

## FUNCTIONAL SYNTHESIS OF VIEWPOINTS

### A Conceptual Model Based on Purpose

Short Summary: A conceptual model is described to supply a context within which the increasingly isolated fields of knowledge and experience can be related without jeopardizing their autonomy. This is achieved by defining a space such that every viewpoint held in society is uniquely determined and related within that space in terms of its purpose and its ability to organize its subject matter. The properties of the space are such that developmental, directional, unitary and convergent features are emphasized with regard to society as a whole, groups and individuals.

The final model effectively constitutes a map of functions or modes of experience by which individuals or groups can relate themselves to other viewpoints. An audio-visual display is described which could illustrate the model and an experiment to validate it is discussed.

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## INTRODUCTION

This paper is concerned with the difficulty created by the progressive divergence of viewpoints in society. Holders of many viewpoints find it increasingly difficult to see the relevance of other viewpoints and there is no accepted context through which they may be related. Disagreement is most often considered 'irrationally' as being due to the other party's erroneous viewpoint -- which is after all a 'rational' conclusion in terms of the holders viewpoint (cf. R. Ardrey's discussion of 'territory', ref. 3,4). A context is required in which the 'rationality' of one viewpoint can be transformed into that of another. As things stand, each mode of experience as formalized in fields of knowledge and activity, is becoming increasingly isolated from its neighbour. This isolation, and the desire for autonomy, has tended to oppose any form of functional synthesis of knowledge and experience within society as a whole, as well as to prevent any recognition of convergence of interests or appreciation of a common sense of direction. This problem is reflected in the individual's difficulty in integrating his consequently fractionated experience to achieve some sense of unity, and the difficulty in establishing a personal sense of direction in harmony with that of society to give him a maximum sense of fulfillment.

The importance of these problems has been discussed by, amongst others, Sir Julian Huxley, Aldous Huxley, E. Cassirer, Trigant Burrow, and Colin Wilson (see references). S. Strasser (ref. 19, pp. 191 and 201) emphasizes one aspect of these problems in one field whilst discussing the functional loss of modern science: "...different communities of researchers do not understand one another because they do not want to understand one another....The various groups of theorists...fall apart into all kinds of clans which live in an atmosphere of mutual distrust, aversion and scorn..... The man of science....is no longer able to find a connection between what he thinks and does and the activities of other specialists of entirely different orientations. The end result is that he no longer knows exactly what he is supposed to be doing, for understanding what his special science really is, requires a standpoint lying above this special science itself." To the extent that these inter-group problems result in a disruptive effect on society, we also need, in Ardrey's terms, to be able to hold a synthetic viewpoint to promote the ends of society as a whole.

The purpose of this paper is to show that viewpoints can be related through a conceptual model based on the purpose for which the viewpoint is held. 'Purpose' is treated as the purpose for consciously fulfilling a particular organic or psycho-social function, not as the goal or final cause of an act, nor as the unconscious basis of action.

A purpose-related concept (e.g. direction, intention, relevance, motivation, etc) seemed the ideal key to such a model. The only element common to a multitude of different modes of experience and treatments of data is that each is undertaken for a purpose. Every other element may or may not occur, or will be defined differently -- but it is always possible to obtain agreement that for a consciously chosen experience there was a purpose in choosing it, rather than some other mode. The nature of the purpose may be defined differently, but it is always present. A sense of direction seems to be the one concept which a wide-variety of disciplines have in common, in one form or another. Therefore, in order to develop the relationship between each field of knowledge in a model, a factor must be introduced to indicate the purpose resulting in that field. G.W. Allport (ref. 1, pp. 237-8), referring to the elements of the personality, states that "The justification of any scheme of analysis is always to be found in the purpose for which the analysis is made. A system of elements is "true" in so far as it fulfills the avowed intention of the analyst. The principal reason why psychologists do not agree with one another in their lists of elements is that each is animated by a slightly different intention. Until the purpose of an analysis and the psychologist's aim are clearly specified (as they seldom are) it is not possible to argue about the suitability of one set of elements or another. For certain purposes it is fitting to view the mind as a congeries of ideas, for other purposes, as a network of neural arcs, or as a system of vectors, or as an hierarchy of sentiments." We submit that analogous statements can be equally applied to any differences of opinion in and between other fields of experience.

A comprehensive model must therefore supply a context for all purposes in order to link all the consequent modes of experience. There is however one very important restriction which avoids the apparent conclusion that an unordered, relativistic or pluralistic model would be satisfactory. The latter would be too general to be of any value.

An individual's purposes arise from the necessity to maintain and further those functions governing his existence as a biological and social entity. There is therefore always a pattern of organic and psycho-social functions which he must perform or, by delegation within society, have performed for him. The totality of such delegations by all individuals results in the functional organization of society. The restriction on the unordered collection of purposes above, is that an individual must be able to organize himself so that all his functions are performed, no matter to what degree he specializes. There are therefore only certain permissible combinations of functions open to him and the pattern of functions in society is similarly restricted.

Apart from the stabilizing aspect of functions, man also seems to be involved in the shaping of his environment into a state of greater order which is more satisfying to him. In effect one function is to progressively stabilize his position in time. But as a result of the progressive organization of man's environment due to the action of millions of individuals, man has long reached the stage where he is forced (aided by the population and information explosions, and the tension of modern life) to improve continually the organization of old organization. This developmental process of convergence on a hypothetical maximum of organization or unification (consistent with the stabilizing function requirements) must be incorporated in the model — both in the case of the long-term development of society and in that of the short-term development of the individual to maturity.

The additional criteria in constructing the model are based on those detailed by Sir Julian Huxley as necessary properties of a satisfactory 'idea system' (ref. 12, 13). The model should:

- emphasize the functional importance to society and the individual of each field of knowledge and experience
- ~~to~~ facilitate the individual's efforts to define his purpose and locate the position within this pattern which will give him maximum personal fulfillment as a responsible member of society
- recognize the succession of idea systems necessary to unify experience as the individual and society develop
- recognize the importance of 'outdated' concepts in development and education
- facilitate the planning of future development
- recognize the trend toward increasingly general and unitary concepts whilst maintaining the autonomy of individual specialities

- facilitate communication between isolated specialities
- facilitate the adaptation of new concepts in every field of knowledge to human life and its problems
- stress not only intellectual convergence of interests, but a physical convergence (as is evident in the physical integration of society, e.g. internationalism, communications, world trade, etc)

A most important criterion is that the conceptual model should be representable in a physical form to facilitate visualization, comprehension and education.

While I believe the final model to be original, most of the ideas incorporated therein have been developed or mentioned by, amongst others, Sir Julian Huxley, P. Teilhard de Chardin, R.G. Collingwood, E. Spranger, and H. Read (see references).

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## PART I - DEVELOPMENT OF AN INITIAL CLASSIFICATION OF VIEWPOINTS

### Problem

We each take up individually during the course of a day a large number of unrelated viewpoints. Some viewpoints seem to embrace a whole range of activities, whilst others deal only with particular details and are not consciously linked to viewpoints subsequently held. For example, to assess the pain in my feet I hold one viewpoint, to get petrol for the car I hold another, to consider the implications of the Russian landing on Venus I hold a third, and so on. From holding one viewpoint such as the consideration of a scientific problem, my attention may be drawn to the movement of a fly on the window. I seem to hold unrelated viewpoints in sequence during some periods, whilst during others I am proceeding according to a definite program, e.g. when I explore means of solving an equation. Every action in the latter case is reviewed, ordered and related as a means of obtaining a solution. Now, in order to order my life so that it is not a meaningless succession of related and unrelated viewpoints, I must attempt to obtain a viewpoint which will supply a context for these many attitudes and thus provide me with an integrated but flexible approach to experience. I do not want to lose any of the advantages of my present viewpoints, which are reasonably well suited to handling the detail of my life, but I wish to ensure that my scientific viewpoint is related to my artistic viewpoint, etc. I want to be able to continually evaluate the functional value of each viewpoint to me and the reason for which I am involved in the particular activities.

We find a similar problem in society in general. Different groups in society hold views whose functional value for society as a whole is difficult to establish in one and the same context. Each occupies itself with some details or groups of details, e.g. religions, palaeontologists, trade associations, the IMF, the John Birch Society, radio astronomers, the Olympic Committee, etc., but it is not easy to understand what relationship they bear to one another. Each apparently operates in an isolated field. It seems easier to consider them as dealing with isolated topics because of the difficulty of visualizing a more comprehensive functional viewpoint, which would be apparently less adapted to detail and therefore less useful. It is however by deliberately not attempting to recognize or define any such relationship that we prevent ourselves from sensing any direction in society. This attitude as applied by the individual to himself also tends to prevent him recognizing a personal sense of direction and leads to difficulty in integrating himself into society to obtain an optimum sense of fulfillment.

### Definitions

The words 'viewpoint', 'purpose', and 'discipline' have already been used in connection with the concept of direction. These words will now be defined more clearly for later use.

a) viewpoint (point of view / standpoint / point of reference)

These terms are considered synonymous. They describe a position taken up on the basis of certain assumptions, in particular the assumption of what is 'objective' and what is 'subjective'. From such a position, moving elements of experience can be evaluated or compared. In order to take up such a position, a fixed method of looking at the environment must be adopted. If it is not fixed then successive elements of experience cannot be linked and viewpoints follow, and are conditioned by the environmental flux. A fixed viewpoint is analogous in its use to the Paris standard metre. The assumption must be made that the length of the standard metre does not change over time for it to be useful as a means of relating secondary standards.

It is useful to think of such a viewpoint as being at the origin of a polar coordinate system. When we consciously evaluate in terms of a particular standpoint we are at the origin of the coordinate system. When we evaluate in terms of this system without being conscious of the assumptions made, we have reified the system and use its metric as a matter of habit without being in a position to change it. It is suggested that we can only occupy one viewpoint consciously at a particular instant, but that we can be operating in terms of more general viewpoints some of which have been reified temporarily. So that, for example, I can take up a scientific viewpoint and assume its validity and then plunge into the details of an experiment. I have reified the scientific viewpoint and am operating in terms of it, but I am using a particular experimental viewpoint, and it is in terms of that that I am conscious. If a viewpoint is held consciously, then it is possible to choose to change to another viewpoint. If it is held as a matter of habit, then this is not possible, and the change itself will be based on habit. In this manner, it is suggested that we order our experience within a hierarchy of such viewpoint systems. This hierarchy is discussed later in this part.

b) purpose (as related to direction and motive)

The model attempts objectively to place the person using it in relation to other viewpoints in terms of his currently, subjectively sensed purpose. It is therefore important that the subjective, directly conscious, galvanizing aspect of purpose be distinguished from the sense in which it is inferred indirectly from objective observation, often as motive.

Whilst it may be easy to take up a particular viewpoint consciously, it is necessary to act in terms of that viewpoint to be able to maintain it and at the same time to minimize the effects of extraneous distracting influences. Basically, purpose is this ability to arrive at, hold, and act consciously in terms of, a viewpoint despite the distracting effect of unrelated environmental factors. Purpose is the only constant element of conscious experience when the switch from one viewpoint to another is made. This definition allows for the fact that the viewpoint may envisage the completion of a certain task, e.g. the experimental verification of an hypothesis. Purpose here represents the continuing ability to maintain the viewpoint which envisages this end. But the definition also allows for the case where no definite end can be consciously identified, i.e. when the goal is not clearly defined and only the immediate next step is known, even where the latter is restricted to maintaining the status quo in face of environmental opposition.

It is possible to have a very clear purpose in the sense of recognizing the succession of acts required to achieve the end, without having the will to carry them to completion. These three features are here combined into the definition of purpose, so that to be purposeful carries the significance of having the will to stick to the acts required to achieve the envisaged end.

The definition does not cover the questions of 'unconscious purpose' and evolutionary directional development. From the viewpoint definition it is clear that if one is not conscious that one is holding a particular viewpoint, one has either forgotten why one consciously took it up, or else was unconsciously forced into it by the necessity to integrate environmental experiences. In these cases the ability to maintain the viewpoint is a question of habit which is in harmony with and reinforced by its environment and therefore not purpose which operates to change the environment and fit it to the

individual, in the face of immediate environmental opposition. Habit is a feature of the evolutionary process, and the latter has direction -- society is evolving in an ill-defined direction, but the end state of this process, if any, is not known. By becoming consciously purposeful, however, man gathers up his habits, evaluates and modifies them, and initiates new courses of action, and thus increasingly defines the direction of development of himself during his life and of society as a whole in the long-term. Man is therefore gradually becoming conscious of the directional trends in his environment and is replacing them, or recognizing his responsibility for them, by consciously established purposes.

It could be said of 'unconscious purpose' that it is explicitly defined by, or embedded in, the act and is therefore identical with direction in the overall evolutionary sense. It is only when the act is carried out reflectively, that is to say when it is evaluated as it is being performed, that there is any conscious detachment from it. The viewpoint from which this is done could be said to be temporally equidistant from all moments of the act and acts as a time-binder, as opposed to the former case where there is just action in response to the environment without any link between the elements of the act other than their cause and effect relationship. To hold this viewpoint, detached from the act, requires purpose.

Purpose is not currently an academically popular term. This is compensated by its increasingly frequent use in daily speech, politics and business management. People are increasingly concerned with criteria for decisions. The detail that appears to be forgotten when a philosopher or a psychologist, who is forced to be objective, cannot find 'purpose' is that in looking for purpose - if he does look - he has a purpose, and he has the only purpose that he could detect whilst holding his current viewpoint. He will not find purposes somewhere else. If he looks he has a purpose, as his purpose is to look. Purpose cannot be isolated from the act, since it is the ability to hold, to be conscious of and perhaps even to define explicitly, the relation among the elements relevant to the conscious act. The philosopher looking in from the outside at an act which is not his own, or which he is not in the process of performing, is not relevant to that act and therefore the purpose relation does not touch him, so he cannot detect it. What both he and the psychologist can and do detect is motive and causality, or even evolutionary direction, as mentioned above. The reason that these are detectable is that a socially agreed frame of

reference is supplied (in terms of a particular viewpoint) and it is within this matrix that the act is placed and viewed externally. The act is reified and not considered internally through the momentary dynamics of its execution. Thus by the design of the approach, only elements external to the act are detectable. We are not suggesting that this approach is in any way incorrect, since it is the purpose of both the psychologist and the philosopher, in most cases, to explain experience in this way. Such an approach is the basis of communication.

