The Systems Approach

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Photo date and location unknown

All of life is interrelated. Everything has an effect on everything else. Astronomers say that between any two objects in space there is a center of mass -- a point of balance that maintains the relationship between these two objects.

The universe is truly an interrelated whole and there is no such thing as an isolated object. Ironically, though, man and his institutors do not reflect this principle. The societies we live in are imbalanced, fragmented, disconnected, for in the past we have failed to realize the true manner in which relationships must be fulfilled. However, new realizations are coming to mankind.

Man will know his place in the universe when he witnesses the effect of even the seemingly small things he does on other people and creation. This principle was made apparent to me one time several years ago through such a small incident. I was walking home and saw a baby bird in a bush. I wanted it immediately for my own to possess -- not thinking if I would be able to maintain its life once I had control of it. I chased after the bird, and in fright it hopped away from me. This continued for a couple of blocks until the little baby bird flew under the wheels of -- truck and was crushed.

It hit me like lightning -- this bird's life or death was determined by me -- by my own state of mind. How much more does this sort of thing happen between humans? The beginning point of change is in our attitude, our state of mind. If man can center upon the purpose of the whole, and love all people and do good then this will eventually have its effect on the collective (family, society, nation, world). Because we are so very interrelated in more ways than we can imagine, then one good act is perpetuated and has its resounding effects. Unfortunately, the situation is the same for an evil act.

Ever since man lost his sense of a total purpose-a purpose greater than that of the individual, the result has been fragmentation, disharmony, conflict and war. We have distorted and incomplete relationships between nations, between societies, between and within families, and between and within institutions.

To be sure, when we look at the educational institution we sec specialized fields organized to keep individuals from seeing interrelationships between their own field of interest and other knowledge. This contributes to the inability to communicate efficiently and freely with other people. It is so easy to see the differences of one discipline from another and to overcome the commonalities that each share.

A holistic perspective

However, the good news is that we are entering into a new age of knowledge. Steps are being taken to dissolve the old-style analytical approach to knowledge, replacing it with a whole new perspective -- the

"holistic perspective."

Abraham Maslow said in his essay "Memorandum of Syndrome Dynamics, and Holistic, Organismic Thinking," from *Eupsychian Management*: "The truth is that everything in the world is related to everything else and everybody in the world is related to everybody else and everybody now living is related to everybody who is going to live in the future, and in this wav we all influence one another, and we might as well know this scientifically."

Other contemporary thinkers have also attempted to relieve our overall problem of fragmentation. One such person is the biologist, Ludwig Von Bertalanffy, the founder of the Society for the Advancement of General Systems Theory, and professor of Theoretical Biology at the University of Alberta. In his book, *General Systems Theory*, Dr. Bertalanffy introduces the concept of the systems theory. I want to explain the basic idea of this theory, for I feel it will be essential in applying it to solve our problems of fragmentation within the individual, family, society, and world. We will be using the basic idea of the systems theory itself in our approach to problems, not the specific systems concepts which Dr. Bertalanffy discusses in his book.

In explaining the systems theory one might say that it is a way or a means by which one may discover the interrelationship that exists within and between all systems. In fact, a system can he plainly defined as a complex of interacting elements. This interaction can be observed from a physical, scientific, and biological level, on up to the human, the moral and the ethical level.

Already many people in different disciplines are thinking more in terms of this systems theory. It is playing a dominant role in a wide range of fields, from industry and armaments to pure science. Let me quote the Canadian Premier E.C. Manning from the political platform of 1967 ("Political Realignment -- A Challenge to Thoughtful Canadians"): an interrelationship exists between all elements and constituents of society. The essential factors in public problems, issues, policies, and programs must always be considered and evaluated as interdependent components of a total system."

In order to illustrate the meaning of these words more clearly, I would like to draw some examples from the disciplines of anthropology, philosophy, and business, respectively.

Steel axe and the aborigines

The first example describes an incident among a tribe of Australian aborigines called the Yir Yoront. In this example we can see how one small item can affect the entire culture. The small item I am speaking of is the steel axe. Around the 1930's a group of missionaries established the Mitchell River Mission nearby the site of the tribe. They began to give away steel axes indiscriminately among the visiting aborigines. Before I explain the tremendous effect this item had upon the tribe, I will introduce co you the stone axe which was being used in the culture at that time.

