Talk by ralph abraham in Terence McKenna's class, Esalen Inst, 25 April 1989

Social Synergy Models

TERENCE: Today we have a treat, because you don't have to listen to me, which is the first time this has happened. It's a measure of the insular and parochial nature of my ideas that I wouldn't let anyone else address you. I haven't even read you anything in the time that we've been at this. But today we have my old, old friend and dear colleague, Professor Ralph Abraham of the University of California at Santa Cruz. Ralph is an accomplished tabla player and dynamicist. He is familiar to you, because when I mention my cabal, it is the Sheldrake, Abraham, McKenna cabal. We built a high ivory tower against all who lay siege to it.

Today Ralph will talk about what he described to me as modern-day Cassandras who can be trained to look into higher-dimensional space and to prophecy in an oracular manner for the kings of corporations and affinity groups such as ourselves. Ralph is a psychedelic pioneer in mathematics, music, and the art of love. He can speak for himself. Please welcome Ralph Abraham!

RALPH: This is what I came for, Terence: your introduction. Now I'm happy. I can go home. I don't know about the high tower, though. I think of it more as a green ring, and maybe it's the Cabala, which is the feminine of cabal.

The fact that you are here to listen to a religious leader, Terence, gives me a clue as to what you're interested in. I'm not sure if there is any overlap between my field of interest and yours, other than that there's a certain heart feeling in this place, which has drawn us all here. But to improve the fit, I would like you to prompt me with questions -- especially you, Terence -- to give me a target.

TERENCE: There's been a lot of talk about the psychedelic experience, but we haven't spent much time on techniques, and on the personal assimilation of the experience. We talked about waves of gylanic resurgence in pre-history. I'm pushing this new idea that we are really the children of a disturbed relationship. We had a symbiotic relationship with hallucinogenic plants in pre-history. Later, climatological factors and the drying of Africa pushed us into the historical dominator mode, and we've been in it ever since. We've looked at the time wave, we've talked about fractals, we've talked about modeling the Tao. We talked about attractors, and whenever we talk about these kinds of things we mention you, Ralph. You have been held up as the guy who could shed light on the mathematical end of the jargon scale.

RALPH: Well, the very idea of the gylanic resurgence wave, the GR-wave, is part of the technical end of the jargon scale, because the GR-wave concept is a mathematical model for history itself. These terms were introduced by Riane Eisler in her book, *The Chalice and the Blade.* She is one of the first cultural historians since William Irving Thompson to use this particular strategy for understanding the complexity of life. She is a feminist revisionist of history, and the primary partnership she points to, and from which she derives the name "gylanic", is the partnership between the genders.

Today we exist in the ambience or in the shadow of a fantastic GR-wave that broke on the beach in the 1960s. It was probably the biggest one since the Italian Renaissance.

The word "resurgence" itself is a mathematical word. It means that something happens not only again, but again and again. Resurgence means recurrence. A periodic cycle is a recognizable pattern suitable for prediction. Hopefully there will be another GR-wave and another one. Between the big GR-waves in history there are a bunch of wavelets, and between any two of those there is another sub-wave, because not only does history have a fractal nature, but gylany is a fractal concept which loves fractal resonance, and which must always manifest as fractal waves.

So we have waves on top of waves. If you restrict yourself to the biggest ones, there is the Neolithic, that's a big one! when farming began. Is farming gylanic? Well, in the history of gylany there are the global climate cycles, and then there are smaller climate cycles, and then there are the teeny wavelets of climate. The biggest waves of climate are the ice ages. Glaciologists argue whether they have a hundred thousand-year cycle or a forty-one thousand-year cycle or a twenty-five thousand-year cycle and so on. All of these glaciologists are correct, because the pattern of ice, the pattern of the global change of climate, is not periodic; it's more a fractal wave-length.

Gylany, the partnership form of culture is characterized by peace, happiness, and by sex, drugs and rock-'n-roll. It is part of the inter-glacial cycle. When the planet has a fever, we get cultures like that. The heyday of gylany for this inter-glacial period was the Neolithic. Then after the patriarchal takeover gylany was repressed into the unconscious, out of which well up GR-waves in the future.

After the patriarchal takeover, gylany became part of the so-called mystery schools. That means that you weren't supposed to tell. If you partook of these rituals, you told about them at the risk of death. In ancient Greece, mystery schools were accepted. We don't know exactly what psychedelic was used in the nightly rituals of the Eleusinian mysteries. There are no written records, and to this day we don't know what went on there.

There was a kind of limited tolerance for gylanic resurgence on an annual basis in ancient Greece, but after the onset of Christianity, a very interesting bifurcation took place. There were a few centuries of a kind of gylanic Christianity, after which patriarchy came to the fore, and at that time, the Orphic, Dionysian, Bacchic rituals characteristic of gylanic society were increasingly suppressed.

Starting from around the seventh century A.D. until the present, we have the era of suppression of gylany, out of which the gylanic resurgence wave welled up. We, like the students in China, are trying to reclaim our planet from the insanity of the (androcratic) form, a quest which may never end.

The chart of the progress of gylany over the centuries is Terence's time wave, which is a mathematical model for history.