Where an individual is not conscious of what he is doing and is merely responding through habit to his environment, the external approach is the only relevant one, since in this case the individual is not conscious of the internality of the act. As was discussed in connection with direction, purpose is not yet a factor. It could be said that purpose only exists when it is defined conceptually in relation to the particular act. It is this act of definition that raises the act from the status of a habit. In the same way, the standard unit of measure only exists by definition and supported by some very powerful assumptions (c.f. H. Reichenback, ref. 18). This paper will attempt to show that when purpose is a factor, even if it is only defined as a first approximation to a 'real' purpose, it can be used as a basis for the construction of a model with the properties listed in the Introduction.

(It is interesting to note that when purpose is a factor, 'purpose' is used in speech rather than 'motive'. For example, 'the national purpose' is used rather than 'the national motive', but we can speak of the 'motives' of another country, since we do not participate in its acts. In the same way I speak of 'my purpose in writing this paper' rather than 'my motive...', although again the reader could speak of 'his motives...' (referring to mine), since he is looking in from outside. Speaking in terms of 'my motives', however, is tantamount to defining and conceiving myself 'from outside' as a thing in terms of an external frame of reference. My recognition of myself 'from inside', which is the basis of any sense of individuality and personal unity, is thus excluded and lost -- for it lies in the internality of the act of taking up the viewpoint and related frame of reference. By speaking of 'my motives...' I therefore actively prevent myself from experiencing any sense of unity -- except in the sense of the totality of external features which I view impersonally in common with other observers.

This distinction may be illustrated by considering a mirror as analogous to the external frame of reference. It is correct for me to evaluate my motives in terms of measurable data concerning my observed actions in the mirror, but I lose the possibility of recognizing that I had a certain purpose in looking into the mirror, i.e. in taking up that viewpoint. I chose to use that particular mirror. Here one is ordering experience in or through the mirror and not recognizing that one has a three-dimensional body independent of the

mirror, of which the mirror image is only a two-dimensional projection (cf. Plato's cave). It is only as the three-dimensional body that one can recognize purpose and choose to change to another mirror.)

The strength of the holding power of purpose increases with the degree of consciousness and explicitness of purpose. If our governing purposes are not defined consciously, then we are ruled by environmental factors and habit. The purposes we do have are then embedded in a context of habit. The greater the extent to which our purposes can be made explicit, the greater our ability to act in terms of our chosen ends. Once a purpose has been explicitly defined, its validity can be tested by whether one accepts the sacrifices or priorities it demands. It is only by having an explicit purpose that a conclusion can be reached, and only by reaching a conclusion is it possible to evaluate the whole act in terms of the overall purpose that gave rise to it, in order to be relatively free to formulate the next subsidiary purpose.

c) discipline (as related to function)

Discipline is used to refer loosely to any organized, non-habitual response to the environment. Each viewpoint, if it is held often enough by enough people, results in a discipline. It is used here to cover organized response in the most consciously, private sense through to modes of experience as organized in the most universal psycho-social functions, e.g. art, religion, science, etc.

Argument

The viewpoints we hold vary in degree of comprehensiveness. The viewpoint I hold when fixing my shoelace now, is not as comprehensive as that from which I consider my family life. In the latter case, the many viewpoints I hold during time spent with my family are linked by the viewpoint I hold when I consider family life. Clearly, if I wish to establish what I am doing each action for, all the time, to determine its relevance to my purposes, I must try to work back to the most comprehensive viewpoint(s) I can hold. It is important that I do so as can be seen from Fig. 1.

Unless I recognize viewpoint 'A' whilst, or between, holding successively viewpoints 'a' and 'b', these two viewpoints and their related subject matter will be unrelated. Similarly, unless I hold viewpoint 'P' whilst holding successively viewpoints 'b' and 'c', experience from these two viewpoints will be unrelated. Achieving viewpoint 'A' from 'a' and 'b' is a process of integration the first time it is done, and a process of generalization thereafter.

On the above basis there are clearly many levels of viewpoint, from that required to consider the flicker of a speck of dust to the most comprehensive. But since each viewpoint represents a definite degree of integration of experience, it should be possible to isolate major transitions in viewpoint, as a first approximation to the characteristics of different types of viewpoint. Such transitions should be reflected in the historical development of ideas in society and also in the growth of individuals within society. A first stage could therefore lead from a mythical moment by moment involvement in the environment to the point where the elements of the environment have been objectified. The individual gradually separates himself conceptually from his environment and evaluates his immediate experience in terms of his current position, a first viewpoint level. A second stage might lead through involvement in the many cycles of habits and other rhythmic activity required to ensure an ordered life, to the point where experience is evaluated in terms of this cyclical life experience, namely a second viewpoint level. And finally, since a progression in this ordered life results from attempts to achieve certain life objectives, a directional element is introduced which can only be evaluated with respect to a third viewpoint level.

Each such viewpoint may be held with respect to physical, emotional or mental experience. The distinction made between emotional and mental is the commonly accepted one, namely, an emotion is that experience which may be represented by such phrases as 'I like him' or 'I fear his ideas'. Mental is that experience which may be represented by such phrases as 'I think he is likeable' or 'he is mentally unstable'.

The three viewpoints are considered in the next sections for each of the three types of experience, for both the individual and for society as a whole. This approach is used as a means of introducing an approximation to a satisfactory model which is then generalized to avoid the suspect rigidity of this viewpoint classification.

## I Individual - Physical Viewpoints

If my body position is fixed, or I am only moving slightly, such as when I am seated, or in my bath, then my environment is constellated into stationary patterns around me. These patterns, such as tables, trees, etc., are fixed in relation to my body position. In taking up this body position, I have taken up a certain viewpoint and have effectively set up a coordinate system by which I will assess the positions of the elements of my environment. This may be considered as a first physical viewpoint.

A second physical viewpoint is required, once the body is moved, to integrate the experience between succeeding locations and set up a framework to relate them. It is suggested that in our daily life we have a limited number of key points which act as centres for a coordinate network by which we can assess our position. Examples of such points are home, office, and club. For example, I always gauge my position in terms of how far I am from home or office. Note that we continue to evaluate our moment by moment experience with respect to our immediate body position, the first viewpoint level, but we integrate this into a framework constituted by our second level viewpoints. If they were not so integrated, we would not be able to find our way from one place to another.

Now, to further clarify the meaning of 'viewpoint', note that I do not need to be conscious of holding the viewpoint in this case. I do not have to recognize it or consciously gauge where I am in relation to the house. But in this case my experience merely becomes a succession of occasions governed by habit and the first viewpoints I successively hold. It is only when I recognize my viewpoint - generally because I have a particular purpose - that I introduce any long-term unity into my experience. For example, when I go shopping, it is only this 'going shopping' viewpoint that gives meaning to and links the succession of activities involved.

If one moves one's home from one town to another, a third physical viewpoint is required to integrate the physical life experienced at the two locations. This can best be described as the viewpoint of the experienced traveller, since only through repeating such transitions can one arrive at this viewpoint and not relate all intervening experience in terms of distance from home. Note that at each location, as a home, a set of second and first level viewpoints is set up.

## II Individual - Emotional Viewpoints

Emotions represented by the phrases 'I am attracted to this', 'I am repulsed by that', which fluctuate in response to the immediately present environment, represent changes which occur with respect to a new type of viewpoint. These are emotions which are felt against the background of the current mood, which may last an hour or a day. It is the mood which supplies them with a context and governs their scope. Emotions are positive or negative with respect to the standard set by the mood. The mood may therefore be termed the first emotional viewpoint.

Moods are however evaluated against the background of the emotional tone of one's life. Moods are positive or negative with respect to the tone. The tone is the resultant of the emotional life and contacts in one's home, club, office, etc. It is to some extent represented by such generalizations as 'he is a cheerful (gloomy, etc.) fellow'. This may be termed the second emotional viewpoint.

Over a period of years a change from one second viewpoint to another may take place, say from 'cheerful' to 'gloomy'. This change, if it is controlled, must be a change with respect to some criterion -- otherwise one's emotional experience in the two states cannot be related and there is no overall continuity. A third emotional viewpoint is required to integrate the experience at and between the two different states.

### III Individual - Mental Viewpoints

I may ponder on the subject of what time it is or how to solve an equation. The thoughts which I have as I ponder one of these subjects are only connected and made relevant by the context into which I place them and by their reference to the problem I am facing. To tackle such a problem, I adopt what may be termed the first mental viewpoint -- it confines itself to the subject at hand and represents an ordering and application of scattered thoughts. Note that if I have 'forgotten what I was doing', then I have momentarily lost this viewpoint.

Now, I may change from a theoretical problem to an experimental one. This change occurs within the context of one of my particular discipline or 'ways of looking at things', which is only mine by virtue of my ability to hold the viewpoint required in terms of that discipline. This may be termed the second mental viewpoint -- it integrates my mental experience within my science or discipline.

Finally, I may change my mode of looking at things over a period of years from, say, scientific to artistic (in the critical sense) or some other disciplined approach. Such a change, to ensure continuity, should occur with respect to a third mental viewpoint. If it does not, then my mental experience in these two areas is unrelated. The contexts are not connected and they are completely isolated sets of experience, without any common meaning. This is the problem which many people face today. How does one arrive at this third mental viewpoint and link one's experience in these fields?

#### IV Individual - Overall Viewpoints

We have seen that it is possible to arrive at a position where one's physical, emotional and mental experiences are each individually integrated. But we have not mentioned any viewpoint or context which could link these three areas of experience. Such a viewpoint would however exist if the three 'third' viewpoints were identical as in the case where there was an overall purpose in life. For in such a case every type of experience is evaluated in terms of its value as a means to that end.

Having considered the major types of individual viewpoint, we find a parallel set of viewpoints held by society as a whole.

#### I Society - Physical Viewpoints

Up until a few centuries ago society's view of the universe was strictly geocentric. The heavens were assumed to move about the Earth. This is the first physical viewpoint and corresponds to the pre-Copernican era. It is still used however in daily life as a first approximation and therefore the sun still 'rises'.

The development from this point of view was the work of Copernicus and Kepler. They introduced a new view of the Earth's relationship to the solar system by determining that the Earth moved, and it moved around the sun. This may be termed the second physical viewpoint.

Having determined how it does move, we are just beginning to assess how long-term changes in this movement will affect us and what we should do about it. For example there has been speculative consideration on whether the Earth should be moved into a different orbit when the sun temperature starts changing. This corresponds to a third physical viewpoint -- with respect to what criteria should we plan and control our environment, and into what is it developing.

#### II Society - Emotional Viewpoints

The first emotional viewpoint is best represented by the background to the day to day fluctuation in the content of newspaper headlines and scandals. This background is the current mood of society as conveyed in such expressions 'the roaring twenties', 'life in the sixties', etc. Since the Earth is not integrated physically yet, these expressions apply principally to Western society.

These social moods have to be viewed against the background of the tone of the era. This tone, the second emotional viewpoint, is indicated by such expressions as the present 'permissive era', 'the Victorian era', etc.

The change from era to era is such a slow process that it is difficult to speculate on the significance of the criteria with respect to which such a change would be made. Perhaps in time to come society will plan to cultivate certain emotions for certain periods, but the third emotional viewpoint, in terms of which this would be done, is a long way off.

### III Society - Mental Viewpoints

Society is currently concerned with ideas related to certain topics. For example, we have the space race, the population explosion, drugs, etc. Each of the latter represents a first mental viewpoint with respect to which ideas bearing on these topics are ordered.

These topics are discussed in terms of the set of categories currently approved by society. This intellectual framework represents the second mental viewpoint.

Over time the set of categories changes as we have seen recently with the introduction of the scientific method which largely replaced the scholastic approach. Again such changes occur over such long periods that we do not register with respect to what third mental viewpoint such changes are taking place.

### IV Society - Overall Viewpoints

Where is society going at the moment? What does the human race want to achieve? What sort of social standards do we want? These questions would be answered in terms of an overall purpose which might exist if the three 'third' viewpoints above were identical. So far we have only made tentative moves toward taking up this viewpoint and planning for our long-term future.

## PART II - DEVELOPMENT OF MODEL

### Viewpoint Model

Having shown the different types of viewpoint in Part I, a means of representing the relationship between them in a simple physical model, is required. Note that at each of the physical, emotional and mental levels, the first two viewpoints are with reference to the experience at the level itself. The third viewpoints demand coordination from some other point which will effectively justify the existence of the level. For integrated experience, the three levels should be coordinated with respect to the same viewpoint. As a first approximation it seemed useful to represent this situation by a model analogous to that of the Bohr atom or solar system, both in the case of the individual and of society (and similarly of groups). This was suggested by the historical stages in development of knowledge of the solar system. See Fig. 2.

In Fig.2 each sphere represents sensitivity to experience at a different level. The fact of this consciousness at a particular level results initially (e.g. in a growing child) in involvement in the perceptual environment and eventually in objectivication of the environment and conceptual detachment from it in terms of the first viewpoints. At the same time there is a spin effect which fragmentizes experience until it is integrated by recognition of cyclical pattern or rhythm in terms of the second viewpoints. Finally, there is also a revolution effect which requires integration of any experience of progression in the cycle in terms of the third viewpoints. These effects complicate understanding of the environment at each level on initial exposure to it. As a result assumptions have to be made that these effects do not exist, in order that direct experience can be ordered. Subsequently, as a result of development, these assumptions can be successively dropped, when it is possible to integrate the direct experience within the cyclic experience within experience of progression.

