

## QUASI-PHYSICAL MODELS OF SYSTEMATICS

“Gurdjieff regarded the corpus of human beings as a species asleep, walking about in a state of hypnosis wherein each is unable to remember his or her self. Having once been a somnambulator, upon encountering this assessment by Gurdjieff, I had not the slightest inclination to take it as mere metaphor; I immediately knew it was intended as a direct phenomenological portrait, and was an accurate characterization. One would think that sleepwalkers are off in some other subjective space and/or time, unaware of their objective physical surroundings. The contrary is closer to the actual case. Somnamulation is a walkabout without retention of the sequence of inner states, so that, if the sleepwalker is found and asked where he has been, how he got there, and what his purpose is, he is unable to answer, not because he did not see where he was going and kept running into things, but because he cannot associate inner with outer in a meaningful fashion. That this condition is the actual normative state of the human species is demonstrated by historians, who maintain that history is only a chronicle of external events, not also of inner states: an apt definition of normotic illness. The ability to remember oneself involves not only retention of the sequence of inner states, but development through long practice of the ability to “stack” those retained states in simultaneous awareness as a “time-lapse photograph”. The long and the short of it is in time, not space. The physicists, however, conspire with the historians, in their shared inability to retain inner states, and thus insure us that each interval of time does not contain all the time of the total sequence which contains it: time intervals, according to their incapacity, are not “stackable” in some simultaneity. Intervals of time, they maintain, are absolutely separable; selfsame, thus simply-identifiable; not multiply-connected (except possibly under extreme circumstances of gravitational collapse of celestial objects); and certainly not non-orientable.

“But physics was almost really something back there between the mid-Fifties and the early-Seventies, promising anything but more of the usual -- before the back-reaction on the social metric set in. Issuing from the School of Advanced Studies at Princeton were proclamations like: Any thing is nothing-given-shape, which meant matter might merely be manifestation of multiply-connected strange loops of empty spacetime. Blackholes and other holes, macro and mini, hairless and hairy, were named, while theories of the shape of form in process, Nature’s own topology, became intellectual corn for Hamlet’s mill to grind into conceptual grist -- the ingredients of the recipe being charm, color, and Cantorian sets, Platonic archetypes, Vedic idealism, and Caliban’s rebirth. Ultra-dense textbooks on gravitation quoted the Vedas and Upanishads, and it appeared the task T. S. Eliot failed to perform at turn-of-20th-century Harvard -- that task being topological [transformation of the half-object](#) -- might be accomplished seventy-five years later by psychospiritually empowered physicists, unaided by squirrely Orientalists like Eliot. Alas, such was not to be.”

William Pensinger, *Time-lapse “Photographs” & History of Realreality (which is non-Selfsame, not Virtual)*

### Three Realms

The idea of systems associates to a set of discrete stable configurations such as the electron shells around nuclei in atoms, or the patterns of fundamental particles. Physical systems are subject to constraints such that only certain numbers of elements are found in certain conditions, though if one looks at all possible conditions it may be possible to identify stable configurations of almost any number of elements. The ‘elements’ studied in physics are states of *energy* rather than objects. Energy, in its turn, is connected with *information* and information is connected with *meaning*.

The nature of objects is placement and objects stand for locations. When time is brought in, we have energy and movement and energy stems from various parameters associated with objects but not necessarily linked with particular objects. The step to information and meaning is something else and brings in the enigma of the role of *knowing* in physical systems, as is speculated about in interpretations of quantum mechanics (where for example, we cannot know both position and momentum precisely at the same time).

A crude picture can be made in which there are three kinds of parameter. The first is that of quantity and location, such as when we have a set of particles. The second is that of energy and is associated with *level* as in discrete bands of energy; it appears in geometry and movement. The third is that of a ‘meaning-space’ which is *felt* in terms of

*harmony* and is more heuristic than descriptive, since it is not constrained by quantity and energy. These three roughly correspond with Bennett's three kinds of time, which three kinds relate in principle to his 'cosmic triad' of Function, Being and Will; though evidently transposed a great deal. In an earlier stage of his thinking, David Bohm proposed the tripartite categories Matter, Energy and Meaning, which have similar connotation.

