

Transformation

from *Powers of the Universe* by Brian Swimme

One of the great surprises about the Universe is that it got to life so quickly. I mean for us it seems like a long time; the Universe is 13.7 billion years old and life has only been around for 4 billion years; you know it took 9 billion years or so, to get to life, and it seems like a long time. But actually if you take a look at the combination of molecules that were necessary to get to life, it's extremely unlikely. And if you just look at a random combination of molecules, we wouldn't be anywhere near amino acids after 10 billion years. One of the great shocks is that the Universe got to life so quickly.

And the scientists are beginning to imagine that the Universe in some sense was 'going for life' from the beginning. That it sort of knew, in some mysterious unknown way, how to get there. It had— life sort of permeated itself even when it was just elementary particles. We don't know exactly how this happened, there are theories, but the main point here is that we're beginning to reflect on the fact that life is central to the Universe. Not an accidental stow-away passenger, but it's central. So I have this quotation from one of the really finest scientists of our time, Freeman Dyson, and he's trying to give us a sense of this. And he says, "It's conceivable that life may have a larger role to play than we have yet imagined. Life may succeed against all the odds in molding the Universe to it's own purposes. And the design of the 'inanimate' Universe may not be as detached from the potentialities of life and intelligence as scientists of the 20th century have tended to suppose".

So this question of what's the larger meaning of the Universe and of life relates to our discussion today of the cosmological power of Transformation. So the Universe had to transform itself over and over again to get to life. And so, what is the nature of transformation; what is that power, and also how can we participate in it?

Transformation as a power relates strongly to all the previous powers, above all to the one we just discussed before in power 7, Transmutation. I thought I'd just begin by just distinguishing the two. Transmutation is the power of change at the individual level demanded by the whole context. So life as a whole, or the society as a whole, makes a demand on the individual to change. Transformation is the reverse. Transformation is the change worked into the whole context by the individual. Now this question of Transformation, there's many ways to approach it. I wanted to begin thinking about it from the idea of space-time binding. It's a technical phrase that has to do with the way the Universe folds back on itself. So it's as if different points in the Universe are folded back into the present and so you have more of the Universe present at one time than previously. I'll give you examples of this.

The first great moment of space-time binding is when we move from the early plasma state to a time when the elementary particles become stable. So electrons, and then protons, actually hold, and endure, through time. So they in a sense, represent a very early moment in the Universe, when structure came forth, and persisted through time. Protons are structures; you know they consist of three quarks. And they emerge, and they hold that structure so that an early event in the Universe then is present to us in the form of the structure it gave birth to. Even more powerfully, is the emergence a little bit later, 300, 000 years later, of the first atoms. Atoms too, couldn't exist in the first few hundred thousand years of the Universe and then they came into existence. And then they go forward, and we're composed of these atoms of hydrogen. So that, in a real sense, this structure of the early Universe is present here, now. And um, the Universe also will return to the early moments, in an interesting way. In the center of stars, the temperature gets so hot that the atoms dissolve down and we have the reoccurrence of the early Universe and it's dissolution of all structure. The center of a star is a way in which the birth of the Universe is re-evoked. So, a couple things are going on here. One is the way in which the Universe gives birth to structure. And the other is the way in which the Universe returns to the origin of structure, in certain times and places.

And then the last example I wanted to give in terms of structure of space time binding would be the galaxies as a whole. The galaxies too as a whole come into existence about a billion years after the birth of the Universe. And then they hold. So the galaxies then are a gathering of these different moments of structuration. You have the elementary particles, and you have the atoms, and you have their formation in the galactic structure. So these different eras are

held together as galaxies and the galaxies open the possibility for further development. You begin to get a sense of what it means to transform the Universe. Each of these is a Transformation event. And they're leading to a time when more of the Universe is present in one place, so that further development might be possible.

And we come then to a qualitative change in the sequence, with the emergence of life. So the galaxies enable planets to come into existence. And planets then are holding all of these possibilities. And one of them is this amazing new quality, life. What is it about life that is different? With life, there is a way of holding the memory of an event. And the memory of an event then is used to structure matter in a way that brings back that memory. An example I've used before here is photosynthesis. An amazing event. This incredible event of photosynthesis takes place where these cells actually learn to interact with the sun. That learning process is remembered in the genes, in the DNA. So life has this incredible way of folding an event into a molecular form and then enabling that structure to go forward in time so that that event can then be folded back out. It's amazing. I mean if there hadn't been some way for this to take place then photosynthesis would have been an incredible achievement by some individuals and then it would be over. But instead, now that event (a long process), that whole event, is now present here. That's the whole idea of space-time binding. There's more of the Universe somehow folded into this moment—and because of that, there are these new possibilities.