Physically, the stone axe was a useful piece of capital equipment. However, its physical use was of no more significance than its symbolism -- what it represented. The trading system that went on between the Yir Yoront and other tribes helped contribute to the symbolism of the axe. The scone axe could not be obtained in any other manner than through trade. A trader might exchange a certain number of spears for one axe head. Among the Yir Yoront trading is an intricate system involving a variety of interpersonal relations. Only certain men in the community, who proved themselves reliable, experienced and of the right age, could trade for this axe.

Not only this, but women were never allowed to use the axe except under the permission of their closest male kin. This is in accordance with definite kinship behavior patterns. Thus, we see that the stone axe is an item that helps to establish character roles in the community. It is a symbol of masculinity, of prestige, and of age.

The stone axe may also be looked upon in the religious context. Among the Yir Yoront the real world and the pre-existing world merge together. In other words, all events that occurred in the mythical world (the realm of ideas that existed before the creation of the world) are reflected in the real world. So the scone axe, in all its aspects, uses, and associations, was integrated into the context of the Yir Yoront technology and conduce because a myth, a set of ideas, had put it there.

Now we can explore the results of replacing the stone axe with the steel axe. It is important to note that there were very few significant technological changes except for the fact that it lasted longer and worked a little better. But the effect on cultural patterns was tremendous: so much so that the once stable culture, which derived most of its strength from set kinship patterns which in turn were derived from the ancestral past, had lost all of its cultural stability.

Because the missionaries gave steel axes to anyone that looked good (and their definition of "looking good" differed greatly from the aborigines), anyone, whether man, woman or child, could receive an axe.

This resulted in confusion of sex roles, age roles, and kinship roles, and a gain of independence of those in inferior positions. Because young men could easily obtain an axe they no longer had to prove themselves as being self-reliant in a trading situation. Instead, they became dependent upon the missionaries. Of course, this also resulted in a greatly weakened trading partner relationship.

The major point is that because of the missionaries' interference with the hierarchical pattern within the tribe they destroyed certain ideas, sentiments, and values, especially religious, leaving people morally confused and insecure. They replaced the hierarchical pattern by establishing a leader-group relationship. That is, all tribesmen were looked upon as equally subordinate to one man.

This is, of course, a rather exceptional example of how one item can affect the total picture, for I'm sure that not all items are this influential in their relation to other things. Nevertheless, I'm sure that it serves the purpose in showing how closely interwoven all aspects of society really are; this includes also the effects of any action an individual may take within the society.

A part of the whole

To take this to the realm of philosophy I will briefly describe the philosophy of Francis Herbert Bradley (1846-1924). Basically he says the following: "...in the station my particular du ties are prescribed tome, and I have them whether I wish to or not. And secondly, it is concrete.

The universal to be realized is no abstraction but an organic whole; a system where many spheres are subordinated to one sphere, and particular actions to spheres. This system is real in the detail of its functions, not out of them, and lives in its vital processes, not away from them. The organs are always at work for the whole, the whole is at work in the organs. The universal then which I am to realize is the system which... realizes itself as a whole and me in it."

In his article, "My Station and Its Duties," Bradley describes the relationship of the individual to the entire system. When talking about the inner world of the individual he says that it can be distinguished from the rest of the whole, but in reality it is really one element of the whole. It, in fact, depends on the whole for its very existence and cannot be literally divided from it. Thus, the morals on the inside of the individual should be in complete accordance with the morals of the outside (that is, the whole system), and the two cannot be torn apart without destroying the unity of which morality consists.

In fact, Bradley emphasizes so much the importance of the functioning of the whole system as one unit, chat he refuses to recognize the individual as being an independent yet related aspect of the system. To him, there is no such thing as true individuality except when the individual sacrifices his total self to the will of the whole -- only then can he know who he really is: "They (the individuals) are aware in themselves that they possess this individual independent being because of the sacrifice of their individuality, because the universal substance is their... essence."