It is proposed that the third is a meaning *totality* where the word 'totality' is introduced as a neutral term for the harmonies it seeks, embraces and gives rise to. It is from or within this totality that we address the other two. It is the common 'source' or principle for the other two, though what is in meaning is *not* identical with what is in the other two. What we find is that it provides us with ways of thinking about them but we still have to take account of the extra limitations that must apply in these realms. Such limitations can make things more complex than they are considered purely in meaning. In particular, number moves from quality to quantity. In meaning, number is entirely qualitative, in 'energy' it becomes intensive and in 'matter' it becomes quantitative. We also encounter such enigmas as the way in which in the realm of meaning we have a place for such ideas as  $3 = 4$ , while this is simply nonsense in the realm of matter.

The realm of meaning is not just 'simple' but at the same time, complex. This is because it embraces ambiguity, flux, multiple interpretations and so on. By and large, this sort of complexity is exemplified historically in time and culturally in space. It is also the case that it is only by bringing meaning into relation with the realms of energy and matter that any advance can be made. This derives, in principle, from the postulate that the *three* realms form a meaningful whole and hence there cannot be one of them that *determines* the others, even though we assert that the realm of meaning is in some fashion superordinate to the other two. This may be simply tantamount to accepting that the three must form a meaningful system.

When we think about systems, we are performing *some kind of physical action*. In other words, the meaning realm is not divorced from the realms of energy and matter. However, the constraints under which this kind of action takes place are usually very much less than in the other realms. This gives us an opportunity to play or experiment not otherwise possible. *Play* is an essential property of the realm of meaning. It can of course degenerate into mere idle phantasy. It is never clear what the constraints should be. There are no universally recognised rules of the game. We can only check things out with other people and even then still not know *how* meaning is *constrained*. The important function involved is being able to *show* the workings of our minds to each other so that it is possible for us to make comparisons. How we then *judge* is another matter.

When we show things to each other, we involve energy and matter, even if it is 'just on paper'. The physical properties of representations play a part. The visible constructs relate to matter while the way in which they are gone through, proceeding from one point to another, relates to energy. The most famous example of this in physics was the series of *gedanken* or 'thought' experiments made by Einstein to enable him to arrive at his Special Theory of Relativity.

### **Going from one system to another.**

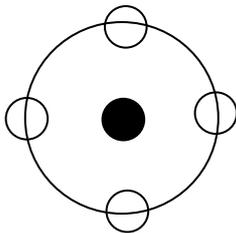
The situation of going from one system to another involves us in thinking through what might be 'happening' though only in a quasi-physical or even fictional sense. There are two main representations of going from one system to the next: the Emergent and the Additive.

In the Emergent, the set of terms co-create a new unity. Immediately we have here an ambiguity: if there is a system it is already a unity and yet we talk of its terms co-creating a new 'one'. It must be remembered that the word 'universe' literally means a 'turning into the one' and not a given state of affairs. It is a tendency towards unity and not an established one. In other words, unity is always *provisional*. This is inherent in the property of number in the realm of meaning exemplified by  $3 = 4$  and other strange equalities.

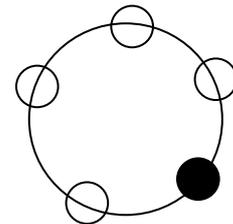
The emergence of a new unity becomes a new *term*. Hence, a new system is born. We know about this sort of thing in concrete terms as in a man and a woman procreating. This should remind us that biological unity is different in quality from inanimate unity, as Bortoft discussed at length in his *Wholeness of Nature*. This thinking is also to be found treated as fundamental in Whitehead's *Process and Reality*.

The new system may prove to be, in the concrete instance, a temporary state of affairs. The child leaves home, for example. This sort of thing indicates that there are limits to the stability of any new system. At the same time, this does not mean that the new system is not real or that it cannot play an important role. We have in physics innumerable examples of 'systems' that form for very small periods of time and yet are crucial to the workings of the whole complex of physical nature. A prime example is that of 'virtual particles' that form themselves out of the quantum vacuum for fleeting instants and are said to transmit 'forces' between other particles.