TERENCE: It's the cyclic ebb and flow between what Ralph calls gylany, i.e.,the partnership society of pre-history which emphasizes group values and sharing and multi-tasking, and the dominator model. We're trying to transcend matriarchy/patriarchy, because that is not what it's all about; it's not between men and women. There are two modes of expression. One is partnership, the other is hierarchical domination. What Ralph calls gylany is the episode in pre-history when all of these values were being expressed in the central Saharan societies.

RALPH: There were gylanic societies; the last above-board one was Minoan Crete, and that ended around 1400 B.C. when Crete was conquered by patriarchal Mycenaeans. For a long period of time, until around 4000 B.C., the planetary society was a gylanic one. It was characterized by the equal partnership of the genders, by peace and creativity, and by a certain religion which covered the entire planet. It was a goddess religion; sometimes the triple-headed goddess, the goddess trinity; sometimes the goddess with the boy god, the child god -- her child -- the result of the creativity of the goddess; and sometimes with a consort.

As we neared patriarchy, there was a gradual demotion of the goddess and the gradual promotion of the god, until finally the goddess disappeared and her statue was replaced by statues of Apollo. The Eleusinian mysteries that were celebrated under the statue of Apollo, as a matter of fact, were goddess rituals imported from Crete, from the last gylanic culture. The statue of the goddess had been replaced, but not the rituals.

To help us understand history we might have a chart of planetary society at a given time, represented by one number, a point in the spectrum between gylany, or partnership society, and (androcracy), or the dominator society. As history evolved its own history, more and more indicators were taken into account. Vico, one of the first mathematical historians, said that societies evolve like mammalian species; they have a beginning, a middle, and an end. The first step, where a tribe becomes a culture, is through the development of three primary cultural structures: religion, death rites, and matrimonial rights. As he saw it from his eighteenth century Italy, these would be the three necessities for a culture to evolve. After that, it gets more and more complex.

We could try to represent the planet, a particular town, or even a little community like this one, with these three parameters. We could hand out questionnaires, record the replies and get some kind of numerical measure of the quality of religious activity, the care with which the burial rites and burial plots are maintained, and the nature of matrimonial rights. In early Neolithic times, dead bodies were thrown under the house. That was it. But funerals are very important social events in Ireland even to this day, which gives us a clue as to what they were like in the past.

In the '60s, matrimonial rites more or less died. A few people celebrated by taking acid on a mountain top during the full moon, but basically, the ritual disappeared. One reason was that it was believed to be intrinsically evil. In the patrilineal line, property won in war passes from father to son. That means that the most important thing to know about the son is who is the father, which makes it necessary to have a marriage contract of monogamy. It's easy to know who the mother is, but how do you know who is the father?

The monogamous contract aspect of the marriage ritual is just part of the patriarchal package.

So, when there's a gylanic resurgence, one thing that's bound to happen is the radical change in the specific agreements of the marriage contract and the burial rites, and in the religious practices as well, according to Vico. If we want to measure this with questionnaires, we can sort of locate ourselves at a point in a three-dimensional map. Some years later, if we hand out the questionnaires again, it will all be changed.

In the '60s, there was a big blip. This blip could be observed not just one-dimensionally, but as a curve in three-dimensional space. This game, which I might call mathematical modeling of history, has progressed over the years with more and more sophisticated models. With chaos theory, people acknowledge that a person, a society, a tree or any living thing has essentially infinite dimensional representations. Any attempt to simplify, to throw out complexity by reducing it to a simple model creates a boundary war.

Let me say something about mathematics. The very word elicits fear in everybody. For more than thirty years now I've had consultations with people who are scientists, and I have hardly encountered a single person, including a Nobel Prize winner in theoretical physics, who doesn't have a math-avoidance response. That's because our culture has made mathematics into something unnatural. But we can't understand any dynamical process, whether it is the process of our own relationships, the history of our society, or the gradual change from year to year of the memory of our experiences of the 1960s without mathematics, because mathematics is simply the act of making cognitive representations of these complex and dynamical events. Without them, we couldn't walk down the street, we couldn't find food. When a dog goes to the other end of the property and locates something to eat, this is an activity of mathematical intelligence. We use it all the time, and I'm just trying to describe a view of history that leads up to the fulfillment of Terence's promise, which, in case anybody has forgotten, I will ask Terence to repeat.

TERENCE: You mean the notion that history comes to some kind of tremendous crescendo, where it's all wrapped together into a nutshell?

RALPH: No. That was yesterday's introduction. Today it was explicitly psychedelic. So I'm going to explain why psychedelic training will be necessary for us to create our future.

TERENCE: Oh, yes! Do that.

(Audience laughter)

RALPH: On demand. For you, Terence. For you.

TERENCE: I need to hear this.

