REINTEGRATION AND SYNTHESIS IN THE BEHAVIOURAL SCIENCES : JUSTIFICATION, A POSSIBLE BASIS AND SOME DEMONSTRATIONS OF FEASIBILITY

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ABSTRACT

The behavioural sciences are considered to be excessively fragmented both within and across disciplines. The case for this claim is presented, followed by analysis of special problems that confront the development of more unified, coherent behavioural science endeavour. It is proposed that man's status as an evolved biological entity be more fully explored both as a fundamental base from which diverse approaches can grow, and as an ultimate conceptual framework, or set of parameters, within which the various perspectives and formulations should cohere. The argument is developed that the most fruitful starting point in these terms is the exploration of man's basic processes and organization at the bio-psychological level of analysis. Brief investigation of (Skinnerian) behaviourism as a paradigm provides the opportunity for specific demonstration of value, as broader bio-psychological formulations are considered to enable : (a) more satisfactory treatment of anomalies that have developed relative to this paradigm, without loss of the real gains accrued from its development as such (b) productive links to be established with formulations hitherto perceived as 'opposing' (c) the development of more directional, comprehensive theoretical status in what has been an essentially pragmatic development.

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INTRODUCTION

Within the global behavioural science [1.] field, study, practice, and research is excessively fragmented. This thesis is an attempt to:

(1) identify and analyze the nature of this fragmentation;

(2) consider possible negative effects, for both the general progress of behavioural science and the efficacy of individuals working within, with particular focus on the general field that traditionally falls under the rubric of psychology;

(3) suggest how some of the negative effects contingent upon current structure and practice may be (in part) countered; and

(4) demonstrate the value of the corrective advocated.

Students entering tertiary institutions with the intention of studying human behaviour face, over a number of years, a series of significant decisions. They are initially constrained to choose a select few subjects to study from an impressive list of disciplines that concern themselves with man and his behaviour : zoology (ethology), behavioural genetics, psychology, sociology, anthropology and some less obvious, such as education, philosophy, cultural geography, and economics. Tertiary education is usually so structured that within a year or two selection is substantially narrowed further; the student typically selects one discipline at the expense of the others. Selection doesn't end there, however. Within an established discipline the student (for a variety of reasons) may become an adherent of one particular 'school' of thought over others. (Within sociology, for example, he may embrace a general Marxist orientation, or Parsonian structural functionalism; within psychology Skinnerian behaviourism may be adopted at the expense of a 'third force' orientation).

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1. 'Behavioural science' is used sufficiently generally to encompass all approaches to the study of behaviour. In this regard, note that it is assumed, for example, that animal behaviour studies frequently have as an ultimate goal increased understanding of human behaviour. The validity of these is always in question, and this will find expression in objection to the use of 'behavioural science' as a generic term, especially by those who would stress 'action' over 'behaviour', and 'meaning' over'mechanism'. Hold your horses : some sort of reconciliation of the basic assumptions and approaches characteristically reflected in term preference is a major goal of this dissertation.

The important outcome is that the emerging behavioural scientist acquires an *increasingly restrictive set of commitments* along several dimensions. He gains a general identity and way of viewing the universe of human behaviour through disciplinary specialization, and a tighter set of commitments through tending to favour one theoretical orientation over others within the discipline. It is the nature and effects of this commitment that differentiates this process from specialization as it occurs within the physical sciences[1]. for interwoven with this process is 'resolution' of dilemmas real to introductory students, but frequently non-existent to someone who has acquired an ever-narrowing constellation of commitments with educational passage.

These dilemmas rest on perception of the disjointed nature of behavioural science theory, knowledge, concepts, and underlying assumptions across and within disciplines. Introductory students frequently feel lost,[2] both with regard to the respective roles of disciplines, and to the validity of different positions identifiable within a given disciplines on specific issues ("who, or what, are we expected to believe?"). A basic premise of this thesis is that guides or criteria for differentiating between behavioural science problems on the basis of the appropriatness of respective disciplines, and theories within, are frequently elusive (and in some areas are near to non-existent). Ready recourse to simple explanations of student confusion as failure of the uninitiated to comprehend the subtleties of differential and selective focus at both inter- and intra-disciplinary levels is denied.