The first forms...talking about the way in which life invented a form of memory—this all took place with single cells. And, their way of passing the memory on was from one cell to another. Either to a cell that was created by the first cell; a daughter cell, so through replication, or to another prokaryote nearby. The information was handed over. So you have this vertical transfer of information. These lineages. And then another incredible moment takes place, with the invention of sexuality. See with sexuality then you have two beings fusing, and the memories they carry are shuffled together in a new way. And so you have two beings, give birth to a new cell, and these two came from two; you have any particular cell and it branches out as you go back in time. If you can think of this now, you have the lineage of course so you have this cell, it has its parents, they have their parents. If you think of this now as they way in which this ancestral tree puts together all of these different events and folds them all into this new being. So it's an amplification of the way in which life learned to carry memories forward. And it's a shuffling of events. The shuffling of genes. So that new combinations can arise. I just find it so magnificent, the way in which the Universe is harvesting all of these fantastic moments and then bringing them all to bear in this one particular place. That's the whole idea of space time binding.

So if you can just picture this at this level. Look at our solar system for instance. What's present in the solar system? Well in the center of our Sun, what's present there is the same nature that gave birth to the Universe. Seamlessness. We're now at the place of even before there's atoms. All structure is gone. It's that realm that gives birth to all structure. So we have the Sun, and the energy that's there, of course is the energy from the beginning of time. That's true of the entire solar system. The energy that permeates the entire solar system is from the beginning of time. Now the atoms of our Earth for instance, they didn't come from our sun. They actually were created by distant stars that exploded in supernovas. So that those moments are all gathered together here as well. Then you look at the life systems. The life systems carry within them all of these ancient events. And all of that you see is dancing here in the Earth and throughout the solar system. That's space-time binding. You begin to see what the Universe is about. The philosophical interpretation is this:

The Universe is aiming to transform itself so the Universe as a whole can participate directly in the evocation of community. This then would be what Freeman Dyson is talking about—the way in which life is molding the Universe.

So just to say it again it's that the Universe is attempting to become involved in a four dimensional way at every place within the Universe. This is sort of my philosophical interpretation of what I'm talking about. The Universe wants to become involved in a four-dimensional way at every place in the Universe, so that it might more effectively activate communion, community, intimacy. And so, I say it wants to become involved everywhere. Well, where we know it's becoming involved is with the planet Earth. All of this colossal interweaving taking place here, that enables this moment to exist. And you see, that's the difference, when I say 'to enable this moment to exist'. That's the difference. We can no longer just say "Well it worked out well, it's luck, it's accidental". We can't do that anymore. Because it happened so quickly. And we have to find some way to orient ourselves in the midst of this. That

the Universe was aiming to get to a place of intense community. But it's a community that's four dimensional.... when I say four dimensional I mean not just the three dimensions of space but also the fourth dimension of time. It's the past that's present here as well. In the form of the structures, of the atoms, and the processes of life.

Now to move to the next level of more complex life. And see what happens here if we look at, say the experience of a squirrel, of a community of squirrels. They live on a mountainside, in the lowlands, and then what happens is that for some reason or other they moved up the mountain, 1000' over a period of time. What could happen? The climate could change, it could get warmer, and so things grow further up, and so the squirrels find themselves further up the mountain in a different situation. When the squirrels go to a different scene, they experience stress on their bodies. For example if it's thinner air than what they're evolved from, they are going to have to pant more and that's their way of trying to deal with a situation of stress like this. If it is one where it's too far out of their range, then of course they can't survive there. What I want you to see is that for the typical squirrel that's born in the lowlands, the DNA have a value built in, so that the value has to do with the form of the air in which they evolved. So the little squirrel comes out expecting to find a situation kind of like mom and dad found it and the grandparents and so forth back thousands of years. They expect to find that. And so you have a bell curve. You have...here's the value that's set by the DNA for the most part. And then you have some variance off that. So you know they do well right here. If they're in a situation far away from the value that's encoded in the DNA they can't survive. Are we all together?

