

GMOs

The mainstream view

Genetically modified organisms (GMOs) are what will feed us in the future because they are consciously helping Nature to do what she would eventually do anyway, only now without relying on the achingly slow trial-and-error lottery of *random* genetic mutation and species protectionism.

Ok, it's a useful simplification of what's really going on but it's a useful simplification.

The counter-current to this mainstream has various degrees of concern that releasing transgenic organisms into the wild has opened Pandora's box, or to shift metaphors slightly, that the genie is out of the lamp and there is nothing that we can do to shove it back into the lamp, reseal the box ... rewind, cancel or delete. It's out there and we have crossed a barrier that should not have been crossed so arrogantly and lightly. As a result of this big-business driven act of foolhardiness / wickedness / stupidity (delete as you feel appropriate), in all likelihood we are stuffed!

Or perhaps – just perhaps - maybe not. I want to talk about an interesting experiment that took place in 2002, but first a little handle on how this experiment is imaginable. Finally there's a plea for you Canadians who are either swimming or might have some sympathy for the counter-current to get involved in experimentation.

Adding in anthroposophy

Anthroposophy does not represent the mainstream understanding. It is a 'weird' minority view for most who are barely familiar with it, and tidbits of the Anthroposophical outlook on life the universe and everything, when considered out of context, only reinforce this impression of weirdness. I will try and offer a route into the first foothills of Anthroposophy for those who are unfamiliar, and ask those who are familiar to read it anyway because it is an approach that will clarify what is to come later when we return to the question of GMOs.¹

Anthroposophy and the mainstream western view are broadly in agreement about the physical world. To be clear I mean the world of stuff, non-living things, minerals, rocks, dust etc. It is subject to the laws of physics and chemistry and obedient to the entropic momentum which eventually brings all stuff to the same level as its surroundings.

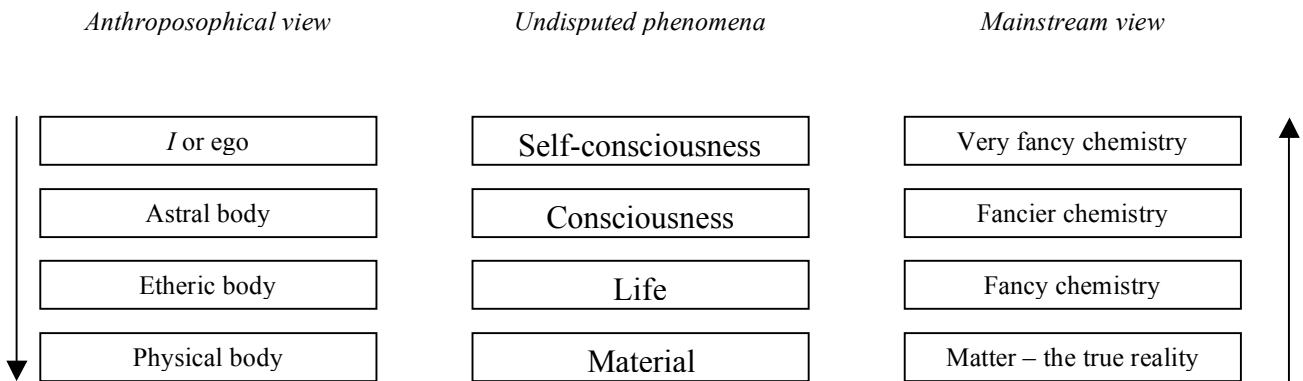
When we consider an organism both the mainstream and Anthroposophy have noted that organisms, for their lifespan, postpone this entropic demise and maintain themselves at a level of integrity distinctly different from the surroundings. However, there is a difference in how this is explained. The mainstream view is that an organism is a special case of chemistry, a special case of the laws of matter. Life is

¹ I take responsibility for this explanation as my own current grasp of Anthroposophy. If it is wrong then I hope I shall be forgiven for any misrepresentation by both those who do officially represent Anthroposophy and those who sincerely wish to understand it.

equivalent to the flame feeding from the energy latent in the candle. But to consider that the flame has any existence when the candle is snuffed is non-sense. Without the candle there can be no flame.

Anthroposophy considers that life is something distinct, something extra with the consequence that the physical and chemical laws are no longer sovereign in living tissues as they are for mineral matter. In the imperfect analogy, the flame does continue to have an existence after the snuffing of the candle. The anthroposophical conviction is that organisms have something else – called an etheric body – which is involved with the material body during life, but which is essentially its own entity.² One can only offer analogies to those who cannot give time to a full consideration of this view. No matter how frantically one tries to generate life from dead matter it is like trying to travel North or South by travelling East or West with sufficient vigour: life is not a special case of the laws of matter.