However, we will model the situation in a simple way. Here is a four term system giving rise to a fifth element. The original four terms are shown around a circle and this circle indicates that they are co-equal in status. The new fifth element arises with a different status. It is possible but not certain. In tradition, such an element was considered as either *the underlying common ground* of the terms or as the *transcendental unity* of them. The term 'ether' was seen in both roles in relation to the basic four elements. Once accepted into the scheme, it has to become co-equal to the other four. In this guise, it appears as *the critical transitional element* between the two systems.



What we do next is to follow *the constraints of our representation*. We have built in the property of being co-equal as being on the same circle. We can now look at what can happen *in these terms*. First of all, we see that the new element must be placed *somewhere* on the circle and there will be, in fact, *four* possibilities for this move, one of which is shown. Next, we can see that placing the new element on the circle means that the others have to adjust to make way for it. It is also clear that *one* of the old terms can remain in its same position but the other three have to shift somewhat.



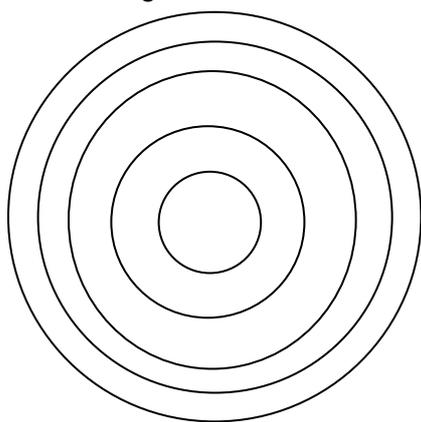
So far we have (a) the new term takes up one of four places, and (b) only one of the four old terms can retain its position. We next take account of the fact that the five terms of the new system now *divide the circle* into new segments. And we postulate that this means that their 'value' or meaning is different from before. This is rather like dividing the musical octave into various numbers of notes to make different scales. The *meanings of the old terms* changes into new ones. If we revert to our scheme of three realms then we are here associating the different position of the terms with different meanings, the two connected by (a) the transpositions of the terms, as changes in location of things and (b) their mutual adjustments, as changes in states of energy. This interpretation endows the circle per se with immense significance as the 'theatre of all possibilities'.

In the Additive view, the new element so to say comes into the picture 'from outside' instead of 'from inside' as was the case in the Emergent picture. In this view, the stability of the previous has to be broken to allow for an insertion. We might relate this to the example of a couple adopting a baby. The concrete process whereby a new element is allowed into a previously stable group can be complex and difficult. The pictorial model again suggests that we will have four options as to the 'region of insertion'. But let us take this case further and imagine a new person being brought into a group. In concrete physical terms we can think of this person choosing where to sit in the group (assuming that they are in a 'circle' of some kind) or being assigned a seat. Such a move can have deep implications. Or, we can imagine that the new person is put in the middle and 'examined' by the other four before being allowed into the circle. We would also have to allow for such cases as when the membership of the group is in flux with one member leaving and another coming in.

The simple geometrical picture maps onto the more concrete one and this in turn maps onto some sense of *integral wholeness* that we associate with the member elements being co-equal though distinct. In quasi-physical terms, this is to say that there is a set of possible 'states' each of which can be filled by some 'particle'. In the physical world, it may be possible for more than one particle to occupy the same state, and this can be found also in the realm of human groupings. Energy states and particles are not in one to one correspondence.

### The Different Meanings of Different Numbers

Besides treating the increase in number of terms as resulting in a different *partition of the whole*, where we consider the 'whole' to remain 'the same' we might also look at it as entailing an *increase in the size of the whole*. In this model, the 'distance' between



neighbouring terms remains the same. Our choice of what remains the same is critical. For the sake of a line of coherent meaning we need something that is invariant. Either this is the size of the whole or it is the separation between (neighbouring) terms. In the latter case, we view a set of concentric circles. This picture strongly evokes a sense of expansion that can associate with such ideas as progress or evolution. One of the strong 'thought-impressions' Bennett reported he had was of an expanding sphere with a 'sensitive' surface of transformation. The inner spheres represented the old regime while the realm not yet formed represented the creative future. What

Bennett saw as higher intelligences were moving in and out of the surface of the expanding sphere. It was as if these intelligences could carry in new elements to disturb the old order and guide it into a new one. His image could be interpreted to express the way in which all of us are engaged in some such process if we take on in some measure a role of higher intelligence with respect to some existing system.

