll and pigments as well. It’s the pigments that give this lovely colour, colouring to the mantle of the clam. They've got chlorophyll. Now these things live by the hundreds of thousands or even in the millions in the tissues of the clam’s body. When it’s in shallow waters it is exposed to sunlight because these grow in shallow water. Now these zooxanthellae, they produce sugars and proteins, amino acids and other things and it is the clam that feeds on those. It has been found that some of these giant clams, they don't have to even eat anything. They are totally supported by the metabolic activities of the zooxanthellae. The zooxanthellae in turn feel like they’ve got a nice cosy home, they're sheltered. Little creatures on the outside like planktonic organisms don't come and gobble them up. They are secure within the tissues, they are supplied with carbon dioxide from the respiration of the clam and in turn they feed the clam. This is a togetherness and every time we have a togetherness of things, the clam and these quite different creatures. Something sees that they need to be together to create a persistent biological function.

Now the same holds true for corals. Corals are little sea anemone like polyps and they secrete on the outside of themselves a calcareous skeleton.

https://en.wikipedia.org/wiki/Coral#/media/File:Coral_Outcrop_Flynn_Reef.jpg

In their soft tissues the same zooxanthellae are present. And that's what gives living coral its colours. Corals can only survive when they are infested with zooxanthellae. If the coral becomes sick for some reason, if a little silt settles on the corals or the water changes, the ph of the water changes too much, the zooxanthellae they scoot off, they all leave the sinking ship as it were. And some parts of the coral blanch. If for some reason the coral health improves, the zooxanthellae return, so the coral is able to prosper.

Now all of these are just the examples, just a few examples, out of thousands of how things working together, things of unlike biological origins and properties work together in a functional way to make something proceed. And in the case of corals they are massive builders, they alter the geography of a country. These are not insignificant little biological curiosities. These are large scale activities in many instances. The regeneration of forests, that's a big activity. All of these are the meaningful outworkings of a higher organizing principle at work which foresees, which generates a use. And uses three or four or a dozen organisms in a life cycle if necessary to make something function.

Now that's the spiritual dimension of biology, something of an unseen nature as far as our senses is concerned is working towards the functional smoothness and togetherness of the visible end-effects that we see in the world around us.

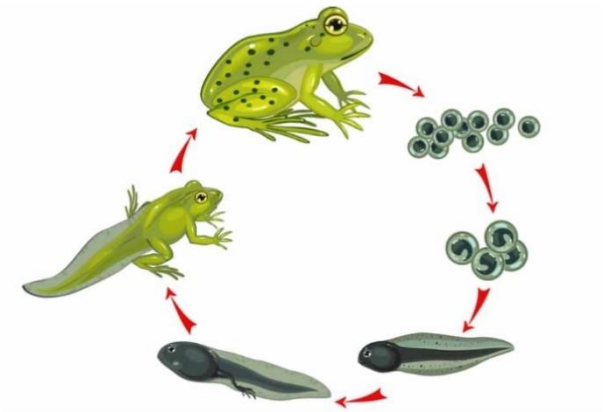
Now we find that Swedenborg likes to talk about correspondences but here correspondence is one of the functional ways in which the universe has been built. Because in that scale that we organized initially, celestial, spiritual, natural levels, he declares that the higher ends, that is, the Divine things corresponds to the celestial, celestial corresponds to spiritual, spiritual corresponds to natural things. Correspondences link things together in a meaningful way. What is it that we correspond to? We have a highly complex biology and anatomy. What do we correspond to? We have to ponder this.

But the correspondences are very important because quoting Swedenborg once again. He says "nature has been created simply for clothing the spiritual and presenting it in a corresponding form in the ultimate of order."

Now on this basis since everything corresponds to something that brought it forth into existence and manifestation that correspondence is the process of linking the higher or the inner with the outer manifestation. Behind every form there is a set of uses, functions, potencies and meanings. It means this. That everything that we see in the universe is a sort of a cosmic hieroglyph of unseen things. We must learn to read the hieroglyphs of nature. Everything has a significance. We have a significance. But self-knowledge, self-understanding, a lot of hard work on our part is necessary to bring out this significance of meaning. What is the aim, sense, meaning of our life? That's the great search, that's always been the great search with thinking people throughout the ages.