We can see chat Bradly is putting the emphasis on the purpose of the whole, and that is has more value than just the isolated individual, who, indeed, cannot even exist without a relationship to the whole. For instance the newborn child needs the family, the family needs the society, the society needs the nation and the nation needs the world. The value of any unit would be determined by its degree of fulfillment in working for the purpose of the whole.

One thing which Bradley bypasses, however, is the unique value of each individual. Each individual is like a whole world in himself, with his own set of characteristics, and all those things which make up his spirit, that define him from anyone else. Thus his contribution to the whole is his own unique contribution. So we can say that just as the individual cannot find his true self without relating to the whole purpose, neither can the whole (family, society, nation, or world) exist harmoniously, orderly, without each individual's contribution, since that contribution is unique only to the individual.

It is like one human body with different parts fulfilling different roles. If even the little finger is destroyed the body would never be the same again. Bradley's view of the world is somewhat the same chat experts in different fields are developing today - which is chat in order to view life in a more clear and understandable manner we must look at the total picture, and by doing so perceive the true relationships of each component within chat picture.

Management science

In Dr. Churchman's book The *Systems Approach* we have a modern version of the systems theory as applied to the art of management and planning in government, business, and industry. When solving problems in management, Churchman offers the systems approach as a way of finding a solution.

For example in his chapter, "Efficiency," Churchman discusses the conflict between the so-called efficiency expert and the approach of the management scientist. The expert may look around his large

office and see idleness among many of the secretaries and clerks. Or he may notice countless pieces of id le equipment. The first thing he does is think of ways in which vital inventories can be sold and removed at reduced costs. Or upon seeing idle men standing around he may reduce the labor force. It is true that "cost-reduction programs" always make sense, but they make sense only within the narrow confines of each division of the organizations.

The management-scientist who always makes the overall point of view, argues against efficiency by saying that it is always conceived in relation to a small segment of the social organization. "More attention to cost-reduction by itself," he says, "may do the very opposite of what the manager intends. In fact, cost reduction in many instances may actually increase the system's total cost."

Churchman illustrates the possibility of a cost reduction actually causing an increase in the system's total cost by using the example of an airport. Suppose that planes arrive or take off on the average of once every minute and on the average they take one minute to clear the airstrip. By saying, "on the average" he means that at certain times two or more planes will come very close to each other, and this will be balanced b) occasions when the arrivals or take-offs occur at some distance apart in time. So we see that there are a number of times when several planes require service at the same time, whereas at other times no arrivals or departures occur for perhaps two or three minutes.

Upon looking at the overall situation the management scientist would suggest putting in an extra airstrip. He suggests this because he assimilates two specific kinds of events: on the one hand, he sees that if the airstrip is idle too much of the time it is inefficient, yet on the other hand, if the planes have to wait too long then their performance will also he inefficient.

Ile makes the prediction, that, if the variation in service requirements and occupancy of the airport follows the usual pattern, the waiting line of the aircraft will eventually increase without limit. That is, the system becomes more and more inefficient in terms of waiting time even though the airstrip is used "inefficiently." The management scientist is always set out to balance one inefficiency to another inefficiency, something the efficiency expert fails to do.

In fact, the efficiency expert would be appalled at the idea of installing an additional airstrip to take care of the waiting planes. He would consider it a big waste of money, especially since the airstrip they already have lies idle for periods of the day. However, the efficiency expert fails to take into account the cost of waiting and only focuses on the cost of the new airstrip and the idle airstrip. That is, he concentrates totally on one aspect of the total system -- which is cost reduction as far as airstrips go. Since he does not look at the problem in its total perspective he fails to see how cost reduction in the area of airstrips may eventually increase costs for the total system.

The impact of the systems Theory

Thus, we see that the systems theory is based on the idea chat the different parts of a system in actuality exist in relation to each other, constituting a whole "system." At this point we can return to Dr. Bertalanffy and discuss more fully his application of the systems idea as it relates to the separate components in our educational institution.