(Audience laughter)

RALPH: Well, I just got back from Denmark, where I was entertained in a splendid palace in a suburb of Copenhagen by the IEA, the International Economic Association. This is a group of professional economists who are

employed by kings and governments to predict the future. They have inherited the Cassandra role, because each person's welfare will depend upon the wisdom of the finance minister when he cuts some ridiculous deal like giving forty tankers of wheat to Libya or something. These people are important to kings and governments; they have a technology, largely mathematical, and they have international conferences where, within limits, they exchange some of their secrets because they have to get some of the other guy's secrets. I was there because they had discovered that chaos could be an important secret, and if some have the chaos technology and others don't, they would get ahead in whatever game they think they're playing.

When I was resting between sessions from the exertion of trying to find out what these people were about and evolving this little description I just shared with you, one man came up to me and said, "Hi, Professor. I've been reading your work. My name is Lars Peterson, and I'm in the finance ministry here in Denmark. I read in Jim Gleick's book that you say that chaos is the biggest thing since the wheel. Do you remember that you said that?" I said, "Yeah, yeah." He said, "Well, we took your advice and used chaos theory to analyze our data. And then we read this other paper where you said chaos was really no big deal, that what we really need is complex dynamical models. We read your instructions, we made a complex dynamical model, and we had it running on the computer in the finance ministry with a model from the Danish beer industry, and it produced data which agrees very well with the observed chaotic data. We tried to explore this model which has parameters that have to do with the progress of the economy in the neighboring countries. Well, there are twelve of these control parameters, so we have a map in twelve-dimensional space. We followed all your instructions, so now we have a map of our finance policy, and the map is in twelve-dimensional space. You've given us no technology to understand objects and motions in twelve-dimensional space. Now what do we do?"

He showed me some crude attempts at computer graphics that looked like your typical fractal, and this fractal was the map they were trying to use for navigation of the national economic policy. So they were worried. They were very worried.

I had to admit that we were stuck, because we had arrived more or less at the frontier of the computer-aided applied mathematics of our society, in spite of chaos, fractals and so on. We're stuck with this. We do not know how to visualize motions in twelve-dimensional space, in sixteen-dimensional space and so on. Obviously, we need to develop a strategy for twelve-dimensional visualization. We need to utilize the experience of artists. Artists have always led us in the expansion of the dimensionality of our view. Our capability of viewing is advanced by artists. And now we're at a frontier where our progress is inhibited by a limitation of dimensions in viewing. Undoubtedly, computer graphics will be the technique. Computer graphic arts are limited at the moment by the lack of practice in viewing higher-dimensional spaces.

Meanwhile, psychedelic pioneers are always talking about hyper-dimensional warps. It's a dance. Right? It never stands still in our psychedelic travels. I think hyper-dimensional is correct, not infinite-dimensional. There are large numbers of dimensions we have been privileged to view directly, which we apparently have no difficulty in understanding. We can

verbalize about them, we can remember them, we can think about them, and we can return to them to explore them further. There's something about the naturalness of the artistic experience which makes it the fundamental one needed for the current advance of mathematics, of science, and of technology.

TERENCE: So this is an endorsement of psychedelic training. Ah --

RALPH: Well, people will have to learn by having the experience. I mean, I don't know how to get started when you have people who are completely blind to fifteen-dimensionals.

TERENCE: How do you begin to view fifteen-dimensional space? You just toss them in and see if they come out?

RALPH: Well, maybe the big blessing of the mushroom is that there is this easy back-and-forth between the higher-dimensional reality and ordinary reality, so that while you obtain training in visualization without stress, you can also practice its relationship with ordinary vision. For example, you can open your eyes to see a flower, and then close your eyes and see the aura of the flower. You know what I mean? There is kind of a voluntary back-and-forth, and a spectrum of decreasing dimension between the psychedelic vision and ordinary reality.

This bridge, I think, is very important. It's not enough to learn the navigational arts for flying in the higher realms -- we have to earth this intelligence in order to create the possibility of a future. Gaia is a living planet; its atmosphere, its hydrosphere, its sociosphere, its noosphere, all these are interlocking in an essential way, and our future may depend on our learning to understand a system of such immense complexity so that we can guide our evolutionary consciousness. Either that, or humankind should stand aside and let evolution do its work. That's why I think the psychedelic experience has an important role to play in the progress of social evolution, and even of technology.

TERENCE: When you talk about penetration of a higher-dimensional space, which means many things to many people, do you think that psychedelics amplify the morphogenetic field, or that they somehow amplify awareness of it? Do they add a dimension to the ordinary three? There also seem to be other dimensions added that are not related to the time scale. Is that how you see it?

RALPH: Well, let's find a common ground for the word "dimension". Dimension is an ordinary English word, and it's also technical jargon of mathematics. One of the things mathematics provides us with, one of its greatest gifts, is an explicit, useful understanding of dimension. There's one dimension, there are two dimensions, and there are three dimensions. Here are the three dimensions. That's kind of the mathematical way of thinking. So as far as what we see around us, if nothing were moving, we have three-dimensional space. Within the three-dimensional space, we have maybe a color, which is a three-dimensional object, so there's six dimensions that we're moving in all the time, ignoring the dimension of wind in our face and of smells and so on. We live in a six-dimensional space of snapshots that keep changing, so there's the six plus one, or the seven.

