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Application of Model Functional Synthesis of Viewpoints (Part III)

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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. [NB Images of better quality available separately ([0.5mb pdf](#))]

This paper was one basis for the much later *Functional Classification in an Integrative Matrix of Human Preoccupations* (1982) used as the basis for the subject classification of the *Yearbook of International Organizations* and the *Encyclopedia of World Problems and Human Potential*

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PART III

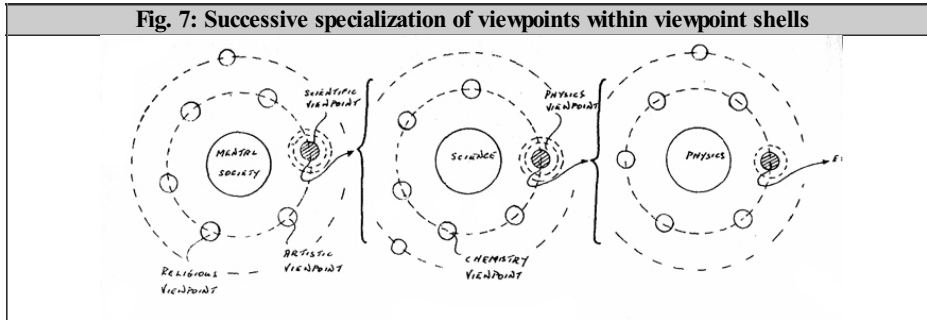
The model should be able to represent the link between individual, group and society for each of the three levels of experience, physical,

emotional and mental, and have the properties listed in the Introduction. Mental experience will be considered first.

Mental Experience

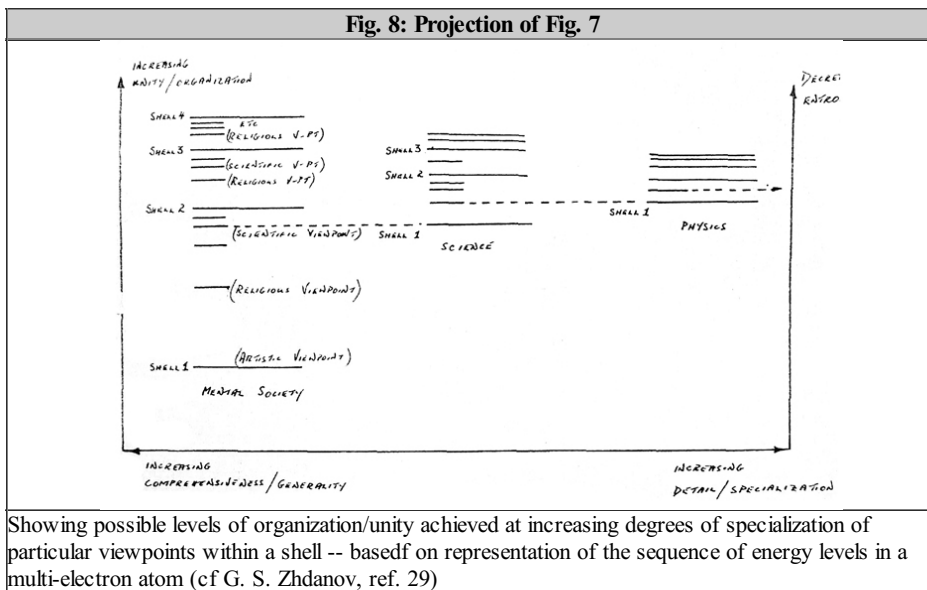
(a) Society

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).

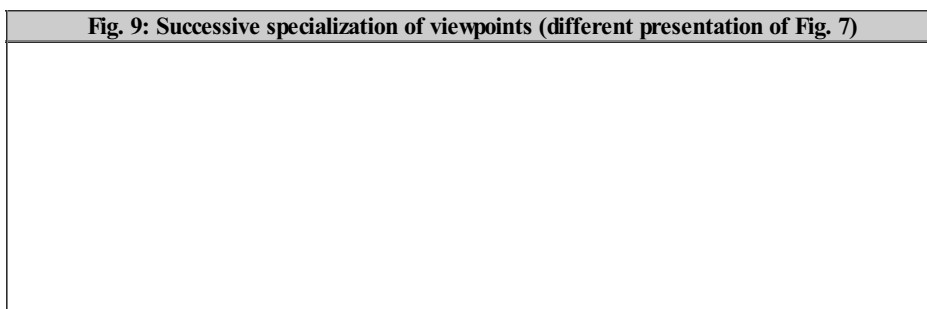


Each of these disciplines, as viewpoints on a particular shell, itself constitutes a whole with viewpoints respect to it, e.g., science *has* all the subdivisions of science. Similarly, a particular subdivision of science has its own subdivisions, e.g. chemistry has inorganic chemistry (see Fig. 7).

