

## **The Fourth Dimension and the Emergence of Transperspectival Thought**

by [Ossaim](#)

It is hardly more than a pardonable exaggeration to say that the determination of the meaning of nature reduces itself principally to the discussion of the character of time and the character of space.

A.N. Whitehead - The Concept Of Nature

We are not presenting here specialized scientific contributions which examine phenomena from a partial sector in a sectarian or dissecting manner; we are attempting to encompass the phenomena as a whole from the inherent, living structural 'laws' in their manifestations.

Jean Gebser – The Ever-Present Origin

### **Introduction**

Thus it is not a question of analysis or diagnosis, nor even of prognosis, but rather a matter of discerning in the manifestations of our age in what respects they differ from those of earlier epochs. I have called such new or novel manifestations 'aperspectival' manifestations because one of their characteristics is that they are neither unaperspectival nor perspectival; rather, they are free of that form of thinking which, since the Renaissance, has characteristically been aimed at some goal or telos and bound to space.[\[1\]](#)

In an examination lasting over 20 years and covering the natural sciences, humanities and the arts, Jean Gebser, in looking for manifestations of the above mentioned new 'aperspectival' consciousness, demonstrated that among all of these disparate disciplines there was emerging a "common (and for the most part hidden) concern." This common concern, he found, seemed to be with the "irruption of time" into virtually every field of human endeavour since 1900 and the drastic re-interpretation of the Universe that this entails. As Gebser's observations were made almost fifty years ago, and, as he himself admits, these structures take time to fully manifest, it would seem pertinent to try and discern the "manifestations of our age" that might more properly reflect the form of this aperspectival thinking half-a-century on.

Perhaps a term preferable to 'aperspectival' would be 'transperspectival,' as this seems to illustrate more clearly exactly what Gebser was alluding to. Many investigators have, in recent years, put forward terms to this effect: Transdisciplinarity ([Nicolesu et al.](#)), Inclusionality ([Lumley et al.](#)), Echology ([Grössing et al.](#)). As Grössing notes below, this field of study is concerned with comparing the

similarities in dynamical behaviour across and between different systems of thought and descriptions of nature.

It is well known that similarities of form in different areas of the natural world, though suggestive at first sight, do not imply any deeper connection at the physical level. However, when it comes to comparing similarities in dynamical behaviour of different systems, one still may carefully enquire whether or not there does exist a more abstract common ground...systemic behaviours like self-organized criticality or fractal evolution indicate that certain dynamical processes are scale invariant over a wide range of scales.[\[2\]](#)

It is an attempt to fully model these deep archetypal dynamics so that a fuller understanding of said dynamics will allow us to properly understand the ways of nature and thus act with nature rather than against it.

The suicidal nature of the latter approach is becoming an increasingly "common concern" to many people around the planet and the cries for change are growing louder by the day. In the following presentation, several manifestations of this emerging consciousness will be presented, along with some suggestions on how it can be allowed to fully arise in our modern times.

### **The Fourth Dimension**

Until now the attempts with the fourth dimension have all been inadequate and are comparable to those made with the third dimension during the one-hundred-fifty years between Petrarch and Leonardo da Vinci. The inadequacy of these latter attempts is evident in their false, that is reversed, inverted, and foreshortened perspectivation....[\[3\]](#)

Using a schema based upon the four basic "structures of consciousness" which he had observed in his extensive research, (Archaic, Magic, Mythic and Mental,) Gebser found that the conception of the fourth dimension, as an example of aperspectival consciousness, was interpreted differently in each discipline he examined, depending for the most part on the dominant consciousness structure found in each particular discipline. This leads us, he concludes, "to question in each given instance the integrative capacity of the concept."[\[4\]](#)

It can be assumed that in the same way that true perspectival thinking took a hundred or so years to take hold and that early manifestations were crude versions, so the earlier manifestations of the aperspectival structure, with relativity and quantum theory as pertinent examples, are likely to have only shown partial emergence of this structure, what Gebser terms "temporic" attempts. As Gebser wrote his work in the early fifties, it would be instructive to examine some of the interpretations being offered today, almost a full century after Einstein's remarkable theories marked the "profound and unique event of our historical moment" of the "irruption of time" into the general consciousness. Of the many obvious manifestations present today, the most illustrative of this concept would seem to be those of General Systems Theory and more specifically Quantum Cybernetics.