The picture of concentric circles can be taken as meaning more than a simple quantitative expansion, because it can also be read in terms of an increasing number of *dimensions*. The term 'dimension' simply means some autonomous order of measure and does not have to be particularly spatial or temporal. However, the common duality of space and time might lead us to suspect that distinguishing time and space is only the tip of the iceberg. Just as modern physics speculates about more dimensions than three of space so Bennett speculated about three dimensions of time; but there might be a case for saying that each new dimension brings in a *different order of meaning*. Adding, then, a different order of meaning entails that our view of the previous systems must change. We do not simply add on something new but transform the whole set of systems. Each new sphere changes our understanding, and this need not be an entirely 'subjective' thing.

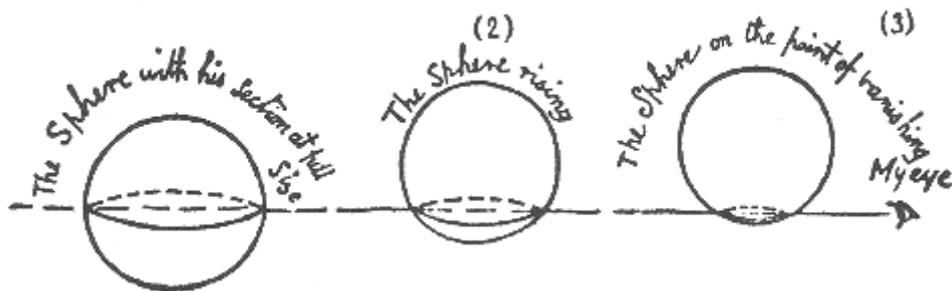
The idea of dimensions helps us to see how 'equi-value' might be realised. In two dimensions, three terms can be equi-distant. In three dimensions, four terms can be equi-distant, and so on. For  $N$  terms to be equi-distant, we need  $N - 1$  dimensions. What proximity means changes with an increase in dimensionality. If we take – even though barely knowing what it means – the principle of co-equality seriously, then it leads us willy-nilly towards thinking in terms of increasing number of dimensions. Many things change with such an increase. For example, if we increase the number of dimensions in certain ways, there is no need to think about forces, or what appears as a motion in a given set of dimensions is seen as a configuration in higher dimensions. An example of this in physics is the proposal that gravitation could emerge out of a fifth dimension instead of being simply a contingent 'fact' in four.

This then leads to an important insight into why Bennett could claim that each system contained *different types of terms* and, as a consequence, different types of relations between them. For example, the terms of the triad are called 'impulses' while

the terms of the tetrad are called 'sources'; and there is 'force' in the dyad but 'reciprocity' in the tetrad, and so on. In other words, the 'framework' established by a given systems entails a different meaning to what it contains to the framework established by another system. The idea of framework or dimensionality proves a crucial way of linking systematics with our knowledge of physical systems. We are used to thinking in terms of objects (matter terms) and not so used to thinking in terms of how we 'measure' objects (and their dynamic relations associated with energy). Measure is closely linked to meaning.

### Terms are not Parts

The idea of dimensions enables us to think about the terms of systems in a quite different way from regarding them as parts of something. The idea of parts obviously relates to objects (matter particles). This already breaks down in quantum wholeness, which deals with the energy of systems. An important aspect of dimensional thinking is that it introduces the idea of *degrees of freedom*. 'Freedom' is a qualitative idea. It is used here in a sense that enables us to think about how conditions of constraint can be opened up by introducing more kinds of variation. This concept was immortalised by Abott in his seminal work *Flatland*. He depicts a world of two dimensions that, one day is intersected by a spherical being. The inhabitants of Flatland observe a circle that enlarges and then contracts and they are mystified by this phenomenon which they have no means of explaining.