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 subspecialities are represented by smaller increments in overall unification. This illustrates the fact that if an out of the way scientific speciality is highly organised.



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. 8, 9 and 10



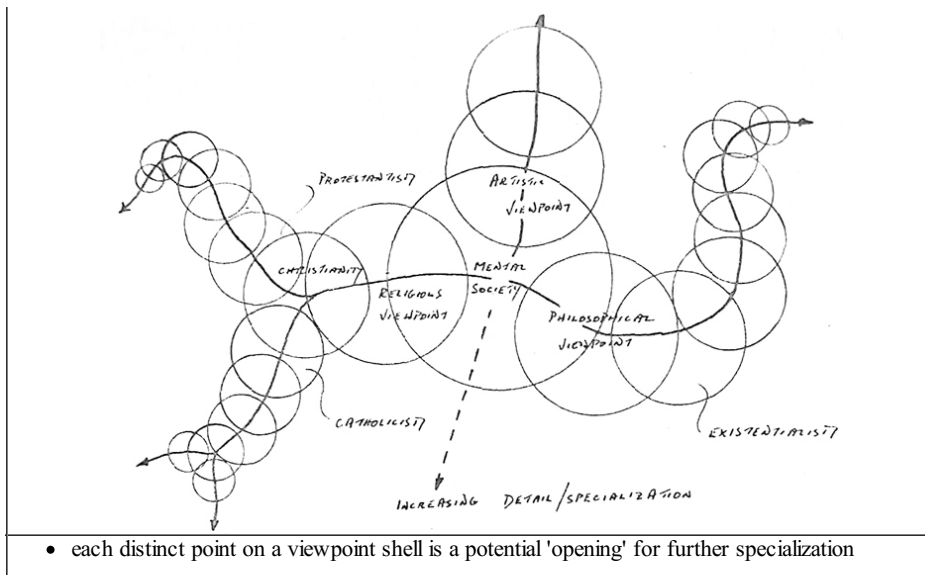
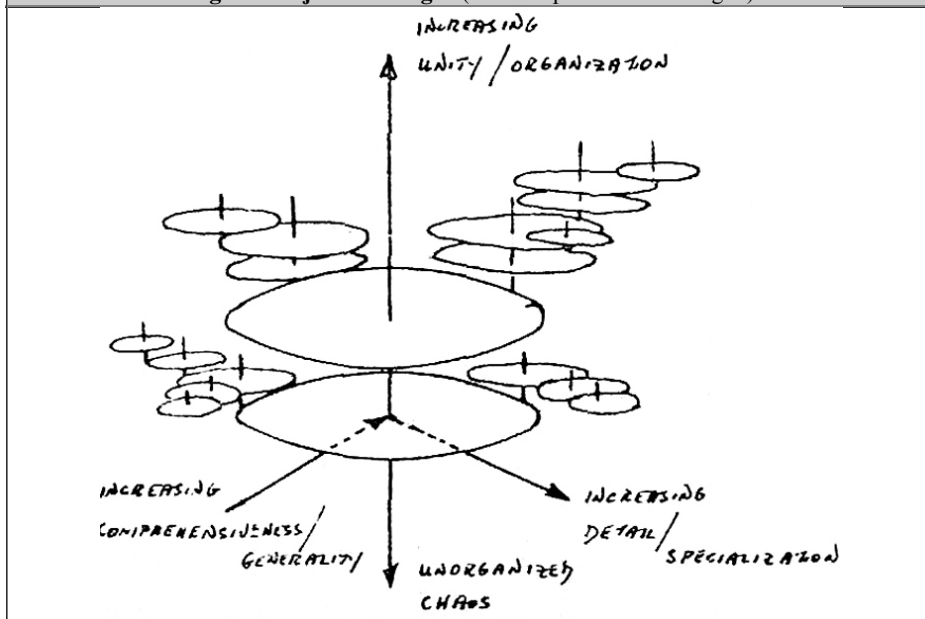


Fig. 10: Projection of Fig. 9 (different presentation of Fig. 8)



It must be remembered in considering the various stages of this model that, where ever 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.