Before discussing these manifestations, what exactly does Gebser mean by a "fourth dimension"? From his previous examination of the earlier "structures of consciousness", the Archaic, Mythic, Magic and Mental, he had established that each emergence from the previous structure was marked in all human fields of endeavour by changes in the perception of dimension and time – (1) zero-dimensional or pretemporal in the Archaic, (2) one-dimensional or timeless in the Magic (3) two-dimensional or natural temporality in the Mythic and (4) three-dimensional or abstract temporal in the Mental. The fourth dimension, he notes, is marked by being space-free and time-free.

A somewhat clearer presentation of these different modes of time is detailed by Ken Wilber in his book *Up From Eden*.<sup>[5]</sup> Wilber has used Gebser's four times and labelled them pretemporal, passing present, cyclic-seasonal and linear-historical respectively. Of particular interest is the fact that Wilber has posited several levels above and beyond Gebser's aperspectival level which he calls archetypal-aeonic (level 5-6) and perfect Timeless eternity (level 7-8). As will be evident from the following discussion, these time perceptions could alternatively be termed fractal (5-6) and nonlocal (7-8) and can be seen more as "across and between" rather than "above and beyond."

Gebser poses himself several questions regarding the form of this "fourth dimension"<sup>[6]</sup>:

Of what form, then, is the fourth dimension to be? What form is it to take if it has to do with time but cannot be one of the previous 'forms' of time: neither timelessness, nor temporality, nor time itself? And what shall its form be if it is to be integrative?

To which he replies:

As an integrative form it would supersede space and time, since space is based on time just as surface is based on temporality and the spaceless point on timelessness. The fourth dimension, therefore, must be free from these forms of time; freedom from space presupposes freedom from time. It is this freedom from time that is the fourth dimension. It is this freedom from time which must be realized.

After first pointing to the "sudden four-fold and simultaneous discovery of non-Euclidian geometries" that set the stage to make it even possible to entertain the conception of a fourth dimension, he goes on to look at Einstein's Theory of Relativity as the prime example of an attempt to render the "fourth dimension." As noted earlier, it was this theory which marked the "irruption of time" into 20th century consciousness. Concerning Einstein's use of Riemannian (non-Euclidean) space to postulate a four-dimensional continuum of space-time, as a partial demonstration of this emerging 'aperspectivity.' Gebser notes<sup>[7]</sup>:

...we should not fail to observe that in this conception of a four-dimensional continuum the three structural and consciousness-forming components of the magic, mythical, and mental structures are present, even though in deficient form. The magic component is recognizable in the postulates of space-time unity and relativity. The mythical component is visible in the correlated complementarity principle which equates mass and energy, particle and wave as (polar) phenomena. The mental component is expressed by the spatialization of time and its fixed geometrical form as the fourth dimension.

Only the space-free, time-free component is lacking; and it will remain so until the error is perceived of mistakenly treating the fourth dimension as measurable rather than integrative and transparent time.

This means that the new dimension is not simply another spatial dimension, at right-angles or, more correctly, orthogonal to the previous three but should act as an integrator of the previous levels and thus render time "transparent," all the way down to its base-- Ever-Present Origin. After examining several other interpretations of this "irruption of time" in other fields of inquiry, he found none that were "an adequate and full guarantee for the effectuation of the new mutation."[\[8\]](#)

From this understanding, he ventures a definition of the nature of time-freedom or achronicity, as the answer to three questions: What is time freedom ? To what extent can it be realized ? And in what sense is it the fourth dimension ?[\[9\]](#)

1. Time-freedom is the conscious form of archaic, original pre-temporality.
2. Time-freedom can be realized by achieving each of the previous time-mutations from archaic pre-temporality. By granting to magic timelessness, mythical temporicity, and mental-conceptual temporality their integral efficacy, and by living them in accord with the strength of their degree of consciousness, we are also able to bring about this realization.
3. Time-freedom is the fourth dimension because it constitutes and unlocks the four-dimensionality outlined above. In -or rather through- time freedom the foundations or bases become transparent right down to the original and pre-conscious pre-temporality. Time-freedom, its conscious form, is the fourth dimension; it is an integrative dimension, or, more exactly, it is an amension and not just an expanding or destructive spatial dimension.

