

BERTALANFFY'S GENERAL SYSTEMS THEORY



Systems theory studies the structure and properties of systems in terms of relationships, from which new properties of wholes emerge. It was established as a science by **Ludwig von Bertalanffy, Anatol Rapoport, Kenneth E. Boulding, William Ross Ashby, Margaret Mead, Gregory Bateson**

and others in the 1950's. Systems theory, in its transdisciplinary role, brings together theoretical principles and concepts from ontology, philosophy of science, physics, biology and engineering. Applications are found in numerous fields including geography, sociology, political science, organizational theory, management, psychotherapy and economics amongst others.

The concept of system, though it seems to be intrinsic to human thinking, has been extensively employed and developed over the last few decades, due in a large measure to contributions made by **Karl Ludwig von Bertalanffy** (1901-1972), a Viennese professor of biology. He worked to identify structural, behavioral and developmental features common to particular classes of living organisms. One approach was to look over the empirical universe and pick out certain general phenomena which are found in many different disciplines, and to seek to build up general theoretical models relevant to these phenomena, e.g., growth, homeostasis, evolution. Another approach was to arrange the empirical fields in a hierarchy of complexity of organization of their basic 'individuality' or units of behavior, and to try to develop a level of abstraction appropriate to each. Examples are generalizations on the levels of cells, simple organs, open self-maintaining organisms, small groups of organisms, society and the universe. The latter approach implies a hierarchical "systems of systems" view of the world.

Bertalanffy's ideas were developed into a General Systems Theory. He defined a general system as any theoretical system of interest to more than one discipline. This new vision of reality is based on awareness of the essential interrelatedness and inter-dependence of all phenomena - physical, biological, psychological, social and cultural. It transcends orthodox disciplinary and conceptual boundaries.

The systems view looks at the world in terms of relationships and integration. Systems are integrated wholes whose properties cannot be reduced to those of smaller units. Instead of concentrating on basic building blocks or substances, the systems approach emphasizes the principles of organization. Every organism, from the smallest bacterium through the range of plant, animals and human beings - plus the family, society and the planet as whole - is an integrated whole and thus a living system.

Another important aspect of systems is their intrinsically dynamic nature. Their forms are not rigid structures but are flexible yet stable manifestations of underlying processes. Systems thinking is process thinking; form becomes associated with process, interrelation with interaction, and opposites are unified through oscillation.

Human survival, in Bertalanffy's view, was the paramount purpose for cultivating the uncommon sense of General Systems Theory. Our civilization is experiencing enormous difficulties due to lack of ethical, ethological and ecological criteria in the manifestation of human affairs, which are currently only concerned with the management of larger profits for a small minority of privileged humans. Bertalanffy believed that the need for a general systems consciousness was a matter of life and death, not just for ourselves but also for all future generations on our planet. He advocated a new global morality, an ethos which does not center on individual values alone, but on the adaptation of Mankind, as a global system, to its new environment... "We are dealing with emergent realities; no longer with isolated groups of men, but with a systemically interdependent global community."

The influence of Systems Theory on Mind Development

The hierarchical structure of Mind Development has its roots in the General Systems Theory of von Bertalanffy; thus the structure of Mind Development can only be fully grasped from the perspective of his theory of systems. 30 years in advance of other scientists, Bertalanffy became dissatisfied with reductive (merely mechanical) explanations of the behavior of living organisms. Bertalanffy's answer to these observations, was that life is first and foremost a system of self-organization, a developmental unfolding at progressively higher levels of differentiation and organized complexity. These wholes are not reducible to their parts, since the factor of life depends upon the interaction of the parts as a system: the whole is more than the

sum of the parts. The organism, moreover, is dynamic, not static, open not closed, and searches spontaneously and actively for stimulation, rather than waiting passively to respond.

However, Bertalanffy was not content to limit his theory to biology. If the organism was an open system interacting with its environment, could biology as a discipline do anything less? He joked about psychologists who claimed that their discipline was at a crossroads. Psychology is always at a crossroads and the mind of Man a meeting point for symbolic systems. From this conviction, General Systems Theory was founded: a discipline of disciplines, with especial emphases on psycho-biology and ecology.

