

*Introductory paper and Main Questions for a workshop/discussion of*

**How are we to understand and map the network of social forces behind the autopoietic processes which appear to be heading our species toward extinction, carrying the planet as we know it with us – and how are we to design a more effective socio-cybernetic system for societal management?**

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*Abstract*

This paper is designed to set the scene for a discussion of the topics mentioned in the title.

It opens by listing some of the problems that confront us if we are to survive as a species, underlining that these form a *system* such that they cannot be tackled separately. Nor can they be tackled via centrally-decreed, ideologically-based, system-wide change. One needs to understand the network of socio-cybernetic forces and feedback processes involved. These comprise an autopoietic system having self-extending characteristics.

Thereafter it is noted that, while the organisation of “primitive” societies may be best characterised as “organic” (and thus having a predilection to evolve toward arrangements that overcome entropy), the autopoietic processes (paradoxically also perhaps best characterised as organic) that are taking us toward centralised, hierarchical, management systems seem to be leading to the destruction of our habitat – Gaia – and thus to the establishment of entropy.

The questions embedded in the title may therefore be expanded as:

1. How are we to represent “the life force” in our maps of the socio-cybernetic forces governing the operation of autopoietic social systems?
2. More specifically, how are we to represent the life forces which seem to be leading to the evolution of the hierarchical societal management arrangements that are likely to result in the primacy of entropy?

3. How can we use our knowledge of these socio-cybernetic forces to devise – design – a societal management (socio-cybernetic) system which will enable our species and our habitat to survive?

### *Introduction*

It is easy to list some of the main processes heading our species to extinction, carrying the planet as we know it with us. These include:

- The excessive demands made by homo-sapiens on the resources of the earth. (Although these are only in part attributable to the population explosion, dealing with the latter itself poses an intractable problem).
- Neglect of “overshoot” in official estimates of the number of people the planet could support.
- The destruction of the soils, seas, and atmosphere by chemical and energy intensive agriculture, pollutants created by the use of the products of production (e.g. transportation), and inability to dispose of these products and by-products generated in the course of their creation.
- Social instability arising from polarisation of wealth within and between societies generated by such things as irresponsible banking, the activities of the WTO and IMF, and national “aid” policies.
- The likelihood of a nuclear winter arising from the conflicts which will arise as nations seek to impose ideologies (including religion) on others by force or fight over diminishing supplies of oil, food, water, and other resources.

It is also easy to make many specific and “obviously sensible” recommendations for dealing with these problems.

Unfortunately, the processes just mentioned constitute an autopoietic system involving multiple, mutually-reinforcing, feedback loops which negate and over-ride the effects of specific, if well-intentioned, interventions (such as the current craze to tackle “global warming”).

Occasionally, someone does draw attention to the fact that the interaction between autopoietic sub-systems (such as a species of animals) and the wider systems in which they are embedded (e.g. ecological settings) regularly results in sub-systems coming up against wider system constraints or boundaries which curtail the development of, or even eliminate, the sub-systems (e.g. specific animals or plants).

### *Mapping Socio-Cybernetic Forces*

Many years ago, as a result of 40 years’ research into the workings of the educational system, we found ourselves trying to map the social forces which lead to the continuous growth and elaboration of an “educational” system which, to all intents and purposes, does the opposite of what most people ... including most philosophers ... think it should be doing. The result is shown in Figure 1, reproduced from Raven (1984).

This network of mutually reinforcing forces has many components (sub-networks) which are typically overlooked. Two may be singled out for attention here:

1. A network which stems from the fact that what happens in the “educational” system is not mainly determined by the *educational* aspirations of parents, teachers, pupils,

employers, ministers of education or anyone else but by the *sociological* functions which the system performs for society.

2. A network of widely held beliefs about the processes and procedures – the forms of democracy and bureaucracy – the nature of the *governance* process – the socio-cybernetic system<sup>1</sup> – that it is appropriate to adopt when seeking to manage public provision.

### *Using Maps of Socio-Cybernetic Forces*

Having generated a sketch-map of the socio-cybernetic forces that seemed relevant to understanding our problem, we spent five years trying to work out how one might harness those forces to create an alternative system that *would* deliver the desired benefits.

We failed and published *Managing Education* (Raven, 1994) without it.

But, as a result of an argument that developed at a subsequent conference, we had the bright idea of changing the contents of the boxes in our map. The result is shown in Figure 2. We thought we were home and dry.

The production of Figure 2 did indeed yield valuable insights.

But it has taken us another 15 years to gradually realise that that map does *not* answer our question.

As mentioned, what we set out to do was, in effect, to map the forces driving down the quality of education in a manner analogous to a diagram mapping the forces acting on sailing boats – and to thereafter use that map to work out how to harness those forces to push us where we want to go instead of allowing them ... like the wind and the waves ... to crash us against the rocks.