Time-freedom, then, is a fully conscious form of the original Archaic pre-temporality. Also, just as each of the previous dimensions transcended and included the one before, the same must be true of the fourth. As Ken Wilber puts it, referring to the modes of self or structures that make each dimension available to consciousness, "Each successively higher mode of self represents an expansion and extension of consciousness, thus each higher mode of self can grasp increasingly extended temporal modes, from the simple present to historical time to archetypal, aeonic time, until time vanishes back into its Source, and disappears as a necessary but intermediate ladder of transcendence."[\[5\]](#)

This disappearance is what Gebser means when he says the fourth dimension is required to render the others "transparent right down to the original and pre-conscious pre-temporality." The fourth dimension is consciousness of time-freedom, which also implies space-freedom, and this is none other than a conscious form of our archaic original pre-temporality, our Ever-Present Origin. It is an "integrative" dimension, "amension" or one might even call it a "transmension" rather than a "spatial" dimension. The following section will present the recently experimentally demonstrated fact of nonlocality as an ideal manifestation of Gebser's time-free fourth dimension.

## Nonlocality As Time-Freedom

[E]ven if quantum theory should eventually prove to be a passing theory, non-locality has been experimentally demonstrated as an essential aspect of the universe and must remain an essential part of any future theory.[\[10\]](#)

There are several areas of study in today's world that seem to offer more accurate models for Gebser's 'aperspectival' consciousness, mostly as manifestations of his "four-dimensionality" which he stresses is a pre-requisite for this new consciousness structure. He presents two conditions which four-dimensionality must ultimately fulfil in order for it to be "fully adequate" to this aperspectival/transperspectival consciousness structure[\[11\]](#):

1. "four dimensionality" should have reality not only in the special fields of geometry and physics, but should be efficacious and concrete in all aspects of life and thought.
2. for its integral effectuality the merely partitioning element "time" must be intensified by an all-encompassing temporal conception, even where "time" is manipulated as a relative and not an absolute "quantity" or dimension.

The first condition seems almost a perfect description of the role Systems Sciences (including chaos and fractals) have taken in the last twenty years. Nearly every discipline has some members applying these insights or 'finding' the dynamics of so called circular causality or feedback in their models of the world.

The second, the "all-encompassing temporal conception" can be seen in recent interpretations of quantum theory, based upon nonlocality. This curious feature of quantum theory was definitely known in Gebser's time and before, but as it was the most unbelievable of all the unbelievable things that quantum theory predicted, it probably seemed natural for him to focus on other features such as complementarity and the quantum of action in his interpretation. Since that time, John Bell's theoretical paper in the 1960s strongly suggested the reality of nonlocality (he ruled out any local 'hidden' or more correctly 'uncontrollable' influences-- but not nonlocal ones, upon which the de Broglie-Bohm causal interpretation rests.) This was confirmed in the early 1980s by Aspect et al. and numerous quantum experiments in the last decade have furnished virtually irrefutable evidence of this "spooky action at a distance."

Also true to Gebser's analysis, many have taken these results to suggest explanations for all sorts of phenomena (generally depending on the dominant consciousness structure in their discipline-- i.e. Archaic, Magic etc.) A recent theory which seems to properly illustrate "four dimensionality" and its associated integrative/ transperspectival thinking is that of Quantum Cybernetics by Gerhard Grössing.

Using the concept of "circular causality" derived from the systems sciences, and combining this with both Maturana and Varela's concepts of "autonomous systems" and "organizational closure" and with von Foerster's concept of nontrivial systems, he has proposed a fascinating new interpretation of quantum theory which seems to incorporate relativity and quantum theory in a remarkably 'diaphaneous' or transparent way, and which even renders nonlocality a comprehensible phenomenon!

The "space-free, time-free" component, found wanting by Gebser in Einstein's theory, would seem to have been supplied in Grössing's theory of quantum cybernetics, in its uniting of relativity and quantum theory and with the theory's foundation originating with the concept of nonlocality: "...if the world cannot just be divided up into merely locally separated entities: if we do have overwhelming evidence for nonlocality of nature, then why should it not be possible to start with this evidence as a basic quality of nature, and try to deduce further consequences therefrom ?"[\[12\]](#)

As will be discussed below, one of the main points with respect to "time" is that this nonlocality is not absolutely nonlocal but relatively nonlocal. That is, rather than postulate instantaneous connections (which would perhaps be appropriate for an Archaic/pre-temporal interpretation), the connections are "nearly instantaneous." i.e. very high (faster than light speed,  $c$ ) but not infinite. Instantaneous connections would lead to all sorts of irresolvable paradoxes such as someone being able to send a reply to another person's signal before the latter had even sent their original signal. This nonlocal 'communication' acts via phase or plane waves (which have recently been observed in quantum post-selection experiments) through which a given "particle" is informed about the boundary conditions of its "environment" and thus they act as a "guide" for the "particle" by "informing" it of which paths are possible.