Now if you go up the hill what's going to happen is you move off the value that is deeply embedded in the DNA and so you're over in a situation of stress. So you're over here near this end. So what takes place. It's so marvelous. Constantly, coming out of seamlessness, is the genetic mutations. And these, then, bring forth different forms of squirrels. And there's a whole bunch of possibilities flooding forth. And it's interesting; life put these new genetic forms to the test. The first test is this: the baby squirrels have got to survive and do well inside mom's body. So mom's body carries all this ancestral memory. All their structures, all that past is there in the form of mom's body. This squirrel then, chemically, physiologically, has got to cohere with that system. If it's too far away from that system, life doesn't take a chance. It aborts the life. Because it's...the value of life is so important. The integrity and the community of life is so important, that it can't risk upsetting that too much. So that there's the first test. It's within—mom.

But then there's the second test. The second test is when the baby squirrels then become part of the larger world. And then the world tests them. And the question then is, can these new squirrels find energy and reach sexual maturity and reproduce. The whole world now is submitting them to this test. That's called fittedness. If these squirrels survive, they fit into the community. So life as a whole is demanding that the new squirrels cohere with the community. Now the thing is, these new squirrels may have a genetic mutation that enable them to do better in this thin atmosphere than the other squirrels that did well in the lowlands. See what happens then? Here's evolution at work right now. Because of the genetic mutation, and their ability to flower in this new situation, they have more offspring than the other types. And so over time, their genetic mutation becomes the new value that's folded into the DNA. And so you have evolution taking place. This value, has moved from here over to here, and you have a new species, or a new subspecies come into existence. Because the value is changed at the genetic level. And what does it enable? It enables life to cohere. It enables life to enter into mutually-enhancing relationships in this new area.

So. It's a kind of learning that takes place. This is a transformation, it's a kind of learning. But it leads to a form of vitality, and I would even say a form of peace. You go from stress to fecundity. This would be the transformation taking place at the level of the mammalian world.

Now we move to the human. We move to the human and ask the same kind of question. What's transformation about, and what's new about the human? We've mentioned it several times; what's new about the human is the invention of the symbol, of language. And it gives enormous power to the human, and power of several types. The first one is this. It brings into the moment things that otherwise wouldn't be present. Things that aren't physically there, but they're symbolically there. The language brings into our awareness so much that isn't physically there. I want you to see this as a new form of space-time binding. So it's an enormous increase. Suddenly, like so many things are just there...present in the mind. It enables an enormous wandering to take place. Because humans could get around some of the limitations that constrained their ancestors, humans began to wander all over the planet. And then they began to wander

into different psychic states, spiritual states, civilizational states; they wandered, wandered, wandered.

I started off with the squirrels moving up the mountainside. Well this just explodes with the human. And as we know, some of this wandering turned out to be deleterious. So that there is a need for constraints on some of the places humans have wandered into. For instance, excessive consumerism. Now we talked about this in Transmutation. So all of this is related. Here, rather than talking about the constraints that have to be put on humans, I'm going to talk about the transformation that the humans are involved in. What exactly does it mean for humans to enter into the transformative power of the Universe? That's the question.

And the way I thought I would begin is to say this: if I take an imaginary person and think about this person through the powers we've discussed so far. So I'm just going to sort of walk right through them; now these powers aren't linear, like one necessarily doesn't lead to two, lead to three, lead to four; rather all these powers are interrelated. But I'm going to walk through them as if they were a linear process. So we have a person who enters into the world and you know—wow—here he is. Make him a male. And we have a...he comes out of this long long long history but suddenly he's here. And the Universe enters into this first power of Centration. And so this person then realizes in one way or another that the Universe is involved in his unfolding. And he has to find a way forward because here he is.

And so, moving into the second power of Allurement, he finds there are different things that are captivating him; different things that are alluring him. And just in response to those, just develops a life of pursuing these various dreams or ideas. And the pursuit itself activates the third power, of Emergence. So these sensitivities of a person, the intelligence, their relationships, all of these come forth out of this pursuit of one's vision or dream. And then, moving to the fourth power, Homeostasis, this young person then finds his role in the society. So what holds it all together—Homeostasis, what keeps it all going, he finds someplace to fit in to that whole ongoing process.