Mind Development is a system, and as such, it reflects the concept of **system** that has gained pivotal influence in psychology. Many of the psychologists that we have drawn from have referred to General Systems Theory, or some part of it. This trend in modern psychology has appeared as a reaction to the sterility of behaviorism. General Systems Theory represents an expanded paradigm for psychology, without which much of present-day psychology would be in a state of arrested development. The applied science of Mind Development is cognitive psychology at the level of System; all the techniques given in diverse courses work together as a system to produce results that exceed and could not be predicted by considering the individual components alone. The expanded contextual field provided by General Systems Theory has elevated cognitive psychology from the level of description to the level of prescription.

The malaise of behavioristic psychology

Over much of the last century American psychology was dominated by the concept of the reactive organism, or by the model of man as robot. Until quite recently, this conception was common to all major schools of American psychology, including behaviorism, learning and motivation theories, cybernetics, the concept of the brain as a computer, and so on. According to a leading personality theorist (Murray, '62):

"Man is described as a computer, an animal, or an infant. His destiny is determined by genes, instincts, accidents, early conditionings and reinforcements, cultural and social forces. Love is a secondary drive based on hunger and oral sensations, or a reaction formation to an innate underlying hate. In the majority of our models of personality, there are no provisions for creativity, and no fitting recognition of the power of ideals."

By reducing the concept of human nature to its lowest common denominator, no margins of

freedom for voluntary decisions remain; no ground at all for any hope that the human race can save itself from the fatality that continuing socio-economic trends would seem to predict. Systemic properties are destroyed when a system is dissected, either physically or theoretically, into isolated elements. Although we can discern individual parts in any system, the nature of the whole is always different from the mere sum of its parts.

The tenets of robot psychology have been extensively criticized; the theory nevertheless has remained dominant for obvious reasons. The concept of Man as robot was the basis for behavioral engineering in commercial, economic and political propaganda; the expanding economy of the 'affluent society' could not subsist without such manipulation. By manipulating humans into homeostatically adjusted conformists, consumers and opportunists, the principles of academic psychology were identical with those of the commercialization of Man.

Modern society provided a large-scale experiment in manipulative psychology. If the principles of robot psychology are correct, conditions of tension and stress should lead to increase of mental disorder. Likewise, mental health should improve with better material standards and by avoiding the repression of infantile instincts through the use of permissive education in the context of a self-indulgent society.

This behavioristic experiment led to results contrary to expectation. World War II - a period of extreme physiological tension and psychological stress - did not produce an increase in neurotic disorders, apart from direct shock effects such as combat neurosis. In contrast, 'the affluent society' produced an unprecedented number of mentally ill. The superficial reduction of tension and the immediate gratification of instinct (living according to the **Pleasure Principle** unmediated by a developed Ego) gave rise to novel forms of mental disorder; for example, 'existential' neurosis. This form of mental dysfunction originates not from repressed drives, unfulfilled survival needs or from imposed stress, but from an inner conflict: the meaninglessness of life caused by a suppression of self-actualization. There is a suspicion that the recent increase in schizophrenia may be caused by the 'other-directedness' of Man in modern society. A new type of juvenile delinquency has appeared: crime that is committed, not for want or need, but 'for the fun of it', born from the emptiness of life.

Theoretical and applied psychology were led into a malaise regarding basic principles. This discomfort, and the trend towards a new orientation, were expressed in many ways, such as the **neo-Freudian** schools and **Piaget's** child psychology; however the one common principle in all of these trends is that a healthy and developed human being is an **active personality system** : not a reactive automaton or robot.

Repressive Desublimation

Herbert Marcuse (1908-1979) looked to the work of Freud in developing his theory of "Repressive Desublimation," to explain the way in which social manipulation can operate not only by direct policing of laws but also by manipulation of desire. Marcuse wrote 20 years later than Bertalanffy and his theory reinforces the need to be aware of the abuse of reductionist behavioral psychology in society.