While the mathematics of Quantum Theory provides the most exact description of reality yet achieved by humankind, there has been much dispute regarding the philosophical interpretation of it. There are two main groups at the current time: those that posit a so called "wave-function collapse" and those who favour the so called "non-collapse" interpretation.[\[1\]](#) In 1952, the de Broglie-Bohm causal interpretation of quantum theory was put forward, in which an extra figure was added to the equations, the so called quantum potential,  $Q$ . As to the interpretation of  $Q$ , the authors differed. While Bohm maintained a predominantly dualist view-- i.e., that there do exist point-like particles, whose movements are governed by the aether's "guiding waves," or a "quantum potential," the de Broglie interpretation can be seen as "monistic"-- i.e., for each pure state of quantum theory there is only one continuous form of a single "quantum state" of the "aether," with linear wave characteristics extending (nonlocally) throughout spacetime, and with a highly condensed nonlinear part of the wave that is responsible for the features usually attributed to localizable "particles." It is upon this latter approach that Grössing bases his theory.

Assuming the correctness of Grössing's approach, rather than the current conception that has "a particle going from A to B," one should conceive it as follows: two points A and B in spacetime are related by oscillatory characteristics (which Grössing identifies with relations between phases of waves), and the nonlinear "particle" aspect of a quantum state propagates (and, simultaneously, is propagated) such as to move from A to B.[\[13\]](#)

There are two major features in quantum systems which are found to suggest a systemic or quantum cybernetic viewpoint. Quantum feature 1 states that the properties of individual quantum systems that are generally ascribed to their "particle" nature, energy or momentum for example, are always co-determined by the nonlocally distributed boundary conditions (the "environment"), by way of plane

waves and vice versa: the plane waves, in turn, are co-determined by the "particle" energy or mass.

Quantum feature 2 notes that whenever there is more than one optional path for a "particle" to take, for example through a double slit, plane waves interfere with one another over nonlocal distances. These waves in turn, through constructive and destructive interference "guide" or "pull," depending on your interpretation, the "particle" toward the target. It is the "causal circle" formed between these two features that points immediately to a cybernetic or systems interpretation of quantum theory.

From this, Grössing shows that time, given the apparent nonlocal structure of nature, is also a "nonlocal phenomenon." Surely there is no better description of Gebser's time-free fourth-dimension than the following [\[14\]](#):

Operationally, the most basic way to define a measure of "time" is by using the phase of a wave. Assuming that a quantum system consists of a particle characterized by its rest energy  $E = h \cdot \omega$  and a wave (representing the overall "zero-point" oscillation of the vacuum) that oscillates in phase with that particle, the frequency  $\omega$  of the medium will constitute the most natural measure of time for this system. In fact, any real physical reference system will at least contain one such quantum system defining a measure of time: One cannot speak about "natural laws" in a reference frame without some process going on in it that involves the existence of at least one basic frequency  $\omega$ . Thus the concepts of a "time axis" and of a "reference frame" cannot be separated from the existence of a wave. Since in quantum cybernetics this phase wave spreads throughout space, one can say that "time" is a nonlocal phenomenon.

What this means is that any given quantum system (i.e. all real physical systems) can be seen as made up of a field oscillating at a frequency  $\omega$  (omega), in which highly condensed nonlinear parts represent "particles." The energy of the particle is given by Planck's constant,  $h$ , times the frequency of oscillation  $\omega$ . The energy of the "particle" determines the frequency of the wave, while the wave's frequency determines the energy of the particle. This is a cybernetic or circularly causal relationship. It is the phase of the wave that determines the absolute reference for how time is measured in any given system and since these waves spread throughout all of space—i.e., are nonlocal, "time" itself can be seen as a nonlocal phenomenon. This means that the Universe is basically time-free-- which is Gebser's description of the fourth-dimension.

### **Aether & Fields**

There is no such thing as empty space, i.e. space without field. Space-time does not claim existence on its own, but only as a structural quality of the field.