TERENCE: To simplify the way we've defined dimensions here, they are simply variables. Each dimension represents a variable. If you have sixteen variables, we're moving in a sixteen-dimensional space. This opens it up for people -- they're not being asked to conceive something inconceivable. What you're saying is that every time you add a variable, you add a dimension. Therefore all complex situations are obviously extremely high-dimensional.

RALPH: But there's a difference between the dimensions and our perception of dimension. By taking photographs, for example, we can only record six dimensions. Let's take a computer model of the nuclear club, or of a society of four superpowers. We have a mathematical model for this as a sixteen-dimensional space with certain solid objects in it which may be very important for our future, because they represent peace and war. We want to navigate in this space, and the fact that we understand that the model has sixteen dimensions is not enough, because we have to learn to visualize, to understand, to grok that space, so that we can see where we are, where the obstacles are, how we can get from where we are to where we want to go by avoiding the obstacles. We need to find a way to interact.

There are flight simulators training pilots to land aircraft carriers, and there are computer-graphic devices with a (datacom) for each eye, a speaker for each ear and gloves that allow you to interact with the computer; but basically, you're seeing or hearing a very limited number of dimensions. The fact that there's a successful sixteen-dimensional model won't help you navigate or land your plane, because you can really only navigate in six dimensions plus time. That's why I think we need to train people to feel at home in these higher dimensions, like dolphins, whales and bats are capable of doing, thanks to sonar. They are very much at home in higher dimensions. I think the only reason that our mentation is restricted to such a low dimension is because homo erectus has evolved in the context of running through the woods and swinging from tree to tree; we are devoted to a physical representation of the world with a limited amount of dynamic in it. We do not have to understand fish schooling. We could never understand bird flying; we don't have the dimensions for it in our evolution. But we could. Why not? So kids who are apparently wasting their time with video games in arcades around the world are actually training their minds for a completely different perceptual and cognitive strategy.

TERENCE: For coordinating in a higher-dimensional face space?

RALPH: Exactly. They're learning to land the helicopter on the tall building in a sixteen-dimensional space.

TERENCE: You're saying something very interesting, Ralph. You're saying that the psychedelic dimension is not another dimension, it's this world, but with more dimensions.

RALPH: I would agree with you that psychedelics amplify the morphogenetic field. No, they don't amplify the field; they amplify our connection to the field, so that through resonance, we obtain a stronger image. What do you think? When I trip I feel that I'm seeing something real, that it has at least as much reality as this reality. There are the repeated visits, the learning, the successful negotiation of conversations with live entities. It has every aspect of reality. All that we are familiar with in ordinary

reality is there in extraordinary reality. One thing that we do not doubt is its reality. We don't call it hallucinations. We don't think it comes from the unconscious. This super-ordinary reality that we visit happens to be a higher-dimensional reality, and we can only image it to the extent that we are able to image it. Those of us who have taken repeated trips over a period of time have learned to image more, so that we get more dimensions represented by some mysterious trick in our ordinary consciousness, by vision, sounds, smells.

TERENCE: By deconditioning?

RALPH: By reconditioning, by training, by restructuring --

TERENCE: By retraining the Newtonian perspective. The perceptional perspective of the Renaissance was both a liberation and a prison. It gave permission to inhabit a new kind of dimensionality for culture, but then we got hung up on it. We can't seem to go beyond it. We can't seem to realize hyper-space culturally. We can only realize it individually through the psychedelics, and then only temporarily. What the true believers want is some way to image it collectively.

RALPH: Well, that's why I've been working with computer graphics these past ten or fifteen years. With computer graphics, the idea is to try to find a way to share the experience with people who are not going to have the experience. The advance of the art, the evolution of consciousness, is a saltatory story, it has episodes that are catastrophes.

There may be a restriction to an agreed-upon conceptual reality over a period of many centuries. Suddenly, these artists will bring in perspective, they'll make a leap from two-dimensional to three-dimensional representation. The particular perspective in the renaissance was due to the fact that drawings could be put on the wall -- they didn't need video, they didn't need computer graphics; they could draw it and put it on the wall. Anyone who stares at a drawing for a while, particularly with a little instruction from those devices in the museum where you put a quarter in, can get the idea. So everyone's perceptive capacity, as far as dimension is concerned, can be increased from two to three.

With this recent GR wave, the increase in capability of perceiving dimension has not been shared. The pioneers who experienced this have not found a way to draw and put it on the wall. But I do think that with computer graphics we are close to a time when adequate super-computers for making some kind of reproduction of the visions we've seen will be here; an affordable machine at a work-station level, say a hundred-thousand dollar machine, will be placed in museums like the Whitney Museum of Modern Art, and will be showing things that we've seen, and anybody who watches it will grok it, as we did when we first saw it.

TERENCE: That'll be the ball game.

RALPH: I expect so.

TERENCE: I believe, and I speak for myself but I assume that everyone here can say the same thing, if I could show the world what I've seen, the world

would never be the same. I mean, isn't it true for every one of you that you have seen things that you knew would change the course of history forever if they could be shown?

Question: How do you get it on the computer?

TERENCE: How do we hang it on the wall, Ralph?