In Freudian psychology, sublimation is a defense mechanism by which the individual satisfies a socially prohibited instinctive drive (usually sexual or aggressive) through the substitution of socially acceptable behavior. Our desires and aggressions are deflected from their instinctual expression toward some other form of expression or satisfaction that is more appropriate, positive or socially acceptable.

The natural process of sublimation may however be manipulated in a repressive way for means of social control. "Desublimation," then, refers to the social manipulation of the individual's natural and inner-directed process of sublimation, to direct this energy toward goals that may not be truly in the individual's own interest but more for the benefit and convenience of political or economic forces. Therefore it is effectively repressive of the individual's free will. Marcuse specifically referred to the role of advertising and propaganda in manipulating societal consensus.

When the Ego is in the driving seat, a person operates on the Reality Principle, which is the delay of immediate gratification in recognition of more appropriate actions toward higher needs. But when the Id is in the driving seat, a person operates on the Pleasure Principle. The Id containing our basic instinctual drives wants immediate gratification. Repressive Desublimation works by putting the Id in the driving seat and reducing Ego defenses. This is done in such a way as to loosen Superego control by giving a person immediate gratification in one way, thus easily satisfying the person's need, whilst at the same time manipulating him into a purchase or desired behavior. This is done in a subtle enough manner through enculturation from cradle to grave, and through clever marketing of products and information, such that the person does not question the repressive aspects of the society in which he lives. High prices, high taxes, invasion of privacy, etc are tolerated. One of the Roman Emperors said that if you wish to control the population give them bread and circuses.

Desublimation is so powerful that even a small dose can succeed in capturing us. We will return repetitively to satisfy ourselves even in small ways. As an example, something like Playboy

magazine could be allowed to feed men a measure of unusual - that is, formerly tabooed - sexual satisfaction, but this would happen only by becoming a regular buying customer. When one looks at the Western society of the 60's, it becomes clear that sexuality was being desublimated in a variety of ways, so long as people were ready to consume the right things. Thus, people were actually being repressed anew to the specific advantage of manufacturers. Looking at our society, today, little has changed, I would say. We have become progressively more narrow (repressed) in our satisfaction of even recreation! Being convinced that we can buy it in the form of ever-more-expensive mountain clothing or recreational vehicles. Meanwhile, most people who buy mountain clothing and four-wheel-drive vehicles never go to the mountains. We have become implicitly convinced (and victimized), believing that recreation is achieved in the purchase and ownership itself. This after all is what capitalism requires - a never ending will to consume products.

A common tool used to produce Repressive Desublimation is to present a person with pseudo choices, for example she has the choice of several colors of nail varnish, but she is made blind to the one real choice, which is to decide not to use nail varnish. This is a trick used by salesmen. A salesman will not say I will see you on Wednesday, he will give the client a pseudo choice and say: I can see you on Tuesday or Thursday.

The theory of advertising maintains, in effect, that the consumer is a nonrational, suggestible creature under the hypnotic influence of the advertising copywriter. The more a person absorbs information that agrees with what they already believe, contrary evidence holds less and less value. This is why a person can be persuaded, through years of advertising stimuli, into a hypnotic belief system that is contrary to the real world.

In a society ruled by Repressive Desublimation the Ego is weakened and the Superego - ideals and values that accord to parental and social standards - is taken over by the culture. The desublimation of true needs leads to disenchantment and demoralization, when the person realizes that possessions and conformity are not really fulfilling. A person's life becomes directed by others and the higher need for a process of inner-directed self-actualization is neglected, leading to a lack of fulfillment and unhappiness.

One of the long term effects of Repressive Desublimation is to produce various forms of neurosis, because the person in question cannot deal effectively with reality. The primary drives are frustrated and outcomes are felt to be beyond a person's control. Prolonged anxiety leads ultimately to depression, as the person becomes more and more frustrated and gives up hoping for positive outcomes.