What one has to get hold of is that introducing another degree of freedom alters the 'whole picture', in particular how one can explain what happens, as we indicated by mentioning the introduction of a fifth dimension to explain gravity. What does not make sense in one system may be seen to make sense in another higher one. In speaking of 'making sense', we appeal to the realm of meaning. Scientists find themselves drawing on ideas of 'elegance' and even 'beauty' to justify their attraction to higher perspectives, as is exemplified by the theory of relativity and Maxwell's equations of electromagnetism (which was in fact the main stimulus for relativity theory).

The perspective in which the terms of a system are seen more as degrees of freedom than as 'things', is not commonly adopted. Our minds appear to want to collapse into thinking in terms of objects. This renders it very difficult to think holistically. When we begin to do so, working against the stream as it were, we find the following sort of process. First we become aware of a multiplex of things and then strive to see how they are connected. But we can then make a jump to see how we are seeing these things and we connect with the framework within which they exist. Once we have glimpsed this framework we can then begin to consider other orders of framework. By doing so, the original things we first observed get transformed into something else.

This may appear mysterious. It links how we see things to what they *are*. It can be appreciated as a radical extension of quantum mechanical thinking. It also entails that this is not merely an imposition of our point of view but a form of *discovery*. How we see things is always from within a framework, but what they are and how they exist is also derivative from framework in a physical sense.

However, something remains the same in going from one system, or one set of degrees of freedom, to another. We can find transforms. Or we can treat a lesser

system as an approximation of a higher one. This ability to find what is the same, or making a transformation from one system to another, or in working out various approximations, can all be related to the meaning of *intelligence*. In a way, working within any framework is always *mechanical* and what is truly intelligent is being able to move from one to another. This relates to Bennett's vision. It also relates to such views as we can find in Hindu systems of thought about the mind as being mechanical, freedom being ascribed to the 'witness consciousness' that belongs to a higher system. In this guise, every system is mechanical from the standpoint of a higher one. This in its turn relates to the experience we can have of seeing that removing one set of assumptions (equivalent to constraints in physical systems) leads us into another one and never entirely sets us free.

Of course, the thought of higher degrees of freedom can be treated as 'imagination' which, as Gurdjieff pointed out, is a two-edged sword. It both deludes us and frees us. We can set in front of us a view of the terms of systems as first kinds of object, second states of energy (including movement, level and so on) and third as 'imaginary' or purely meanings. There is no obvious constraint to the number of degrees of freedom we can adopt. We must, however, be clear that the degrees of freedom entailed in the number-term systems are not to be treated as 'more of the same' but as distinctive qualities. Here is a major divorce from physical systems and we should remember our brief discussion of going beyond the assumed dual categories of space and time. Why are space and time so different in our experience? Why should there not be more distinctions than this dyadic one?

One argument for restricting the view of dimensions is the assumption that the universe is a closed and finite system and that there are in-built ultimate constraints. This view has led of course to the prevalent idea that our 'imaginary' views have no reality. Alternatively, we can turn this on its head and say that our imagination in the realm of meaning is leading us into a realm of continuing emergence that is then being reflected into thinking about the physical realm in the reverse direction of speculating on the origin of our universe amidst an infinity of universes or superuniverses. Science is the realm where imagination has to marry with fact, with the worlds of objects and energies.

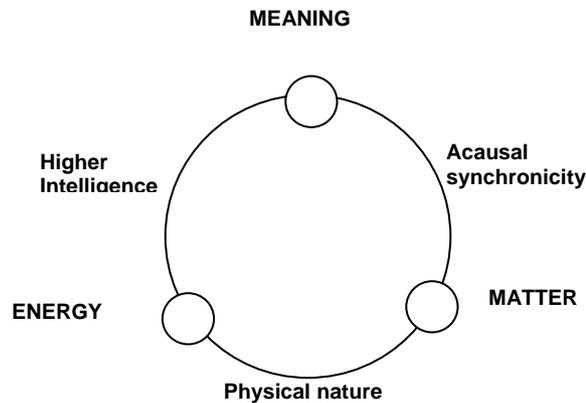
## **Time Spheres or Epochs**

In terms of history, we can see the spheres of meaning as representing the nested set of *epochs* as outlined by Bennett and others. Of course, we tend to 'read' the series of epochs along a line from past to future and this is a severe limitation. What does come to the fore is the aspect of transition between epochs which has always been taken as a time of turmoil and breakdown as much as one of emergence and order.

