

AN OUTLINE SUMMARY OF UNITARY FIELD THEORY

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A Introduction I will introduce this paper with some brief background sources of unitary field theory (UFT). Secondly, I will outline the basic concepts of UFT up to the present time. Thirdly, I will attempt to give some meaning to the unitary concept of a formative-organizing process by using some familiar examples.

1. L.L. Whyte of England set forth, in 1949, UFT which claims to be the latest belief matrix of pure science. This means that UFT claims to be the most fundamental and most encompassing current unifying theory of pure science. However, in order to earn its right to this title, the concepts of UFT when fully developed must both withstand challenges from the totality of methods of pure science and prove that it can solve all the yet unsolved problems of pure science.
 - a. What are some of the background sources of UFT? In this sub-section, three major concepts of UFT will be introduced: 1) the downward swinging unitary formative process; 2) the upward swinging unitary normalizing organizing process; 3) the unitary principle.
 - 1) UFT's concept of a formative process has had a long history. UFT traces its formative process concept in part to the "doctrine of the two contraries" of the cultural era of superstition and in part to the doctrine of holism of the cultural eras of philosophy and science. In modern times, the ancient "doctrine of the two contraries" has evolved into the interaction doctrine of mechanistic-materialism. The process doctrine of holism seems to have been originated by Aristotle and has been employed by a number of modern philosophers and scientists culminating in its use by the Gestalt psychologists. (The experimental discovery of a formative process by Gestalt psychology on the one hand and their attempts to use the doctrine of holism to explain the operation of this existent on the other hand should be carefully distinguished.) Descartes's doctrine of mind-body interaction is a dualistic and, hence, a classical view of interaction. The modern doctrine of interaction applies to only one body of phenomena at a time and no dualism is implied. For example, excitatory and inhibitory neurophysiological processes are said to interact with

their resultant (in certain cortical loci or, say, in certain hypothalamic control centers) controlling the expression of neurophysiological functions. The traditions of Herbart and Freud that attempted to explain "the contents of the mind" or "mental conflict and its resolution" by the interplay of conscious, subconscious and unconscious processes, are older but familiar modern interaction hypotheses. Such doctrines of postulated contraries that interact with a consequent resultant are a throwback to the "doctrine of the contraries" but they also explain the interplay between causes and their effect so that such doctrines constitute, for mechanistic-materialism, theories of a formative process and of a controlling agency.

- a) The doctrines of interaction and holism have been rivals as explanations of operation of the formative process in science. UFT, although tracing the ancestry of its concept of the unitary formative process to these doctrines and their antecedents, rejects both of these older process doctrines as the fundamental mode of formative process operation either for being non-applicable and incomplete (interaction) or for simply being invalid (holism). Interaction as a formative process doctrine wrongly ignores the historical order that is telescoped and projected into all formative processes. UFT, instead of using the term "interaction", employs the term "transaction" (as developed in its specific meaning by the Princeton transactional psychologists) which denotes that in any formative process the historical order or the "context" within the system is automatically projected into the process so that this context (which is the past of the system) always plays a predominant role in determining the nature, property or meaning of some in-existing or incoming core. In this way the context, in effect, has the major role of determining the nature of the formative process in the system per se. (The term transaction points to the reduction of temporal asymmetry in all formative processes of natural systems. In other words, the asymmetry between the past and present in the system is reduced by both the past and present being telescoped and projected into the same unit of the formative

process.) This transactional view of process is saying the same thing that Einstein’s (verified) Special Theory of Relativity states: the frame of reference of a system (say, an electron’s velocity) determines the properties of the system (the electron’s velocity determines its mass). Einstein’s Special Theory of Relativity is no other than the so-called core-context theory of meaning in psychology which has had a long history (originating perhaps with Bishop Berkeley) in both philosophical and scientific psychology.