The viewpoint breakdown discussed in Part I was with respect to major viewpoint transitions. We believe that an analogous or parallel breakdown can be found for any subsidiary viewpoints that are taken up. First one is involved in the new relationship to data, then this is seen in relation to similar viewpoints, and finally one is aware of a progression or development to other viewpoints. The major transitions were discussed in order to clarify the introduction of the above model.

### Noosphere Model

Now, although the viewpoint model appears to provide a representation of the relationship between viewpoints, it is abstract in concept and does not stress any degree of unification and convergence, nor does it clearly link the individual to society. The method used by Teilhard de Chardin (ref. 26) to stress the significance of the unity of the world of thought was the concept of the noosphere - a sphere of thought building up around the Earth. In the terms in which we have distinguished emotional and mental experience, the noosphere may be visualized as consisting of two concentric spheres around the physical Earth (see Fig.3).

Layers within these spheres at increasing distance from the physical Earth may be thought of as representing an increasing degree of organization and unification, or increasing 'entropy'. A 'personal noosphere' to represent an equivalent development in the life of the individual may be introduced in a corresponding manner. For as an individual grows, he has to acquire an increasingly powerful coordinative apparatus in an analogous manner.

This creation of increasingly elaborate organization may be thought of as taking place in each of the physical, emotional and mental spheres. In the case of society, the concept corresponds to Teilhard de Chardin's 'complexification' - but in this model it is a progressive complexification within each sphere, although physical organization may be accompanied or preceded by emotional and mental organization.

Now, to the extent that new layers are added or 'activated' with the passage of time, more embracing and fundamental unifying structures will be formed. In effect there is a convergence upon the conscious elucidation of the structure and reasoning behind every aspect of the functioning of society (or the individual) as the layers build up. It would seem that we could describe this as a sphere building outward which in some way was also building inward on itself. This seems to correspond to Teilhard de Chardin's concept of an 'enroulement organique sur soi-meme'.

### Combined Model

Let us see whether we can combine this concept of unification and convergence with the coordinating and directional emphasis of the viewpoint model formulated earlier. We can define a relationship between two types of space (A and B), such that:

- (i) every point on the surface of a sphere in one space (A) is also, at the same time, a point on the surface of a sphere in the other space (B);
- (ii) points on increasing diameter concentric A spheres are points on decreasing concentric B spheres.

These two conditions result in a model which was first developed by Jacob Steiner (ref. 25).

The A space will be taken as our ordinary space centred, for simplicity's sake, upon the physical Earth and surrounded by the emotional and mental spheres, as described in the noosphere model. The B space therefore constitutes what we will term an inverse space. The relationship between the two spaces may be crudely represented by Fig. 4, but this fails to do justice to the fact that the centre of the B space can only be related mathematically to the A space -- no two-dimensional drawing will suffice.

Now, it is only at the point of minimum 'entropy' for our society, the centre of the inverse space, that all individual and group views are reconciled with regard to experience in society. It is only from this viewpoint that the overall function of the individual in society and of society as a whole can be recognized. We will therefore consider the centre of the inverse space as the centre of both the individual and society viewpoint models developed earlier.

The centre of inverse space (or B space) may be considered to be related to Teilhard de Chardin's 'point Omega', for it is only when the potentialities of this point have been expressed or embodied in structure that society will be able to consciously fulfil and direct its functions. (In religious terminology, the 'line' linking an individual's current viewpoint and this centre of inverse space represents the 'way to God', for it is only along this line that the existence and meaning of more comprehensive organizational structures may be increasingly understood.) The two spaces also give a physical representation of Teilhard de Chardin's centrifugal and centripetal forces, if we consider that each centre is a centre of attraction (attraction to mass and attraction to unity respectively). At the same time, the two spaces, as potential fields, are a representation of the two types of energy, physical (i.e. ordinary space) and 'psychical' (i.e. inverse space), which are mentioned by Teilhard de Chardin.

In summary, therefore, the remaining conditions defining the model are:

- (iii) 'mass' (representing organization) is of such a nature that its 'density' (representing complexity) is proportional to its 'entropy';
- (iv) the centre of the A-space sphere is the point of maximum density, and the centre of the B-space sphere is the point of minimum entropy.

Having outlined the model and the nature of the two extreme centres, it is now necessary to explain its utility in emphasizing direction and synthesis at stages of organization (physical, emotional, or mental) between the two extremes. For a particular level, say mental, it is clear that some organizational structures are more unifying than others. Einstein's General Theory of Relativity links more than does Ohm's Law. According to our model, these structures correspond to viewpoints which should be on a 'higher' ordinary space shell or a 'lower' inverse space shell. This gradual transition to greater organizing power could be better represented if we consider each major level (physical, emotional, mental) as being divided up into a series of shells. (cf. first and second 'quantum numbers'). Note that a viewpoint taken up on any particular shell will have an ordinary space aspect and an inverse space aspect. So that from the shell the ordinary space aspect would effectively constitute a spherical body (attracting 'mass'), indicating the unity of the viewpoint (e.g. the scientific 'world'). The inverse space aspect would be represented by concentric shells of relevant, more powerful viewpoints, or specialties in the space surrounding it, illustrating the attempts to achieve greater unity with respect to a particular viewpoint. Note that when we hold a viewpoint this inverse space aspect is sensed to be 'all around' our current viewpoint.

#### Nature of Space in Model

The purpose of this section is to convey a general impression of the nature of the sociocultural space created in the model by relating it to expressions used in daily speech which suggest some aspects of it. Details of the space will be discussed in the next section.

We have described a space in which an individual has at any one instant three viewpoint locations, namely his physical location, his emotional location and his mental location. These represent the points where he has his 'being' at any one time. Each individual must have three such unique locations although they may change from moment to moment, since he must choose to experience in three such ways whatever choice he makes.

The space is the volume created by the physical organization of society, together with the emotional and mental environments of society, and may be visualized here, in inverse space terms, as three concentric spherical bands of possible viewpoints (cf. electron cloud model of the atom) centred on the hypothetical point of maximum unity. Each location in each band represents a different mode of experience which may, if commonly held, give rise to some formal organization in society. It is only by a change of purpose that an individual or group can give rise to another viewpoint, which is then effectively constituted by its own relative coordinate system.

In visualizing this space it is most important to recognize that the path of movement through it is complex and results from a change of purpose and the resulting viewpoint. If one specializes, one moves in towards the centre of the space (explained in Part II) but is tied to the more general viewpoint currently held, so that the greater the specialization the less the movement (see Fig.8). Consequently the path of permissible movement from one part of the space to another is very complex. It is complex because the gradual shift in a particular viewpoint in real life is a very complex phenomenon.

The space is complex in another sense, namely that it contains every viewpoint ever held in the history of the growth of society -- many of which are no longer accessible to us. It also has the viewpoints of the growing infant which are similarly inaccessible, since these represent the direction from which individuals grow into the region of conscious membership of society. The following paragraphs illustrate our intuitive knowledge of the more evident features of this space as expressed in daily speech.

From a particular viewpoint which one is holding one is 'aware of the existence' of other viewpoints. This may be looked upon as the ability to 'see' other viewpoint bodies in the space, rather as stars and planets are seen from the Earth. Those that one is not 'aware of' cannot be 'seen'. All that is received from those seen is the 'light', which is the only link indicating bare knowledge of their existence. To the extent that one 'knows something about that way of looking at things', one can resolve features of the viewpoint body or analyse the light from it. To the extent that a viewpoint is said to be 'important', it features prominently in that section of space. To the extent that one is attracted or repelled by a particular viewpoint, one is aware of some 'inter-mass attraction or repulsion'.

Since each viewpoint represents a different method of treating and defining data, the problem of communication between viewpoints is twofold. Either one must take up viewpoints A and B successively, which involves a transformation of coordinate systems due to a complete change of purpose (required to enable him to adapt to the experiences at B). Or the holder of viewpoint B must learn how to perceive the same order in data as at A, by learning to construct or transform a specialized section of his viewpoint into an analogue of that at A. This gives B an approximation to the functional apparatus required, but because it is constructed as a detail of B, it is by definition distant from A and therefore not as sensitive to the data seen in terms of A. This data will therefore appear to be less relevant from B or even nonsense if the distance is too great.

Clearly, if two individuals or groups have similar purposes then the degree of transformation required for them to 'see eye to eye' would be small, since they are by definition already in the same region of space. Hence their problems of communication are considerably reduced.

If one changes a purpose for the first time, one alters a viewpoint and 'sees things differently', i.e. one is exposed to a different part of the space. If people are 'poles apart' their ability to communicate is implied to be zero, if each does not understand what the other is advocating (i.e. they cannot 'see' each other), or else their viewpoint systems are so oriented that they view or define data in opposing ways so that they are 'utterly opposed to one another'.

### PART III -- APPLICATION OF MODEL

The model should be able to represent the link between individual, group and society for each of the three levels of experience, physical, emotional and mental, and have the properties listed in the Introduction. Mental experience will be considered first.

#### Mental Experience

##### a) Society

Starting with the totality of mental experience in society, it may be represented within the model by viewpoint shells with viewpoints corresponding to each of the main disciplines, e.g. art, science, etc. The different shells would therefore represent differing levels of development or organization of the constituent viewpoints. The more organized the viewpoint for a particular discipline, the higher the shell on which it will be located. The mental 'body' or nucleus of society, about which these viewpoint shells are concentric, is equivalent to the lowest level of the mental noosphere. It is the viewpoint common to all mental experience (perhaps a recognition of other minds or a sense of humanity).

Each of these disciplines, as viewpoints on a particular shell, itself constitutes a whole with viewpoints respect to it, e.g., science has all the subdivisions of science. Similarly, a particular subdivision of science has its own subdivisions, e.g. chemistry has inorganic chemistry (see Fig. 7).

Because of their specialization, the subdivisions can achieve a greater degree of unification within their limited subject area, and may therefore be further toward the inverse space centre. They are effectively on higher viewpoint shells with respect to the main division. The main division is the highest common factor. But to the extent that specialization increases, the incremental increases in the degree of unification achieved in successive subspecialties are represented by smaller increments in overall unification. This illustrates the fact that if an out of the way scientific speciality is highly organized,

this does not represent as great a degree of overall unification as if a main division of science achieved a greater degree of organization. In order for a speciality to make considerable advances, the discipline as a whole must advance. This is further clarified by Fig. 5,<sup>10</sup>

It must be remembered in considering the various stages of this model that, wherever a viewpoint is taken up, it will consist of an ordinary space base surrounded by unifying concepts further toward the centre of inverse space. This is how the situation is best visualized. It is also possible to visualize just the gradations of ordinary or inverse space potential (as in Fig. 8), but this only gives limited logical clarity -- the value of the model lies in the complexity at the inverse/ordinary transition at any particular level, for this is the point of moment by moment experience.

We have shown how the pattern of the totality of mental experience and points of view in society may be represented. It is now necessary to show how the individual (or groups) with particular viewpoints, relates himself to this pattern, and thus becomes a social being.

#### b) Individual in Society

As a person grows up he is forced to recognize the importance of the division of labour and knowledge in society and the need for him to specialize. As a result he delegates responsibility for evaluation of the majority of his modes of experience. For example, if he decides to become a scientist, he implicitly delegates his potential responsibility for artistic creation to the artists, for philosophical advances to the philosophers, and so on. The more he specializes within his chosen field, the more he delegates responsibility for the way he thinks with respect to experience in fields excluded from his speciality. In this manner he becomes actively the master of one field, but is forced to passively accept the ruling of experts which he has effectively delegated to study in other fields.

As a child he was potential master of all these modes of experience, but due to the rapidity of growth and education, he will suddenly find himself in one or two functions with the remaining functions forgotten or in an extremely rudimentary state. And most probably he will not recognize any functional connection between the more and the less developed specialities, other than through the habits he has carried with him. He has effectively become cut off from experience as a whole man, in the sense of healthy balanced use of all functions (cf. E. Cassirer, ref. 5). How is this situation represented in the model?

As a member of society he has, at any particular moment, a definite position on the mental noosphere of society, just as a man always has some definite position on the surface of the Earth. But as a specialist, he also has a definite position within the world noosphere of his speciality (which being more organized is on a higher viewpoint shell). As a member of a school within that speciality, he has a definite place in the world or noosphere of that school, and so on up to his own private viewpoint, as is shown in Fig. 11.

Note that in his progressive specialization, if he is continually conscious of the fact that he has implicitly delegated responsibility for the other functions, and of the functional connection between the main body and his speciality, then he will be aware that the subsidiary bodies revolve about the main body, i.e. that his speciality performs a particular function for society as a whole. But, to the extent that he is too involved in his own speciality and has forgotten his delegation of the other functions, and possibly that leading to his own speciality, then he will consider that the main body and all the other subsidiary bodies revolve around his viewpoint body, i.e. he will not recognize any functional connection. And the main body, which represents the level at which he receives the basic experience as a member of humanity, merely becomes a viewpoint, subsidiary to that of his speciality. He then 'sees' the motions of these bodies as being irregular and unordered, for the most part (particularly when compared with the order of his speciality), in the same way as did the early astronomers view the motions of the planetary bodies. This is a representation of the reason that the breakdown of knowledge is so disputed and confused. Confusion is probably increased due to subdivision shell viewpoints being equally fulfilling to the individual however specialized, because at each shell its constituent viewpoints parallel the functional features

(and necessities) of the main division. In this way we can get an artistic, philosophic, etc. way of looking at scientific results. On this point E. Spranger (ref. 24, p.3) says: "In each section of mental life, though in different proportions, all mental attitudes are present. Each total mental act displays to the analyzing observer all the aspects into which the mind could possibly be differentiated."