Albert Einstein [\[15\]](#)

Thus, a particular movement of a reference frame in "empty space" is equivalent to a particular movement of that reference frame with respect to another reference

frame, that is, with respect to another phase wave. This however, is just another way of saying that an "empty space" does not exist.

Gerhard Grössing [\[16\]](#)

Following de Broglie, Grössing, in explaining the concept of nonlocality, notes that the principle of relativity requires the existence of an invariant product  $c^2$  (the velocity of light squared) of a timelike velocity  $\mathbf{v}$  and a spacelike velocity  $\mathbf{u}$ , giving the equation:

$$c^2 = \mathbf{u} \cdot \mathbf{v}$$

Whereas  $\mathbf{v}$ , the timelike velocity is easily understandable as the momentum of a particle, the interpretation of  $\mathbf{u}$  doesn't seem as straightforward [\[17\]](#):

[J]ust what is the latter velocity ( $\mathbf{u}$ ) ? The physical meaning of the velocity  $\mathbf{u}$  may not be so apparent when starting from a traditional "atomistic" view, which only considers the propagations of point masses or particles as relevant to the dynamics in and between reference frames. However, in the aether picture I want to promote here  $\mathbf{u}$  has an immediate interpretation in representing the propagation of what Rindler calls "waves of simultaneity."

Therefore  $\mathbf{v}$  is less than  $\mathbf{c}$  for the timelike velocity ("particle" momentum or energy) and  $\mathbf{u}$  is greater than  $\mathbf{c}$  for the spacelike velocity (spacetime geometry or phase information.) This means that as long as  $\mathbf{u}$  is much larger than  $\mathbf{v}$  then the conditions are right for "nonlocal" signalling. Grössing shows that the timelike four-velocity of a "particle" ( $\mathbf{v}$ ) is "guided" by the spacelike four-vectors of these "waves of simultaneity" ( $\mathbf{u}$ ) along path of most constructive interference. The "uncontrollable" (hidden) four-vector ( $\mathbf{u}$ ), which de Broglie termed "internal" frequency, corresponds to the rapidly "rotating" gradient of the phase wave accompanying the particle, while the usual "macroscopic" four momentum follows the "straightened out" geodesic line.

These could possibly be seen as a modern description of Teilhard de Chardin's intuition regarding two types of "energy" in the universe --radial and tangential-- which are, he remarks, "co-extensive" with one another.[\[18\]](#) He regarded radial energy as spiritual and the "within" of things and tangential energy as the "external" of things. He also notes a reciprocal ("cybernetic") relation between the two "energies," as one increases, the other decreases, and vice versa. It is interesting to note that de Broglie used the term "internal" frequency and "hidden" heat in describing the action of phase waves,  $\mathbf{u}$ , and the same "cybernetic" relation between  $\mathbf{u}$  and  $\mathbf{v}$  is found between radial and tangential "energies." Further suggestive of this is the fact that Gebser repeatedly describes the emergence of the aperspectival as 'spiritual' or 'diaphaneity.'[\[19\]](#) If we take this to mean the emergence of an understanding of the "within" of things, perhaps we are not too far from de Chardin's "integral science of nature" after all.

Ervin Lazlo has recently discussed a very similar theory, that of Akimov et al, to arrive at similar conclusions regarding non-locality.[\[20\]](#)

Thus the... "torsion- field theory of the physical vacuum" can claim that all objects, from quanta to galaxies, create vortices in the vacuum. The vortices created by



particles and other material objects are information carriers, linking physical events quasi- instantaneously. The group- speed of these "torsion-waves" is of the order of  $10^9 C$  — one billion times the speed of light. Since not just physical objects, also the neurons in our brain create and receive torsion- waves, not only particles are "informed" of each other's presence (as in the famous EPR experiments), also humans can be so informed: our brain, too, is a vacuum- based "torsion- field transceiver." This suggests a physical explanation not only of quantum non-locality, but also of telepathy, remote viewing, and the other telesomatic effects....

The "torsion-waves" of which he speaks are can be seen as virtually identical to Grössing's "plane waves of phase information."

