



laetus in praesens

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Towards Conscientific Research and Development

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Introduction

The principal handmaiden of the devastation of the planet over the past century has been science and the technologies it has enabled. Immense resources have been devoted to scientific research and development in ways that continue to exacerbate this devastation -- despite the minute proportion that may help to alleviate it. Science has effectively done most to undermine sustainable development -- whatever the claims for its role in remedial responses.

The action of science has been essentially irresponsible, primarily because responsibility is not a phenomenon susceptible to scientific definition or consideration. Movements for the social responsibility of science are necessarily social rather than scientific. They are evoked and sustained by people of 'conscience' -- again a phenomenon beyond the scope of science. Scientists, as scientists, are completely unqualified (according to their own scientific criteria) to comment on matters of conscience.

It is strange that science should have become institutionalized and professionalized, with qualifications and career paths, and very large budgets (notably for mega projects in fundamental physics or astronautics). It has become a social phenomenon with scientists as a significant and reputable sector of the population. Why is it ridiculous to even imagine suitably funded 'conscientific research' by duly qualified 'conscientists'?

It is curious that 'science' should be embedded in 'conscience'. This suggests several possibilities:

- that science, through its 'objectivity' and its historical struggle against religion, has successfully marginalized conscience as 'subjective' -- effectively as contra-science, or even anti-science
- that any consideration of conscience is a form of scientific quackery -- science by 'con artists' (or even *science à la con*)
- that science is a specialized branch of conscience, even though the latter cannot be recognized by the former

The psychology of sustainable development points to the need for some form of 'applied conscience' based on suitable 'conscientific research and development'. This might encompass the following 9 complementary dimensions or 'flavours'. Each is given with an indication of the strategic failure to which its neglect has given rise.

Responsibility and care dimension

Here 'conscientific' is understood as 'science with a conscience' (as suggested at the 2001 Children's Parliament [\[more\]](#)), and reflected in the many movements towards social responsibility in science, as exemplified by the Institute of Science in Society: science, society, sustainability [\[more\]](#) or by the Union of Concerned Scientists [\[more\]](#). There is a need however to distinguish between 'concerned scientists' (as a group of people) and a 'science of concern' (as a discipline).

Caring science is perhaps exemplified by the work of bodies such as: Intermediate Technology Group [\[more\]](#) founded by E F Schumacher; Development Alternatives [\[more\]](#) founded by Ashok Khosla; New Alchemy Institute [\[more\]](#); or the ZERI Foundation [\[more\]](#).

This dimension is also reflected in a wide range of therapeutic approaches that have been usefully contrasted with medical inspired primarily by pecuniary advantage and distorted by commercial initiatives -- as admirably illustrated by [Medecins sans Frontières](#) and the

work of Augusto Odone on adrenoleukodystrophy [[more](#); *Lorenzo's Oil* [movie](#)].

Strategic failure: Reluctant, minimal, token public investment in planetary care at any level.

Integrative dimension

A con-figuration of sciences, as a new approach to inter- and trans-disciplinarity. Something of this form is suggested by consilience as "a jumping together" of knowledge by the linking of facts and fact-based theory across disciplines to create a common groundwork of explanation. (see *Consilience: the unity of knowledge* by Edward O Wilson. He believes that "a balanced perspective cannot be acquired by studying disciplines in pieces, but through the pursuit of the consilience among them." He advocates the pursuit of the unification of knowledge, arguing that "to the extent that the gaps between the great branches of learning can be narrowed, diversity and depth of knowledge will increase. Order, not chaos, lies beyond the horizon." [[more](#); [more](#)]).

Strategic failure: Inability of scientific disciplines to enable effective responses to the fragmentation of knowledge on which institutional funding and professional careers depend.

Contrasting epistemologies dimension

This dimension recognizes that there are ways of knowing other than that associated with science dominated by western mind-sets. But there are also epistemological preferences within the western world. This variety has been articulated by various authors [[reviews](#)], but especially by Magoroh Maruyama [[more](#)]. Susantha Goonatilake (*Toward a Global Science: mining civilizational knowledge*, 1999) has argued that "the modern agenda has run out of steam" and it is through the ways of knowing from non-western cultures that responses to the challenges of the future will be found [[more](#)].