RALPH: Well, it's time for me to give mathematics a little plug. Mathematics is our heritage, it's a natural activity. The language of the morphogenetic field is mathematics. The work of mathematical specialists over these past few centuries has provided explicit algorithms for recreating this reality on computers because it is a mathematical reality.

Question: Maybe you need to begin by teaching mathematics, because I am one of those who are never sure of how much seven times eight is.

RALPH: Seven times eight is business practice, and mathematics is when you jump in the pool in the sunshine, and there's a pattern of light and dark on the bottom of the pool. There's a relationship between your motion in the water and the dynamic of that pattern. We then have two different things, both dynamic, both complex. One is your motion in the water, and the other is the pattern of light on the bottom of the pool. They are two different things, and yet they are related. We understand that relationship. That's mathematics.

Question: What I'm getting stuck with, in terms of things like the psychedelic experience, is the sensation of touch, of taste, of sound, and the emotions that are created, which to me are part of my grokking. I can look at a reproduction and have a fantasy about what the underlying substance is, but what I'm trying to get to is a point where I can see, I can touch, and concurrently have internal emotions. How do I reach that experience with some type of external machine?

RALPH: That's the question, all right. What I'm speculating, and this might turn out to be wrong, is that in reproducing a small fraction of a complex experience, the rest of it can be sort of excited by resonance in the mind, much as we use language. By saying a word, and I always regard this as a miracle, I can evoke in you a whole experience, which, although we have no way to check it out, we generally accept in ordinary reality. Blue. Now, we have no way to know that what I see as blue is what you see. Nevertheless, we assume, and somehow it seems correct, that there is a universal experience, and it's possible for a complex experience to be excited by a simple one. Otherwise, language wouldn't work. I'm always amazed that my students are able to get a mathematical idea from the representations that I use in conversation or draw on the blackboard. You draw, you talk, and these simple representations awaken in the mind of the student the entire mathematical concept. Mathematical concepts cannot be reduced to words or drawings, but the multiple representation is a kind of simulated telepathy.

So, while I agree that the experience I would like to share is much more complex than a visual pattern, I have the feeling that the visual pattern that I've seen is already beyond the visual pattern that other people can see. There is sort of an intermediate or first step in the direction of fuller

communication, for which additional steps would be necessary. I have no idea how to proceed towards it.

TERENCE: I have this wonderful vision of taking a hundred-thousand dollar machine and spending five-hundred-thousand dollars on software to create this model as the first step in "Grokking 101", and then handing the students a ten-dollar tab of acid to go through the whole course!

RALPH: Yes. It's sort of a program to subvert culture and alter the course of history, yet we are not able to do it by giving out LSD. I hear that many people are taking LSD now, yet they're not having the kind of experiences we had. It's sort of a desperate measure to rely on modern technology to help communicate experience.

Question: The difference between the two is that one is a shared experience, while the other is an individual experience. What you're really saying is something about the need to share.

TERENCE: That's right. Somehow, the importance of the psychedelic experience lies in communicating it. No matter how good it is, if it can't be communicated, there's an element of frustration. For people like Ralph and myself, who take it seriously, that gives us power over it. For people who don't, it's smoke. For us, it's potentially a mathematically describable object. We turn it into something which, hopefully, can be communicated. This whole discussion revolves around this theme. We talked about it the other day -- we invoked it, but we didn't get anywhere with it. The fact is, Ralph, that the whole game hinges on the huge unlikelyhood that mathematics is making a statement about nature, and that this appears to be a synchronistic event. There is no reason why mathematics, which is the internal peregrination of the human mind in the realm of abstract quantities, should not be mappable over the world of natural phenomena, and it's been worked ten ways from Sunday ever since Pythagoras noted that ...

Question: Weren't mathematics invented to describe nature and behavior and all the rest of it?

RALPH: Well, actually, no. The common view is that mathematics, as Terence has just said, arises in the human mind after a process of mentation. But I take issue with this view. Certainly mathematics is not inspired by the inspection of nature. That's why people like Einstein and Wigner, who knew mathematics intimately and used it in making models of reality, were awed by the fact that there is this mysterious fit between mathematical objects and objects in the phenomenal universe. I don't agree that mathematics comes from the observation of nature, and I don't agree with Terence, Einstein and Wigner that it comes from human mentation. I think that mathematics enters the human mind through a process of resonance with the morphic field. Animals had mathematics before humans. Animals count, and they know dynamics, and they have sonar and so on. Animals obtain mathematics from the morphic field, and so do humans. This morphic field is part of Gaia, the living Earth, so I call it the Gaian mind. Mathematics exists in the Gaian mind, and conscious minds, spirits, may obtain it by a process of resonance.

TERENCE: Are you saying that mathematics is the archetype of nature in the Gaian mind? That's kind of a Gaian Platonism.

RALPH: Mathematics in the Gaian mind is beyond nature. You see, nature is only one product of the Gaian mind. The Gaian mind contains much which will never be manifest in nature, some of which we have seen in our travels, and we don't expect it to be manifest in nature. The Gaian mind is capable of play in such ways as may never be manifest in the world of matter and energy and in all this slow, dense, soft stuff.