### c) Change of Discipline

We must now show how a man can switch from one discipline or subdivision to another. It has already been stated that a man does not take up every possible viewpoint during a life time. As things stand, he could not even if he wanted to, but it is more important to indicate why, from the model, he very definitely does not want to and only restricts himself to a limited range, which changes gradually over the years.

Consider the representation of a particular viewpoint shell as shown in Fig. 12. A person takes up a particular mental viewpoint in the shell, with respect to the main subject. Neighbouring viewpoints on one side will be viewed, according to his lights, as progressively behind the times (because successively less organized), and on the other as too new (tentative greater organization) to have been properly established. He is not restricted to the view he takes and may take up any of the neighbouring views or specialize into their subdivisions. But these appear to be decreasingly relevant as the distance from his most frequent viewpoint increases. Different individuals have different abilities to take up or adjust to a scale or spectrum of such views.

Although the individual is striving toward greater unity (i.e. toward the centre of inverse space via a higher viewpoint shell), his effective movement is through the uncompleted or unactivated viewpoints around the main subject (see Fig. 13), until he considers the viewpoint shell is complete and a new shell can be started. Thus in society at any one time there will be groups and individuals working over a range of neighbouring viewpoints from the rearward to the avantgarde.

We have recognized the movement toward greater unity. In practice, however, development within a discipline is much more gradual than the above process would imply and we suggest that viewpoint shells are built up to completion at a number of subsidiary levels, before a new viewpoint shell is started at the main division level.

There seems to be some carryover or parallel between developments in one field and in another. In practice developments in science have an effect or parallel in art and philosophy, etc., e.g. relativity, surrealism and existentialism. This effect is not so evident in the development of the individual, although it is probable that in taking up a particular speciality, an individual carries over his inclinations from the general to the particular, so that he starts with the viewpoint corresponding to the main division viewpoint held. One of the reasons for this paper is that the insights into the particular are apparently only rarely and by chance brought over into the general.

We must distinguish here between the switch in viewpoint as a result of the daily habit cycle (shown in Fig. 12), the change in viewpoint of an individual over a number of years, and the actual development of knowledge within the discipline. The latter is represented by the extension of the delegated pattern within the total mental experience of society. It implies that another potential mental position has become acceptable. The switch of viewpoints as a result of a pattern of habits is triggered in each case by an environmental factor to which the currently held viewpoint is not adapted.

Although over a number of years an individual is unlikely to change from being principally scientifically inclined to artistically inclined (except during the growth period), he is much more likely to change between branches of science, say chemistry to physics, and even more inclined to change between particular views of his chosen speciality, chemistry. Assuming that such changes are always made to produce a greater degree of unity, then it could be said, from the model, that the tendency to shell completion proceeds more rapidly with greater degree of specialization. (A high degree of specialization is like a high ~~degree~~ gear in a car. It enables one to maintain a high speed. Changing the level of specialization is like changing gear, with the highest level of generalization being the most powerful.)

In the same way, if we consider the society pattern, the degree of completion represented in science by the 19th century materialist synthesis is rarely met with. Most development is within subdivisions and specialities and it is here that the viewpoint shells are relatively rapidly completed and new fields are opened out.

Note that although a shell may have been completed in the society pattern, so that society as a whole has incorporated a shell of views, the 'outdated' viewpoints in earlier shells are still of value. In particular, any growing individual will probably have to pass through them (an ontic distorted duplication of phylic development) even if only fleetingly. If the education system is not good and cannot show him the link to succeeding views, then he may well get stuck and cycle through the functions with respect to some particular 'outdated' view. In addition, sophisticated views only operate in sophisticated society. In cases where sophistication drops away, as in wars, then possibly lower shell views may in some cases be more applicable to the situation.

d) Individual and Noosphere

Up to this point we have discussed the individual in terms of the relationship of his viewpoints to the general pattern of views in society. But any particular individual holding a viewpoint at a particular level may also be considered as dwelling as an organism in the noosphere corresponding to that level. He will react with other individuals and data on that level in terms of the viewpoints which he tends to hold. For these viewpoints represent the manner in which he unifies his experience on that particular level, and to the extent that he will always attempt to further unify his experience in any interaction, he will attempt to complete the viewpoint shell in terms of which he reacts, in a manner analogous to that of reactions between atoms.

On a particular noosphere level we may therefore speak of a more or less developed ecosystem of interacting organisms at different stages of development. (It is in these terms that Teilhard de Chardin and Sir Julian Huxley can speak of man having just reached the mental stage of being to draw himself out of the biological mud onto dry land.) In terms of the model there would be a 'chemistry' and a 'thermodynamics' (cf. Sir Julian Huxley speaks metaphorically of a psychosocial temperature and pressure), as well as an 'ecology' at each level.

On the noosphere collections of the same type of organism could be visualized as herds or crowds, whilst in the atomic sense they would be simultaneously represented as a particular element in the solid, liquid or gaseous phase prevailing under the existing conditions.

At each level each individual has an aspect of unity in the sense that he is to a greater or lesser extent conscious of a degree of unity further toward the centre of inverse space. He also has an aspect of diversity in the sense that he can choose to adopt any combination of a wide range of viewpoints and subsidiary viewpoints with respect to his changeable body position, conditions and choice of reactions with other individuals on that particular level.

### Physical and Emotional Experience

Experience at these levels is treated in a similar manner within the model. This will not be discussed in detail here, since the main problem is the integration and convergence within mental experience. The model does however bring out the importance of the trend to global physical integration.

Consideration of physical experience does illustrate a feature which will clarify the conceptual model as a whole, namely the transition between ordinary and inverse space as experienced in ordinary space.

Society has reached the level of organization where we no longer have only the visible features created by Nature on the Earth's surface, i.e. mountains, rivers, etc. We now have roads and cities. The latter represent the formalization and embodiment of wholes or centres which we have defined by our patterns of conscious activity. We speak of London as a 'financial centre', etc., and we conduct our physical lives with respect to many such centres. In the same way my home is a centre for my personal life. These centres are locations that we have, since our nomadic days, progressively defined to govern our physical lives as social beings.

Now the outward visible features of such organization represent, from the model, the ordinary space aspect (equivalent of the mental noosphere), whilst to the extent we sense the pull of these places as 'centres', we are recognizing the inverse space aspect.

We can see how the visible buildings represent a conglomeration of organization about the centre of a city, say, and how suburbs and individual buildings represent secondary and tertiary levels of organization about subsidiary centres. We also recognize that communication is only effective with other centres when a person communicates with his 'opposite number' in the other centre, i.e. a person who has a similar function with respect to his own centre.

### Audio-Visual Facility to Clarify the Conceptual Model

The individual's point of view within this conceptual model can be clarified by considering the following audio-visual display facility which illustrates some of its features.

A man sits alone in the centre of a spherical room. The wall is divided into sectors, each of which can portray (by back projection or TV) a subdivision of the discipline in which the person is presently involved. He can thus look at a continuing series of films on activity in each area pertinent to his current field. As he looks at each sector, the sound track pertinent to that film is relayed to him. The sectors correspond to the viewpoints in a particular viewpoint shell with respect to his current viewpoint (represented by his position at the centre of the room).

The man has a first set of switches before him. He may choose, at the touch of a switch, to specialize into one of the sectors displayed before him. The switch replaces all the currently projected into each sector by films relevant to the subdivisions or viewpoints of the chosen speciality. He may continue to study these films or specialize again into one of the sectors, and so on down to the conceptual treatment of the finest detail. Note that his location within the field of experience is governed and defined by the series of views through which he has specialized, going back to the most general. These represent his positive choices and, negatively, his delegation or rejection of responsibility for other views.

The man has a second set of switches which activate successive sectors in the shell to which he is currently exposed. This represents the development of a particular viewpoint shell.

The man has a third set of switches. These control the degree of abstraction and unification. He is exposed to the same speciality subject matter in each sector, i.e. from the same viewpoint, but it is in terms of a different viewpoint shell. He could therefore see how, for a particular sector, development followed through from its early primitive period to its current state of abstractions. In this way he could see, using the second switches, how particular viewpoint shells built up at different levels. Note that the more primitive the viewpoint the less he will be able to specialize into it.

The man has a fourth set of switches. These enable him to 'jump' from the viewpoint he is at present holding to any other discipline or subdivision of which he knows. The switches control changes of subject, as opposed to the specialization controlled by the first switches. Because he is changing the subject, he is not exposed (on the wall) to any viewpoints which he can choose to go into, as is the case with specialization, which operates by exclusion of all but one subject within the field of view. He only has to choose a sector switch before him. With subject change, however, if he wants to generalize he must carry within himself, as in real life, a map of the divisions and subdivisions of knowledge and their functional interrelationship. He can then 'back out' of his current specialization and see it within the context of its neighbouring specialities. To represent this situation in the facility, the man might have to choose from the list of disciplines known to him (i.e. a list unrelated to the sectors displayed), what he considers to be the immediate generalization of his particular experience. He would key out the code of this viewpoint and would be able to check whether his choice was correct by whether the viewpoint he had just held was displayed in one of the new sectors.

In this way the man could work his way back to the most general viewpoint display in which all the major disciplines appeared in the sectors. By using the second and third sets of switches he could choose to view this level of generalization from the most primitive viewpoint and could thus put himself in the position of holding the early mythical world views. Clearly he would not be able to specialize very far under these circumstances as the number of distinct sectors would be very limited.

Many people using this audi-visual facility would probably repeat their real life experience by 'hopping' from one subject to another. They would do this without establishing the connecting link between the two by first generalizing from the one to the viewpoint from which they could then specialize into the other. Because, as in real life, the facility does not (in the list mentioned) indicate the level of generalization. It does not distinguish between disciplines and the particular viewpoint which is the generalization of the one the individual is holding. This 'hopping' phenomenon illustrates the fragmentation and lack of continuity in experience (see Fig./L).

The facility also illustrates how easy it is to get lost in the maze of knowledge. One can only control one's experience by learning to generalize correctly, otherwise one is subjected to the experiences arising from one's 'hopping' habits. The facility also illustrates that it is only by getting back to the most general that a person can recognize the interrelationship of the various viewpoints open to him. It is only at this point that he can recognize the functions open to him, what he has delegated to society and in many cases forgotten the significance of. It is at this point that he is a whole person exposed at the same time to the full range of experiences or modes of being.

If the person remained in the room for an extended period, it would be possible to plot the relatively stable pattern of viewpoints he eventually needed to hold to avoid the two sets of extremes: 'boredome with relaxation -- fatigue due to over absorption of information' and 'static unity -- chaotic diversity'. To achieve this stability the individual might have to successively hold or view a variety of sciences, art, religion, sex, travelogues, etc., or even cut out all external experience for a while by use of a fifth switch. Such a plot would give a very useful profile of a person -- particularly for educational and vocational guidance purposes. It could be used to supply him with a checklist of material (fiction, non-fiction, periodic) and information sources adapted to his interests -- in effect it could design a personal library and information network to keep him up to date.

In real life, of course, the person not only actively absorbs information and passively views experience, but also actively changes his environment through the viewpoint which he currently holds. In real life he is the cameraman taking the pictures seen in each sector -- it would be difficult to introduce this into the facility, although it resembles the control given in the new automobile driving instruction facilities, where the driver has to keep the car on the photographed road.

The three viewpoint levels mentioned earlier are illustrated as follows. The first corresponds to the man's involvement in what occurs on the wall (represented in the extreme by some forms of psychedelic experience), up to the point where he conceptually recognizes himself to be at the centre of the room. A backward tribesman would, for example, be so involved in the current display as to be unable to recognize that he can control it through the switches. The second corresponds to his recognition of the cycle through which he needs to 'hop' to maintain stability, in other words, recognition of a progression in the cycle as his tastes and interests change.

To the extent that the individual is experiencing in three ways simultaneously, namely, physical, emotional and mental, the facility should arrange that a man be exposed to three sets of sectors simultaneously, which is technically impossible, but does illustrate the complexity of life experience. (One could conceive of three spheres concentric about the man's position, the mental being that with greatest diameter, as with the 'personal noosphere'.) A sixth type of switch could allow him to choose to view sectors in terms of either the physical, emotional or mental levels.

To further increase the parallel with real life experience, the man could be provided with a seventh type of switch. The facility could be so adjusted that the chosen subjects projected into each sector would be replaced from time to time by other subjects or viewpoints, randomly selected by the facility. This would effectively represent the intrusion of extraneous factors in the environment when attempting to hold a particular viewpoint. The man would then have to use the seventh switch to get back his chosen subject --- if he wanted to. This choice and his ability to make it over an extended period, would represent his degree of purposefulness. He could, if he wished, just allow his experience to drift at the mercy of the randomizing device.

Control by switches, particularly the first and seventh, could be to some extent discarded, since such control requires a reflective, delaying element in the facility which is not present in real life. Interest could for example be measured directly (directional spectacles, eye flicker, pupil size, pulse, etc.) and any change could immediately initiate changes in the films projected. In this way the facility could possibly have extensive therapeutic uses, since the man would be exposed to what basically interested him.

The facility as described illustrates the complexity of modern life. It is understandable how individuals will quickly isolate themselves in widely separate fields of experience unless they are initiated gradually into certain sensitive modes of experience and points of view. They are only isolated, however, to the extent that they can only communicate effectively with others holding the same viewpoint.