Hypocognition

The current work of George P. Lakoff (1941-), a professor of linguistics, provides further reinforcement of the hypotheses of Bertalanffy and Marcuse. According to Lakoff, **Hypocognition** is our inability to see things that we're not conditioned to see or to comprehend ideas for which we have no framework. We have a lack of ideas or metaphors to adequately describe and explain the world of complex ideas and circumstances, often leading to a state of Rose Tinted Spectacles in the person suffering with Hypocognition.

Politicians and corporations often use terms that we think we understand and which sound good but if asked to define them we would be grasping at straws. For example, hypocognition makes it hard for the public to believe there can be anything wrong with "globalism" or "free trade," which sound like positive concepts and we readily accept policies based on them. It is easy for the media to portray those who protest against "free trade" as fringe lunatics.

There are three major consequences of Repressive Desublimation:

1. Neurosis

Repressive Desublimation weakens Ego defenses including the ways we would naturally sublimate our basic desires into productive channels that serve ourselves. Instead the Id is desublimated in ways that repress our true desires, so the disposition to Neurosis is increased. There is a switch to desublimated **Primary Process** thinking (characteristic of unconscious mental activity) in place of rational and inner-directed Secondary Process thinking.

2. Hypocognition

Operating on the Pleasure Principle (seeking immediate gratification) shortens the attention span, so less in-depth information is sought and books of a serious nature are ignored, hence Hypocognition. Today, most of the public rely on the 30 second sound bite to get their information about the world, so their fund of information is shallow. Most people want things the easy way.

3. Entrapment

Because a particular socio-economic system offers many avenues of immediate gratification, and as a consequence of Hypocognition, most of the public are trapped within the system. By giving them bread, circuses and pornography, and by keeping them ill informed, most of the public ignore, or are unaware of, many other dimensions of society that are both wicked and wrong. The main function of behaviorism abused in this way is to maintain compliant workers and consumers; certainly not to enlighten them.

Hypocognition is general. We all have Hypocognitive deficits in many areas, but most people have little awareness of these deficits. An individual attempting to work creatively will become aware of Hypocognition when he is thinking outside the box of his enculturation, so he needs to acquire an adequate vocabulary to describe the concepts that become apparent and are new to him. Creative work offers the opportunity of becoming free from Hypocognition in important areas of life, and the beginning of the ability to function Hypercognitively.

Such opportunities may be termed a "**near-life experience**." We all have these at some time in our lives. A near-life experience is a critical decision point -- an opportunity to live the life you want. A near-life experience is an opportunity to take that first step on a pathway leading to a more productive, influential and satisfying life.

Unfortunately, too many people don't seize that opportunity and then something inside them dies. Too many people live lives never experiencing life to its fullest, because of their fear of the unknown, family responsibilities, economic uncertainty, inadequate self-awareness, poor self-confidence and so on.

The current interest in General Systems Theory is sustained by the hope that it may contribute towards a more adequate conceptual framework for psychology. In Mind Development, that hope has become an actuality.

Following are some of the principle concepts of systems theory and their application to psychology and Mind Development...

Holism

Mind is an essential property of living systems. As Gregory Bateson said, "Mind is the essence of being alive." From the systems point of view, life is not a substance or force and mind is not

an entity interacting with matter. Both life and mind are manifestations of the same set of systemic processes, a set of processes that represent the dynamics of self-organization. The human mind is a multi-leveled and integrated pattern of processes that represent the dynamics of human self-organization; this complex system is the nature of consciousness.

Holism (from *holos*, a Greek word meaning all, entire, total) is the idea that all the properties of a given system (biological, chemical, social, economic, mental, linguistic, etc.) cannot be determined or explained by the sum of its component parts alone. Instead, the system as a whole determines in an important way how the parts behave. The general principle of holism was concisely summarized by Aristotle in the *Metaphysics*: "The whole is more than the sum of its parts."