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1. 'Natural', 'pure' and 'physical' are used as interchangeable with reference to traditional science (e.g. chemistry, physics). Note that specialization, a parallel to that evident in the natural sciences, occurs in behavioural sciences. For example there are physical anthropologists, social anthropologists; sociologists primarily concerned with the relationships between social class and crime, others with migration; and there are psychometricians, psychophysicists, industrial and clinical psychologists, and so on. This is regarded as essentially different in kind to the *narrowing* of primary concern to this thesis, although there are some relationships evident, and some parallel negative consequences. These will be discussed where relevant.

2. A strong impression gained from tutoring, and supported by conversations with other tutors.

Section One represents an attempt to establish that behavioural science *is* excessively fragmented, this being both the cause of confusion in introductory students and, ultimately, the reason why those well established in a particular niche are often no longer aware of this state, or if aware, deny that it could be any other way. The extent, nature, and consequences of this fragmentation is analysed, with particular reference to aspersions cast on the overall scheme of things by several prominent behavioural scientists, and, correspondingly, their hopes for future improvement.

Initial focus rests upon the current multi-discipline structure of behavioural science, with an argument developed that, rigidly maintained, it represents misconceived emphasis on the significance of emergence at the expense of recognition of unity and continuity in behavioural phenomena.[1.] The major preoccupation of this thesis, however, is with fragmentation apparent at the level of analysis conventionally labelled the psychological. There are two major reasons for this:
(1) The author's personal identity is interwoven with the major concerns associated with this level of analysis, i.e. with the study of individual behaviour, as opposed to such concerns as the general comparison of cultures, analysis of institutional outcomes of social group clashes, or reflexology of fruit-fly limbs. Note this does not imply such phenomena are not of interest, or they can be ignored with impunity; rather this is simply a statement of primary personal interest and ultimate preoccupation. In line with general argument condemning rigid disciplinary segregation, some interest and basic understanding of other such matters and products of different levels of analysis is considered not only necessary, but personally inevitable.
(2) Important, complex links are held to exist between fragmentation at the 'macro' and 'micro' levels. Causes and outcomes of the splintered, embattled schools state of psychological analysis parallel those identified in the larger, rigid multi-discipline situation. For example, similar issues such as the proper role of reduction in behavioural analysis are involved, and negative outcomes - such as those that emerge from 'us versus them' conceptions - are common to both states.

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1. Primary concern is that members often act as if disciplinary boundaries are clearly dependent upon and simply related to scale changes in level of analysis.

But the embattled-schools of psychology situation is much more than simply a micro to the multi-discipline state macro; the link is more fundamental and rests on two basic (but related) observations:

(A) Science, and knowledge, is ultimately unitary; behavioural science problems do not fall into neat disciplinary boxes. The very idea of permanently-fixed categories - branches of study, research, learning - may be misconceived.

(B) The common thread that finally binds all behavioural science theory (insofar as it purports to shed light on human behaviour) exists in the assumptions made about the nature of man, of the operating principles of the species,[1.] *whether these are explicit or otherwise.* The clarification and analysis of these assumptions centres on the psychological level of analysis (not to be confused with *the discipline* of psychology[2.]), although of course other realms/levels of analysis are inevitably involved owing to the ultimate interrelationship of all levels of analysis.[3.]

What is of central concern is the incorporation of theory of, and ongoing debate over, ideas and assumptions about the basic machinery of the behaving human being : how it learns, how its functioning is organised and channelled, how its behavioural capacities develop, how it becomes socialized - as reflected in positions adopted along basic dimensions, e.g. essential passivity/activity, malleability/structural constraints, nature and influence of maturational processes in behavioural/skills development, nature and relative importance of 'lower' and 'higher' processes in behaviour determination, relative significance of internal or external sources of control. Positions adopted (consciously or otherwise; convertly or overtly) know no disciplinary boundaries. It is through psychological problems (and hence paradigms) that the necessary links between biological and social analyses are wrought.

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1. A phrase first encountered when listening to a taped discussion between N. Azrin and D. Premack. Premack used the phrase to point to a conceptual realm largely neglected by mainstream behavioural psychology. (See Azrin, N. *or* Premack, D. Tape).