(1) Modern positivism in the form of Bridgman’s operationalism spuriously extrapolated the insight of Einstein’s Special Theory of Relativity to the social sciences and to psychology in particular with the aim of arriving at more valid concepts. Operationalism has held that, in order to arrive at a valid concept, one must define a concept in the total context of measurements that involve the concept. According to Bridgman, by specifying all the operations involved in such a total context of measurements one in effect defines the concept. The basic flaw in Bridgman’s views, especially as applied to psychology, is that for any concept in the sciences the most important part of the frame of reference to be taken into account is that which exists within the scientific investigator himself. Thus, in the field of learning (as per the 3rd edition of Hilgard’s text on learning theories), experimentalists and theorists alike have outdone themselves in “operationally defining” their concepts. On the other hand, most of these learning theorists have ignored the fact that Newtonian concepts were banished from science by Heisenberg’s Uncertainty Principle of the twenties. The result has been the development of a specious group of learning theories that lay claim to being the “best developed field in psychology”. Nor is the end of these specious learning theories in sight, for their modern proponents allege that it was the use of animals in learning experiments that was at fault. Some are now resorting to the techniques of Statistical

Dynamics or to the developmental system of Piaget. On the other hand, both Statistical Dynamics and Piaget’s conceptual system are, at their base, Newtonian models! Those that ignore the transactional nature of the formative process by using such terms as the “contemporary field” or who treat “surface symptoms”, etc. are no better off. The transactional nature of processes cannot be ignored because this is how all formative processes intrinsically operate.

- b) Holism is the doctrine that a “super-ordinate whole” appears first in a formative process which then somehow determines at least some of the properties of the parts of the eventual formative unit. Thus, Aristotle’s concept of holism maintained that the “cell” appears first in development and that this “whole” in some way determined the properties of the natured cell’s living processes. Since 1895, Aristotle’s view has been equated with vitalism in fundamental biology and its rejection has witnessed the rise of what many regard as the most eminent of all of the sub-sciences of science during the twentieth century – biochemistry. In the area of perceptual psychology, the Gestalt psychologists, in attempting to explain their experimentally established perceptual forms, have contended that the outer contour of the perceptual form appears first and that this “whole” in some way determines the articulation or the emergent properties of the unit perceptual form. Piéron at the University of Paris examined tachistoscopically the development of unit perceptual forms in human subjects and established that the order of the appearance of the parts of the outer contour or the parts of the inner articulation of the perceptual form is randomly determined. Köhler’s cortical field (holistically operating) gestalt explanation of the phenomenal perceptual form has been experimentally disproven by a series of “cortical gold mesh” experiments (the mesh would serve to short out Köhler’s electrical field gestalts) initiated by Lashley et al at Harvard.
- c) Thus, the doctrine of interaction as a concept of a formative process is incomplete and not applicable to the concept of a

formative process. On the one hand, the holistic concept of a formative process has been experimentally refuted at every turn. On the other hand, the modern doctrine of interaction does have validity as a subsidiary controlling agency. UFT maintains that the postulated “contrary processes” of modern interactionism are manifestations of the organizing operations of the unitary normalizing-organizing process. It might well again be noted that, although the Gestalt use of holism and Köhler’s use of Maxwell’s field theory have been refuted, this does not invalidate the discovery of the perceptual form and a formative process in perception by Gestalt psychology. The discovery of perceptual forms and a formative process in perception is an experimental existent. Nor is field theory per se to be thrown out as a fundamental explanation of these particular experimental existents for Maxwell’s field theory as a fundamental field theory is now considered classical and has been superceded by three other field theories.

- d) What then is the empirical referent of UFT’s concept of the unitary formative process? The UFT concept of the formative process has the intrinsic downswinging movement of the dimitants of the unitary field as its empirical referent.
- 2) In contrast to the long history of the formative process concept, UFT’s concept of an upswinging normalizing-organizing process has had a very short past. This is because Whyte has identified this unitary concept with the fundamental chaos of particle physics. The following paraphrased statements put forth the view of contemporary physics as to the experimental reality of this underlying fundamental chaos:

“. . . This theme of order and chaos, already repeatedly touched upon illustrates as clearly as anything can, the complete revolution in our view of the universe that has been brought about by the achievements of physical science in this century. Briefly stated the new view is a view of chaos beneath order – or, what is the same thing, of order imposed upon a deeper and more fundamental chaos. This is in startling contrast to the view developed and solidified in the three centuries from Kepler to Einstein, a view of order

beneath chaos. In spite of the haphazard and unpredictable nature of the world around us, ran the old argument, . . . the building blocks of the universe are elementary (physical) objects . . . moving in calculable paths, interacting in a known (mechanical) way with other elementary objects . . . But in this century . . . experimental evidence from the world of elementary particles has revealed a deeper-lying and more fundamental chaos . . .