(For each type of person a different audio-visual model is more efficient for imparting comprehension of concepts. The audio-visual model above is based on a conceptual model which is essentially scientific, although in use it attempts to touch upon all the other combinations of functions in their own terms. For the musically inclined the conceptual model is also aptly illustrated by the tonic scale and a piece of music. Here an octave may be considered equivalent to a shell of viewpoints. The piece of music is in a particular key (major division viewpoint chosen) and has a theme or combination of notes (viewpoint cycle at the subdivision level.). Aspects of this theme are then developed in greater and greater detail in the main work (viewpoints being completed at greater degrees of specialization). This musical analogy best illustrates the carryover from general to particular, from theme to subtheme, and vice versa. To illustrate the lack of distinction between division and subdivision, general and particular, consider how a particular note may be used in the major theme and in a detail of development. It is the player or listener who must recognize the distinction between its two uses.)

#### Experiment to Validate the Conceptual Model

From the model, there should be evidence for the existence of viewpoints in a shell in the following areas:

- a) the most generalized viewpoint shell should contain the 'purest' breakdown of viewpoints. There is no direct evidence for these but a guide to them is found in material on ideal personality types, e.g. Spranger's six types, Jung's eight types, the four humours, glandular type theory
- b) the formalization of the functions of the above types should be evident in efforts to classify fields of knowledge, e.g. Dewey and U.D.C. knowledge classifications, Collingwood's grouping of disciplines
- c) each field of knowledge will be represented by types of organization concerned with furthering the particular discipline. There have been a variety of efforts to classify organizations
- d) within each discipline, corresponding to a specialized viewpoint shell, are the schools or particular approaches to the discipline, e.g. schools of philosophy, art, management, etc.

- e) individuals have been classified in a wide variety of ways (see G.W. Allport for summary and bibliography) over the years. This evidence can be used as a guide only, for reasons outlined below.
- f) half-humorous classifications of executives, gardeners, smokers, golfers, etc.
- g) some very interesting empirical data is discussed by G.A. Miller (ref. 15) concerning the maximum number of alternatives an individual can distinguish. A number of different investigations into abilities to judge pitch, loudness, taste, and number of points on a line, leads Miller to the conclusion that the mean of the number of distinguishable alternatives corresponds to 6.5 categories (one standard deviation includes 4 - 10; two, 3 - 15), which he considers a remarkably narrow range. He considers that this range may represent the compromise of our species to the range of environmental stimulus energies.

The items above cover viewpoints in the static sense, we now come onto the dynamic or developmental aspect:

- h) there is much evidence on the historical development of viewpoints in society, philosophical periods, musical and artistic periods, etc.
- j) there is some evidence for the viewpoints through which a growing individual passes. A summary and bibliography is in R.B. Cattell, but the work of J. Piaget is particularly valuable concerning children.
- k) at the most detailed viewpoint level in the model, where passage through the constituent viewpoints of a shell would tend to be very rapid, we find some evidence for the stages of development of an idea and the processes of thought, e.g. works on the stages from creativity to final formulation of an idea, the conception of a project though to its implementation, Spranger's discussion of the relationship between ideal functions at this level.

There is a great deal of evidence in most of these fields, but it presents a confusing picture. The following would appear to be reasons for this, in terms of the model.

- i) G.W. Allport says "The principal reason why psychologists do not agree with one another in their lists of elements (of the personality) is that each is animated by a slightly different intention.....According to his own habits of thought, each psychologist tends to think of individuals as combinations of whatever abstractions he happens to favor for psychological analysis".

In terms of the model, each of these different breakdowns is based on the total pattern of viewpoints as seen from the viewpoints of each different group of investigators, In order to get around this problem, trait elements listed in the dictionary are currently used, on the basis that all significant traits would be evenly represented there by a symbol (see G.W. Allport, R.B. Cattell). This list can be reduced by clustering related symbols. Individuals are then rated against questionnaires by judges.

In this model we are trying to achieve a viewpoint analysis which will be significant to the person holding each particular viewpoint. In other words we must attempt to incorporate the categories of the persons holding the viewpoint and relate these to those of neighbouring viewpoints and so build up the complete pattern. The modified dictionary list may contain too much detail classified solely to the satisfaction of the designer. It will not be meaningful to the holder of every viewpoint and may contain many elements to which he is not sensitive. We are seeking a breakdown which is stable and currently recognized by each user -- in terms of which he currently acts and orients himself. The essence of this breakdown is that it does not commit anyone to accepting any categories other than his own.

- ii) From the model, viewpoints at different levels of specialization would tend to be confused. A strongly held specialized viewpoint will be considered equal to a weakly held general viewpoint, since there is no basis for distinguishing between their hierarchical order.

- iii) From the model, shells at different stages of development would be considered to have different numbers of viewpoints, since some viewpoints would not have been activated. Shells may also have differing numbers of possible viewpoints. These features would confuse an investigator.
- iv) Rating judges would tend to be equally insensitive to viewpoints distant from their own. Such viewpoints might be highly significant to the holder of such viewpoints or vice versa.

Clearly the only way we can proceed to get a viewpoint analysis significant to the holder of each viewpoint, is to get the holders to map out their own viewpoint environment. Each knows, better than any investigator, the significant viewpoints in his field. In effect we want the holders of a particular general viewpoint to indicate into how many sub-groups or schools they split. This method does not have the normal disadvantages of self-rating, since we are looking for differences between sub-groups not asking for the detailed characteristics of each sub-group. It is not affected by subjective judgment on the part of a particular sub-group or individual, since the other sub-groups or individuals exert an objectifying influence -- each group can view the relations between the others clearly even if it cannot see its own relationship to them. The groups as a whole maps itself, without any outside judges to distort the results.

Some of the evidence in the literature mentioned above will be of this type and can then be analysed further to see whether viewpoint shells are being confused. In this way sections of the space can be mapped out and linked, working from the detail towards the general for which there is no objective evidence. The 'quantum jump' between viewpoints will be more difficult to detect in very detailed or undeveloped viewpoint shells. Having established a tentative breakdown as a guide, we can now start to experiment. Individuals are easier to use because the environment can be controlled and the organizations and fields they are attracted to, will link the results to those of the general map.

What we have to attempt to do is to define an individual's environment so that he holds a particular general viewpoint and a very small range of detailed viewpoints. This would be the closest we could get to reproducible results in his interactions with other members of his group holding the same major viewpoint. But if the model's implications are correct, there will be reactions arising from physical, emotional and mental viewpoints at a variety of levels of specialization. It will be difficult to distinguish between

levels, but it will be easier to distinguish sub-divisions of a major viewpoint.

A group of strangers with one fairly evident viewpoint in common should therefore be allowed to interact under restricted environmental conditions. They should attempt to determine what sub-groups they form with respect to that main viewpoint. This procedure would tentatively define two viewpoints, major and detail, for each individual. This can be confirmed by testing the interactions of such tentatively 'typed' individuals with those from other similar groups. Individuals in the same sub-group could then attempt to repeat the procedure until no characteristic differences could be established. The procedure could be repeated with other major viewpoints.

By modifying the environment it should be possible, from the model, to get individuals to take up other viewpoints and therefore lead to a different set of types. Thus variables like proximity, light, alcohol, excitement, danger, authority, etc. may be introduced as is done to some extent in group dynamics research. In this way a range of viewpoints per individual can be determined, whether he 'loses a shell' in a highly structured environment (e.g. danger) and gains a shell in a highly permissive environment, or vice versa.

During the course of these experiments, the characteristic types of reaction can be determined, e.g. whether holders of different viewpoints 'couldn't get on', 'got on like a house on fire', etc. In this way some measure of the 'energy of interaction' could be obtained with possibly some indication of the types of bonds formed under various conditions. Note that according to the model all viewpoints held 'in common' would tend to represent bonds, but others would lead to interaction.

The problem of distinguishing between physical, mental and emotional bonds would have to be overcome by isolating successively groups of identical physical types before using these typed subjects to test for the breakdown of emotional reactions, and then mental reactions.

From the types and their various reactions to form 'bonds' it should be possible to determine whether there is any tendency to 'shell completion' reactions which would give a sequence to the viewpoints in a particular shell, i.e. a developmental sequence. It should

also be possible to determine the characteristics of the organizations and disciplines favoured by individuals with particular type characteristics. This would lead on to the formulation and testing of a functional classification of disciplines.

The only approach which we have been able to locate which approximates this 'peer rating' procedure and the shell effect is that of T. Leary at the Kaiser Foundation (ref. 14). But the ratings in this case are still reduced to a particular predefined system and are designed for use in the psychiatric clinic environment.

#### Comment

A basic problem raised in the Introduction was the hostility between individuals and groups holding different viewpoints. Considering man as a territorial animal, in Ardrey's terms (ref. 4), it seems as though the territorial concept may be extended to cover any standpoint which a group or individuals take up -- whether it be the land the group occupies or the mental viewpoint they hold in common. The territory is defined in both cases by the instinct to defend it. In these terms, each viewpoint becomes a territory, and each individual has as many such territories that he will defend 'irrationally' as he has roles, e.g., citizen, profession, family man, etc. His willingness to defend a particular viewpoint when faced with conflicting loyalties to two such viewpoints is a measure of the relative importance of such territories to him.

A very interesting feature is the relationship between viewpoint/territory and the 'homing instinct' discussed by Ardrey. In terms of the model, the homing instinct would be explained by the potential well which a principal viewpoint effectively constitutes -- if this well effect can be sensed, and we use the expression 'being drawn back' to a particular place or viewpoint, then a similar situation might apply with migrating birds, fishes, etc.

The model shows clearly that different groups may be visualized as existing in different parts of a unified inverse space and are not necessarily directly exposed to each others unifying concepts. This would explain opposition to the recognition of the value of synthesis and the tendency of each discipline or school to react

to or define data in a special manner. It also gives a justification for the emphasis on the autonomy of each discipline. The tendency to establish concepts of increasing organizing power within a particular field may be viewed as the 'attraction' of the centre of inverse space, resulting in the tendency to complete viewpoint 'shells'. The latter would account for features of developmental and type psychology. For example, it shows how past world views, whether in the history of society or in the life of a growing child, were the right views at the time, not merely misguided or naive as we tend to think. By holding these views a certain stability was achieved on which more sophisticated structures could be built. This brings out the point that perhaps some views are more suitable than others to a particular individual or group at any particular stage of development in modern society. This is perhaps obvious, but the social trend is still against recognizing the validity of matching one's choice of view, whether 'outdated' or not, to one's personally assessed requirements -- rather than always taking or straining to take the most fashionable or modern view.

The model does show how the different groups are functionally related within society and how individuals are related to these groups. Specialized viewpoints only succeed in ordering or determining certain features of the environment -- the remaining features of the environment -- the remaining features are 'seen' as being in irregular motion with respect to the viewpoint. By dropping assumptions inherent in the viewpoint and establishing a more comprehensive viewpoint, the uncertainty created by this motion can be progressively eliminated. In this way there is direction and convergence.

Although it has not been covered, the model does allow for such groups as races and nations and brings out the importance of the trend toward cultural convergence. It also stresses the significance of the individual and his search for personal fulfillment within society. It shows that the individual should recognize or define his own purpose and coordinating viewpoint in order to act consistently and to achieve this fulfillment. And in the same way, the model brings out that groups should recognize or define their own purposes, if we wish to move towards some explicit definition of a consciously recognized overall purpose for society.

Note that purpose, although not discussed directly, is the driving force behind taking up a particular viewpoint. In this treatment, although creating directional effects at and within different levels, it is not a 'final cause' but the ability to hold a particular viewpoint with respect to which secondary decisions can be taken. Purposeful action is with respect to a viewpoint, rather than convergence upon a goal which causes action. In the same way the Earth pursues the course laid out by its orbit, and does not fall into the Sun, which effectively holds it in the orbit. Schoppenhauer (ref. 18) makes a similar comparison between the continual striving of 'will' and gravitation -- achievement of an end does not terminate the process.

We are not stating that the centres or viewpoint bodies exist in any substantial sense. What is being suggested is that we have, by the ways in which we act, progressively defined many such locii so that they appear to govern our lives in the same way as do the mathematically defined focal points of a planetary orbit or of the trajectory of a car cornering. (We are not competent to judge how our use of these locii is related to that intended by Plato with 'Ideas'.) By the way the locii have been defined, they have only a mathematical existence but are nevertheless extremely useful conceptually.

#### CONCLUSION

We have attempted to distinguish between 'motive' and 'purpose' in order to provide a model which will bear some relation to an individual's subjective attitude when he acts. It has seemed that the academic approach is only concerned with explaining his actions to the satisfaction of observers, who are not particularly concerned with the criteria in terms of which he makes his decisions. This split between the academic and the practical is illustrated by the fact that for the past five years at least, "Psychological Abstracts" has contained only one reference to 'purpose', and the latest "Encyclopedia of Philosophy" (ref. 8) contains only a cross-reference to 'motive'. On the other hand, 'purpose' is increasingly used in politics, daily speech, and business management. In the latter case, 'purpose' is treated as the vital "principal criterion" for decision (H. Simon, p.4, ref. 20). B.M. Gross bases his whole treatment of the management of organizations on purpose, and E.P. Learned (p.529, ref.15) rates the determination of purpose as "among the most important and most neglected of all human activities". Business management theory does attempt to distinguish between the 'purpose' of an activity and 'motivating' employees to act. This is the distinction between the subjective and the objective sense, and it would appear to be a useful one.

We have attempted to develop a means of establishing the relevance of specialized disciplines to the life of an individual. There is however, increasing acceptance of the following propositions:

- i) no man or group of men can know everything;
- ii) a lifetime's work may be required to understand the significance of some specialized fields;
- iii) knowledge does not need to be useful, and if it is, may be in some degree inferior.

This means that we are reaching the point where the delegation of a function to a specialist becomes decreasingly valuable, for although he can explain or control a phenomenon to the satisfaction of his colleagues, it may be almost impossible for him to relate it to daily life. The counterpart to this effect is that he then runs the danger of being unable to receive information which might contradict his explanation.