Within each of the separate disciplines similar concepts, models, and laws have appeared and, surprisingly, these concepts have been derived from totally different facts. Dr. Bertalanffy says: "…there exist models, principles and laws that apply to generalized systems or their subclasses irrespective of their particular kind, the nature of their component elements, and the relations or "forces" between them.

It seems legitimate to ask for a theory, not of systems of a more or less special kind, but of universal principles applying to systems in general."

With this understanding of the systems theory one can understand the aims and purposes of the theory: Primarily it is to integrate the various sciences, natural and social, by developing unifying principles running "vertically" through the universe of the individual science. The long range goal is, of course to unify science completely."

Dr. Bertalanffy explains the great effect the systems theory has had on all the disciplines. For example, biologists cannot center their concern simply on the molecular or physio-chemical level. Instead there is a need for organism or "system biology."

Along parallel lines we see that psychology can no longer be studied within the limiting framework of stimulus-response. The introduction of Gestalt psychology fifty years ago broke the mechanistic stimulus-response scheme. According to Gestalt theory, reactions in an organism do not proceed arbitrarily, but arc coordinated both in the healthy and diseased organism in accordance with the requirements of the whole. The question why the reactions are always suited to the state of the whole cannot be set aside as "philosophical" since it is a question of objective fact and perhaps the most striking one in the whole

sphere of vital phenomena.

It is exciting to realize that identical principles in different disciplines were discovered several times because the workers in one field were unaware that the theoretical structure required was already developed in some other field. An interesting question may be brought up at this point: what could possibly be the force that has instigated this new revolution in thinking?

The answer can be found partly in the advancing technology of our age. Because of the impact of the development of power engineering of self-controlling machines, we can no longer think in terms of one machine. We have to think in terms of systems. You might say that we have been forced to do so through the effect of our own creation upon man. Our whole structure of society is a tremendously complex network of interactions -- so tightly interwoven together that an event on one end of the system will ultimately have an effete clear on the other end of the system. The power of a technological system has the potential to reduce man to a mere cogwheel, something replaceable and expendable.

This is why we must ask the question: what is man's purpose in the universe? We can plainly see how a systems theory is necessary in order to understand the operation of things, but what about man's place in this system and where do man's values fit in?

The hierarchy of order

Before I go any further I will devise a model which may serve as a kind of framework for our evaluation and discussion of the human situation. This model is taken from the book I already mentioned, Maslow's *Eupsychian Management*. Actually, this book is merely a journal describing ideas that he had while visiting a small California Electronics plant called Non-Linear Systems.

I discussed that Maslow emphasizes the importance of the holistic approach to problems, or to assimilating information. He uses the phrase "holistic, organismic thinking." When thinking in this holistic manner one sees all things in relationship to all other things, such as in a hierarchy of order. Let us use the example of a university. A decision arrived at within the administration will directly affect the students. But the effect of the decision doesn't stop there. It continues to affect those close to the students, such as family or friends, which in turn has an effect on the society, which has an effect on the state, and finally after passing through the whole hierarchy we can see it has an (even if slight) effect upon the world.

However, chose within the system of the university are much more influenced by this decision than are those at the other end of the scale. In other words, the intrasystem effects are going to be much greater than the intersystem effects.

So, if something happens in the university chat is ultimately good for most students then the effect of this goodness will reflect in some way upon the world. And the same thing can be said for the opposite effect of something bad. Now, upon examining this further, we can see that through these interrelationships there is integration; there is coordination and harmony of all parts in the system. That is, the more integration, the stronger the effects will be and the greater the possibility for complete harmony, unity, and understanding.

In reality, when we look at the situation as it actually is, there is no integration; the various systems of society have not unified, and thus we are not living in a harmonious system where all people are working together for a common good, or central purpose. The result, of course, is chaos, confusion, alienation, misunderstanding and unwelcome barriers between people.

An answer to our miserable situation is to first realize the great influence we have on one another. One person's selfish attitude has had worse effects in the past than just killing one bird. We must concentrate on a higher purpose than our own individual selves and realize we are a part of a total intricate system whose harmonious operation is dependent upon cooperation of all individuals. It begins with the attitude of each person.

We need a holistic perspective of our role in the universe. Along with that perspective, to really change our world, we need to change our hearts.