But, to pursue the analogy, with the benefit of hindsight, it is apparent that what we actually did was design a system in which we, in effect, suggested that a marine engine be substituted for the sails.

To return to Figure 1 and attempt to cut a long story short.

Among other things, our work had shown that, if one was to move forward, so many things needed to be done that no one person, or group of persons, could generate a blueprint. Furthermore, what actually happened as a result of any intervention would be determined by many unknown forces. Thus it was clear that one of the many things it would be necessary to do would be to create a ferment of experiment and innovation ... and evaluation ... within that system itself.

Furthermore, it was obvious that the problems which can be dimly discerned behind the network illustrated in Figure 1 are interrelated. One cannot tackle any one of them on its own: When attempts are made to do so, the effects are negated by the rest of the system.

So we need system-oriented change.

But note how dramatically what we are saying here differs from centrally decreed system-wide change based on opinion and ideology ... ie on non-evidence-based “theory”. (Such uninformed and unevaluated system-wide change is, of course, the usual “solution” enacted.)

So, in a sense, we need an alternative answer to Adam Smith and Fred Hayek’s question of how to create – design – a societal management system – a socio-cybernetic system – that will innovate and learn without central direction. A system which will take account of the inter-related and mutually influencing components of the system.

In a sense, then, we were not so far astray in seeking a way of replacing the perceptions and assumptions about societal governance that are summarised in the central box in Figure 1 by those in the central box in Figure 2.

I/we don’t have space/time to unpack that statement here. Those who are interested can follow up it up by either obtaining copies of my books *Managing Education for Effective Schooling* or *The New Wealth of Nations: The Societal Management Systems required for a Sustainable Society* or by looking at the PDFs of the relevant chapters and related papers that are available via our website at [www.eyeeonsociety.co.uk](http://www.eyeeonsociety.co.uk) (some of the relevant links are given in the *References* section).

### *Problems with Hierarchical Management*

Here we have something much more important to do.

It has, in fact, long been obvious to very many people that many of the problems facing modern society stem from the adoption of centralised “command and control” management systems coupled with a sociological “need” to generate useless work<sup>2</sup> to legitimise the divisions which compel people to participate in activities they do not like and know to be wrong.

Several authors, e.g. Deming (1993), have illustrated how hierarchical structures can be replaced by more “organic” arrangements within organisations. But, by and large, these authors end up bemoaning the failure of those arrangements to spread more widely.

I myself have argued that, if the desired changes are to be brought about, it will be essential to understand, map, measure and harness the social forces controlling the operation of society. Then, and only then, will we be able to find ways of harnessing the kind of socio-cybernetic forces illustrated in Figure 1 in a manner analogous to the way in which, as a result of Newton’s work, it became possible to map, measure, and harness the previously invisible forces acting on sailing boats so that they were better able to reach their desired destinations<sup>3</sup>.

### *Bookchin*

Unfortunately, and these are the issues I want to pursue here, my hope that such a line of research might actually deliver the desired benefits has been seriously undermined by the (re)publication of Bookchin’s *Ecology of Freedom: The Emergence and Dissolution of Hierarchy*<sup>4</sup>.

His observations make it obvious that the task facing socio-cyberneticians is much, much, more difficult than I thought.

Unfortunately, there is no ducking the issue. No one else is going to tackle the problem. Yet, unless someone tackles it, our species and the planet as we know it – even Gaia herself – have little chance of survival.

Bookchin first argues that the social organisation of so-called “primitive” societies is best characterised as “organic”.

That is to say, these societies function in a manner analogous to the way in which animal bodies operate.

The cells of an organism are differentiated. But that differentiation can also, to a remarkable degree, be reversed if the body as a whole requires it. Coordination between the cells is not brought about through a hierarchical structure but through a network of feedback processes. The behaviour of the cells is not mainly determined by their chromosomes but by all sorts of inter-related internal and external processes and the role they play in the (developing) organism (autopoietic sub system).

However, it would appear that, at every stage in societal “development” from time immemorial (and not just over recent millennia), this organic, network-based, structure has been replaced by a more and more hierarchical structure. The legitimisation and maintenance of this hierarchical structure is dependent on the continuous creation of more and more senseless work. This senseless work consumes exponentially increasing proportions of the planet’s resources and generates levels of pollution that have destroyed the soils, the seas and the atmosphere thus subjecting us to the threat of extinction from global warming and the destruction of our food base. In short, we have destroyed our habitat – nay Gaia herself – to the extent that it is more than likely that it is going to lead to the extinction of life on earth.

This senseless work has not merely been created to occupy the idle hands that might otherwise do the devil’s work or a means whereby elites can exert control over the masses. It, like the so-called educational system, has seemingly also been produced as part of a sui-generous mechanism for compelling people to participate in our destructive society.