Similarly the broadly agreed phenomena of consciousness and self-consciousness cannot be reduced to chemistry and physics (nor to the laws of the etheric), no matter how tidy and convenient this would be. Each additional phenomena – life, consciousness, and self-consciousness – is due to additional principles known in Anthroposophy as the etheric, astral and ego or *I* respectively. One might draw this with the undisputed four aspects of our existence as central boxes and the two views – the mainstream and the anthroposophical – indicated to either side.



One can consider these as the ‘components’ of the human being. In doing so one can say that the etheric body leaves the physical body at death, abandoning our corpse to the laws of physics and chemistry. The astral body leaves the etheric and physical body in the phenomenon of sleep. The *I* or ego leaves the three ‘lower’ components when we are not responsible, when we do not exert traction on our consciousness and assert our will. It is implicated, for example, in the distinction between consciously willed thinking and floating along with ones mental representations.

² This brings up many trivial reactions but also serious philosophical objections against dualism. These are addressed in great detail in the Anthroposophical literature and my personal favourite, in relation to this specific question, is the ‘Theory of Knowledge Implicit in Goethe’s Worldview’ by Rudolf Steiner. Here, as in other books, Dr Steiner outlines his conviction that this apparent dualism is overcome and the monistic nature of this approach is understandable when science really understands itself.

Considered in another way, whilst the human grown-up has all these four parts, the animal kingdom does not have the *I* or ego incarnated, the plant kingdom does not have that or an astral body in itself, and the mineral kingdom also lacks the etheric body as we have said when we started this brief introduction to Anthroposophy.

What's that to do with GM?

However, as we leave this pertinent diversion and head back towards our main theme of GMOs, we would miss an important part of the picture if we did not ask whether plants, for instance, have an astral or ego aspect even if this is not incarnated in the individual specimens before us in our fields. Well, according to the Anthroposophical view, they do but there are distinctions that should be clear. Dandelions, for example, do have an *I*, but not one for each individual dandelion as would be the case for each individual human. Rather the dandelion species has a single *I*, which might best be called the individual principle of the dandelion species. So it shares characteristics with the human *I* – it gives identity, it can learn from experiences and thus evolve, its connection to the lower aspects of its being has to be good for full health of those individual plants, etc – but it does not mean that each plant has the characteristics of a human. A delicate and discerning anthropomorphism helps us to get some feel for what it might be, but the correspondence should not be complete. The death of a dandelion might be considered more like a hair-cut than human death.

So if the plant does not have this *I*, where is it? A second Anthroposophical assertion needs consideration, which is that the individual principle of the species is in the macrocosm, in the world of the planets and stars. What is more one can be quite definite about which planets and stars, and this has very practical implications for farming and gardening, and indeed for plant breeding. Dr Steiner offers a most interesting heresy in his agriculture lectures.

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 enable the forces of the cosmic spaces to 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 [material] science lays great stress upon this interpretation. 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.

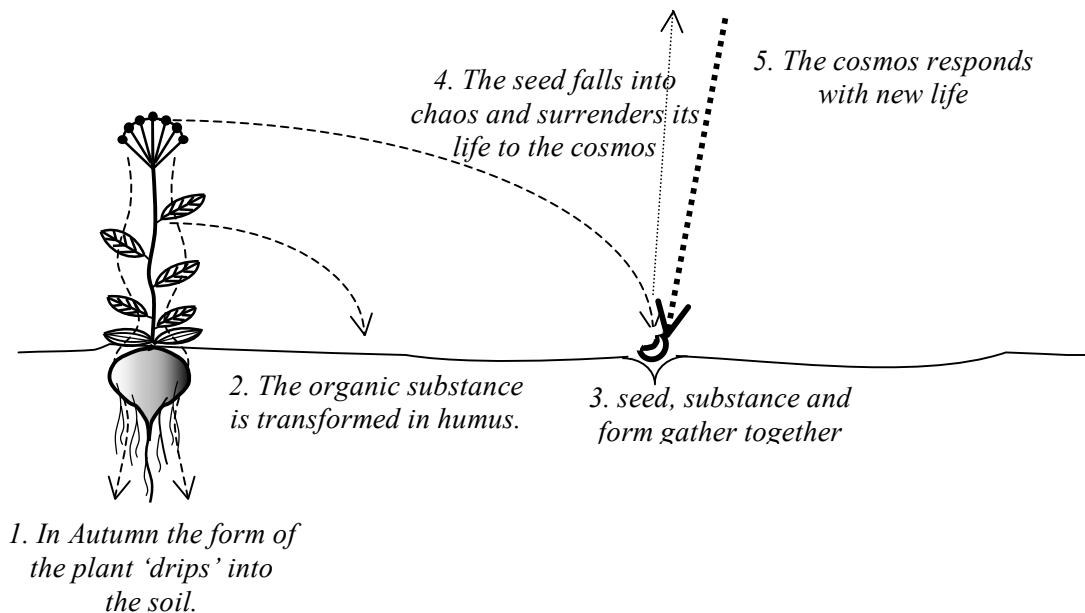
People stand in wonder and astonishment at the enormous complexity of the structure supposed to exist in the seed. They do so because they reason as follows: the albumen (or protein) molecule must be enormously complex, and since its structure was determined by the embryonic conditions of the seed, the latter's microscopic or ultra-microscopic content must also have a structure of enormous complexity.