As a further demonstration of the emergence of 'aperspectival' consciousness and Gebser's "four-dimensionality", a somewhat similar model of "relative nonlocality" has been recently proposed by F David Peat, in reference to neural activity in the brain. Starting with Karl Pribram's holonomic (holograph-like) theory of the brain which uses Gabor functions to model the observed interference patterns in neural functioning, he suggests that a type of "relative nonlocality" occurs in the brain. These Gabor functions would seem to allow such nonlocal behaviour and seem most important for maintaining the phase relationship between slower signals. The dynamics are remarkably similar to Grössing's in his quantum cybernetics. Peat also notes that this "relative nonlocality" would occur in any system that is partitioned into slow and fast variables, which systems seem to do naturally [\[10\]](#):

In general, self-organized many body systems partition themselves into slow and fast variables. Extremely fast signals within the brain could, in fact, be used to correlate distant parts and ensure that slower information-carrying signals always stand in the same phase relationship to each other.

This suggests an extension of Shannon's theory of information in which, for example, a message "quantum" is identical to "mnuaquut." The function of nonlocal phase information would be to disambiguate these two messages by dictating the order (phase) of the letters to one another. This seems to be what Gabor's theory of information, proposed before Shannon's, is alluding to. [\[2\]](#)

## **Fields & Matricies**

A final example of transperspectival thinking that has emerged recently is a modification of Stanislav Grof's concept of Basic Perinatal Matricies by Goddard, and similar suggestions by Bache. These modifications were inspired in part as replies to the recent use of 'Wilber's Machete' (a less delicate form of Occam's Razor) by Ken Wilber in his interpretation of Grof's matricies, which reduced their relevance to the "merely" biophysical fulcrum (0) in Wilber's scheme. [\[21\]](#) Goddard's main observation regarding the BPM's is that they not only represent the dynamics of the birth process but also can be found as the archetypal dynamic at each of the levels/fulcrums of Wilber's holarchy. He also notes that Wilber's 1-2-3 stage sequence occurring at each fulcrum (fusion/differentiation/integration) is inadequate as it does not model what is probably the most important part of the BPM's – BPM III, which is similar to Washburn/Neumann's "hero's journey into the underworld," which Goddard claims is the "essential first feature of any true integration" at each and every level.

The "four-dimensionality" of this concept can be seen in the following statement by Goddard: "Grof's matrices show an archetypal resonance, not only to each set of subphases within each 'fulcrum', but to the grand overall sequence which demonstrates the place of BMP III in the overarching scheme"[22]-- as also noted by Rick Tarnas in his cultural analysis of the history of the Western mind[23], which he finds has followed the same pattern as the BPMs, and is currently situated, he suggests, in BMP III. The diagram below, illustrating the form of trivial versus nontrivial systems has been modified to try and show, in a metaphorical vein, the differences between these models.

Analytically deterministic (predictable)	Analytically indeterministic (unpredictable)
Synthetically determinable	Synthetically determinable
Historically Independent	Historically dependent
No 'hidden' variables	Z = internal 'hidden' variables

The trivial system, shown on the left, corresponds to Wilber's presentation of the stages of development. Stage 1 is fusion, stage 2 is differentiation and the final stage is integration which is also fusion relative to the next higher level. This type of system is predictable and independent of prior dynamical history and has no "uncontrollable" or nonlocal variables. This sounds more like a computer than a human being ! The alternative system, the nontrivial type, also begins with fusion but the differentiation stage is more complex. It contains the trivial system, in that stage II is equivalent to stage 2 in the trivial system but there is the additional complexity of stage III which references to "uncontrollable" or nonlocal variables-- i.e. via the aether-- represented by z and this in turn makes stage II unpredictable and dependent upon prior historical development.

One of the most interesting features of nontrivial systems which makes them useful as a metaphor is the fact that any number of nontrivial systems can be represented by a more encompassing single nontrivial system. This suggests a fractal or self-similar pattern for the BPMs, with a similar dynamic occurring at all levels of description, from quantum to neural and on to culture. In other words it is the archetype of all archetypes.

Chris Bache, in a further extension of Grof's model, has expanded the concept of the BPM's as originally formulated by Grof (i.e., as centering on the individual) into one that is remarkably consonant with Grössing's quantum cybernetics. Bache reasons that there are emergent higher-level fields, such as a species-mind, which have their own meta-BPMs or Death-Rebirth Matrices. He uses Sheldrake's concept of "morphic fields," that there are fields at each level (atoms, molecules, cells, organs, organisms, etc) mediating between the individual and collective. Sheldrake says that these fields can be seen as "fields of information"[24] but that they are non-material-- i.e. they don't involve energy transfer. If we take into account Grössing's cybernetic aether model, it becomes apparent that these 'morphic fields' should more correctly be referred to as "fields of phase information." As we have seen, this 'phase information' acts over nonlocal distances and times, as long as at each level there are fast and slow variables. This would seem a useful starting point for a fuller explanation of "morphic resonance," for which there is emerging possible experimental evidence.[25] It is also interesting to note that Sheldrake's depiction of

morphic fields harkens back to Aristotle's concept of entelechy in which the causal circle has been closed to provide a systems description, just as Grössing has closed the causal circle in his quantum cybernetics.