But then, he encounters the fifth power, Cataclysm. Things fall apart. It could be a marriage that collapses. It could be the job just turns so horrible it's miserable; it could be health concerns. But what I'm trying to emphasize here is that one way or another, the Cataclysm will relate to the fundamental cataclysm taking place on the planet today. And that is the end of the Cenozoic era. And that is the withering of the planet. One way or another, whatever cataclysm the person might meet, it's going to be related to the fact that we are in the most destructive moment in the last 65 million years of this planet. So—but what happens in the moment of cataclysm is a freedom from illusion because now you're suddenly asking the ultimate questions. What you thought was real has collapsed. And so you need to know how to move forward. In those moments there can be a glimmer of the ultimate essence of the Universe which is community. And synergy. This would be the sixth power. There can be a realization that 'you know, what I'm really about is love'—what I'm really about ultimately is helping; what I'm really about is making a contribution, being part of something larger than my own selfish concern. So it eliminates the illusions and there's a sense of what we're really here for.

And then, one moves into the seventh power of Transmutation. And then he realizes, 'in order to really make a difference, I've got to change.' Fundamentally. I've got to, to use an old word, 'vomit out' certain aspects that I regard as myself. Unconsciously. Unconsciously I've become a consumer. I didn't plan to be, but suddenly I realize my whole life is organized around consumerism of one sort or another. Or, I have to somehow release myself from the extremes of militarism. This endless warfare. Or, the extremes of competition. My whole life has been based on competition, one way or another. So there's this unlearning that takes place, a deep unlearning. This is where this whole point of metanoia or metamorphosis; this is in the power of Transmutation. It's connecting to the origin of things, going all the way back to the beginning; learning what am I really about.

So then, when one has a sense of a creative vision for moving forward, then one moves into this power of Transformation. And so you have a creative vision. And you have some worries, some anxieties, 'is this creative vision going to actually be helpful?' Or is it simply going to contribute to the pain of the world? That's again, this sense of Transformation. It's also this question of testing. So that one's vision has to be carefully examined and tested.

So then, this young person I'm imagining has a vision. His vision is...um...I mean it could be anything. I just want to go through with one example to give you a sense of how this connects with the transformation taking place in the whole life world. Imagine this person had the vision of creating a TV food show. Allright? That's the vision. One wants to really move forward in the world and create a TV food show.

That could be neutral idea, it could be a horrendous idea, it could be a helpful idea; it all depends. This is where the process of testing takes place like the squirrel inside mom's body. It's internal. Nothing's happened yet, you're just thinking about this idea. And so you have to know the field of TV. You have to know the genres that are out there. Because you have to cohere with what's in the world today. If it doesn't cohere one way or another, no one's going to pay any attention, right? It has to be recognizable, so there has to be a development of competence in terms of TV production.

Then, you actually want to be beneficial, so it must in some way or another advance these powers of the Universe. So for instance, how would it advance Centration? Well this TV show can actually empower people because it can free them from a dependency relationship on fast food joints so it's actually enabling people to take some responsibility for their lives. How about Allurement. How does this relate to Allurement. Well this show would be pitched at young men, allright, in their 20s and 30s, and part of the show would be (now I'm making this up)—part of the show would be—um—how to woo women. So it would be a way to really cook something that's fantastic and romantic; and you're going to be a hit. You think of yourself as unable to get a really good date—just keep watching this show and pretty soon you'll have the women flocking to your place because you're such a great romantic chef.

Then, take one more, Homeostasis. Homeostasis—will this enable the whole society to function well? We're going to create a show that uses organic foods. They're grown locally, allright, so that rather than getting people—and you're going to help them find foods. So rather than having people depending on the agribusiness in the way that's chewing up the planet, you're going to send them to endeavors that are really enhancing the world; allright and so forth. So then you have this great idea, so then you have to go to the TV producers and the TV producers have got to be convinced. It's all part of the internal testing. The producers have to be convinced that this idea is a winner. So there has to be a way in which to get through that particular part of the cultural DNA. That's what I'm going to call this; think about it as cultural DNA. So that, you have to be exciting, you have to convince them this is going to work and so forth and then they take a risk and they release the program out into the world.

And now, it's success is going to depend on what? It's going to be dependent on whether or not it's fascinating for the viewers. It's gonna be...and if it's fascinating, one way or another... in other words if it enhances their lives, they too enter into a kind of sexual process in that they talk about the show to others. And so the cultural way of sexual mating is through convincing other people that something is really worth paying attention to. It has to do with attention. And so then if other people begin to get excited about the show...you see, what happens? Well one thing that happens is that the local farmers—to bring synergy in—the local farmers are kind of thrilled. Hey! Our whole career here is enhanced by this show. So they begin to send food to the producers for free. In other words 'all the food you want, you got it from us'.