Worst of all, however, is that we are back where we started prior to the division of labour. The only persons who know about the control of the phenomenon are so 'far away' communication-wise, that it is easier to repeat the investigations if one wants to use the answer, than to try to locate reports of previous investigations and relate the language of the explanation to one's own problem. In other words, although an objective explanation has been provided, it is so distant that it does not fulfil any social function and is effectively a subjective explanation because it is so private. This may appear to be an extreme case, but all specialized information is to some degree inaccessible and thus non-functional -- increased specialization increases non-functionality, unless provision is made for the flow back of useful information. In effect such specialized areas become worlds of their own and the information generated is only functional and objective to those worlds. (See Appendix I for a typology of explanations.)

In this model we have attempted to approach these problems by putting everything on a functional basis immediately related and comprehensible to the individual or group concerned. A need for an answer must take the form of a functional problem, so that by specializing through that function in terms of the functional map, one must come to the area in which information is being generated on the problem. At the same time one can understand the adjustment in viewpoint necessary to comprehend the data generated. Each individual can therefore recognize what is or is not relevant to the development of his functions.

The model maps out the location of the distant castles where specialized knowledge may be obtained so that each individual can tell where to go and how to get there so as to be able to relate the knowledge eventually obtained back to the starting point -- and not forget the origin of his problem.

We have taken the approach that individuals and groups should be studied as phenomena in their own right, as was suggested by Teilhard de Chardin. Generally, we only dare to discuss phenomena which can in some way be measured on the physical world surface. This is because we have developed the necessary objectivity and conceptual equipment to detach ourselves from the thing we are measuring. But this is only a fairly recent historical development, as can be seen by the high degree of subjectivity and personal involvement of the alchemists and astrologers, in what were to become the sciences of chemistry and astronomy. Can we not therefore say that there may come a time when we can isolate or detach ourselves from our emotions and thoughts in order to be able to analyse them in an analogous manner.

The problem is to develop the conceptual and experimental techniques to isolate constants. We will have to feel our way slowly and clumsily, not knowing quite what we are looking for, as was the case with the early scientists. Only in this way can we find a means of 'backing out' of our subjective involvement in these constant factors we are seeking. But we have an advantage. We have already developed many useful and complex models in a wide variety of sciences, whereas early researchers only had mythical, religious and magical models to aid their thought processes. Using some of these scientific models as guides (as is done in operations research), we can seek out analogous situations to which they might apply in the fields of emotional and mental experience. In this paper we have used combinations of the solar system and Bohr atom models.

The search for 'mental atoms' is not a new one. G.W. Allport (ref. 1) mentions that it has gone out of fashion although he suggests that the psychologists favouring factor analysis hope that personality can eventually be reduced to a schedule resembling the periodical table in chemistry (p. 243), and that the elements will bear some relation to the genetic units of inheritance.

The final model appears to embody all the desired properties, namely, representation of synthesized experience, convergence, direction, functionalism, developmental features, importance of the individual, etc. It is simple in principle but the conceptual relationship between ordinary and inverse space is sufficiently complex to provide a context for the wide variety of points of view and interests, to explain their apparent isolation and to recognize the necessity for their autonomy. In addition, the model appears to include many features which have been recognized intuitively and are accepted in daily speech. The model 'space' has the structure and properties of a very complex mandala in the psychoanalytical sense.

Testing the model in practice, perhaps in the manner outlined, would establish whether the 'viewpoint shell' feature can be used as a basis for explaining group and individual typology, development and interaction in society. An important consequence of the validity of the model would be that the nature of the succeeding viewpoints required for the development of an idea, an individual, groups and society, and the possibilities inherent in them, could be predicted -- if the parallel between succeeding shell viewpoints holds, as with elements in the periodic table. The model would then also provide a context through which many other scientific models could be brought to bear on emotional and mental phenomena. The functional classification of disciplines would provide the individual with a 'map' and a technique for moving through many fields of experience, as formalized in society, since the classification is the 'lengthened shadow' of his own make-up.

Finally, the justification for developing this model has been that there are so few comprehensive models, that any contribution may be considered as a worthwhile basis for discussion. As a model it should be judged on whether it is a useful and fruitful means of linking the various effects of conscious experience discussed, rather than on whether it is a true representation of the situation.

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Fig. 1 - Illustration of the need for a hierarchy of viewpoints to properly coordinate experience

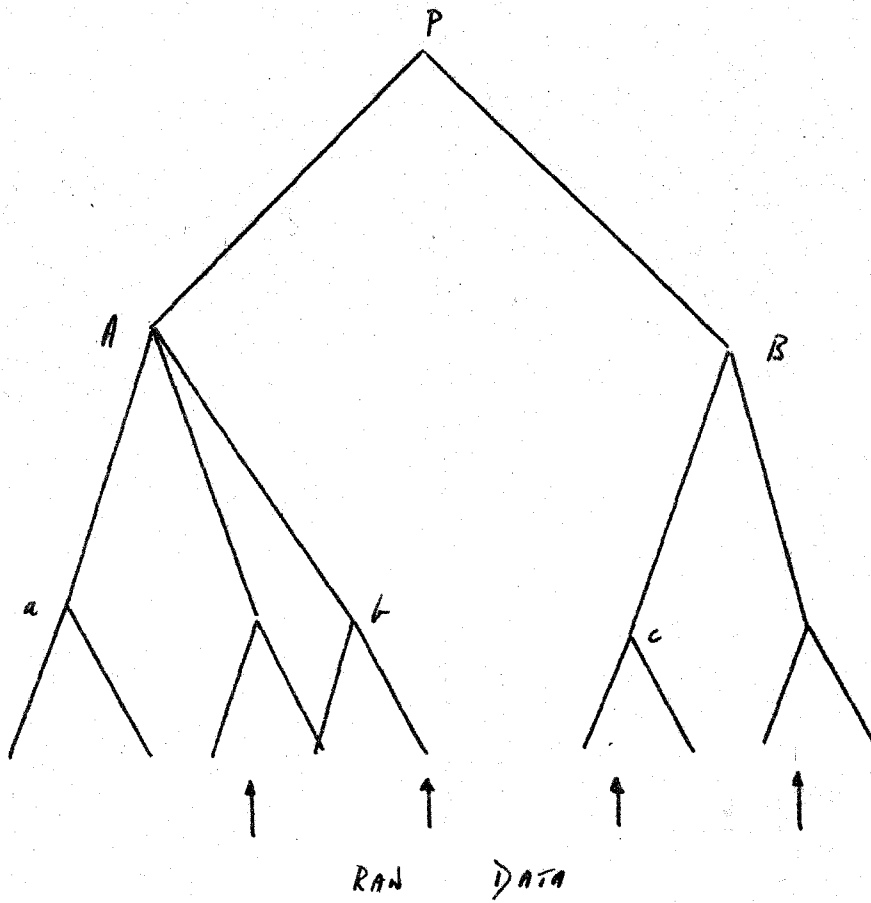
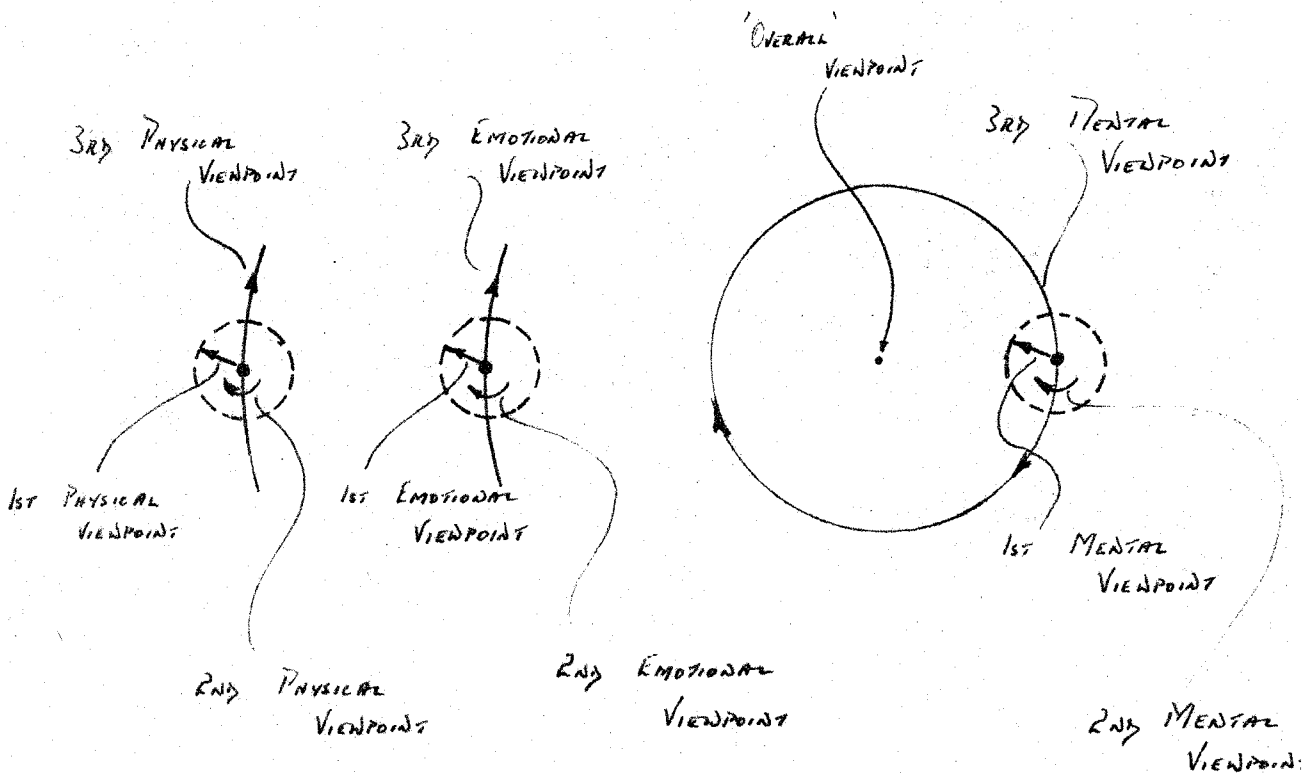


Fig. 2 - Use of a Bohr atom type model to relate different types of viewpoint



- this Bohr atom type model relates viewpoints for: an individual  
a group  
society as a whole  
the relationship between applications of the model at each such level is explained in the text
- the nature of each type of viewpoint is explained in the text