In the view of epochs written about in *Hamlet's Mill* by Santillana and Dechend, the periods are related to the precession of the equinox, due to the tilt of the earth's axis 'wobbling' around the galactic north over just under 26,000 years and traditionally divided into twelve (sometimes ten) periods. The book explains traditions of the Flood as transitions between the epochal periods, when the order of things in the one period gives way to a new one, involving the dissolution of the previous. In the Arthurian myth, the land becomes desolate and the Knights of the Round Table wander desperately in search of the Grail. This is just as we feel when we are entering a transition in ourselves.

The association of time periods with epochs supposes there is a structure to historical time that most people would deny. What would be the reason for such a partition of time? If there is some mechanism such as the precession then this is simply a mechanism and should determine nothing about the human or meaning world. If there is some higher intelligence then why should it be constrained by a physical pattern? Contemplating this paradox has led some people such as Carl Jung to propose that there can be a link between physical events and psychological ones, a link called *a-causal synchronicity*. The concept is rooted in antiquity and surfaced in Europe at the beginning of the scientific revolution in such philosophers as Leibniz

though in a cosmological sense and perhaps as a complement to the new physical science as discussed in my article *A Critical Essay on the History of Science*. It is reflected in recent times by discussions of meaningful correspondence between the various planetary cycles of the solar system, as in Richard Heath's *Matrix of Creation*. The diagram here is an attempt to hold the various perspectives together in terms of our model of three realms. By placing the term 'meaning' at the top we are deciding to make this realm the organising principle of the others. This in its turn entails that we are proposing some kind of *correspondence* between this image and reality.



To return to our picture of a nested set of epochs we should add that our access to the 'primordial' or initial periods is somewhat obscured by the successive spheres that bring us to the present day. The very centre becomes buried in history and we must make considerable efforts to remove the layers in order to understand it. That is why we might always say that reaching the *monad* is as problematic as reaching a higher system. This associates with the Christian religious idea of *kenosis* or privation. It also associates with psychoanalytic practice in which it seems to prove necessary to 'go down' into the relatively primordial in order to tap into the creative stream of intelligence.

In this light, *history* becomes the story of progressive harmonization, a story that cannot be seen 'on the surface' almost by definition. And *history becomes the ultimate physical reality*. This was no more and no less than the narrative Bennett unfolded in his *The Dramatic Universe*. There is a hint that only by becoming able to re-enter into past epochs are we able to participate in the making of a new one – 'The way up is the way down'.

### Multiple Planes of Reality

"As long as one believes in the necessity of an explanation of reality, as long as one believes that a failed paradigm must be replaced by an improved paradigm and yet another paradigm and yet another and another, indeed, as long as one believes in the utility of paradigms, one will not understand m-valued logics." From *Conversational Fragments* by William Pensinger.

"Anything is Nothing,  
and Nothing Something;  
never This, and always More." From *Conversational Fragments* by William Pensinger.

The standard representation of reality most of us share is that of objects in space-time; but more precisely of objects in space that move. This representation is so deeply embedded in the way we ordinarily perceive the world that it is hard to think otherwise and, when we try to think otherwise, it involves contemplating what seem to be *artificial* mathematical constructs. We treat these constructs as theoretical in opposition to 'actual perception'. William Pensinger, however, insists that these constructs arise out of real perception and are not 'mere abstractions'. In conversations with Bennett, I often heard him say that the systems we were having to *think* hard about could be *perceived* directly, much as Goethe insisted to Schiller that the inner forms he spoke of such as the archetypal *Ur-Planze* were not concepts but direct perceptions on his part.

Pensinger points out that artists have developed representations that need to be taken seriously as *insights into physical reality*; as for example the dodecaphonic structures of the music of Schoenberg.