Now this view cannot be verified, and no support for it can be found in the literature of philosophy or mathematics. Let's just accept this idea for the moment and see what we can make of it. If mathematics is a spin-off of the Gaian mind, or the morphogenetic field, or a higher-dimenensional reality, or the phenomenal universe, nature, relationships among people, and so on, it would be no great mystery that mappings are possible between mathematical objects and phenomena in the energetic universe. It would mean that the Gaian mind has a certain amount of integrity, of coherence, of self-resonance, that it makes sense, as it were.

When we travel outside of ordinary reality and take a flight through the Gaian mind, our overwhelming experience is of integrity. It all goes together extremely well. That is one of the main lessons we bring back and may even be able to share with people without the necessity for computer graphics or acid. Integrity has always been a message of spiritual minorities, from the Theosophists on down -- the integrity of Higher Mind. That's why I think mathematics is useful in pursuing life and understanding what's going on around us. It's useful also in understanding aspects of the Gaian mind which are not manifest. It's not only useful -- it's our heritage. Each person may obtain as much of it as they please by solely making use of resonance with the Gaian mind. It is there, it is natural, and it's another alternate reality besides ordinary reality, as easy to grok, or travel through, explore, learn, enjoy or play with as ordinary reality.

I can tell you, on the basis of my own experiences in traveling to different realities, that they are all pretty much the same. There is an increased dimension as you get off the Earth. That's about it.

TERENCE: So evolution, after 2,500 or 5,000 years of mathematical speculation, suddenly gives rise to fractals and the discovery of mapping that goes on between fractals and organic nature. This is serendipituous. Is it fair to say that the Gaian mind exists on many levels and provides many maps? So that catastrophe theory, dynamics, fractal curves are all approximations of the mystery?

RALPH: Well, they're different low-dimensional representations of the mystery. They are simple pictures guiding you to a simple understanding of more complex things. They are stepping stones to the stars, as it were.

TERENCE: But the integrity of this other dimension seems to make it the source of our authenticity. We don't relate to it as another dimension. We relate to it as a higher dimension in a spiritual sense. Why do the lower dimensional slices lack this integrity?

RALPH: Well, in higher dimensions, if you had a solid object and you sliced it with a lower dimensional knife, you might obtain some disconnected pieces;

the lack of connection between these different pieces appears because you sliced off the connection in higher-dimensional space. In our culture, there is the common belief of the individuality of people. The Masters claim that we are individuals and that we may pursue our individual development through individual meditation.

TERENCE: The equivalent would be to kill somebody and dissect them?

RALPH: Yes. The pattern that connects is simply an object in higher-dimensional space, and these space-time patterns in higher-dimensional space-time are the fundamental objects of existence. They are the "morphs" of the morphogenetic field. They are plain objects, but they are higher-dimensional, so we try to grok them from lower-dimensional projections. One of the things lacking is integrity, apparent integrity.

TERENCE: In a way, this is nothing new. What is new is the dimension of awareness of the process even in the history of the evolution of lower organisms. Evolution can be seen as the conquest of dimensionality, right?

RALPH: That's why I think computer evolution is important. You see, the computer is not like the steam engine. The computer revolution is not like the industrial revolution. The computer phenomenon is something that is evolving, and its evolution is not going to stop. One of the insidious effects of this evolution is that, as it were, a new species is upon us. Fortunately, at the moment, it's very friendly. They don't eat us. They make us slightly sick if we sit with them too long, but they are quite benign.

One of the effects is the chaos revolution -- chaos as mathematical objects which are revealed through computers. This is kind of a cure for the historical accident that happened in 4000 B.C., when the baby was tossed out with the bath, causing chaos mathematics to be lost because of the worship of Yaweh and other patriarchal gods that honored order above all things and erased chaos from memory in the human mind.

But chaos was never erased from the Gaian mind. And the chaos models that we know now, through the invention of the computer, were there all along. Not only were they there all along, but they were known, used, and worshipped before 4000 B.C. So because of a cultural accident, we have been deprived of conscious awareness of a certain mathematical model which is crucially important at this time in our history, because without it, we can't understand anything that is going on around us. All complex processes are chaotic. This understanding is now restored to us after being ripped away, cut off, annihilated, amputated by the patriarchal religions. If it hadn't been amputated, we wouldn't have needed the computer revolution to restore it. We lost the chaos model, we got the computer revolution, and the computer revolution regained it,and how it did it was by giving us control over more dimensions. It overcame a weakness which was just a cultural/historical accident, I suppose.

TERENCE: Are you saying that chaos theory is the religion of the Gaian mind?

RALPH: Yes. The fundamental and favorite objects of the Gaian mind are chaotic attractors and their bifurcations. That's why all living things are

fractals. They are all materializations of the same chaotic object in the Gaian mind.

TERENCE: So here we're coming very close to politics. I recently proposed that we form what I called the (_____) Anarchist Internationale. Our motto would be "Chaos is order". We would embrace it as a cultural ideal. The patriarchal mind is horrified by this, because chaos implies lack of order and of control. But who linked order to the notion of control? Anarchy is permission to be in Tao(?), and Tao is what you're talking about -- the chaos which is the religion of the Gaian mind.