“. . . In the seventeenth century, man looked upward and outward into the universe and was humbled, as his earth took its diminutive place as a speck of matter in a corner of the cosmos. In this century, we look downward and inward and find new reasons for humility. Where we might have expected to find some firm lumps of matter as the building blocks of the universe, we find instead a chaos of annihilation and creation . . . and chance working at every turn . . . and the tenuous substance of wave fields. . . “

K. W. Ford: The World of Elementary Particles

(1963)

Thus, the fundamental chaos is an established experimental existent that underlies the orderly universe known to science. However, with respect to the theoretical importance of this experimental existent – the fundamental chaos – the point of arrival of Quantum Field Theory and particle physics is UFT’s point of departure. Although Quantum Field Theory and particle physics (which are both branches of Quantum Theory) have established an underlying chaos of wave fields as the fundamental basis of reality, neither of these two dominant sub-systems of physics have incorporated this fundamental chaos into their theoretical systems in any basic way, while the fundamental chaos is identified in UFT as the normalizing-organizing process aspect of the unitary process. Thus, the fundamental chaos is one-half of the central doctrine of UFT which is the doctrine of the formative (-normalizing)–organizing process. On the one hand, such identification of the fundamental chaos with a normalizing-organizing process in all natural processes of the

universe sets UFT off from all other fundamental theories of pure science. On the other hand, such an identification appears to be the next natural quantal link in the chain of progressive discovery (known as fundamental thought in pure science) demanded by the unexpected discovery of the fundamental chaos by Quantum Theory whose conceptual mould was cast in the twenties. Thus, with respect to the normalizing-organizing process aspect of the unitary process and its profound significance or meaning, UFT is a very new theory within pure science indeed!

- 3) Next, a brief discussion of the historical background of UFT's unitary principle. UFT claims that all the established fundamental laws of all the sciences can be ultimately explained on the basis of one principle (and its extrapolated implications) which can be stated in one sentence. This is UFT's unitary principle.
 - a) This unitary principle was first stated generally by E. Mach who observed its operation in astronomical phenomena about 75 years ago. However, due to the dominant interpretation of entropy by mechanistic-materialism, Mach's observation and his statement of the unitary principle were ignored until 1962. (See Figs. II and III.)
 - b) The unitary principle was first formulated explicitly at the turn of the century by Pierre Curie who observed its operation in the processes of solid state physics. Perhaps because of its explicit formulation, Curie's statement of the unitary principle continued to flourish in solid state physics and in physical chemistry. In his 1962 work New Perspectives In Physics, Louis de Broglie points out Curie's principle and predicts its future rise to eminence. There is no unintentional bit of sardonic irony here for de Broglie is the founding father of wave-mechanics (also called Quantum Mechanics), the discipline which has done the most to prolong the Newtonian age after Heisenberg had enunciated the Uncertainty Principle in the twenties.
 - c) In the second and third decade of this century, Gestalt psychology experimentally established UFT's unitary principle as the basic principle of operation of the formative processes that subserve both perceptual and cognitive

