CHTRONE
Systems Thinking and Macro-Marketing: Part 1

This book is about the development of systems thinking. It is about seeing things and events in their context and thinking about how those things change with a change of context, or act to bring about changes in that context. It is very much aimed at overcoming the traditional belief that things or events are to be understood and distinctively named as things-in-themselves, isolated from and uncontaminated by their interactions with the environment.

This criticism encompasses the mistaken view that science advances by experimentally isolating the thing-in-itself. The method of isolation is certainly central to the practice of science but what is isolated always includes some environment of the thing/event as well as some environment shared with the observer. The shared environment may depend on some means as sophisticated as an electron microscope or a synchrotron but the principle remains the same. Without the element of shared environment the thing/event would be quite unknown and unknowable to us. The common use of nouns in our language permits us to slide over and forget this fact. Language has given us some marvellous gifts for linking future and past possibilities to present actualities but it is no gift that it has also given us the power to talk as if that restriction did not exist. Thus language permits us to name as possible existents things such as ghosts, spirits, griffins and angels.

Science has learnt the hard way that invoking those sorts of entities only blocks the way to understanding. Nevertheless the most prevalent and misleading linguistic error is that of assuming that science is concerned with abstract universals i.e. with identifying what is true about a thing/event under any circumstances whatsoever. Invoking the ceteris paribus rule, of all other things being equal (unchanging), has the same effect of wrenching the designated thing/event from any context and thus permit it to be represented by an abstract universal.

This is contrary to the direction being taken by the scientific enterprise. Scientific findings are always context bound, however 'thin' that context may be, particularly in the physical sciences. Science is concerned to identify that in the context which has effects on the thing/event and what in the context can be changes by changes in the thing/event. That is, the heart of science lies in identifying material universals, not abstract universals. Material universals identify the material limits within which a claim to truth is made. That is not to deny that it is sometimes convenient to formulate laws that hold under most practical conditions as tautologous and not to deny that the most valuable tool in the scientists' kit is probably mathematics and that is based on abstract universals. It does remind us that what is a convenience should not be seen as the face of science. Thus the concept of gravity has been a convenient summary of inter-spatial forces since Newton. Leibnitz pointed out at the time that the concept of action-at-a-distance was scientifically indefensible. Several hundred years later Faraday showed that electromagnetic fields filled the scientific requirements of action-at-a-distance. Today, a hundred and fifty years after Faraday's finding, there is general agreement that Einstein spent the last twenty five years of his life up a blind alley in trying to reconcile in a general theory gravitational fields with electromagnetic fields, and that we get irreconcilable measurements of G. There are stirrings to the effect that science has to admit that the concept of gravity was a stop-gap measure and science has to strike out in new directions.

This book is not an attempt to spell out a general systems theory. For reasons I have spelt out before (Emery,1969,1982), and elaborate here, I think that the pursuit of a general systems theory is not just premature but is as illusory as the pot of gold at the end of a rainbow. It is illusory in that the pursuit of a general systems theory assumes that there is some sort of environment that exists for all sorts of systems whether they be physical, chemical, geological, biological, sociological or psychological. The assumption is that they can eventually be reduced to the very abstract environment that suits the purposes of physics. That is a reductionist

assumption that is indefensible. I am well aware that thinking is almost sub-rosa in the world of the practising scientist and the education of the neophytes. I can only hope that some who are so inclined will be encouraged to consider that at basis, no fact is a scientific fact unless it can be corroborated by its relation to other different facts- structural corroboration (Pepper, Chapter 3,1942/1970). That is, a scientific fact is basically one that is known in context.

This goes against the grain of normal scientific practice, and education for being employed as a scientist. Normal scientific practice is focussed on multiplicative corroboration, confirming or disaffirming the findings of other scientists who are respected in the same specialist division of science. Frequently we find refinements of experimental design, measurements, purity of samples, of sample size or mathematical models but concern the same fact or small group of facts. The practitioners of normal science give only lip-service to inter-disciplinary research. Their elevation of multiplicative corroboration over the more basic method of structural corroboration is not entirely dictated by the quality of people available to fill the roles of scientists and see their task as only different in style to the traditional view that genuine knowledge is knowledge of the thing or event in itself. As they see it, and spell out in their textbooks, they differ primarily in their objectivity and reliance on rigorous quantification, experimentation and mathematical statement of their theories.