RALPH: Yes. Chaos is not in conflict with order. What we are seeking, and what I suppose was intrinsic to the gylanic religion, is the partnership of chaos and order. The idea that there is a conflict between chaos and order is a false idea that was constructed by accident, and we are now participating in the deconstruction of the false dichotomy between chaos and order. We know that early Christians stamped out Orphism. Orphism is one of the remnants of Minoan Cretan religion and of the gylanic religion which survived into ancient Greek times. In the Orphic pantheon, chaos and order are husband and wife. So part of the gylanic resurgence is the re-partnering, the re-structuring of the relationship between chaos and order into a working partnership. If we can emphasize this correctly, we are not, through restoring chaos to her throne, going to arouse the hostility and antipathy of the patriarchal establishment. People who want order can have order. Chaos is order, and order is chaos. The only good order is chaos, because if you try to order something that is a dynamic, living process, it will die. What is going on in China today can be understood as the repression of evolutionary chaos.

All creativity proceeds from chaos towards order. People who feel that without order we will starve and die must impose their idea of order on top of chaos. "Order overcomes chaos" is "death overcomes life."

In many people's view, like Freud, for example, the trinity of our time is Eros, Thanatos, and Libido. So in Freudianism, with Thanatos, death is viewed as an important organizing principle. This is the remnant of an earlier trinity, a goddess trinity, in which there was the triple-headed goddess. Life had three aspects, as in the Vedic trinity of Brahman, Vishnu, and Shiva. Birth, maturity, and disintegration was part of a recurrent cycle, the eternal return.

A kind of a perversion of the natural trinity has taken place. Its main personality can be understood through its action, which is to kill Gaia through the destruction of forests, of plants, of the extinction of species at a rapid rate. It may be necessary to restructure the mythical level where these trinities live; the Father, the Son, and the Holy Spirit, for example, would have to return to something more natural and more compatible with the intrinsic structure of the Gaian mind. If there's such a thing as a pattern for evolution, we are probably not on it now.

TERENCE: And would that trinity be Gaia, Chaos, Eros?

RALPH: Well, now we're exceding my area of competence. I'm not going to say what the mythology of the future ought to be. Chaos, Gaia, Eros is the trinity of the most recent past of the gylanic partnership; mainly the Orphic

trinity of Minoan Crete. But even there, there are a lot of serious questions. There was a patriarchal takeover. The gylanic culture did not survive. An evolutionary challenge occurred in which that particular trinity failed. Dionysus is a masculine god. He already represented a certain mutation of the original goddess trinity. Ariadne, the vegetable goddess of Crete, was replaced by Dionysus in part of the process through which that civilization died.

We have to be careful not to land in a cul-de-sac of evolution; we know that to go forward is to go into certain death, so we want to go back to some time in the past, to transport everything, culturally, back to some fixed moment in the past and take up evolution again. Where in the past the right turn was taken, we're going to take a left and see what happens. If we go back to the time when Minoan Crete was dying, we'll be on a dying track. We don't want to select that one, and I think that we're going to have to participate consciously in the creation of something that never existed before.

The big problem, the world problem, is that we're no longer seeing the birth and death of cultures. We're in a time when we've constructed a planetary society that is dying and may leave no offspring.

Question: Is evolution itself dying?

RALPH: That's the general fear.

Question: What's the alternative?

RALPH: I don't know. Diversity is very important for evolution. We don't have the intelligence to design and engineer a living species. One thing we should do is to study evolution, to juggle evolutionary theory and find out what are the chief characteristics of the evolving processes. What is their essential nutrition? Do they need vitamin C?

We have experienced a fantastic wave of creativity. This Holocene interglacial, now 12,000 years old, has had a thrilling history. Maybe there were some preceding interglacials that were just as thrilling, where homo erectus explored the planet and populated every continent. Australia was the last place that was found thanks to a fantastic navigational skill based on the study of the sky. Our own technology has followed the same path. We can't say that this kind of flowering has never happened before. But we can say that it has been a really great one even if it ends in the death of our species. But the destruction of so many other species... Thirty-thousand species are destroyed every few minutes or so according to the latest count. That's ten percent of all the species that have ever been created on planet Earth in four-and-a-half billion years; and ten percent of that happened in the last ten years. I can hardly believe that that has happened in every interglacial, although according to Jim Lovelock in *The Faces of Gaia,* this is the eighth catastrophe on this scale; the last one was the mass-extinction sixty-five million years ago when large mammals began. You see, we're really tied up with chaos in the solar system because of comets striking the planet. There was a near miss recently, I understand, where we could have been wiped out. It's way beyond nuclear winter. If a comet strikes us, that's it -- and it came really close!

TERENCE: There is evidence that this has happened many times.

RALPH: It happened many times, yes.

Question: You mentioned the Hindu notion of creation, sustenance, and reabsorption -- that isn't the right word -- but it means evolution and involution, which is not death, but simply the wheel going around again. Is that a possible scenario?