Well it is indeed complex 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". 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. Thus the seed becomes an Image of the Cosmos.

Every time this happens so that the 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 a 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.

We can borrow a diagram from ‘Enzo Nastati’s Commentary on Dr Rudolf Steiner’s Agriculture Course’³ which may help us understand this better.



If we get this clear in our minds we can realise that every time that a plant sets seed and this seed develops into a new plant there is a strong connection to the worlds in which the *I*, ego or self of the plant species resides. In the natural course of events the lessons from the existence of the individual plants is reported to the self and the self can imprint⁴ itself upon the new generation in line with the lessons it has learned. In this way the *I* evolves and the plants benefit from that evolution.

If this is right many questions and further hypotheses could emerge from it. For instance:

- Does pollution of various kinds interfere with this communication?
- Does the individual principle of the species distinguish between its natural offspring and those with which we have tampered?
- Can we overcome any interference to this communication, and if so how?

The answers are yes, yes and yes.

Does pollution of various kinds interfere with this communication? Yes. Imagine shouting above static or loud noises, or squinting through shifting fog banks. Yes

³ Available via <http://www.moodie.biz/enzobooks.html>

⁴ In this understanding the physical genetic material is the *I*'s imprint on the physical as an anchor for the etheric body of the plant.

pollution is a genuine hindrance to communication between the macrocosm and the microcosm.

Does the individual principle of the species distinguish between its natural offspring and those with which we have tampered? Yes it does. If the tampering is gross then there is no communication of note. The doctored-seeds are sterile receiving no response to their inner chaos. However things become more interesting if the manipulation is more subtle such as with genetic modification. Some attempts will result in sterility because the I is not fooled. But in other cases a reasonable analogy is the Trojan horse. To brief inspection this seems to be the pollen, the seed, the genetic material belonging to the *I*, and only closer inspection reveals the deception.

Can we overcome any interference to this communication, and if so how? As the phrase, made famous by Bob the Builder and some president goes: “Yes we can – ummm, perhaps. The keys are the biodynamic preparations. These can be considered in many ways and an extensive literature shines light upon them from different angles. One viable approach is that these preparations create a bridge between the plants’ earthly manifestation and their higher components including their individual principles. For plants the majority of these species’ individual principles have a planetary home on Jupiter. Nastati explains this by pointing out that Jupiter is the remnant of the old Sun sphere of which Dr Steiner speaks in ‘Esoteric Science: an Outline’. In this phase of evolution the etheric had its first start and the individual principles of plant species retain this connection. Enzo Nastati’s Eureka research organisation have used dandelion (the ‘*Jupiter preparation*’) and yarrow (“*the preparation that creates a link with the life of the most distant cosmos*”) preparations together with vinegar and gold to make this particular and specific bridge. It is sprayed on the plants one wishes to protect from GM pollens at the time of flowering. An allied spray is applied to the seeds themselves, as a seed bath before sowing, to promote this process of recognition at the chaos stage. Again the dandelion and yarrow preparations are used together with iron, gold and clay. Those familiar with Nastati’s work will recognise that the preparations are made with great care and exactitude so that the connections are secured both through careful techniques and clear consciousness.

To clarify, here we are using the preparations to enable the source of these plants’ identity and health to recognise only their true offspring and to enable full communication both ways – from seed to archetype and from archetype to seed.