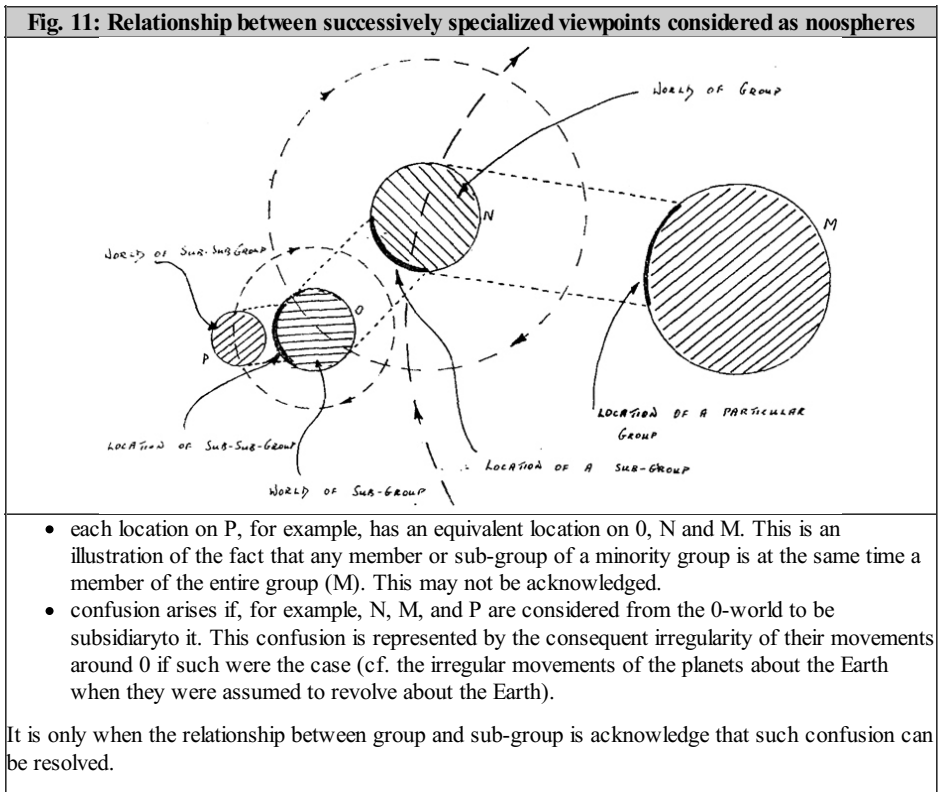
(b) Individual in Society

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 accent 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**.