We usually distinguish representation of physical reality from that reality. In Pensinger's approach, this distinction is suspended. This should not be too surprising since our representations must be themselves an aspect of physical reality. The radical departure Pensinger makes is to use a scheme of multiple planes of representation such that any existing element has a place on each of them. The planes are distinguished according to their order of logic. In place of the standard dyadic classical logic of two values there is a whole series allowing for three, four and more values. This means that the *identity* of any element is *multivalued*. What something 'is' depends on the plane we are seeing it on. Thus, it can have a whole series of meanings. Complexity does not simply arise from the multiplicity of interactions something can have with other things but from its own nature.

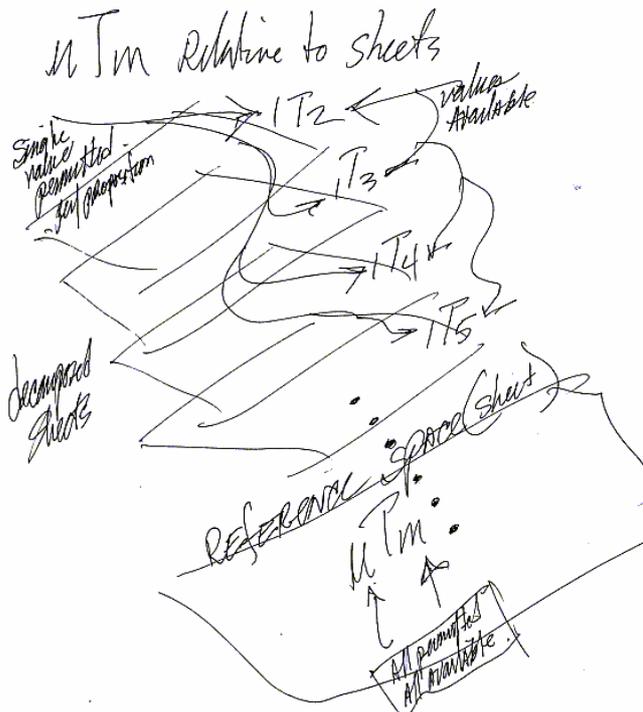
The reduction of our assumed world of three-dimensional space to a series of planes is not entirely exceptional since, for example, one current theory to explain gravity represents reality as a sphere with two-dimensional surface that *projects* a three-dimensional world with such properties as gravity. However, Pensinger's adoption of many planes of existence goes much further.

In Bennett's own scheme as outlined in *The Dramatic Universe Vol. 1*, he speaks of simple entities such as an electron as having many 'counterparts' at different levels in eternity. Such an idea we usually come across in reference to human potential, as in the supposition that we have a 'higher self' which is wiser than our ordinary selfhood. We might also adduce here the ancient idea of the 'spirits' of things such as mountains and springs as possibly being an intuition of the same idea of the multi-value of things. The idea is nearly always denied or suppressed. We cling to the representation in which we have 'objects' subject to space and time that move around in response to 'forces' between them, in spite of the fact that the role and even existence of such forces can be questioned. When we bring in more dimensions or use holographic models we move towards considering forces as somewhat 'illusory' and they disappear when we enter into a different representation. Bennett aimed to explain such things as gravity and electromagnetism as due to our limited perceptions. From the standpoint of what he called the Universal Observer Q, there are no such things as forces. Pensinger goes further in placing multi-valued logic at the heart of things.

When we *perceive* in this new way, we have what Pensinger calls 'identity transparency', that is we see through the various planes.

These many years after the General Process paper, we are getting better insight into how the multivalued reference space has to be constructed on Hilbert space under m-valued logics. Musculpt and the hierarchy of c-s, c'-s, and c''-s are right at the heart of it. If these insights are pulled out of their m-logically-valued context and put into 2-valued syllogistic logical march via written notation, they will have lost all their intrinsic meaning. On the contrary, cognition has to be pulled out of march in logical syllogism and let fall into Musculpt. Absent Musculpt as mathematical notation, circular presentation is the only real approach, because engagement with it forces the visualization pre-requisite to conscious emergence of always-there subliminal Musculpt (which conventions of written notation deny).