processes. There is some further irony here because Gestalt psychology established the unitary principle by precise experimental measurements on the one hand, but K. Koffka (an able experimentalist) on the other hand so verbally formulated the unitary principle that two formative principles (and not only one) could be adduced from his verbal statement. Thus, J. Wulf working in Koffka's laboratory, in extrapolating the Gestalt psychology formulation of the unitary principle (Koffka's erroneous verbal one) to the nature of changes that would occur in perceptual memory structures (or "traces") with the passage of time, correctly interpreted Koffka's "unitary principle" as predicting that two formative processes would occur (depending on the asymmetry-symmetry ratio in an original perception) in the memory structures: "sharpening" and "leveling". The prediction that "sharpening" (increased symmetry) would occur in memory structures with the passage of time is consistent with the prediction of UFT's unitary principle; the additional prediction that "leveling" (increased asymmetry) could also occur in the memory structures with the passage of time is completely contradictory to the predictions of UFT. In 1931, C. Musatti correctly formulated the unitary principle as established by Gestalt psychology as a principle predicting "increasing homogeneity (symmetry)" in all psychological formative processes but Koffka's formulation of the principle prevailed due to his greater prestige (which he had earned as an experimentalist!) Koffka's ambiguous statement of the unitary principle was tested in its dual interpretation in a long series of experiments with inevitable consequences for the unitary principle of Gestalt psychology in this country with its context of behavioristic orientation. On the one hand, the aspect of Koffka's "unitary principle" predicting "leveling" in psychological formative processes was refuted without fail whereas, on the other hand, the correct "sharpening" prediction was confirmed almost without fail. (See Woodworth and Schlosberg's 1954 Experimental Psychology.) The consequence has been that the Gestalt unitary principle did not pass into the main stream of

psychological principle and theory and has remained obscured, deeply embedded in experimental psychology. The irony, of course, is that the Gestalt unitary principle had been established by experimental measurement in the first place and it was Koffka's formulation of the principle that led to the conflicting results. However, if one throws out Koffka's erroneous formulation of the Gestalt unitary principle and falls back on Musatti's formulation of the same principle, the fact is that UFT's unitary principle has already received powerful confirmation by experimental psychology!

- d) Whyte was the first to extrapolate a modified and developed version of Curie's explicitly stated principle as a unitary principle for all of nature and science. In other words, Whyte elevated the Mach-Curie-Gestalt psychology principle from a major explanatory principle in a few sub-fields of science to the status of the fundamental explanatory principle for all science whose subject matter is all of nature.

B. A brief outline of the basic concepts of UFT.*

1. From the very beginning of pure science, pure scientists have sought for the discovery of an ultimate structure underlying the universe and have also

* UFT's unitary principle and its concept of the formative-organizing process as well as the application of both as a unifying theory for the established phenomena and laws of the physical, biological and social sciences are to be found in Whyte's The Unitary Principle In Physics and Biology (1949, Henry Holt and Company, New York) and in Baranski's Scientific Basis for World Civilization (1960, Christopher Press, Boston). Whyte's work unfortunately is out of print (but can be found in the larger libraries) but Baranski's work is still available. UFT's concept of the dimutant is to be found in Whyte's The Atomic Problem: A Challenge to Physicists and Mathematicians (1961, George Alolen and Unwin, London) and in Whyte's Essay on Atomism: From Democritus to 1960 (1961, Wesleyan University Press, Middletown, Conn.) In addition to the dimutant, Whyte's The Atomic Problem discusses the central problem of physics (especially high energy physics) which is the "problem of alpha" and the work also contains a relatively complete list of journal articles written by Whyte during the past forty years. UFT's concept of form (which is the product of the unitary process and which is not to be identified with the "perceptual form" of Gestalt psychology) is to be found in Whyte's The Next Development In Man (1949,

sought for one set of laws or for one principle that would describe how this ultimate structure operates. Newton’s system of mechanistic-materialism put forth various types of atomistic concepts possessing various types of invariant properties as candidates for this ultimate structure. The Newtonian candidates for ultimate structure – including those of Statistical Dynamics – were irretrievably refuted by Heisenberg’s Uncertainty Principle. Maxwell’s electromagnetic field theory and the field theory associated with Einstein’s Theory of General Relativity advanced the ether concept of space and the concept of absolute (or physical) space respectively as candidates for ultimate structure. Most physicists including Einstein considered Maxwell’s ether concept of space refuted by the Michelson-Morley experiment, but no matter. Both Maxwell’s and Einstein’s concepts of space held that space was a fixed framework continuum; this concept was irretrievably refuted by the discovery of the underlying fundamental chaos by Quantum Field Theory which holds that each of the 34 fundamental particles represent a quantum field so that these 34 quantum fields fill and comprise the universe. The role of the fundamental chaos in Quantum Field Theory is that of a randomizing causal agency that annihilates the fundamental particles formed by the “spontaneous perturbations” of the 34 quantum fields. Thus, Quantum Field Theory puts forth only one candidate for ultimate structure, the 34 quantum fields. The fundamental chaos has remained largely as a non-assimilated co-existent in Quantum Field Theory.

