

# A Synergetic Approach

by Dr. J.Z. Hubert

“Love thy neighbour as thou loveth thyself . . .”

This commandment is, I believe, at the core of any Christian teaching and is the pivot of any genuinely Christian attitude and behaviour.

This, one of the highest and noblest principles, constantly inspiring our civilization - with results of inspiration sometimes more and sometimes less visible - can also be formulated in the language of a science called synergetics and concerned with the effects of mutual reinforcement that may take place between acting elements of any system. In the language of synergetics, then, the commandment can be rendered:

“Act in such a way as to be *“synergistic”* with your neighbour”.

What does it mean to “be synergistic with your neighbour . . .?”

To give him/her food, shelter, clothes when they need them? Yes, certainly, but that is just the beginning, a preliminary condition . . .

Being ‘synergistic’ (in application to human beings) means acting for realisation of a “positive feedback” or “positive reinforcement” in relations with your neighbours. This means that you try to act and interact in such a way that a process is achieved which will help to identify and realize hidden potentials both for your neighbours and for yourself.

This is the meaning of the human “positive feedback”, “positive reinforcement”.

This is (human) synergy.

## A Question for Co-operatives

In the 1992 Report to the I.C.A. by S. Böök a number of principles and “basic values” desirable for the Co-operative movement have been articulated. A question may come to mind: are they not only desirable & admirable but also feasible? Or as formulated by R.L. Marshall - with whom I have had the pleasure to engage in long correspondence and intellectual exchange on this (and other) subjects:

“ . . . do the values and principles defined for Co-operation (in the Report) match the constituents of human nature . . . . i.e. are these principles and values feasible in the sense of realizing at least the potential of the human character.”

So I would like to discuss this subject from the point of view of synergetics and, more generally of the sciences dealing with complex, self-organised systems. The next two sections will be devoted to:

1. a slightly more extended description of synergetics;
2. a short description of some basic conditions that have to be met if a complex system (like for example a Co-operative) is to exist as a self-perpetuating entity (and in addition realizing some values and principles).

A less scientifically minded reader may pass directly to the last section dealing with some practical conclusions which, I hope, may be understood and, at least partially, accepted also, without support of scientific experience and vocabulary.

### **What is Synergetics?**

Science, as I indicated above, knows situations and phenomena when a system is more than an algebraic sum of elements which it contains, when a phenomenon is much more powerful than a sum of individual phenomena. A laser light is much more powerful than light emitted by a collection of randomly radiating atoms would be, a cell is more than a collection of atoms which constitute it, a living being is more than a collection of cells of which it is built.

Science treats such phenomena under a summary heading of “synergetics” (although some use the name “science of self-organization” or, when the systems considered are more of a physical character, they talk about “physics of structure and complexity”). Synergetics is essentially an interdisciplinary science. It tries to establish some general rules and laws governing the development of self-organizing systems irrespective of what are the elements which constitute them - be it atoms, excitation states of neurons or individual people (or smaller groups of people forming larger ones). H. Haken, one of its main propagators defined it as: “science of cooperative phenomena”.

Now if we take separate individuals and we put them together, an initially unconnected people may become a team, a nation, a congregation, an

organisation. Scientists studying the behaviour and efficiency of organisations of any kind, be it of productive or of any other character, - talk about synergy of organisation.

Energy released by an organisation is much more, *or may be much more* than the sum of energies that could be released by each member, each employee acting separately. There *may* arise powerful currents of mutual reinforcement, of the positive feedback. A group may become infinitely more powerful (in the case of large groups) than a sum of individuals.

One plus one becomes more than two.

### **Basic Conditions**

Complex, self-organizing systems cannot just develop anywhere and last for ever in any conditions. When they are possible, what are the basic conditions for their development and subsistence?

The most important condition can be formulated very briefly and generally: they all need to be connected to a source of “negentropy” or of “free energy”.

In the case of living systems this “free energy” or “negentropy” is obtained in the complicated processes of physico-chemical and metabolical transformation beginning with “transforming” (or rather dissolving) of the in-taken food and ending with the subtlest information processes going on in the central “steering and co-ordinating” nervous system. In the case of human beings this process of energy and information transformation is influenced, negatively or positively, or sometimes even uniquely conditioned, by the quality of the goal being pursued and by the human relationships etc.

Which of these activities, what kind of human relationships are “friendly” to this transformation process and which are hampering, blocking it? This is a very vast question and, in fact, it may cover nearly all that is or may be in our life.

I can raise the question only generally and indicate a few aspects which are or might be directly related to “Co-operative activities”.

First, *what is this self-organising structure* for such activities?

Any group effort, any group activity implies a certain *spatio-temporal* structure of human relationships.

Mr. A. at time TA will be doing XA, Mr. B. at time TB will be doing XB, Mr C. . . . etc.

The actions are specifically related - in space *and* in time: for example XC is made possible only when XB has been done. A baker may make the bread only when the delivery van brings him flour and the power station (or coal mine) furnishes him the necessary power or fuel etc. . . .

Such a structure, like any other structure - as said above - to be self-sustaining has to have a steady access to a "negentropy source", or in other words, *its functioning* positively catalyses negentropy (energy-information) transformation processes.

### **Positively Catalysing Properties**

Now, in this last section we shall try to point to some kinds of activities, and some structures of human relationships which have these "positively catalysing" properties.

It seems that there are *some* directions of activities, some goals, pursued individually or in groups, which, on the average, have more power to release one's energy (i.e. in our scientific language: to transform *more* negentropy) than other goals and directions of activities.

Such are those which are related to the preservation instinct, to the sexual impulses or to those which are connected with social growth - in power, in fame, in wealth etc. (It is as if in some directions of possible transformation there were in-built in men especially strong transformers . . .). This is why, it seems, private ownership is in natural advantage over other forms of economic activity.

However, it seems that this disadvantage of other forms - including Co-operative societies - could be off-set, even with distinct net gain - by adopting some specific "transformation - friendly" social structures and patterns of behaviour in-built into Co-operatives (and possibly into other economic units).

### **Offsetting Co-operative Disadvantage**

Social synergetics proposes many such possible structures and patterns. Among others they include:

- creation, where possible and wished for, of the natural synergy groups. (i.e. groups of interacting people *not* exceeding 8-12 members).

- creation of multi-level interactions within the same economic units. Very briefly this means that for a part of time people are bound together by a rigid, undemocratic and hierarchical structure streamlined to produce the most competitive material objects of economic activity and for the rest of the time they form a more brotherly group, a sort of commune interacting on cultural, spiritual, recreational and other levels. This last model is - in its many variations - functioning in many Japanese enterprises; it has been very successful in the American Synanon etc.

Implantation wherever possible of "negentropy friendly", mutually reinforcing, synergetic forms and structures is a challenge not only for the Co-operative movement but for all of us.

### **The Author**

DR. J.Z. HUBERT is Associate Professor, Department of Structural Research, Institute of Physics, I.F.J., Radzikowskiego 152, 31-342 Krakow. He holds a Ph.D. in Physics (Jagellonian University and University of Mining and Metallurgy Krakow) and a degree in humanities in the Department of Studies in Civilisation, University of Nancy. He serves his inter-disciplinary background and advocacies in various ways, including membership of the editorial board of the English language quarterly *Dialogue and Humanism* and of the International Board of the Society for Value Inquiry, based in the U.S.A.