Linda Tuhiwai Smith argues that indigenous researchers need to transform research methodologies (*Decolonizing Methodologies: Research and Indigenous People*, 1999) [[review](#)]. There is an increasing awareness of traditional ecological knowledge in relation to the challenges of contemporary resource management [[more](#)]. Various institutes are now undertaking research into indigenous knowledge systems. [[more](#); [more](#); [more](#)].

Missing perhaps, is any exploration of how to work with a variety of alternative ways of knowing -- rather than simply to compare them. How can they be used together in some way? This gives a special significance to 'con-science'.

Strategic failure: Arrogant inability to acknowledge, and honour, the variety of knowledge systems vital to collective response to crises variously perceived around the world.

Science of consciousness dimension

This is the application of scientific disciplines to the study of consciousness. It is exemplified by the preoccupations of the: Scientific and Medical Network [[more](#)], Institute of Noetic Sciences [[more](#)], and various journals [[more](#); [more](#); [more](#)].

The attention given to potentially correlative "sciences" of consciousness in Buddhist contemplative traditions by scholars adjacent to modern science has introduced an entirely different conception of the metaphysical, which calls to account not only the methodologies employed by contemporary neuroscience, for example, but the entire metaphysical foundation on which it is grounded. The philosophical collision of East and West signals the potential in modern scientific discourse for relief from the current dogmatism and a heightened awareness regarding those "physics" that stand "beside" or "beyond" objective reality and ground our every thought. [[more](#); [more](#)].

Strategic failure: Reinforcement of public denial of a vital new frontier for humanity and young people -- consequently explored by default through pressures in favour of substance abuse.

Embodied-mind dimension

The extent to which there is some form of integrating resonance or isomorphism between the structure of the reality scientifically perceived and of the conscious perceiver of that reality; this has notably been a preoccupation of Francisco Varela and others interested in 'enactivism' [[more](#)] who seek 'to give an explicitly naturalized account of present nowness based on two complementary approaches: phenomenological analysis and cognitive neuroscience.' (*The Specious Present: a neurophenomenology of time consciousness*, 1997). He provides a valuable review of Edmund Husserl's extensive philosophical studies of "intimate temporality", noting Merleau-Ponty's concern that "Time is not a line but a network of intentionalities" (1945, p. 479). Varela's work on enactive cognition presents a four-fold model of nowness based on flows and dynamical trends. He concludes that neurobiological attributes and the phenomenology of lived experience are interacting partners [[more](#)]. In a related vein, George Lakoff and Rafael E. Núñez (2000) have explored how the embodied mind brings mathematics into being [[reviews](#)].

A website on Mind-ing Ecology focuses on making a strong connectivity between ecological and psychological interests through constructive participation. Arising out of the constructivist approach, the notion of participation is one which underlines the freedoms of individuals to create their own ways of being constructively constitutive of their own living environment. [[more](#)]

Strategic failure: Inability to give formal recognition to the self-reflexiveness of knowledge initiatives, reinforcing the denial of personal implications that distort many formal, 'objective', collective initiatives.

Contemplative science dimension

This is the approach associated with the contemplative disciplines of meditation explored and practiced in different ways in many spiritual

traditions in both West (eg Catholic contemplative orders such as the Cistercians, Trappists and Carthusians) and East (eg Zen and Raja yoga) . Its contemporary relevance, notably with respect to sustainable development, is well articulated by the work of the Center for Contemplative Mind in Society [[more](#)].

For the European medieval mind the appearances of things provided natural support for the act of contemplation, the exploration of "inner space" by the development not of material instruments but of faculties for spiritual perception in the observer. The effect of nominalism was to eliminate the entire "vertical" or "interior" dimension of reality -- the dimension of metaphysical form, final causality, and divine providence -- and with that, virtually the last remaining possibility of a contemplative science. With the loss of the sense of the world's interiority, its rational coherence could only be maintained by supposing a strict conformity with mathematical laws, imposed from without by the Creator or else subsisting eternally without reason. The consciousness of the observer was no longer recognized as an intrinsic part of reality, and was soon relegated to the realm of the merely subjective, along with all those "secondary qualities" that did not lend themselves to objective measurement. Science had been transformed into a search for the mathematical models sufficient to account for the motion and transformation of matter. Buddhism, for example, claims to offer a science of the mind, a contemplative science more in tune with our times than ever, since it deals with the most basic mechanisms of happiness and suffering. [[more](#); [more](#); [more](#)].