## Conclusion

From the foregoing discussion, it seems that the concept of "circular causality" (also called self-reference, mutual causality or iteratively produced recursive dynamics) stands as a prime example of the "four dimensional thinking" of which Gebser witnessed the beginnings. As we have seen, recent interpretations of 'nonlocality' seem to fit almost exactly Gebser's pre-requisites for the time-free, space-free amension that is fully comprehended only by aperspectival thought in the form of a fourth dimension.

That this is a deep 'archetypal' dynamic of nature is further confirmed by Macy's interpretation of the Buddha's doctrine of 'co-dependant origination' in terms of mutual causality, (another term for circular causality) as the cognitive or intellectual part of his realization.[\[26\]](#) That the Buddha recognized this 'aperspectival' view in 500BC, as the rest of humanity was moving from the Mythical to the Mental, further illustrates his deep, profoundly accurate view of reality. Gebser does point out that individuals in earlier times seem to have achieved this integral mutation; he gives Meister Eckhart as an example,[\[27\]](#) as does Macy.[\[28\]](#)

The important point here is not just the fact that the Buddha was able to experientially recognize this dynamic, but that he also described an infallible path along which anyone could realize the same, which is where his teachings differ somewhat from cybernetics. In the centuries after his death, especially with the rise of Mahayana Buddhism, his basic "cybernetic" insight of "co-dependant origination" was translated into the Prajnaparamita (perfection of Wisdom) tradition of scripture. Macy makes the point, in describing the Buddha's doctrine of paticca samuppada or dependent co-origination, that it "is not a theory to which one assents, so much as a truth one is invited to experience, an insight one is encouraged to win, by virtue of disciplined introspection and radical attentiveness to the arising and passing away of mental and physical phenomena."[\[29\]](#) I am not advocating a 'perspectival' view that everyone needs to become a Buddhist, but rather that this remarkable elucidation of the deep archetypal dynamic of "circular causality" upon which reality is constructed points the way toward which this concept should be applied and further elaborated in order to make sense to the modern mind. That is, this concept needs to be directly perceived rather than merely intellectually understood...in the words of Jean Gebser, one needs to realize the time-freedom and space-freedom of four-dimensionality. To this end, Grössing notes[\[30\]](#):

Under an evolutionary perspective, then, the emergence of novel organizational entities may represent a more general, perhaps even universal, pattern of iteratively produced recursive dynamics....Regarding evolution in time, recursive dynamics points at an irreducible history-dependence of the behaviour of nontrivial systems, which may well turn out to exhibit "universal" fractal properties. A future world-view in the physical sciences will then very likely aim at bringing the phenomena of nonlocality and recursive behaviour together into a single, more coherent picture.

The approach of quantum cybernetics may be considered in this regard as a contribution to such attempts.

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### **End Notes**

1. Gebser, p 277
2. Grössing, p 138
3. Gebser, p 355
4. Gebser, p 347
5. Wilber (1981), p65
6. Gebser, p 355
7. Gebser, p 353
8. Gebser, p 355
9. Gebser, p 356
10. F David Peat, web page
11. Gebser, p 352
12. Grössing, p 10
13. Grössing, p 11
14. Grössing, p 114
15. Einstein, p 155
16. Grössing, p 116
17. Grössing, p 17
18. Teilhard de Chardin, p 56
19. Gebser, p 361
20. Lazlo, web page

21. Wilber (1997), p 165 ff.
  22. Goddard, web page
  23. Tarnas, p 429-430
  24. Shelldrake, p113
  25. Global Consciousness Project, web page
  26. Macy, p 18
  27. Gebser, p312, n 2
  28. Macy, p 16
  29. Macy, p 19
  30. Grössing, p 139
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*[1] A good introduction to the various interpretations of quantum mechanics can be found here:*

<http://www.consciousness.arizona.edu/quantum/Library/qmlecture2.htm>

*[2] See MacKay (1969) pp178-180, 186-189 on the relation between these two theories of information.*