RALPH: Yes. It's not only a possible scenario. I'm sorry to say that the continued life of Gaia seems at the moment to require the extinction of the human species. My reading of the classical Sanskrit texts about Kalpas, the great cycles, is that when you get through with the Kali Yuga, you start again in the golden age.

Question: What's going out comes back again. Nothing is wasted. Everything is continued, though not in its present form. Everything goes back into the formless from where it came, but its essence is subsumed back into what it was in the first place, which is the same truth looked at in a different way.

RALPH: How do you feel about a cycle of four hundred and thirty-seven million years?

Question: Is that supposed to be the length of the Kali Yuga?

RALPH: There is great disagreement about the length of the periods. The Upanishads give it a really huge cycle that's not ending for a long time, but there's a minority interpretation which sets the great year at 25,800 years of the astronomical great year. In this modern theory of the great cycle, the Kali Yuga began as recently as 1880 and is only 2,400 years long. Which means that we're close to the beginning of another great year.

TERENCE: Ralph, I want to ask you about higher-dimensional order and mapping and the way that the psychedelic experience is training for that. You and I have discussed this question a lot, but last night we discussed it from a slightly new point of view, which is that we really don't want to come to terms with all this, because even the most intrepid psychedelicist can hardly face the implications that it's an ecology of souls, and that what hyper-space is really about emotionally is the transcendence of the apparent dualism between life and death. Let's take the entities we encounter in the DMT trance. Their utter alienness is combined with a penetrating familiarity, and the only way this can be explained is to face the fact that the reason we feel so strongly attracted and repelled and involved with them is that they are the yonder side of the equation, and that we penetrate an ecology of souls. What do you think?

RALPH: This is a difficult area, because we are trying to bring back our experience to the linguistic mode of thought attached to this culture. I always thought that a lot of the things encountered in hyper-dimensional space might be constructs -- side effects of trying to bring back our reality into verbal consciousness. For example, one possibility is that in the hyper-dimension, there are no beings, there are no entities; there is only one entity, and that indeed, as it is said, Ram, it is all One. Even in that case, it could seem to us, when we try to understand the experience in our own

mind, that this one entity consists of different organisms whom we think of as separate. It could be sort of a projection of ordinary reality. You might think of it more as a projection of the hyper-dimensional experience into ordinary reality, or at least ordinary mind, and most particularly verbal mind, where concepts like entities are very useful in dealing with the reality, even if you understood that everything is connected.

I think there is kind of a bridge between ordinary reality and the Gaian mind, and on this bridge, different tricks function as the planks of the bridge, as it were. One of them is the illusion of the separateness, or independence, of different parts of the experience, because we don't have enough dimensions in our ordinary minds to grok the fullness of the one thing. As I said earlier, if you cut through a connected object with a low-dimensional knife, you get discontinuous things. Regarding them as separate things is just a construct. I also think -- I mean, I had the impression in my own experience of this hyper-dimensional web -- that although there is a lot of action in it, it is fundamentally timeless, and parts of it do not die, and are not born. But nevertheless, and that's the part that makes me breathless with excitement, there is a co-evolution between our ordinary minds and Gaian mind. Although time does not really exist for it, it is nevertheless growing at a snail's pace, and we may even invent an idea while painting, drawing, playing, working together, or making love -- something that will be a new thing for the Gaian mind, that will be added to it and will live in it forever. If this is true, it's a thrilling possibility for creativity, but also a great danger, because many evil thoughts are projected upon the Gaian mind.

I suppose that the Gaian mind, besides everything else, is full of every evil thought that anybody ever had, so that, for example, the demonology of Aleister Crowley can be encountered while tripping. What goes by the name of "bad trip" could just be exploring the basement where the relics of the diabolic acts of humanity are kept. Some years ago I visited Auschwitz on a pilgrimage, and I saw a huge warehouse full of luggage, valises that were discarded by people who took the one-way trip up the chimney. There's another warehouse there full of hair. Now, maybe you haven't been there, but you're hearing me tell you of it. So that would be just like going on a trip, and finding Aleister Crowley's 666, you know; maybe it's there in the basement.

If you think that mind must be associated with living species, you must realize that there's still the cosmic mind, and that Gaian mind is just one player among many on the galactic stage.

I don't think that the Gaian mind, or the cosmic mind, is an ecology of entities. It may appear that way because of constructs, because of our limited intellectual evolution. The evolution of consciousness on this planet has given short shrift to concepts of unifying fields, wherever they arise, with the single exception of quantum field theory. They've been replaced by particle equivalence, and more of the wave-type, I guess you could say. You jump into the swimming pool, and there's the particle of your body, and then the waves are imaged in the pattern of light on the bottom. So this is the particle/wave duality in the swimming pool. My impression about the cosmic mind is that it's more like waves, and less like bodies. Body representation is essential in the lower-dimensionality of this energy/material universe. But I don't much like to do this kind of speculation, because my own

experience is too limited. We love the bodies, of course. That's why we're here.

TERENCE: Is that a strong hint to adjourn to the baths?

RALPH: I do feel that I've exhausted the patience of the group. You've been very kind.

TERENCE: Well, thank you for coming down this week.