Reductionism is the analysis of complex things into simpler constituents, a theory that all complex systems can be completely understood in terms of their components. This may be seen as the opposite of holism. On the other hand, holism and reductionism can also be regarded as complementary viewpoints, in which case they both would be helpful to get a proper understanding of a given system. The reductionist process helps to determine the parts of a mechanism or structure, but the holistic view helps to determine its purpose and potential applications.

Teleology

The word "teleology" means the study of ends, purposes, and goals. The Greek word *telos* means "end" or "purpose." Teleology in a system has to do with its goal or purpose—as when one speaks of "the means to an end." Whenever something is done in order to bring about a valued result, teleology is at work. In psychology, teleology is the power to will or choose; the belief that individuals are guided not only by mechanical forces but that they also have inner-directed will and move toward goals of becoming more significant or more competent—to become self-actualized. Behavior is understood as goal-directed movement, though the person may not be fully aware of this motivation, i.e. it may be partly or wholly unconscious or conditioned.

Equifinality

The principle of Equifinality states that in any closed system the final state is determined by the initial conditions: e.g., the motion of a planetary system where the position of the planets at a certain point in time are unequivocally determined by their positions *at time zero*. Or in a chemical equilibrium, the final concentrations of the reactants depend on the initial concentrations. If either the initial conditions or the process is altered, the final state will be changed. This is not so in Open Systems. Here the same final state may be reached from varying initial conditions and in different ways. The ends remain the same while the means differ.

In psychology, equifinality refers to how different early experiences in life (e.g., parental divorce, physical abuse, parental substance abuse) can all lead to a similar outcome (e.g., childhood depression). In other words, there are many different early experiences that can lead to the same psychological disorder.

Organism and Personality

In contrast to physical forces like gravity or electricity, the phenomena of *life* are found only in individual entities called organisms. Any organism is a system, that is, a dynamic order of parts and processes, standing in mutual interaction. Likewise, psychological phenomena are found only in individualized entities, which in Man are called personalities. Whatever else personality may be, it has the properties of a system.

The concept of the psycho-physical organism *as system* contrasts with its conception as a mere collection of units such as reflexes, sensations and drives. Psycho-pathology clearly shows mental dysfunction as a system disturbance, rather than as a loss of single functions.

The Active Organism

Even without external stimuli, the organism is not a passive but an intrinsically active system. Behaviorist theory presupposed that the primary element of behavior is response to external stimuli; recent research however, demonstrates with increasing clarity that autonomous activity of the nervous system, residing in the system itself, is to be considered primary. In evolution and development, reactive mechanisms appear to be super-imposed upon primitive, innate rhythmic-locomotor activities (breathing, walking, etc.). But the stimulus does not *cause* a process in an otherwise inert or 'closed' system; it only *modifies* processes in an independently active system.

The living organism maintains a *dis-equilibrium* called the steady state of an open system, and thus is able to dispense *existing potential* or 'tension' in spontaneous activity or in response to releasing (freeing) stimuli; it even advances towards higher order and organization. The robot model of a closed system considers response to stimuli and the reduction of tension, as re-establishment of an equilibrium disturbed by outside factors. The robot model, however, only partly covers animal behavior and does not cover an essential portion of human behavior at all.

Even at the most primitive level of life, autonomous (independent) activity is primary; it is found in brain function (the Reticular Activating System) and in psychological processes. Even rats seem to 'look' for problems, and the healthy child or adult extend themselves far beyond the reduction of tensions or gratification of basic needs. Natural behavior encompasses innumerable activities beyond the stimulus-response scheme, from exploring, play and rituals in animals to self-realizing creative, economic, intellectual, aesthetic and religious pursuits in Man.

The complete relaxation of tensions, as in sensory-deprivation experiments, is not an ideal state but is apt to produce insufferable anxiety, hallucinations and other psychosis-like symptoms. Prisoner's psychosis, and retirement or weekend neuroses, demonstrate that the psycho-physical organism needs an amount of tension and activity for healthy existence.