This process has proceeded at an exponentially increasing rate since time immemorial, despite alarm calls from endless acute observers of society.

What hope is there, then, that action-researchers like Deming will be able to stem the flow?

### *Mapping the Socio-Cybernetic Processes Behind History (and Evolution Itself)*

But where is socio-cybernetics in all this? Why is it that this destructive process proceeds inexorably in the same direction. No single factor explanation ... such as “Humans are, by nature, greedy” ... will do.

Remarkably and disturbingly, the growth of this destructive process has itself many of the features of the organic. It appears to be an endlessly self-producing, self-extending, and self-elaborating autopoietic process.

I need to underline the significance of that statement.

The term “autopoietic” was coined to draw attention to the ability of “self-organising” systems (an oxymoron if ever there was one) to do more than *reproduce* themselves. They *produce* – *ie extend and elaborate* – themselves<sup>5</sup>.

Note that it is precisely these autopoietic, organic, systems processes that have enabled “life” to overcome entropy<sup>6</sup>.

Instead of descending into chaos and disorder – as the laws of physics suggest should be the case – it is these processes that have created *order* – even Gaia herself – out of chaos.

**How do we represent this life force in our diagrams mapping the socio-cybernetic forces that control the operation of autopoietic sub-systems?**

See the problem?

OK. That’s one problem.

**But.** Hear this.

What Bookchin appears to be drawing our attention to is an inexorable *organic* process which drives us *away* from organic social organisation toward the hierarchical processes which are going to lead to our extinction as a species ... and, make no mistake about it, to the destruction of the our planet ... Gaia... at least as we know it.

It looks as if an *organic* ... not cancerous ... process is going to defeat the organic life process itself ... and thus enact the second law of thermodynamics.

How are we, as socio-cyberneticians, going to contribute to understanding of this life force, represent it in our diagrams, and come up with viable suggestions for how it – and the social forces subverting it – can be harnessed?

By the second half of this sentence I mean to reiterate my earlier question: How are we to design a socio-cybernetic (governance) system which will enable us to survive as a species to replace one which manifestly contributes overwhelmingly to the processes that are heading us, seemingly inexorably, toward the rocks?

### ***Issues Requiring Resolution***

1. How are we to represent the life force contributing to the progressive emergence of societal arrangements with new emergent properties within our diagrams of the socio-cybernetic forces governing the operation of autopoietic social systems?
2. More specifically, how are we to represent the life forces which seem, paradoxically, to be leading in an “organic” manner to the evolution of hierarchical societal arrangements which seem likely, in the end, to defeat life – the organic – that ultimate expression of autopoietic systems having emergent properties – itself and thus contributing to the enactment of the second law of thermodynamics ... which predicts *disorder* – entropy?
3. How can we use our knowledge of the socio-cybernetic system governing the operation and evolution of society to devise – design – a socio-cybernetic – governance – system

which will enable our species and our habitat – the autopoietic system known as Gaia – to survive and defeat entropy?