Strategic failure: Inability to establish the contemporary relevance of subjective alternatives to dominant institutional logics, thus reinforcing pressures towards substance abuse by default.

Concupiscence dimension

'Concupiscence' is used here to indicate a form of knowing conscious engagement of the senses with one's environment in all its forms. In its dynamics it echoes courtship and sexual congress -- themselves understood as mundane or symbolic aspects of such knowing. Various disciplines explore this engagement with the world, perhaps using other metaphors. Deep ecology is one example encompassing both the effect the observer may have on the subject, and the effect of the subject (especially the wilderness) on the observer, in an ongoing creative relationship, which should be instructive and beneficial to both parties [[more](#)]. Tantra is another -- if the focus on energy [[more](#)] can be meaningfully distinguished from the physical sexual practices (that are the focus of most popular attention). Across cultures, the poetry of mystical love is another [[more](#)], as is the practice of natural magic [[more](#)].

In contrast, and in reaction to their perversions, for Christianity, 'concupiscence' is closely associated with original sin; desire is concupiscence, therefore sinful [[more](#)]. Augustine taught that concupiscence was the essence of sin -- as the perverted desire for lesser and temporal pleasures, especially the desire for the pleasures of sex and marriage. Since concupiscence was associated with the conception of every child, it was assumed to be the medium through which Adam's sin was passed on [[more](#); [more](#)].

For Pope John Paul II (July 1980): Concupiscence 'limits interiorly and reduces self-control, and for that reason, makes impossible, in a certain sense, the interior freedom of giving. Together with that, also the beauty that the human body possesses in its male and female aspect, as an expression of the spirit, is obscured. There remains the body as an object of lust and therefore, as a 'field of appropriation' of the other human being'. Curiously, the 'incorrect' spelling is frequently used on the web instead of 'concupiscence' -- a term that has been deleted from newer versions of the Bible. The 'correct' variant derives from *cupiditas*, a reference to Cupid, son of Venus (and goddess of romantic love) and therefore is suggestive of a non-Christian, pagan, Dionysian form of sensual love -- in contrast with a more insipid form obsessed by human plumbing arrangements. This limited perspective has effectively provided a conceptual contraceptive to science -- a kind of 'science-with-a-cup'. Concupi-science should instead connote a conscious 'loving together', 'loving the whole', or a 'whole-body knowing of the world' -- in contrast with a purely selfish love.

The orthographic confusion, even in translations of religious texts, is symptomatic of the contrasting emphases. Without the 'i', 'concupiscence' does indeed suggest an unconscious identification with the senses, whereas its presence suggests a form of knowing unfortunately obscured and repressed by Christian dogma supposedly designed to facilitate a subtler form of knowing 'beyond the senses'. 'Knowing' a partner, 'in the Biblical sense' has thus come to imply the contrary of what might otherwise have been the spiritual intention. It is the repression of this form of intimate knowing of the world that has blighted human responses to sustainable development -- as ecofeminists stress in sympathy with neo-pagans, who echo the insights of indigenous peoples.

Unexamined habits of religious discourse lead to religious literalization and death of symbolic sensibility, thus inhibiting the heightened consciousness through which new opportunities might otherwise emerge (as argued by Sallie McFague, *Metaphoric Theology*) [[more](#); [more](#)].

Strategic failure: Exacerbation of confusion that may be at the root of the awareness that has ensured both misguided human reproduction and the raping of a planet for which humanity's love has proven to be false.

Conversation dimension

Dialogue in its various forms has a long tradition of enabling the emergence of new insight, notably in gatherings [[resources](#)]. 'Socratic Dialogue' continues to be a theme of international events. Plato's *Symposium* continues to stand as an archetype for what may be possible [[more](#)]. The physicist David Bohm initiated an extensive exploration into dialogue to this end.