It is a symptom of mental disease that spontaneity is impaired. The patient increasingly becomes a stimulus-response machine, is pushed by biological drives and obsessed with the need for immediate gratification. The model of the passive organism is a quite adequate description of the stereotype behavior of compulsives, people with brain damage and incipient catatonics. But by the same token, this emphasizes that normal behavior is different.

Homeostasis

Although many psycho-physiological systems are regulated according to the principle of Homeostasis (maintaining constant levels), there are apparent limitations to this principle. Generally, the principle of homeostasis is not applicable to:

- Dynamic regulations - i.e., regulations not based upon fixed mechanisms, as with a robot, but taking place within a system functioning openly as a whole, with independent inference and motivation;
- Spontaneous activities;
- Processes whose goal is not reduction of tension but the building up of tensions; and
- Processes of autonomous learning and development, i.e. processes beyond those serving the primary needs of self-preservation and survival.

The homeostasis model is applicable in psycho-pathology because non-homeostatic functions, as a rule, decline in mental patients. The progress of mental disease may be described as a series of defense mechanisms, settling down at ever lower homeostatic levels until mere preservation of life is left. Arieti's (1959) concept of progressive teleological regression (reduction of free will) in schizophrenia is similar.

Differentiation

Differentiation is a transformation from a more general and homogeneous condition, to a more specialized and heterogeneous condition - i.e. made up of unlike components or factors. Development proceeds from a state of relative globality and lack of differentiation to a state of increasing differentiation, articulation and hierarchic order.

This principle is fundamental to living organisms and is clearly demonstrated in the evolution and development of the nervous system. Mental functions generally progress from a syncretic state - where percepts, motivation, feeling, imagery, symbols, concepts and so forth are an amorphous unity - toward an ever clearer distinction of functions. In perception, the primitive state seems to be one of synesthesia out of which visual, auditory, tactile and other experiences are separated.

The perception of objects without emotional-motivational undertones is a late achievement of mature civilized man. The origins of language are obscure, but it would seem that proto-language was 'holophrastic' - i.e. utterances and thoughts with a broad aura of associations, preceded separation of meanings and articulate speech. Likewise, categories such as the distinction of 'I' and objects, space, time number and causality, etc. evolved from a perceptual-conceptual-motivational continuum, represented by the 'palaeological' (Stone Age) perception of infants, primitives and schizophrenics.

As human beings we shape our environment very effectively because we are able to represent the outer world symbolically, to think conceptually, and to communicate our symbols, concepts and ideas to others. We do so with the help of abstract language, but also nonverbally through paintings, music and other forms of art. In our thinking and communication, we not only deal with the present but can also refer to the past and anticipate the future, which gives us a degree of autonomy far beyond any other species. The development of abstract thinking, symbolic language and the various other human capabilities all depend crucially on a phenomenon that is characteristic of the human mind, a complex self-organizing system. Human beings possess consciousness; we are aware not only of our sensations but also of ourselves as thinking and experiencing individuals. And in reverse, the application of our thinking ability serves to further develop and refine our consciousness.

The concepts 'I' and 'the world', 'mind' and 'matter' are the final outcome of a long process in biological evolution, cognitive development of the child, cultural and linguistic history. The perceiver is not simply a receptor of stimuli, but in a very real sense *creates* his world. 'Things'

and 'self' emerge by a slow build-up of innumerable factors of gestalt dynamics, of learning processes, and of social, cultural and linguistic determinants. The full distinction between 'public objects' and 'private self' is certainly not achieved without naming and language, i.e. processes at the symbolic level, and perhaps this distinction presupposes a language of the Indo-Germanic type, as adopted by civilized societies. (It is only in Indo-European languages that distinctions between past, present and future have been fully developed. For example, Old English, as it was spoken before the Norman Conquest, contained no distinct words for the future tense. A confused or missing future tense is both cause and effect of living mainly in the present, with a low regard for long-term consequences.)