Fig. 3 - Modified noosphere model of organization of society

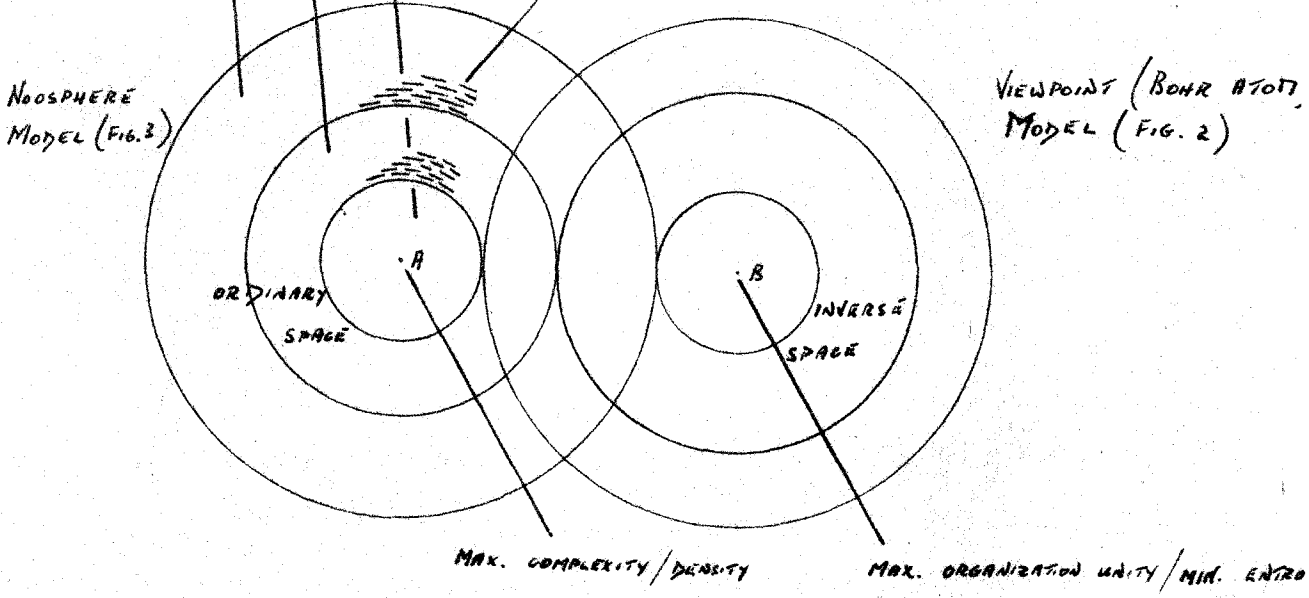
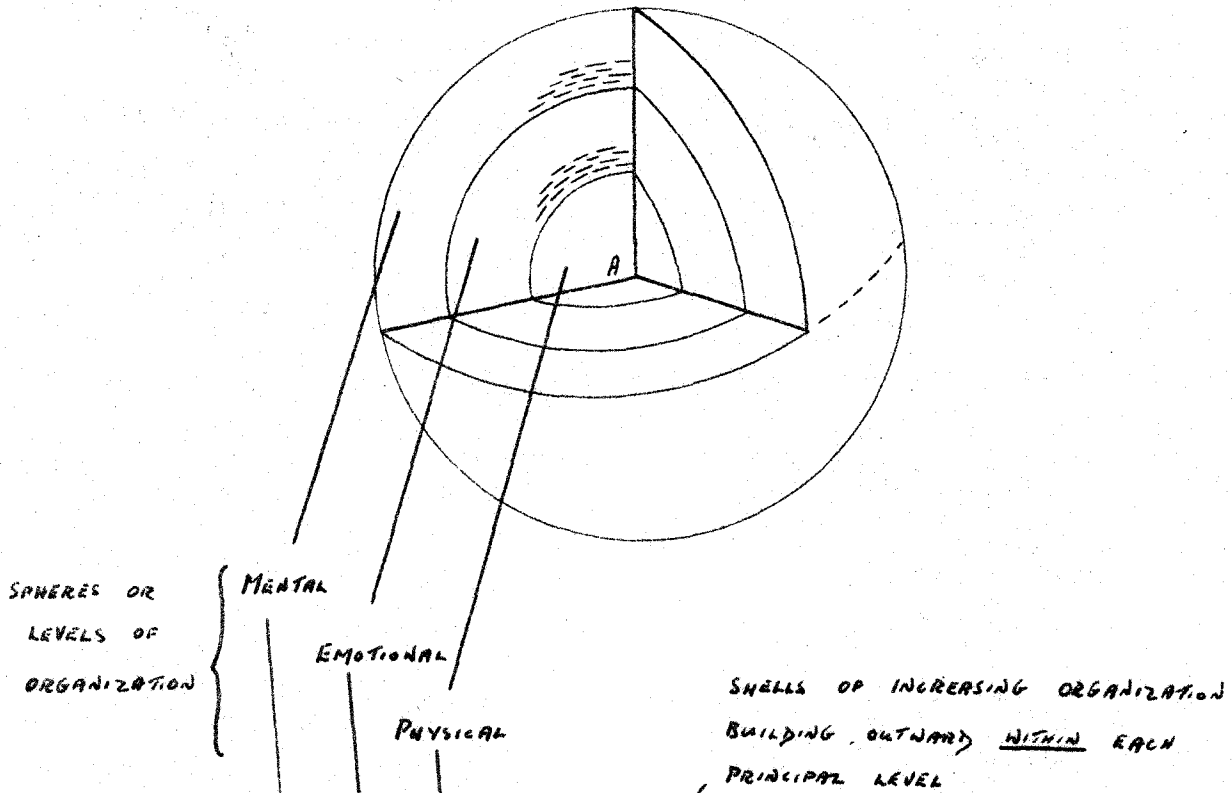
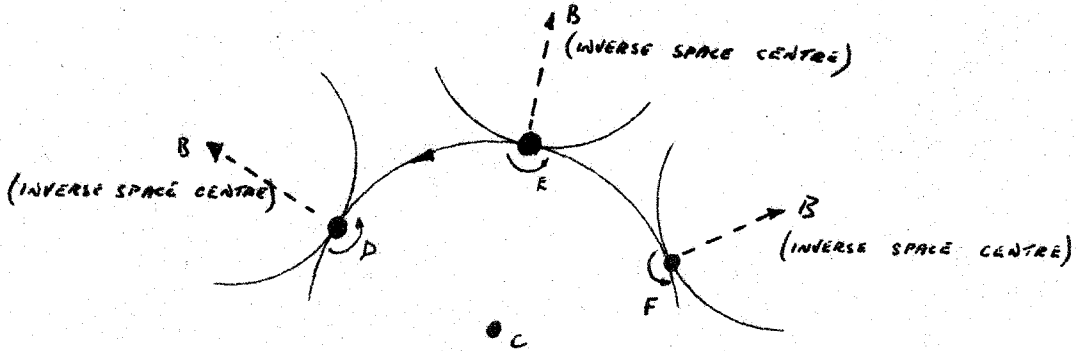


Fig. 4 - Combined model: showing relationship between ordinary and inverse space

Fig. 5 - Ordinary space / Inverse space transition: showing that from a particular viewpoint C, subsidiary viewpoints (representing the possibility of greater organization) appear to 'surround' C



C - MAIN VIEWPOINT

D, E, F - SUBSIDIARY VIEWPOINTS ON 'HIGHER' ORDINARY SPACE SHELLS. THEY ARE ON A HIGHER SHELL BECAUSE IT IS EASIER TO ACHIEVE GREATER ORGANIZATION WITH A SPECIALIZED VIEWPOINT IN ITS OWN FIELD

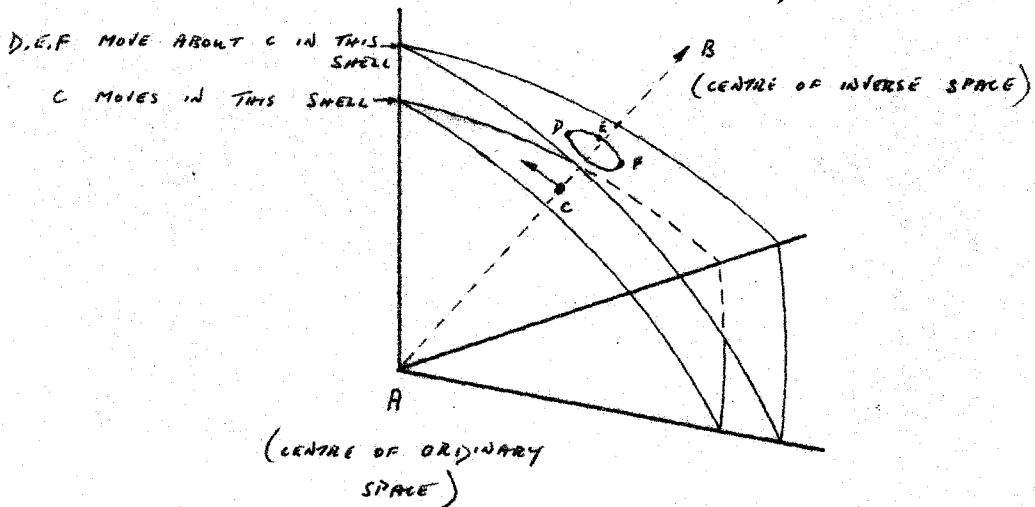


Fig. 6 - Ordinary space / Inverse space transition: showing the relationship between viewpoint C and its subsidiary viewpoints without taking into account the unifying 'distortion' of inverse space which is sensed subjectively by the viewpoint holder

Fig. 7 - Successive specialization of viewpoints within viewpoint shells

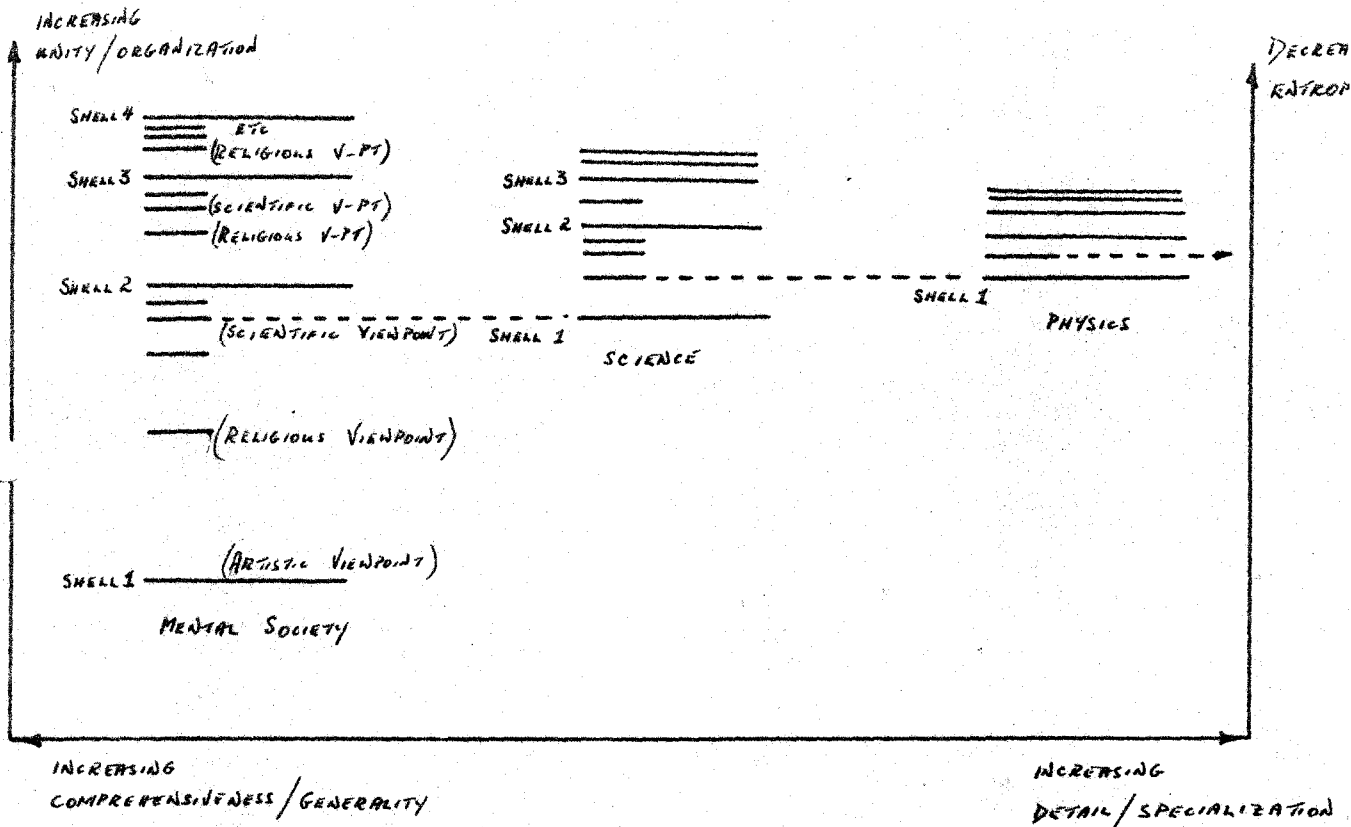
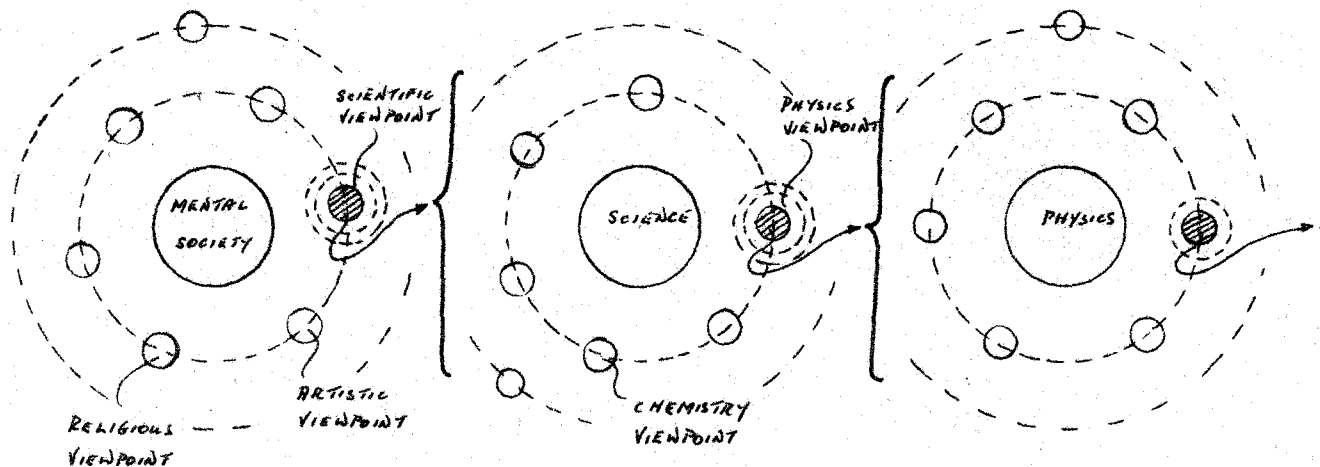
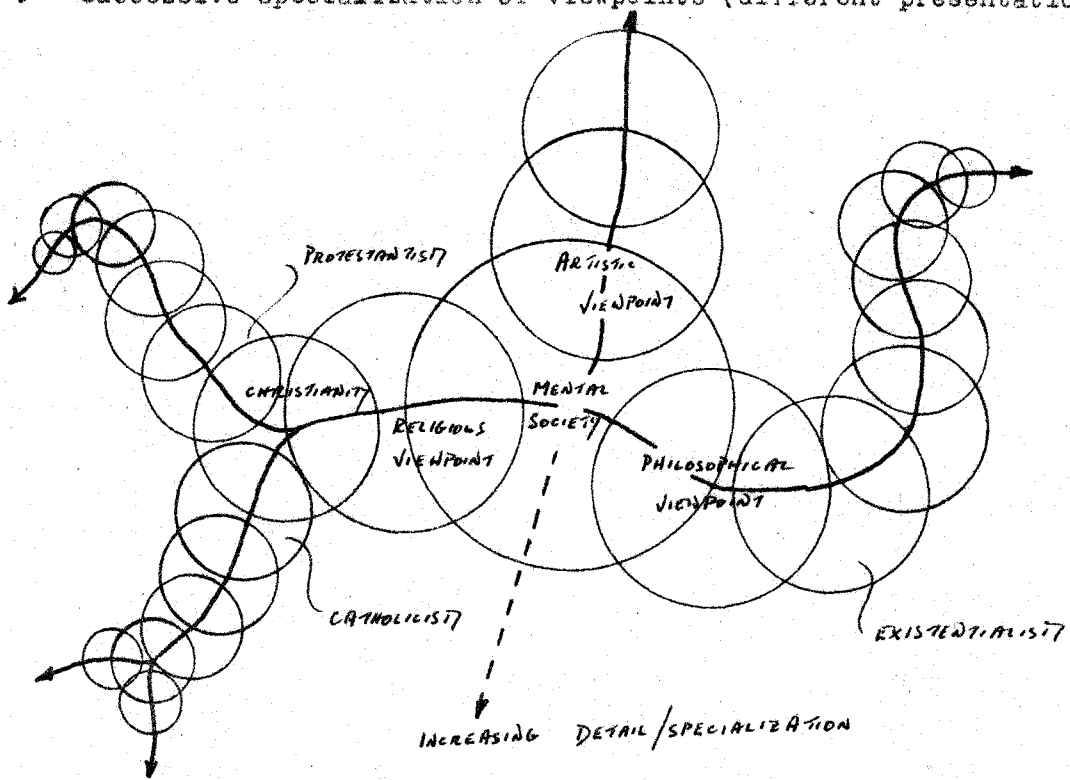


