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A Baker's Dozen-towards changing our "loaf"

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Introduction

When, as children, we engaged in inappropriate behaviour, our mothers would sometimes say: "Come on, use your loaf," meaning, "use your brains, your intelligence, to sort this out." The theme of this paper is not that we do not "use our loaves," but that the immense problems of unsustainability suggest that we need to use "our loaves" differently, perhaps very differently.

Sustainability is a qualitative condition, demonstrating the survival, the security, and the well-being of the whole system whether considered at a local level, such as community, or at a global level. Through a process of "sustainable development," it is hoped, we might achieve a society which is more sustainable than our own. Donella Meadows[1] suggests that such a society:

> is one that can persist over generations, one that is far-seeing enough, flexible enough, and wise enough not to undermine either its physical or social systems of support.

Such a vision prompts a twist to the research question: What kind of frame of mind currently brings about unsustainability, and how do we currently maintain it? This seems a more important, or at least a prior, question to that posed in the seminar. Unless we are able to achieve insight on this immediate question, we seriously limit our chances of achieving insight on the given research topic which concerns change towards sustainability. The point is easily stated, but hides a more important and fundamental point — that it is very difficult to

achieve sufficient insight on our current state of mind because of the continual problem of self-reference. That is, we have to use our current frame of mind to examine our current frame of mind, both at individual and collective levels. But even before this, there is a prior problem, which is the general lack of awareness that there is anything fundamentally problematic about our current frame of mind (which is another characteristic of the problem of self-reference). Unless these prior problems are recognized, the seminar question is in danger of being answered inadequately. It is as if we are exploring desirable destinations and vehicles of change without sufficient awareness of where we are or where we have come from.

So far, so logical, perhaps. But there is a deeper problem still. Even if we accept that the way we perceive and think might be deeply — as opposed to partly — problematic, and recognize the problem of self-reference, we cannot ultimately know how far we can transcend and reconstruct our own epistemology. Given that we of the Western legacy — and the academic community in particular — inhabit a world where conceptual-propositional knowing has primacy, it may be that, in trying to advance an alternative frame of mind, we are still trapped in conceptualizing it from our old bases, rather than achieving any real shift of consciousness and of being, which we might nevertheless intellectually espouse. In other words, it is probably quite easy to fool ourselves, at both individual and collective levels.

We can summarize these problems as follows:

- the problem of partial awareness of our worldview
- the problem of self-reference
- the problem of self-delusion

But now the good news. The fact that it is possible to make these arguments demonstrates in itself a certain level of awareness, a certain proof that already, that I or you or some of us (perhaps more people than we might have thought) have begun to move out of old frames of reference and that some movement is possible. That is, a learning process is occurring.

This topic is a huge area of enquiry involving, as it does, no more fundamental a subject than the reconstruction of the Western worldview. One has to be brave or foolhardy to negotiate this territory, but, to this participant at least, the crises of the world are such that it must nevertheless be attempted and by as many concerned people as possible. What follows is not a fully elaborated paper, but a few of the ideas and models which I consider key to the inquiry, and which derive from some years spent on a doctoral thesis on the relation between systems thinking, ecological thinking, and learning. I have come to think that the construction of simple but meaningful models and maps is critical to the chances of negotiating this complex and multi-layered territory with any success.

The ideas and models presented here are offered as a sequence of propositions, which are briefly explained. These are big ideas, each of which would normally require discussion and substantiation, but they are presented economically to assist access and help stimulate dialogue. The reader is invited to interact with these propositions — to reflect on them, test how far they seem valid or not, and gauge his or her own perceptions and thinking against them.

A baker's dozen — thirteen propositions

1. The multifarious systemic problems of unsustainability are rooted primarily in the nature of the Western worldview, rather than resource limits.

> Laszlo, an eminent systems thinker, notes that our concerns regarding global problems are commonly all seen as "outer limits" — fossil fuel reserves, food producing capacity, climatic stability, population carrying capacity, and so on. The blame is shifted onto nature, which we try to redesign (most recently, for example, through GMOs) rather than look at our thinking — of which the problems are outward manifestations. Laszlo adds, it is, "only by redesigning our thinking and acting, not the world around us," that we can solve the problems.[2]

2. We suffer from an inadequate epistemology.

This is based on the idea that the dominant Western epistemology, or knowledge system, is no longer adequate to cope with the world that it itself has partly created. Bateson[3] was among the first to point out what he called our "epistemological error," but I prefer to call an "inadequacy" — implying that an expanded, more adequate epistemology could subsume and transform rather than negate the dominant one.

3. Generally, we seem unaware, or only partly aware, that we suffer from an inadequate epistemology, and therefore continue to apply inappropriate solutions to perceived problems.