In psycho-pathology, all these primitive states may reappear by way of regression, in which there are bizarre arbitrary combinations of archaic elements, both among themselves and mixed with the more sophisticated thought processes. On the other hand, artificial languages (such as the specialized terminology of sciences), representing in certain ways the evolutionary step beyond the Indo-Germanic family of languages, produce even further differentiation: among thought processes, among perceptions and between thought processes and perception.

Centralization

Organisms are not machines; but they can to a certain extent *become* machines - though never completely. A thoroughly mechanized organism would be incapable of reacting to the incessantly changing conditions of the outside world. The transition from undifferentiated wholeness to higher functions, is made possible by specialization and 'division of labour'. This principle implies also, loss of potentialities in the components alone, and of regulatability in the whole, since a system is made up of entities that both need each other and at the same time, have independence of action. Hence the tragedy of the lobotomized patient whose distinctive individuality has been removed (the frontal lobes of the cortex) in order to make him regulatable in society.

Mechanization frequently leads to the establishment of 'leading parts', that is components dominating the behavior of the system. Such centers may exert 'trigger causality': a small change in a leading part, may, by the way of amplification mechanisms, cause large changes in the total system. In this way an hierarchic order of parts or processes may be established.

In the brain, as well as in mental function, centralization and the hierarchic ordering of stratification, the higher layers take the role of leading parts. Three major layers or evolutionary steps, can be distinguished in the brain; these are: (1) the paleoencephalon (paleo-cortex), corresponding to the evolutionary stage of lower vertebrates, (2) the neoencephalon (neo-cortex), evolving from reptiles to mammals, and (3) certain higher centers such as the

motoric speech (Broca's) region and the large association areas (frontal lobes), found only in Man.

This stratification of the mental system may be roughly circumscribed as the domains of instincts, drives, emotions, the 'primeval depth personality'; perception and voluntary action; and the symbolic activities characteristic of Man. Although these problems need further clarification, it is incorrect when Stratification is rejected for being 'philosophical', or when critics insist that there is no fundamental difference between the behavior of rats and that of Man. Such an attitude simply ignores elementary zoological facts.

Regression

Psychosis is sometimes referred to as "regression to infantile forms of behavior." This is incorrect: the regression is essentially a disintegration of the personality, i.e. a decentralization of the hierarchy of mental functions. In the extreme, decentralization is the functional dys-encephalization of the schizophrenic, i.e. where the cortex is either too aroused to function or totally shut off. In a milder form, such as neurotic complexes, it is a loosening of the hierarchic mental organization.

Boundary

Any system, as an entity which can be investigated in its own right, must have boundaries - either spatial or dynamic. Although spatial boundaries appear to exist in naive observation, all organismic boundaries are ultimately dynamic. One cannot exactly draw the boundaries of an organism, which are changeable and continually exchange materials with the environment.

In psychology, the boundary of the Ego is both fundamental and precarious. It originates in proprioceptive experience and in the body-image; but self-identity is not completely established before the 'I', 'Thou', and 'It' are named, i.e. the differentiation of other personalities and forces. Psycho-pathology shows the paradox that the Ego boundary is at once too fluid and too rigid. Confused perception, animalistic feeling, delusions and hallucinations, etc. make for insecurity of the Ego boundary; but within this self-created universe, the schizophrenic lives 'in a shell'.

In contrast to the animal's 'encapsulation' in a limited perception of the potential of its surroundings, Man is 'open to the world' and has his own 'universe'; i.e. his world widely transcends biological bondage and even the limitations of his senses. To him, encapsulation - from the specialist to the neurotic, and in the extreme, to the schizophrenic - is a limitation of potentialities that amounts to illness. These limitations have their basis in man's symbolic

functions.

Symbolic Activity

Except for the immediate satisfaction of biological needs, Man lives in a world not of things but of symbols. Man's symbolic universes, which distinguish human cultures from animal societies, are the most important part of Man's behavior. It can be justly questioned whether Man is a rational animal; but it cannot be questioned that he is a symbol-creating and symbol-dominated being throughout.