2. Psychological analysis is not the sole prerogative of psychologists, nor is it the only type of analysis that psychologists engage in in the course of their work. Although these points seem self evident, this is to some degree illusory, and the clarification made is basic to this thesis.

3. Even if this is insufficiently realized in the current multi-disciplinary structure and practice of behavioural science.

Evidence for this is provided by the fact that, despite structural impediments, collaborations do occur across disciplinary boundaries, and, even when not actively sought or developed, convergences have emerged. Of particular interest is the overt employment of psychological assumptions, concepts, and theories by certain sociologists. In this regard it should be noted that, while some sociological theorists declare incorporated psychological elements, others are more covert, or perhaps don't even recognise borrowings and dependencies. Most importantly, those that do openly employ psychology theory *draw from conflicting sources*. As basic issues transcend disciplinary boundaries in this manner, an important link between the fragmented state of behavioural science at the macro level (rigid multi-disciplinary structure) and micro(warring schools of psychology) is thus established - for, while the rigidity of disciplinary boundaries is a problem in its own right, an arguably more significant set of differences exists between paradigms at odds over the ultimate concern that links all behavioural science - the fundamental nature of man.

While, as argued, the attack on the basic issues delineated requires centring on the psychological level of analysis, this by no means belittles the importance of efficient inter-disciplinary interaction and co-operation (to believe otherwise indicates too direct a conceptual assimilation of type of analysis with disciplinary type). Failure to develop *multi*-disciplinary approaches has hindered the development, interchange, and flow of ideas and data behavioural science needs to resolve basic conflicts.

To clarify this argument from another direction: focus in the analysis and investigation of assumptions made about basic human organization and process (in psycho/behavioural terms) - the basic material - centres upon the psychological level of analysis rather than:

(a) the socio-cultural, as relationships drawn here are too macro; they shed light on man's basic state but their basic units are the wholes of lower levels. In other words they deal with the outcomes and products, and the very complex relationships that develop between, of the basic processes rather than the processes themselves *in themselves* . (Theory about the basic material develops out of such investigation, but the danger exists that jumps come to be made too readily from socio-cultural

descriptivism to the establishment of principles of man in basic psychological processes and organization - or lack of - terms). It should always be kept in mind the social phenomena and social facts dealt with are dependent upon basic processes even though not fully explanable by them; while culture obviously determines human behaviour and psyche to a tremendous degree, assumptions of near-absolute determinism do not logically follow - unwarranted reduction can occur in the direction of 'culture' just as it can in the direction of 'biology'.

(b) The biological level of analysis is correspondingly too micro; a scale change is required to lift us to an appropriate level of analysis, synthesis, and formulation. At the biological level relationships analysed and articulated are divorced from phenomena emergent from human social existence.

Lest this position be misunderstood it needs to be stressed that the psychological level of analysis is necessarily interdependent with neighbouring realms, and indeed this thesis sets out to establish the importance of sophisticated biological/psychological dialogue, this having been neglected in favour of psychological/sociological commerce. This tendency has been accentuated by the very divorce of sociology from biology. Conventional social analysis is sufficiently distant from biological analysis for social analysts to be lured into rejecting any possibility of biology making a contribution to the understanding of human behaviour. (What they usually have failed to realize is that, through employment and absorption of psychological assumptions and theories, they have inherited certain underlying biological assumptions). In turn, via sociological/psychological commerce, this logic has pervaded psychology to some degree. Consequently, insofar as a common general pattern exists within behavioural science, it lies in an implicit acceptance of the *tabula-rasa* doctrine over detailed consideration of nativism, with resultant emphasis upon environmental processes at the expense of the basic human material - the essence of humanity - and of the necessarily complex relations between. Of major significance is that this has occurred essentially *by default;* initial basic analysis having not been engaged in to any general or comprehensive degree. Note also that the trend perpetuates the very conditions of its genesis.

Upon focussing on the analysis of man at the level of psychological functioning, it becomes evident that certain major problems beset the establishment of a key model; a basic outline of man's psychological processes and organization. *There is deep and fundamental discord* over 'proper' subject matter and methodology; even over whether or not analysis in this realm can properly be considered a science, or if so, be adequate to the task in hand. Given the importance of such a model across disciplines (for the formulations involved link biological and social structure), the development of more unified and coherent behavioural science rests to some degree upon the identification of such problems, and upon the generation of solutions and remedies.