This is the problem of self-reference, and of habituated thought patterns. The dominant paradigm contains it own circularity, the nature of which is described by Bohm:

> The *reason* we don't see the source of our problems is that the means by which we try to solve them are the source.[4]

This was echoed by Einstein who is reputed to have said: "No problem can be solved from the same consciousness that created it. We have to learn to

see the world anew." Thus, application of the same consciousness — or level of consciousness — is likely to aggravate a situation that arose through the working of that consciousness. A version of this idea is expressed in the popular saying, "if you are in a hole, stop digging." We may now realize that unsustainability is a hole, but our response still tends to be to dig, albeit more thoughtfully perhaps.

4. It appears possible to escape the trap of self-reference through a process of meta-learning.

A metaview of our thinking is achieved through meta-learning, and beyond this, epistemic learning, which means realizing the nature of our cultural paradigm and moving towards an expanded alternative. An increasing number of writers are commenting on the need and nature of this qualitative shift. For example, Laszlo,[5] in a report for the Club of Budapest think-tank, stated:

> we shall need more than incremental improvements on our current rationality; we shall need new thinking joined with new ways of perceiving and visioning ourselves, others, nature and the world around us.

5. A critically important part of meta- and epistemic learning is to recognize and acknowledge the roots of our worldview and thinking.

This is more difficult than it might appear. It is easy enough to make these roots and assumptions explicit, (although there might be argument about their nature and influence), but there is a difference between naming of parts and a genuine shift of consciousness and perception, which is sometimes termed a *metanoia*. Thus, Heron[6] comments on the big difference between intellectually *understanding* the world in a more systemic way, but still perceiving it in a Cartesian way. He suggests a significant minority are in this transitional state of cultural change. If we are in the midst of a major cultural paradigm transition, as I believe we might be, this transitional state of experiencing two minds is to be expected. The question then becomes how we can accelerate the transition, assuming that this need is understood and agreed.

6. It appears that we need to purposefully accelerate the process of cultural evolution and deep learning in Western consciousness.

Systemic breakdown — what has been called the world problematique — may precipitate deep learning, but it may not. Arguably, the burgeoning discourse of sustainability and ecologism indicate that deep learning is taking root in some quarters, at least. A constructive vision of an expanded epistemology would arguably help "accelerate the transition"[7] to a more sustainable and peaceable world. From this standpoint, the learning society is one that seeks to understand, transcend, and re-direct itself. According to Clark,[8] this has only occurred twice before in the last 2500 years of Western history.

7. Systemic models suggest that it is helpful to distinguish levels of knowing if we are to re-orient our own thinking.

One model that I have developed concerns "systemic levels of knowing." While it is not possible to assert with any certainty that these interrelated layers exist in human thinking, this iceberg model is a useful way of thinking about how deeper perceptions and conceptions might inform everyday thoughts and actions. Thus, the more immediate and practical — the visible — end of knowing is likely to be informed (whether we are conscious of it or not) by our deeper individual and shared orientations. ¡table border="1" width="100%"¿¡tr¿¡td align="center"¿Actions¡br/¿¡br/¿ Ideas/theories¡br/¿¡br/¿ Norms/assumptions¡br/¿¡br/¿ Beliefs/values¡br/¿¡br/¿ Paradigm/worldview¡br/¿¡br/¿ Metaphysics/cosmology

Table 1: systemic levels of knowing

The question: What is meant by a frame of mind? arises here. At what level? Arguably, much debate on environment, sustainability, and environmental education focuses on defining and changing values without examination of deeper, foundational levels of knowing that give rise to sets of values.

8. Systemic learning theory also suggests that it is valuable to distinguish levels of learning.

A useful theory, developed by Bateson from Whitehead and Russell's theory of logical types, concerns levels of change and learning. While paradigm change is essentially about learning (if there is no learning, there can be no paradigm change), it is clear that most learning that goes on within and outside learning institutions makes no difference at all to individuals' or society's overall paradigm. This is because, in Bateson's model, it is first order learning or basic learning. Bateson distinguished three orders of learning and change, corresponding with increases in learning capacity, and these have been adopted by learning and change theorists, particularly in the field of systemic learning and organizational change, such as Argyris and Schon[9] (single and double loop learning), and Ison and Russell[10] (first order and second order change). Thus:

¡table¿

¡tr¿¡td¿*Learning I*: basic learning¡td¿learning¡td¿thinking¡td¿knowing ¡tr¿¡td colspan="3"¿ ¡tr¿¡td¿*Learning II*: meta-learning¡td¿learning *about* learning¡td¿thinking *about* thinking¡td¿knowing *about* knowing ¡tr¿¡td colspan="3"¿ ¡tr¿¡td¿*Learning III*: epistemic learning¡td¿learning *about* learning *about* learning¡td¿ thinking *about* thinking *about* thinking¡td¿ knowing *about* knowing *about* knowing