Symbolism is recognized as the unique criterion of Man by physiologists of the Pavlovian School, and by many philosophers. However, until relatively recent times this was not found even in leading textbooks of psychology, in consequence of the predominant behaviorist philosophy. In fact, it is because of Man's symbolic functions that motives in animals are not an adequate model for motives in Man.

Probably all notions used to characterize 'human' behavior are consequences, or different aspects, of symbolic activity. Time-binding (the progressive expansion of knowledge); anticipation of the future; purpose and intention as conscious planning; dedication to a cause; truth and lies; conscience, values and morality; culture and civilization - these all stem from creative symbolic processes and cannot therefore be reduced solely to biological factors. The distinction between biological and specifically human values, is that the former concern the maintenance of the organism and the survival of the species, whereas the latter always concern symbolic functions. In consequence, mental disturbances in man, as a rule, involve disturbances of symbolic functions. In humans, the distorting impact of highly charged experiences at an early age, underlies the distortion of symbolic functions in later life.

Whilst animals can have trauma, and display any number of perceptual, motoric and mood disturbances, they cannot have the disturbances of symbolic functions that are essential ingredients of human psycho-pathology. In animals there cannot be disturbance of ideas (delusions of grandeur or persecution, etc.) because there are no ideas to start with. Hence animal neurosis is only a partial model of human psychiatric disturbance; behavioral psychology needs a systemic approach that includes, but is much wider than, the original behaviorist model based on animal research. There may be conflict between biological drives and a symbolic value or belief system: this is the situation of psycho-neurosis. Or there may be conflict between beliefs, or a loss of value orientation; this is the situation when existential neurosis arises. Cultural factors are therefore an intrinsic factor in the systems approach.

As we have seen, psychiatric disturbances can be neatly defined in terms of system functions. Our perception of the world is shaped by emotional, motivational, social, cultural and linguistic factors. And without the mechanism of illusion - our inner mind space - a consistent world image would be impossible.

Of great interest to Mind Development, is that similar considerations apply to motivation. Normal motivation implies autonomous activity, integration of behavior towards a consistent goal, adaptability to changing situations, and free use of symbolic anticipation, decision-making, and so forth. This emphasizes the hierarchy of functions, especially the higher symbolic levels of beliefs and values, superimposed (as with **Maslow's Hierarchy of Needs**) on the lower level organismic requirements of life. The concept of spontaneity draws the borderline between organismic behavior and higher human cognition. Evocation of creative potentialities is therefore senior to passive adjustment.

Dealing with psycho-neurosis is only part of the systemic approach of Mind Development. Attempts at re-integration, insight into present conflicts, orientation towards goals and the future, deal with the symbolic levels of the human psyche, and in so doing, resolve the existential problems of life.

Upshot

The system concept provides a context for Mind Development that is psycho-physically neutral; both the concepts of mind and brain can be discussed meaningfully within the same framework. Within the framework of General Systems Theory, we have been able to take the ideas of **Adler** as representing the embryonic form of a system of Mind Development in the implicit recognition of teleology - the belief that individuals are guided not only by mechanical forces but that they also move toward certain goals of self-realization - and from these seminal concepts, put together a workable system of Mind Development.

The Cartesian dualism between spirit and matter, mind and body, consciousness and brain, and so on, is a conceptualization derived from seventeenth-century physics which is obsolete. The modern Systems viewpoint is holistic, and offers a framework in which a 'unified' theory can be formed. The first beginnings of a common language can be found in the work of **Jean Piaget** and several of the Structuralist philosophers who analyze the structure or content of conscious mental states by introspective methods.

Extending this way of thinking to the universe as a whole, it is not too far-fetched to assume that

all its structures - from subatomic particles to galaxies and from bacteria to human beings and the ecology of the earth - are manifestations of the universe's self-organizing dynamics, which can be identified with the term "cosmic mind." The systems view of nature seems to provide a meaningful scientific framework for approaching the age-old questions about the nature of life, mind and consciousness. In conjunction with the findings of our own Mind Development research, we will eventually have a unified theory from which all Man's dualities can be derived or reconciled.