So that’s the interesting if decidedly non-mainstream idea. Does it work?

At last ... that experiment I mentioned

About 7 years ago an experiment was done. A field was sown with alternating 100 metre long rows of white and yellow corn. The yellow corn was dominant which means that if it’s pollen falls on a white corn plant the resulting seeds are statistically likely to be yellow too. The yellow corn had been genetically modified. The white corn was from biodynamically grown seed that was treated with the seed bath mentioned above, and at the time of flowering it was sprayed with the first preparation mentioned.

The white corn was harvested for seed and planted again to produce a daughter generation. So was the seed from the yellow mother plants. The plants grown from the white corn mother were 98% white and 2% yellow. 62% of the plants grown from the yellow corn mother were white.

This is a shock for those expecting a Mendelian outcome. It is very exciting if not conclusive. At face value it suggests that, in theory at least, we can put the genie back in the bottle, we might repack Pandora's box.

Assumptions and next stages

It is good to identify some assumptions here: we have assumed that the modifications inflicted on the yellow corn did not affect its fertility in any other way or affect the dominance of the gene in some material way. It also assumes that the trial was free from interference from other pollens, and was conducted and reported faithfully, etc, etc. One way would be to try to minimise any uncertainties in this work is to repeat the experiments in different sites and situations and to compile our results. The preparations cost UK£2.50 per Ha of plants, the seed bath costs UK£15 for each 2500 kg of seed, and are available to all who become members of l'Albero della Vita – at €33 per year. The cost is not going to be prohibitive to anyone who really wants to make proper trials.

But there is another thing to consider here before we go out and get some GM seed for trial replications. Something that is initially complicating but also exciting emerges from this way of thinking and addresses our responsibility towards GMOs. If these individual principles of the species exist then we can work with them. We can work with them like we would with any other bearer of an *I* with whom we wish to collaborate. We address them politely and respectfully and suggest a plan, some mutually beneficial arrangement in which both parties freely resolve to be responsible for the project according to their abilities.

This is spiritual genetics if we like to call it that. We send up our request, to fabricate a hypothetical example on the spot, to the individual principle of the species of the carrot suggesting that, if it is acceptable to the carrot self, the carrot expresses itself with abundance, with flavour, with resistance to root fly in the plants emerging from the seeds one is about to sow. (This has been done for countless generations in most civilisations up until our own in recent times so don't feel too daft doing this.)

And as with all new collaborations it is good to listen and to try and reassure our new partner that we have what it takes to take care of this project as we will be the partner on site. It is just good manners to irrigate if needed, to keep an eye on the progress of the project and to get in touch if there seems to be some difficulties to surmount as the project progresses. One's partner would like to be kept informed and may be able to help. Perhaps this is the way madness lies: if you think so please feel free not to join in.

The greater worlds in which we feel ourselves to be placed and to which Dr Steiner gave us so many maps is, apparently, asking for our collaboration. It has opened its doors and we have, in the main, failed to make the proper approach. The spiritual worlds have had to suffer the first-day-of-the-sales mentality of the GM businesses who are plundering and forcing their way around leaving havoc in their wake. The

human world is looking on and thinking perhaps we have no alternative but to flow with the GM tide if we want to feed ourselves and our children. The responsibility of the anthroposophical grower is in both directions. To the spiritual world we need to offer an alternative approach of respect and active collaboration, adding a little cooperative humility to the heavy-booted crush of our GM siblings. To ourselves we have the same obligation because then we are making use of the tools given by Dr Steiner to feed food for the spirit to our human siblings.⁵

When we asked Enzo Nastati if we could repeat his protocols to shore up the reputation of his GM-repelling ideas he said 'no', because he had realised that it was immoral to plant GM plants. To plant GM seeds was an insult to the invisible partners involved in the project. However, the research has metamorphosed to working next to those who are growing GM crops by planting organic or biodynamic seed along side these farmers and testing our own seed. Now the seeds we will plant are tested for GM contamination before sowing, and then are given the seed bath and the spray on the flowers and the daughter seeds are tested for GM markers after harvest. This is what we intend to do here and, because you guys are awash in GM, in Canada in the coming years.

If you have a situation appropriate to this and wish to undertake trials, contact the editor, join l'Albero della Vita, get these preparations and do your best with the trials. Please please report back.

⁵ See, 'The Regeneration of Seeds and New Plants in the Light of Spiritual Science', by Enzo Nastati.