The common saying that one can't see the wood for the trees perhaps provides a useful analogy: Learning I might be only seeing the trees, or working within the paradigmatic wood; Learning II might be stepping out and recognizing the wood as a whole; Learning III might be the helicopter view, seeing that a number of alternative woods or paradigms exist. Another way of putting it is:

> I doing things better¡br/¿ II doing better things¡br/¿ III seeing things differently

What these models clearly suggest is that lower levels of learning are less difficult and more everyday in nature. Indeed, theorists make a distinction between basic learning and higher order learning levels. Arguably, sustainability requires higher order learning, that is, epistemic learning, which would, in turn, offer alternative sets at lower levels of learning and knowing. We need to be clear then what level of learning we might have in mind when discussing learning.

To revisit the analogy above, first order learning is often about how to dig more efficiently, not to realize the nature of the hole, or how to get out of it.

9. Learning II implies recognizing the nature of our paradigm or, in terms of the given seminar topic, recognizing how we currently sustain unsustainability.

Fragmentary, and linear thinking are still very much with us. Bateson[11] suggests that they, for example:

> can be seen in every newspaper or newscast; the search for short-term solutions that worsen the problem over time; the focus on individual persons or organisms or even species seen in isolation; the tendency to let technological possibility or economic indicators replace reflection; the effort to maximize single variables (like profit) rather than optimizing the relationship among a complex set of variables.

Operating beneath such manifestations are key assumptions of our dominant epistemology, which may be stated as follows. ¡ol type="i"¿

to every problem, there's a solution

we can understand something by breaking it down into its component parts

the whole (of something) is no more than the sum of its parts

most processes are linear and characterized by cause-effect

most issues and events are fundamentally discrete or may be regarded as such, and may be dealt with adequately in a segregated way

it is advisable and ethically acceptable to draw the boundaries of one's circle of attention or concern quite tightly

objectivity is both possible and necessary to understand issues

we can define or value something by distinguishing it from what it is not, or from its opposite

we can understand things best through a rational response — any other approach is irrational

if we know what the state of something is now, we can usually predict future outcomes

These ten interrelated assumptions can be re-stated as basic habits of thought that characterize modernist thinking, in the same order and as follows: ¡ol type="i"¿

problem-solving

analysis

reductionism

cause-effect

atomism

narrow boundaries

objectivism

dualism

rationalism

determinism

Each of these ten assumptions and habits of thought are questioned by second-order thinking and the ecological movement as a whole.

10. Learning III implies the construction of a more adequate cultural paradigm.

> Arguably, a systemic-ecological-holistic approach suggests a necessary recognition of the limits of dominant descriptors (on the left) and a shift of attention to an expanded set of bases for thought (on the right), as follows:

¡table cellpadding="4"¿ ¡tr¿¡td¿Dominant modes of thought ¡td¿Holistic modes of thought ¡tr¿¡td¿ i) problem-solving¡td¿ appreciation, problematizing, situation improvement ¡tr¿¡td¿ii) analysis ¡td¿ synthesis ¡tr¿¡td¿iii) reductionism

¡td¿ holism ¡tr¿¡td¿iv) cause-effect ¡td¿ multiple influences, emergence ¡tr¿¡td¿v) atomism, segregation ¡td¿ integration ¡tr¿¡td¿vi) narrow boundaries ¡td¿ extension ¡tr¿¡td¿ vii) objectivism¡td¿ critical intersubjectivity ¡tr¿¡td¿ viii) dualism ¡td¿ monism/pluralism (di-plar unity) ¡tr¿¡td¿ ix) rationalism ¡td¿ rational and non-rational ways of knowing ¡tr¿¡td¿ x) determinism ¡td¿ uncertainty

This does not do away with the dominant modes of thinking, but integrates them into an expanded and transformed episteme.

11. At a more fundamental level of knowing, Learning III implies a profound change of root metaphor.

> This concerns the shift from mechanism, which has dominated Western thinking for over three hundred years to a new organicism; from the machine metaphor to the systemic metaphor of ecology. This shift appears to entail a shift of emphasis from relationships based on separation, control, and manipulation towards those based on participation, appreciation, and self-organization. Increasing numbers of writers are pointing to the emergence and nature of this ecological worldview, predicated on the idea of a co-created or participative reality. Thus this worldview is also variously called "participative,"[12] "coevolutionary,"[13] and "living systems."[14]

This worldview has antecedents: at the end of his extensive review of the ideas that have shaped the Western worldview from the Greeks onwards, Tarnas notes that the organicist alternative tradition was founded upon "the fundamental conviction that the relation of the human mind to the world was ultimately not dualistic but participatory." This conviction, he suggests, did not "oppose the Kantian epistemology but rather went beyond it, subsuming it in a larger and subtler understanding of human knowledge."[15]

Our sources for the construction of an expanded worldview include systems thinking, indigenous knowledge, the organicist tradition in Western science and philosophy, the new sciences of complexity, revisionary postmodernism, and current ecological thinking and practice in a number of fields. These are beginning to afford a coherent, emergent metaparadigm across the three components of worldview, which I identify as ethos, eidos and praxis.[16] This view, says Spretnak,[17] "encourages us to expand the gestalt, our perception of the whole, in every situation so that we no longer collaborate in the modern project of fragmentation."