Such an undertaking is massive in implication; perhaps the best that can be hoped for is clarification of the basic problem(s). What does seem apparent is that behavioural scientists have for too long ignored their own humanity; the conducting of behavioural science is in itself a topic for itself. (The assumption that science as methodology will take care of itself is particularly inadequate when man studies man). The development of coherence and unity may largely rest upon such recognition.

The critique must ultimately be lifted to a set of purposes : the general problem in hand is to devise an attack on fragmentation and its negative consequences that does not violate essential diversity, or recognition that a variety of realms and levels of analysis are necessitated by phenomena emergent from lower relations. Drawing attention to unnecessary divisivness and possible underlying causal factors is in itself a start; the active seeking of convergence and complementarities along with identification of *genuine* and significant differences can be promoted; so too can we actively encourage attempts to develop new logical constructions, viewpoints, methodologies, and formulations that both transcend and unite traditional realms of analysis, categories, and perspectives. The inevitability of specialization need not be denied by recognition that it occurs relative to *a base;* the issue centres on the nature of that base. Some way of developing overall shape, form and direction in behavioural science is required - some way of enabling a

a coherent overall picture to emerge, within which the products of diversity could form a gestalt.

The general corrective advocated (proposed as a possible part-remedy for current ills rather than a panacea) rests upon the argument that ultimately all perspectives are connected by basic assumptions about the fundamental nature of the material - man (i.e. these provide the common ground for discourse). Man's status as an evolved species begs to be explored : the intrusion of functional biology and evolutionary theory into the analysis of human behaviour creates the opportunity for development of an ultimate conceptual base; a relatively clearly defined common ground.

Accordingly, a basic premise is that the understanding of human behaviour should firmly rest upon *an understanding of behaviour*. Human behaviour *per se* as a starting point is held to magnify vulnerability to arbitrary (and often magical) assumptions, and extreme ideas and pathways. Specifically, sophisticated consideration of the implications of human phylogeny in behavioural terms should provide the following benefits:

(1) Provide a backdrop against which essential complementarities and differences may stand out, and an ultimate set of parameters within which the products of all realms of analysis should cohere. Radical inconsistency between basic assumptions made within a particular scheme and those emergent from evolutionary theory will obligate either rejection of evolutionary theory (which would put the behavioural sciences out of step with the natural sciences) or modification of that specific scheme; at the very least closer inspection of both would be necessitated. Increased sensitivity to the complexity of relations implicit in sophisticated evolutionary awareness may highlight the positive consequences of assuming greater flexibility in behavioural analysis : more interdisciplinary commerce, inter-realm of analysis dialogue, a basis for constant reconsideration of disciplinary boundaries (since 'discipline' simply means 'branch of learning'). The general proposal does not automatically necessitate the assumption that the study of biology equals the study of culture or anything equally as absurd; rather, acceptance of it may increase sensitivity to multi-directional causality flow (instead of disciplinary chauvinism in the form of reduction in one direction e.g. cultural reductionism, or biological reductionism), and

to the possibilities of developing new and constantly changing fields of study and focus.

(2) Provide the necessary basis for a general scheme which will serve to articulate the interaction of diverse paths of thought, research, and data; such a general system of articulation will enable transcendence of conventional typologies, associated encapsulated of logic and the inevitable polemics that follow. The possible unification of theory that may result (as opposed to creation of *the* theory) may shed light on otherwise anomalous findings of various separate paradigms (dead ends, recurrent issues, themes, irresolvable problems and disputes). These anomalies may come to be seen in meaningful relationship, and useful new approaches to research and applied work may be revealed.

(3) Provide some ultimate conceptual pattern or 'master-theory' for student/practitioner to revert to when confronted with diverse and conflicting data and conceptualizations. Extreme confusion can result from contact with the multitude of theories, viewpoints, and data generated by the complexity of human existence. Resultant dissonance and insecurity may lead to either extreme cynicism, with development of negative attitudes toward the very possibility of organized fruitful behavioural analysis, or, alternatively, the acceptance of one particular set of rigid ideas that answer all but explain nothing. An advantage of this general proposition resides in its keeping in central perspective man's very *existence* - an evolved living phenomenon with very real contacts with the rest of nature. This assists the keeping of feet on the ground.