And then um, the show is doing well, and what's the first thing that happens? Copycat shows. So then there's lots of other shows that begin to show up around this idea of ecological, local food. Once there's copycat shows, the executives notice this. And they change their criteria. When they change their criteria, do you see what's taking place? The cultural DNA is taking place. In other words watch what happens. They start off with a certain kind of value, they have a certain value as to what makes good television. Whatever that value might be, they have a way of expressing that. If there is the appearance of this new form—something new shows up—if it's successful, the executives then alter their criteria.

Think of this. The coding of the planet is changing. The cultural coding of the planet. Just like with the squirrel population, it's the DNA, the genetic coding changed. With the human it's cultural coding. Once, see once there are more shows like this and then suddenly you have the people that are producing wind and solar energy, they get

excited about this and they start to advertise on this because they want to be associated with this. And then people are finding out that they're not as sick anymore because of this organic food. Disease starts to drop down. You see how this would snowball. That's the power of coherence. Life is searching for a coherent community, that explodes and synergizes back onto itself. And then pretty soon it becomes really embarrassing to be eating food that's actually been grown by the agribusiness. It becomes kind of obvious and so then that begins to show up in our cultural coding. And you have this...it becomes the most obvious thing on earth. Do we want to eat food that's locally grown, that actually enhances our bodies, and that actually synergizes local community; do we want that? Or do we want to eat food that's based on the destruction of the planet and the bloodbath in the Middle East and the oil dependency and all the rest I mean it's not a hard decision. But it requires ten thousand different ways forward. Each of them...each of them coherent with all the others. All within this new paradigm. And one way to talk about it is this paradigm of these cosmological powers. Because they enhance one another.

One of the things to notice here is that—and it's an amazing thing. An amazing change that takes place with the human. An individual's experience can become the source for the recoding of the planet. And that's new.

Just to review: I talked about at the beginning you have structures that show up, like atoms. And they endure through time. It's a way of the Universe folding upon itself. When they endure through time, the experience they have makes no difference. It's the same hydrogen atom. Who knows what adventures it's had in the past—here it is, it's a hydrogen atom right now. All those experiences are lost.

Then you move to the amazing event of life, where suddenly events are remembered in the DNA. So you have individual squirrels say; this individual squirrel can learn all kinds of incredible things, but at its death it all evaporates. It's the DNA that carries the learning forward. The DNA has to change. And then you come to the human. The unbelievable power of one person; the experience of one person can then be folded into the cultural DNA. Because of this power of language. An individual person. So you see then suddenly how the Universe has become more intense in its folding back upon itself. Way more intense. In the experience of one person, the cultural DNA can become recoded. And when the cultural DNA is recoded, all of the genetic DNA becomes recoded. Because of our presence around the planet. The fundamental question for every species is, can I interact successfully with the humans? So the way in which we organize ourselves is determining the genetic information of these other species. The recoding of the human is a recoding of the planet.

So one way to think about our moment is that with the appearance of the human, we have the possibility for a transformation of the planet that is in a congruent relationship with the transformation that has taken place throughout time. In particular, we have before us the chance of bringing into the Universe *here* energy and information and ideas and learning that would otherwise not be present. It's one way to think about the major laws that we're proud of. For instance laws that ended slavery. Or the laws that enabled women to vote. Or the laws that are actually protecting animals and plants, just because they should be protected. Now in each of these cases, the earth is finding a way to bring in to the community lineages that were previously blocked out. It is the fullness of the interaction that's made possible through these laws. The transformation is affected by the interaction of energies that otherwise wouldn't be here.

So our earth then, consists of the life of the sun, the molecules that came from space and the complex molecules that were developed here. And just imagine all of these lineages of life, all of that experience is present right here. With the human, even the events that are even outside our genetic lineages—like the explosion of supernovas, and the birth of galaxies—those events are present here as well, and more. What enters into this life of the planet is the unborn future. All of that becomes part of what is folded into this moment here. So one way to think about that is what we have before us is the transformation of the Universe; at the planet earth, that will enable the Universe to fold together in a new way so that a four dimensional Universe becomes present in the unfolding of this planet. Including the far distant past, and the far distant future. All of it throbbing with life here in the present now. This then, this view of the planetary future, of an Ecozoic future—this whole view would be one way to say what the Universe is attempting to get to with our work—now.