12. Development of a more ecological-participatory frame of mind or worldview depends on the nature of the learning experience.

If, as Senge[18] suggests, learning is a "movement of mind," developing an ecological frame of mind implies designing a learning experience and learning system

that are conducive to sufficient movement. In brief, this implies a shift of attention from maintenance learning through to learning for change and finally learning as change, that is, towards transformative learning. There are extensive implications here for our view of education and learning, our conception and organisation of learning (teaching) institutions, and the nature of change, which I have outlined elsewhere.[19]

13. Transformative-epistemic learning is difficult. (If it wasn't, it wouldn't be transformative).

Progression through the learning levels (I – III) and down the levels of knowing, seen at individual, institutional, or societal level implies:

- higher orders of learning;
- greater challenge and threat to existing beliefs and ideas — and more resistance;
- a higher order of consciousness or mindfulness;
- greater reconstruction of meaning;
- greater perturbation required to stimulate learning;
- greater engagement and breadth of response required of learner; and
- more emergence as a result of learning.

If our attention is only focussed on lower learning levels, then arguably "we don't know that we don't know." Perhaps this is the root of the hubristic Enlightenment belief that "we do know," or, that in principle, everything can be known and therefore controlled. At the epistemic level "we do know that we don't know": so increasingly holistic understanding gives us more humility and willingness to entertain uncertainty and ambiguity, but also perhaps a teleological sense of purpose and participative belonging rather than separateness. Pertinent here is De Mello's[20] story of a spiritual master who reputedly said:

> "Wisdom tends to grow in proportion to one's awareness of one's ignorance." When asked for an explanation he said, "When you come to see you are not as wise today as you thought you were yesterday, you are wiser today."

Similarly, systems thinker Flood, writes about "learning within the unknowable," and suggests:

> Balancing mystery with mastery means living somewhere between the hopelessness of the belief that we are unable to understand anything and, at the other extreme, the naivety of the belief that we can know everything.[21]

This perhaps indicates something of the frame of mind that we seek, one which promises to transcend the epistemological problems outlined at the beginning of this paper.

Conclusion

It has been said that the holistic medical practitioner asks a fundamentally different question to that of the conventional medical practitioner. Instead of asking: What sort of disease does this person have? he asks: What sort of person has this disease? If we apply this to the problem of unsustainability, before asking the conventional question: What sort of malaise affects Western society? and employing all the problem/solution thinking that goes with it, we might first ask a deeper question: What sort of society, or what sort of mindset, has this malaise?

Postscript

> Systemic awareness begins with a spiritual appreciation of wholeness

¡p align="right"¿Flood[22]

Visioning what frame of mind might help achieve and be consistent with a more sustainable world is one way of helping realize both. At a fairly operational level (in terms of the systemic levels of knowing considered above) a list of characteristics of ecological/systems thinking would probably include the following. The validity of this list becomes more evident when one considers the general prevalence of 'opposite' characteristics in people, policy and discourse.

Relational thinkers tend to:

- make explicit and question their own and others' assumptions;
- ask different questions (deeper, and more inclusive);
- look for connections and patterns;
- be critical and synthesising;

- value multiple perspectives;
- look for multiple influences and feedback rather than linear cause/effect relations;
- question boundaries of all kinds and look at the big picture (spatially, temporally);
- not easily accept narrow, simplistic, obvious, or majority explanations in the face of complexity;
- suspend judgement;
- not blame the components in a system but ask questions about purpose and relationship first;
- recognize uncertainty and ambiguity, and be able to tolerate them;
- recognize synergies and emergent properties;
- be interested in the health and sustainability of whole systems; and
- be open-minded.

¡p align="right"¿Based on Sterling[23]

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Endnotes

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2. Laszlo 1989, 25
3. Bateson 1972
4. Bohm 1992, 3
5. Laszlo 1997, 13
6. Heron 1992
7. Gardner 2001
8. Clark 1989
9. Argyris and Schon 1980
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11. Bateson 1972
12. Heron 1996; Reason and Bradbury 2000
13. Norgard 1994
14. Elgin 1977
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16. Sterling 2001
17. Spretnak 1991, 19
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21. Flood 1999, 83
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