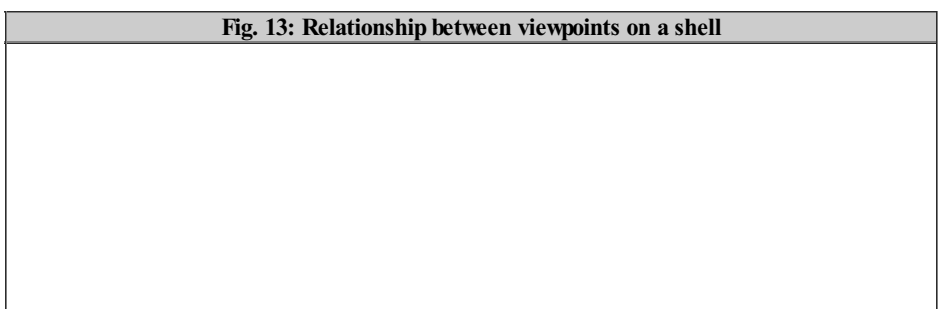


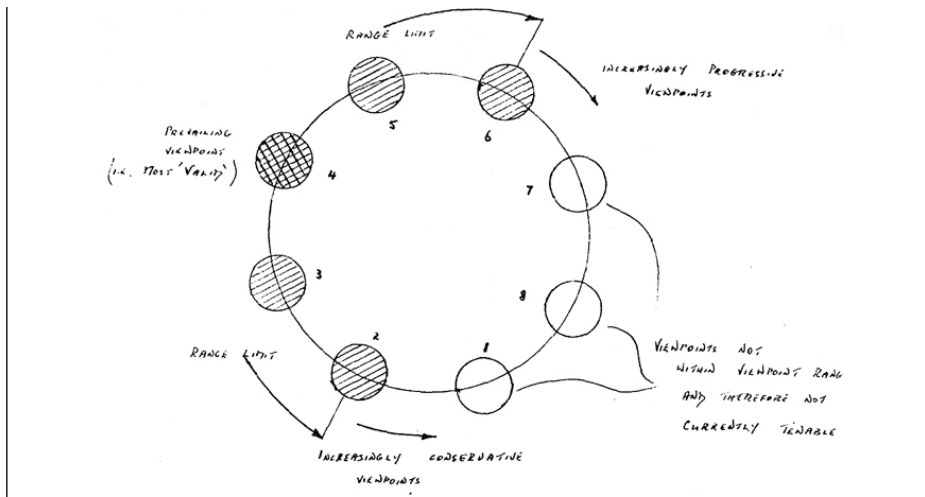
Note that in his progressive specialization, if he is continually conscious of the fact that he has implicitly delegated responsibility for the other functions, and of the **functional** connection between the main body and his speciality, then he will be aware that the subsidiary bodies revolve about 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. 13**. A person takes up a particular mental viewpoint in the shell, with respect to the main subject, Neighbouring view-points 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. F.e 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 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 activation of the more progressive viewpoints in the shell, until all such viewpoints have been activated.
- if in a particular viewpoint shell a particular viewpoint prevails, than reaction to experience will be governed by efforts to complete the viewpoint shell (cf. chemical reaction of elements to complete the outer shell of electrons)

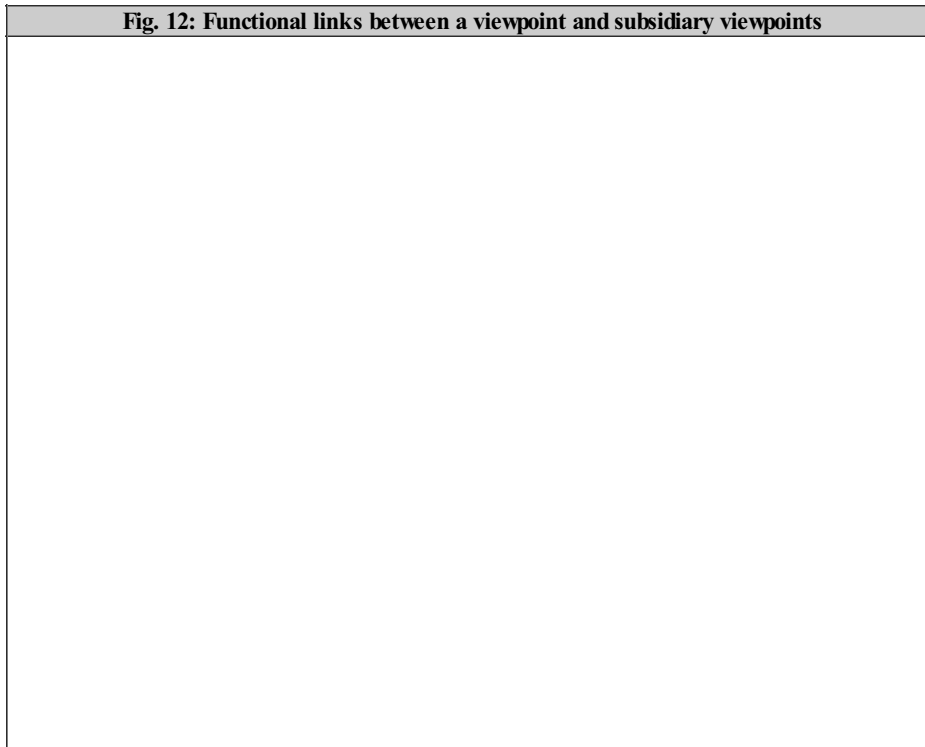
Although the individual is striving toward greater unity (i.e. toward the centre of inverse space via a higher viewpoint shell), his effective movement is through the **uncompleted or unactivated viewpoints** around the main subject '(see **Fig. 13**), until he considers the viewpoint shell is complete 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 rearguard to the avantgarde.