(4) Provides a means of countering and keeping incheck a prevalent environmental determinism tendency which (contrary to much social science folklore which degrades biological consideration as indicative of simplistic reductionism) tends to foster excessively simplistic views on behaviour dynamics and causation (since only one set of factors is considered to be significant) rather than the necessary awareness of real complexity.

Section Two elaborates upon this general proposition, and in the course of justification, attempts are made to demonstrate its value. Introduction of biological concepts and considerations into behaviour causation discourse brings with it the bogey of biological determination.

It is an interesting comment on the ultimate inter-relatedness of all fields of inquiry that most vehement opposition to the intrusion of ethology and functional biology has come from sociologists and anthropologists, even when the phenomena in issue centres on individual behaviour.[1.] Section Two to that extent is an extension of Section One; although primary concern is with fragmentation at the psychological level of analysis and the possibility of partial remedy through increased sensitivity to biological contributions, opposition is likely to be armed with sociological and social anthropological concepts, data, and theory. In human issues of any importance or centrality, we are locked into multi-discipline discourse. It therefore behoves behavioural scientists (so long as they maintain any pretense of understanding human behaviour to any degree of generality) to develop familiarity with the basic products and materials of all realms of analysis.

The central arguments of two recent books written with sole intent to discredit the intrusion of biological concepts into the analysis of human behaviour are considered in the course of elaboration upon, and justification of, the evolutionary-theory base proposed. (The Biology of Human Action by V. Reynolds, and The Use and Abuse of Biology by M. Sahlins). This is regarded as especially important because, as argued, psychologists (traditionally caught in the middle as it were) have tended to be more influenced by socio-cultural viewpoints than ones readily identifiable as biological. This tendency has been accentuated and perpetuated by a built-in lack of zoological acumen; the ins-and-outs of social determination are much more readily perceived.

Ideas and principles of man have been drawn from socio-cultural analysis; much has been made of cultural variability, the shaping of the individual's psyche through inculcation into specific cultural modes, and so on. The possibility and investigation of fundamental bias (in accord with phylogenetic principles) in psychological processes, organization,

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1. It is particularly interesting that in most recent times the most violent opposition to the intrusion of ethology into the study and explanation of human behaviour has come from anthropologists rather than psychologists. The anthropology/biology debate has been excessively general, sweeping and black/white; if one assumes any sort of disciplinary hierarchy in behavioural science, we have members of the most 'macro' or 'highest' level of analysis in conflict with some from the 'lowest'. Of major significance is that the debate boils down to dispute over the fundamental nature of man - his operating principles (or lack of!) herein lies the key to resolution.

and channelling has been underplayed by comparison. Of particular concern is the possibility of : selectivity of perception and response; differential ease of behavioural acquisition and, correspondingly, behavioural extinction; relative stability/lability in behaviours; common patterns in repertoire organization; underlying patterns behind individual differences; basis, organization and functions of emotionality, and so forth. Should such emerge (and even the loosest assumption of continuity between man and the rest of the animal kingdom makes that seem highly likely) then the overall picture of man would be complexified geometrically (since we could no longer assume simple environmental programming-of-man models; not only is more sophisticated consideration of two-way interrelationship obligated, but also recognition of complexity emergent from the interaction and inter-relationships of ontological developments with both sources, and so on and so on, is necessitated).

In this light, Section Three briefly examines the most clearly defined (and arguably most influential) paradigm of psychological process : Skinnerian Behaviourism. Analyzed as a paradigm (in Kuhn's sense, 1962), a testing ground for arguments developed in Sections One and Two is provided.

Many psychologists assert radical forms of environmental determination from within its parameters. However, the determinism put forward by radical behaviourists is importantly different to that proposed by many socio-cultural analysts. A clash of basic assumptions about operating principles is evident : put crudely, cultural determinists lay greater emphasis upon programming of the *human 'mind'* (note the use of such terms as symbolism, meaning, beliefs, internalization); the Skinnerian behaviourist, the programming of the *organism's behaviour*. (That this as it stands is an inadequate dichotomy is recognised, and the nature of this inadequacy is teased out during the dissertation. It is worthwhile in terms of the sort of issue it points to, however). Resolution of this dimorphism highlights the inadequacies of both forms.