Today too many people say "We were taught in biology at school that it's all fortuitous, an accidental arising and there's no purpose and we're just here by accident. So eat, drink, be merry and live fully because tomorrow we die. You know, the philosophy of the gladiators. Well, we're not like that. We have long-term aims, we sense intuitively within ourselves there are depths, there are values, there are qualities worth struggling for, which we must unfold. Through consciousness we need an inside view of reality. Amongst the many seers and visionaries and mystics throughout the ages like Plotinus of ancient Alexandria, like Ibn Arabi, Ibn Arabi the sufi, Jalaluddin Rumi, Milarepa, Jacob Boehme, Swedenborg. People like this, they have different degrees of internal perception. Of all of them, Swedenborg had the greatest and the clearest perception. Something absolutely extraordinary was given to him. But he had the inside view of reality. He said if other people, if they just abstracted themselves from identification with external thinking they too can have the same sort of perception. And this is certainly possible. The experts tell us that when we're in a serious, down to earth, external state then we see reality clearly. But if we are in a state of internal spiritual optimism, that's hooey. What a piece of bunk, what a piece of hypocrisy. Who the heck are these people to say that when you're serious and life is deadly and non-living, then that's real and all else is false expectation. To heck with them. We can say other things too, but I'm not going to.

A final word we must say on rebirth. Rebirth is one of the reasons why we exist, to be transformed from an external, biological, mind and sense-based being into a spiritual being with cosmic responsibilities, with a feeling that we have an obligation to the creative forces that brought us forth. That rebirth or transformation is crucial. And nature is filled with examples. Very briefly we've got things like this. We have a case of egg, tadpole and the frog.



And the frog is utterly different from the tadpole. It's undergone a metamorphosis, a transformation to become a different looking organism altogether. It feeds on quite different stuffs. Certainly it can swim in the water, but it couldn't exist, especially the tadpole, for a long time on the dry land. A caterpillar, it can only crawl over leaves and twigs. But it can form itself into the chrysalis from which emerges a beautiful flying butterfly.

The caterpillar is often a fleshy, unpleasant looking thing, but this is elegant, it is delicate, it has an incredibly wondrous anatomy with flight muscles and it's free to move about. It's not confined to crawling over twigs.

The story is told, there are two caterpillars crawling over leaves and talking to one another and all of a sudden a butterfly flew overhead. And one caterpillar said to the other 'You'll never catch me up in one of those things.' Even though it's destined to become one. But you see, the transformation is immense.

Now this transformation or change of form. That's the all important thing. Nature is filled with hundreds of thousands of examples of change of form. The lesson is there.

The Divine creates an imagery, it creates a symbolism, it creates these correspondences. We must read them. The world is filled with examples in an outward way of what we must do in an inward way, an inward way. If we can learn to undergo this change of form and open up our spiritual resources and with the same objectivity that we look at a scientific experiment we look at the root energies and basic laws and principles that cause our mind and spirit to function, we shall become a complete being. We shall span the whole diapason of life's experiences. The inner perception of a greater reality, the outer perception of the fruits of that reality in manifestation. That's why we exist on the planet.

We have that double reach. And this is explained very clearly by Swedenborg who talks about people undergoing and who have undergone regeneration in these final words. “A man who is being regenerated and also a man who is regenerated passes through variations of states of love and faith by elevation towards the interior things and by depression towards inferior things.” And it means this. A person has his ups and his downs and we mustn't be disorganized because things seem to go wrong at times. People say after they’ve been working on themselves ‘Life is getting queer, things are going wrong.’ It's this oscillation of up and down. That's an oscillation between the spiritual pole and the natural pole. That's the only way we can have this full spread of the reality to which we're exposed, the upper is the spiritual dimension, the lower is our biological dimension. We have to be both. Thank you.

Dr Philip W Groves, *The Spiritual dimensions of Biology,* 31/7/1993.
Transcribed by Michael Chester.
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