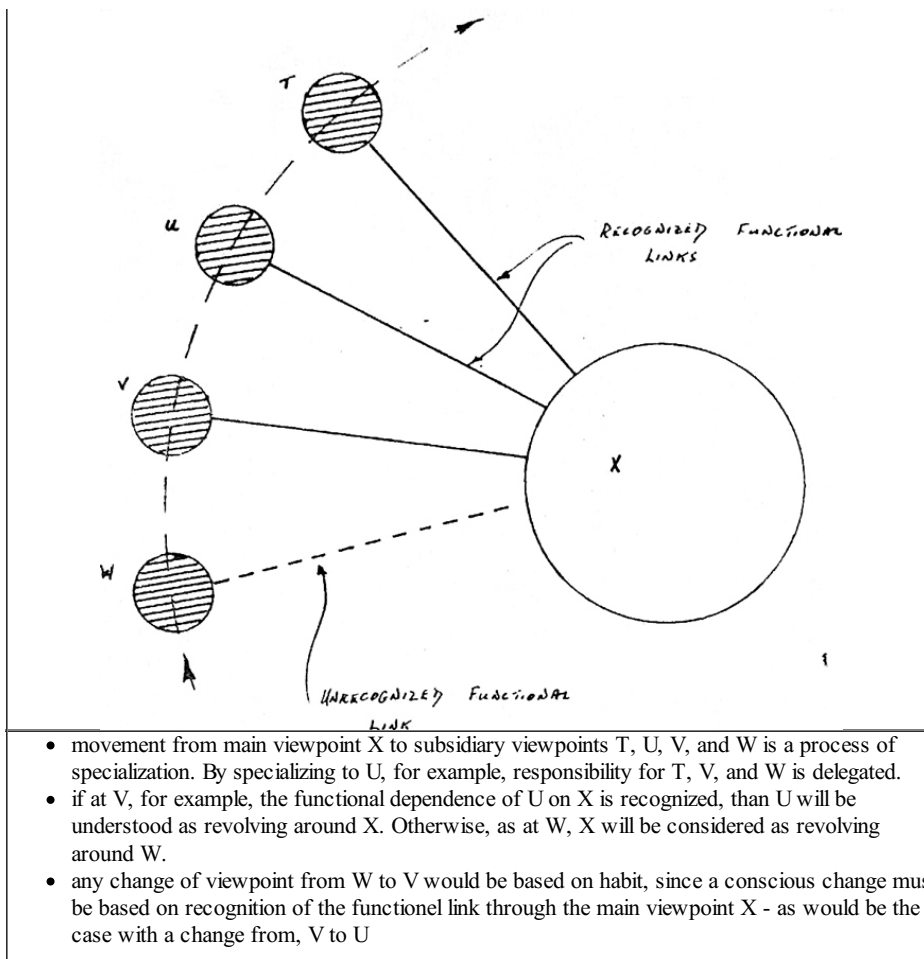
We have recognized the movement toward greater unity. In practice, however, development within a discipline is much more gradual than the above process would imply and we suggest that viewpoint shells are built up to completion at a number of subsidiary levels, before a new viewpoint shell is started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

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





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 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 specialties 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 at 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).

1. 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.
2. 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.
3. 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.
4. 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 specialisation 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 specialisation, 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 generalisation 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 audio-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.12**).

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 generalise 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 foreducational 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 cyce through which ha 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 in 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'n 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 than 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 randomising 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 re initiated gradually into certain sensitive nodes 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 audiovisual 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 terras. For the musically inclined the conceptual model is also aptly illustrated by the tonic scale and *a* piece of ramie. 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 ore 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 cost 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 through to its implementation, Spraafer'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 specialisation would tend to be confused. A strongly held specialised 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. Those 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 capped 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 viewpoint 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 subgroups 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 say 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. Schopenhauer (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 determinations 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 discipline 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 or, the problem. At the same time one can understand the adjustment in viewpoint necessary to comprehend the data generated. Each individual can therefore recognise what is or is not relevant to the development of his functions.

The model maps out the location of the distant castles where specialised 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 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 recognised 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 formalised 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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