In this passage, Pensinger refers to a representational ideal that he calls 'Musculpt'



(an abbreviation of music and sculpture) because, as he remarks at the end of the passage, written notation cannot handle the ideas. Musculpt is the name for the dynamic representation that is involved in making sense of reality, out of which may condense various 'flat' and partial models and explanations that can be written down. The figure shows one of Pensinger's sketches. Though it appears like a 'picture' of reality, it is more than a picture. It is important to question the view that we simply make pictures in our minds of objects out-there and that is why Pensinger invokes sculpture and music. It should also be remarked that he has spent considerable time in a kind of 'walking meditation' in which the

movement he makes is integral to the realization. And also, he emphasises that Musculpt is always-there though usually subliminal.

What will happen is this: on each prime (arrayed on Riemann's line) on the m-logically-valued reference sheet will be stacked other primes from the multiplicity of single-logically-valued sheets composing the Riemann surface map of Everett's universal wave-function. (In this approach, Cantorian fractal spacetime relates to the stack of single-valued sheets, which, in turn, relate to Sakharov's collapse/anti-collapse multi-sheet model of the universe.) On each of the multiplicity of decomposed single-valued sheets, Riemann's line will be located differently within the critical band than it is located on the m-logically-valued reference sheet, such that, when the complete superposition of numbered sheets is considered, the line will have spread across the whole critical band on the reference sheet (as a result of expanding consideration from single-valued logic to logics of m-values). Because the hypercomplex zeta function would represent distribution of limiting velocities, accelerations, and time rates of change of acceleration, the waveform configured by the distribution step function would be an idealized chronotopological invariant characteristic of the genus (connectivity) of that universal covering surface which is the reference state of a perfectly efficient autopoietic process in optimum self-correlation (which is anything but a catastrophe! to all those not identified with the ego-complex).

A supradense m-logically-valued Hilbertian reference space constructed in this fashion has nonlocality of embedded objects as a fundamental property. Locality is a decomposition issue involving cycles of self-reentry (or, alternatively stated, of cosmological self-forgetting, amnesia -- while recomposing the m-logically-valued reference space is Plato's anamnesis). Lesser levels in efficiency of autopoiesis have chronotopological invariants based on proper subsets of the primes, each with their characteristic step functions and waveforms. From *Some thoughts from the Pensingers*.

Having a 'simultaneity' of different planes of reality is hard to encompass in any picture and that is why we have to create a living 'artistic' experience to enable us to access it consciously. For Pensinger, this is indeed a function of art and he sees the art of the twentieth century as a response to new awakening of perception that has largely been ignored and suppressed – or diverted into the consumerism of the 'art world'. The

communication and investigation of a new order of perception needs art in the form of Musculpt.

When Bennett set out his systematics, he proposed that the very nature of the elements or terms of each system be a reflection of that system as a whole. Hence, he speaks of 'poles' in the dyad, 'impulses' in the triad, 'sources' in the tetrad and so on. This means that *we do not have objects in the common sense of the word*. It is a powerful and far-reaching idea. We should remember that our usual sense of objects with a fixed nature out-there is actually intimately tied in with the sense of *ourselves* in-here as singular agents. The two reflect each other. Dissolving the fixity of one involves dissolving the fixity of the other.

The Gurdjieff-Bennett school of thinking often invoked the prospect of *many worlds* and at first this may seem a metaphysical indulgence and relevant only to human aspirations. But there are indications that this idea has a basis in the very nature of physical reality. The 'same thing' will be experienced differently in different worlds, not simply because of our subjective state but because that is how it is. The deep study of the world and of ourselves go hand in hand. But there is a challenging task to see in such a way and it is necessary above all else to be able to suspend the tendency *to look for connections*. Once we entertain the idea that there are many worlds or many planes of reality, we will want to find 'how they are connected'. *They are not connected*. To think in terms of a connection is to interpose something between them. Such a move destroys the intrinsic insight into multi-value. Something 'is' on all the various planes and there is no need for any extrinsic connection.

## References

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