Fig. 8 - Projection of Fig. 7: showing possible levels of organization/unity achieved at increasing degrees of specialization of particular viewpoints within a shell -- based on the representation of the sequence of energy levels in a multi-electron atom (cf. G.S. Zhdanov, ref. 29)

Fig. 9 - Successive specialization of viewpoints (different presentation of Fig. 8)



- each distinct point on a viewpoint shell is a potential 'opening' for further specialization

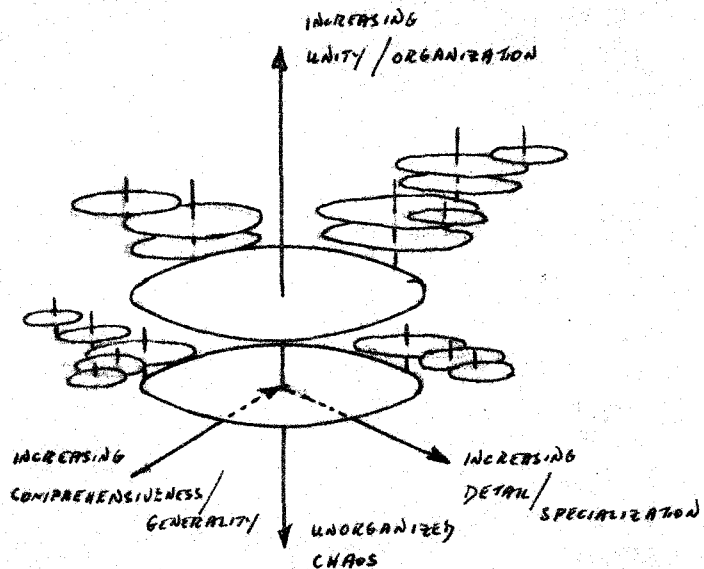
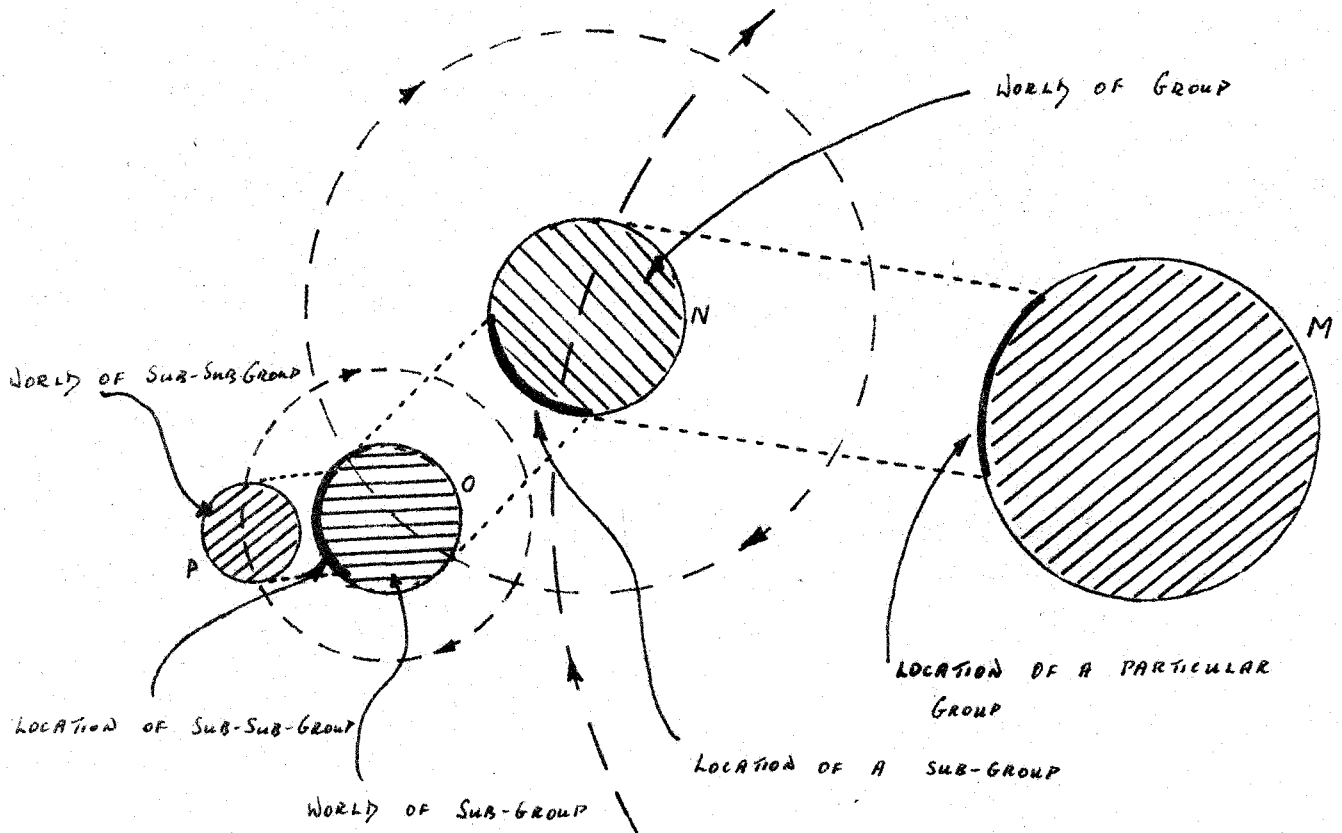


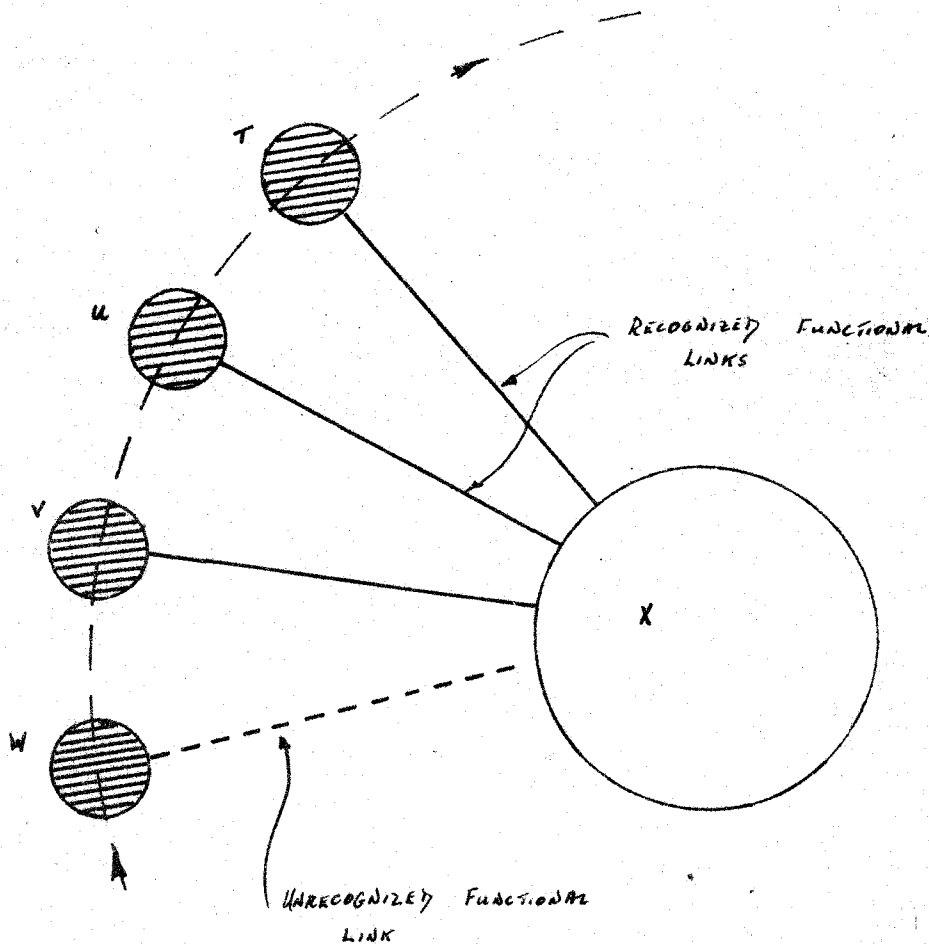
Fig. 10 - Projection of Fig. 9 (different presentation of Fig. 8)

Fig. 11 - Relationship between successively specialized viewpoints considered as noospheres



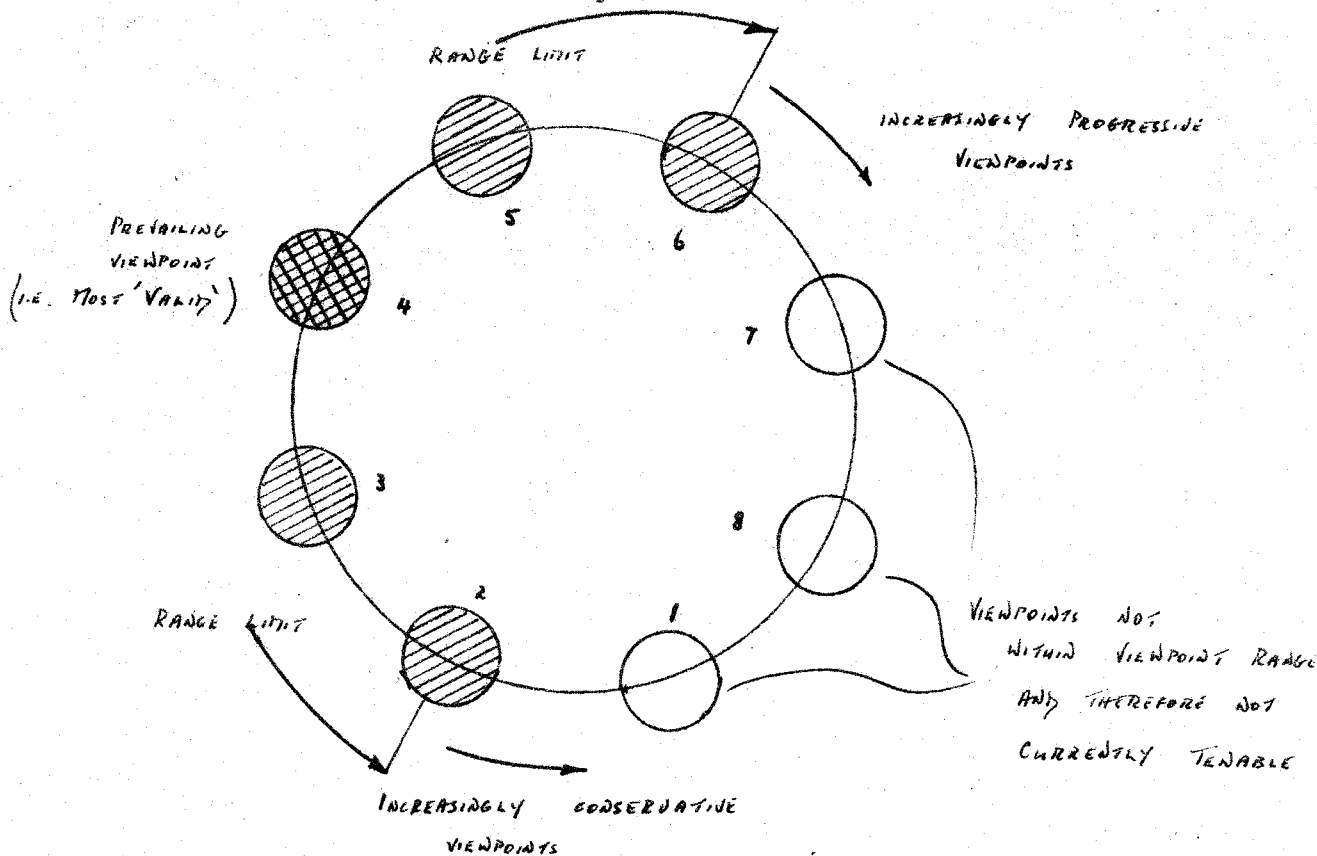
- each location on P, for example, has an equivalent location on O, N and M. This is an illustration of the fact that any member or sub-group of a minority group is at the same time a member of the entire group (M). This may not be acknowledged.
- confusion arises if, for example, N, M, and P are considered from the O-world to be subsidiary to it. This confusion is represented by the consequent irregularity of their movements around O if such were the case (cf. the irregular movements of the planets about the Earth when they were assumed to revolve about the Earth). It is only when the relationship between group and sub-group is acknowledged that such confusion can be resolved.

Fig. 12 - Functional links between a viewpoint and subsidiary viewpoints



- movement from main viewpoint X to subsidiary viewpoints T, U, V, and W is a process of specialization. By specializing to U, for example, responsibility for T, V, and W is delegated.
- if at U, for example, the functional dependence of U on X is recognized, then U will be understood as revolving around X. Otherwise, as at W, X will be considered as revolving around W.
- any change of viewpoint from W to V would be based on habit, since a conscious change must be based on recognition of the functional link through the main viewpoint X -- as would be the case with a change from V to U

Fig. 13 - Relationship between viewpoints on a shell



- although there is continual striving toward greater unity in the organization of experience (i.e. striving toward the centre of inverse space), the effective movement is through the successive