The consequence of the dominance of behaviourism (for the bulk of this century, and particularly in the USA - but then, as Hebb 1964a argued, American psychology *is* psychology) has been the development of a very restricted view of man within the minds of many psychologists. Within

this view continuity (with the animal kingdom) has been overstressed at the expense of appreciation of 'higher' faculties and abilities. Reaction to this particular aspect of the restricted view has of course occurred. Considerations of a genuinely 'psychological' nature (i.e. concern with the 'psyche', predominantly subsumed under 'cognition') have increased dramtically since the 1950's, with some consequent growth in the understanding of human behaviour. Perhaps unfortunately, much of this reaction has centred around Chomsky's writings; consequently for many the behaviourist emphasis upon continuity has been diametrically replaced by assumptions of non-continuity. In this contingency, not only is all the hard-won ground gained by behaviourism threatened, but also real danger exists that the *tabula rasa* assumption (anti-nativism being rampant among radical behaviourists) will in conjunction be further entrenched, for while those who rally around Chomsky assert nativism in the mental functioning sphere, there is paradoxically little evidence that this formulation is extended to 'lower' processes. Indeed, given the proclivity of behavioural scientists to generate dichotomies and then staunchly defend one side at the expense of other considerations, it is highly likely that some form of a simplistic cognitive determination paradigm will be formed on the basis of near total rejection of behaviourism.

In polemically throwing out the vocabulary of 'instinct' psychology has thrown out with it the possibility of sophisticated consideration of biological impingement upon the behaviour and psyche of man. Therefore, in the interest of securely establishing the appropriatness of functional biology as an ultimate basis for the integration of behavioural science, special consideration is given to these two central issues (continuity/discontinuity; *tabula rasa*/nativism). The balance, especially upset by sweeping reaction originating in psycholinguistics, may hopefully be redressed without loss of the benefits of either behaviourism or of the Chomsky-inspired revolution. Concern is not so much with the 'cognitive' response to radical behaviourism (although considerations of similar nature to those advocated by cognitive theorists would follow a sophisticated biological approach, see for example Stenhouse 1974) as with the pragmatic and arbitrary approach to learning, and environmentalist assumptions associated, that the behaviourist paradigm represents.

The time has come to fully explore the implications of viewing learning and cognition as biologically based, directed and constrained - to adopt a broader frame of reference.

Consideration of behaviourism as a paradigm serves many purposes. Anomalies that have arisen relative to that paradigm are approached from the broader base advocated. In the process reconciliation with formulations hitherto perceived as opposing (e.g. personality theory) serves to demonstrate the value of openess, inter-disciplinary study, and the seeking of complementarities previously obscured by polemics.

This thesis argues that the time has come for behavioural scientists of all backgrounds to transcend fears of naive biological determinism and to reconsider right from basics the implications of man's status as an evolved living entity. The importance of recognizing the full significance of man's social existence (his capacity to symbolize, the role of 'meaning' in human action, self-awareness and human plasticity) has been well established; hopefully social scientists are now sufficiently secure in this to be able to reconsider implications of man's biological nature for his behaviour, and for the sort of social phenomena that emerge from his social existence. Too often such basic (but potentially integrating) considerations are completely rejected because of the assumed futility of nature/nurture debate; the fundamental question "what is man?" has been too simplistically assimilated to the long standing polemics associated. Some basic reconsideration of the properties of man (which rises over and above straight nature/nurture dialectics) holds the promise of clarifying the salient nature of issues (thereby providing a sound base for the establishment of branches of learning with complementary concerns, ranges of convenience, etc) and of providing ultimate checks against the wild flights of fantasy that have too often characterized behavioural science theory. Such a base may also assist us keep in mind that there is such a thing as *man*, and that the various theories and formulations put forward in response to the intellectual problems created by his existence *are* just sets of ideas and conceptualizations, and need to be constantly viewed with the intent of capitalizing upon convergences, areas of similarity, complementarities - in general, opportunities for progressive recombinations and reformulations - in order that we might move closer to solution of the ultimate puzzle.