In discussing the conditions for inter-paradigmatic dialogue, especially in the social sciences, Kinhide Mushakoji (*Global Issues and Interparadigmatic Dialogue*, 1988), argues for the need to move beyond the accepted limits of formal logic: "Inter-paradigmatic dialogue - not only in natural but also in social sciences - should be concerned not with the determination of who is right or wrong in defining a concept one way or the other. It should rather concern itself with the question of what part of the natural or social realities are best approached by one or the other position. Two formally contradictory definitions of the (natural or social) realities may be both relevant and complementary in shedding light on different aspects of the same social realities. This is why the logic of inter-paradigmatic dialogue

cannot be bound by the laws of Aristotelian formal logic: identity, contradiction, and excluded middle" [\[more\]](#).

Word-of-mouth remains a prime mode of transmission of knowledge, whether between the generations, or in guru-disciple, and craftsman-apprentice relationships. Its psychotherapeutic form is well-recognized in processes such as co-counselling. A multitude of national and international events are held on the assumption that knowledge can in some way be generated through such congress. Some of these are deliberately designed as 'consultations' through which encounters between different sectors of society aim to enhance insight into collective policy opportunities.

Learning from doing or 'action research' is especially interesting in this context. It can be described as a family of research methodologies which pursue action (or change) and research (or understanding) at the same time. In most of its forms it does this by using a cyclic or spiral process which alternates between action and critical reflection and in the later cycles, continuously refining methods, data and interpretation in the light of the understanding developed in the earlier cycles. It is thus an emergent process which takes shape as understanding increases; it is an iterative process which converges towards a better understanding of what happens. In most of its forms it is also participative (among other reasons, change is usually easier to achieve when those affected by the change are involved) and qualitative [\[more\]](#). 'Appreciative inquiry' is a related approach [\[more\]](#).

Paulo Freire's pedagogy of 'conscientization' could also be usefully associated with this dimension. It is the process of becoming aware of the extent to which problems arise not so much from an individual's inadequacies, but rather from the systematic discrimination against a social group which puts all members of that group at a disadvantage. From that perspective our world, objects around us, and facts as presented to us in their varied forms can be, and must be, perceived in the entirety and complexity of their relationships. In doing this, we can come to understand not only what they are and how they happen, but more importantly, why they happen and who makes them happen for what reasons. In conscientization, being, knowing, and doing are critically examined. Anything and everything around us can be subject to critical investigation. Nothing can be so hidden that it cannot eventually be exposed to the light of day, not even oppression and injustice, which Freire struggled against throughout his life.

Conversations may also be seen as means of engendering the future [\[Judge, 1997\]](#). A key issue regarding sustainability is whether the sustainability of dialogue about it can itself be ensured [\[more\]](#).

Strategic failure: Inability to develop dialogue to a degree appropriate to major territorial disputes, effectively justifying terrorism as an alternative.

Conscience-less science dimension

This is science seen, in Matthieu Calame's terms, 'as a ministration, a preaching vocation, at the service of Science, and conceives the latter as an irrepressible movement of man towards knowledge' that he describes as 'contemplative science'. It is to be contrasted with the predominant mode of science 'as a profession at the service of a range of aspirations of social actors whose interests may well diverge' [\[more\]](#). Ironically Aristotle originally distinguished three contemplative "sciences" as mathematics, physics, and metaphysics (or ontology).

Strategic failure: Corruption of the inquiry process in the service of vested interests insensitive to the need for new forms of knowledge potentially responsive to the crises of the planet.

The experiential nature -- and lifestyle implications -- of these dimensions emerges far more clearly and concretely in the range of studies assembled by Darrell A. Posey (*Cultural and Spiritual Values of Biodiversity: a complementary contribution to Global Biodiversity Assessment*, 1999) for the United Nations Environment Programme -- as well as in the current work of Terralingua [\[more\]](#).

This multidimensionality of 'conscience' is a vital resource in response to the interlocking strategic dilemmas of sustainable development [\[more\]](#). It might be understood as a reflection of 'science' as now known into a knowledge space of more dimensions. These intractable dilemmas do not lend themselves to resolution using the conventional project logic by which they are engendered. This has been well-demonstrated during the decade since the Rio Earth Summit in 1992.

References

Paulo Freire and A. Faundez. Learning to Question. Continuum, 1989.



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