#### Notes

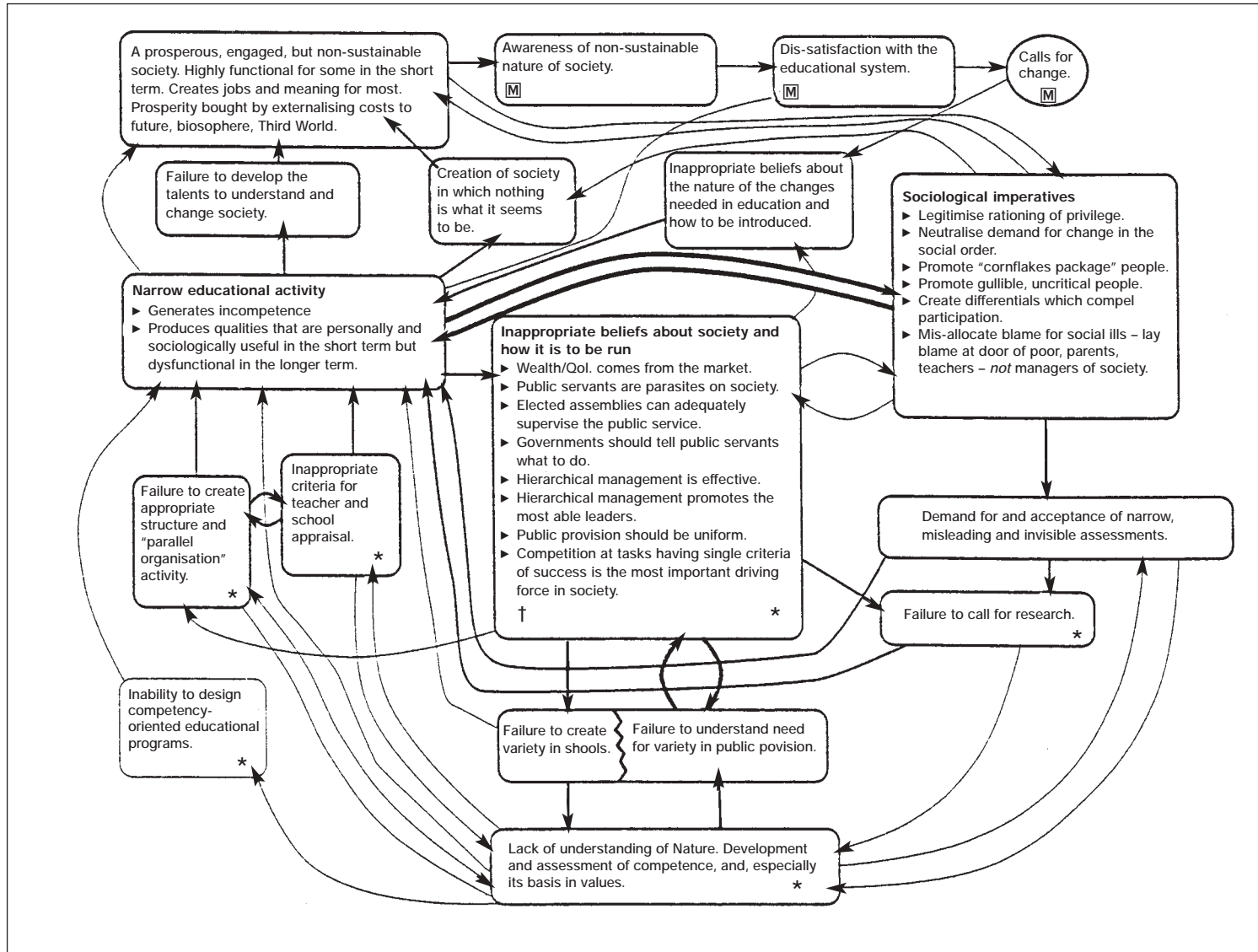
1. It may be useful to remind readers that *cybernetics* is the study of the guidance and control processes that regulate the behaviour of animals and machines ... and the design of better ones. It follows that *socio cybernetics* must be understood as having centrally to do with studying and mapping the invisible social forces which contribute to the reproduction and, more importantly, continuous development, production, extension, and elaboration of these autopoietic governance systems ... and the design of better ones.
2. **Most** of the work carried out in modern societies is senseless. Obvious examples include the cadre of officials providing guidance, and implementing penal processes, ostensibly to “help” – i.e. force – people to fill up forms to obtain jobs which do not and should not exist, transporting milk for thousands of miles to centralised distribution centres and back again, and transporting bottled water backwards and forwards across Europe. However, as shown in a long endnote to Raven (2008) and in Raven (2007b), most work in modern society consists of such things as the manufacture, marketing, and distribution of junk foods, junk toys, junk defence systems, junk insurance, junk education, and junk research.
3. Many other developments – an inter-related network, or *system*, of developments – were also required to get a safe network of sailing boats and many other developments besides a better mapping of socio-cybernetic processes would be required to run society more effectively.
4. A summary and critique of this book can be found at:  
<http://www.eyesociety.co.uk/resources/Bookchin.pdf>
5. I am not the first to encourage socio-cyberneticians to address this problem. For example, Gerard de Zeeuw organised a whole symposium (in 2001) to address the problems of emergence.(My own contribution to that symposium can be found via the link at Raven, 2007).
6. Authors such as Lovelock (1979) drew attention to the fact that life ... and Gaia herself ... depend on such things as salting away carbon so as to create an atmosphere in which other forms of life can survive. Robb (1989) heavily underlined the conflict between these processes and the entropy predicted by the laws of physics.

#### References

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<http://www.eyesociety.co.uk/resources/MEFESChap1.pdf>
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- 17 [Summary of Parts I to III and overview of Part IV: The Way Forward] are available at [www.npsnet.com/cdd/nwn.htm](http://www.npsnet.com/cdd/nwn.htm) ). PDFs of more of the chapters of the book can be found in the “Full List of Publications” in the *eyeonsociety* website by following the link <http://www.eyeonsociety.co.uk/resources/NWNChap1.pdf>
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\* Intervention in these cells would help change the nature of the qualities nurtured and rewarded in the system. Motives which could be harnessed to do this are marked M.

† These need to be replaced by acceptance of the need to make managed economies work – to find way of giving effect to information concerning the public long-term interest, the need to explicitly create variety and information on the personal and social consequences of the options, and to find ways of holding public servants accountable for, and getting them to at in, the long-term public interest. This means systematic, broadly based, evaluation and participative democracy.

Figure 2.

New societal management arrangements