(cont’d.) available as a Mentor paperback from the New American Library of World Literature, New York) and will be found in Baranski’s Responsible Sexualism (incomplete manuscript). The logical-mathematical understructure of UFT stemming from Whyte’s forty years of research will be found in Whyte’s The Formative Process (pre-publication form?) Three incomplete manuscripts dealing with unitary man and unitary society and with the motivational dynamics of unitary man and entitled Unitary Man, Unitary Society, and Responsible Sexualism respectively will become available as time permits. Up to date summaries of all UFT concepts and their application as a unifying theory for all the sciences will be found in Baranski’s Berkeley Paper and in a two volume work that will be entitled Field Theory I & II. Both of the latter works are semi-quantitative in nature and are intended for professional physicists, biologists and social scientists to further the basic development and the testing of UFT concepts. Both of these works are incomplete manuscripts, however, the former is available on a “must return” basis. Whyte’s The

2. UFT rejects the 34 quantum fields of Quantum Field Theory as the basic structure of the universe and advances the fundamental chaos as its candidate for the ultimate structure. UFT asserts that the fundamental chaos is a field, the one field underlying the universe and that this one field is composed of one mirror-image structure. The fundamental chaos or the one field underlying the universe, the UFT calls the unitary field, and its basic mirror-image structure, Whyte calls the dimitant. All higher levels of the complexity hierarchy above that of the dimitant – which includes the 34 particle-fields of Quantum Field Theory – UFT maintains are evolutionary differentiated forms of concentrated and non-concentrated dimitant patterns structure by the unitary process. *1

(cont'd.) Next Development In Man and Baranski's Scientific Basis and the Berkeley Paper are basic works for the new discipline of Culturology. The current status of Whyte's and Baranski's unpublished works will be furnished upon request as time permits.

*1 Refer to Fig. I. The terms in the column on the right of the chart are mostly the scientific names given to each complexity level of the unitary field's observable complexity hierarchy in nature. Next, note the term, "Particles (34)". This is the level of particle physics and Quantum Field Theory. Since Maxwell's electromagnetic field and Einstein's gravitational field are represented by the photon and graviton "particles" respectively, the level of particle physics is also the level of these two basic theoretical systems. Next, note the vertical cross-hatching at the left that disappears at both ends of the chart. This cross-hatching symbolizes the underlying fundamental chaos of particle physics and Quantum Field Theory and it also symbolizes the unitary field and (note the upward pointing arrow) the normalizing-organizing process of UFT. Next, note the smallest dot at the bottom of the vertical cross-hatching. This dot symbolizes the basic structure of the unitary field that Whyte calls the dimitant. Next, note the two progressively larger dots above the dimitant dot and note also the horizontal lines of progressively increasing lengths. These progressively larger dots and progressively longer horizontal lines represent the progressive increase in complexity of the unit structures structured by the unitary formative process; thus the dots and lines symbolize distinct emergent levels of the complexity hierarchy. (The dashed arrow accompanied by the word "Whyte" and a question mark symbolizes the skepticism that the resonances of sub-particle physics form a genuine complexity level. In 1928, Whyte predicted the

- a. Asymmetry as the fundamental property of the unitary field and the unitary tendency toward symmetry. In their nascent state, the dimitants of the unitary field are in a state of absolute form-motion asymmetry for they partake of the fundamental chaos. In other words, the fundamental property of the unitary field and that of its dimitants is the absolute form-motion asymmetry of the fundamental chaos. UFT also identifies dimitant asymmetry with the thermodynamic potential, free energy in its absolute form, so that: dimitant asymmetry = free energy.

- 1) UFT maintains that the dimitants of the unitary field manifest one intrinsic tendency toward symmetry which appears as two contrasted movements of the dimitants. The unitary field as a whole manifests an intrinsic upward-swinging tendency which appears as an intrinsic movement of the field's dimitants toward a state of complete uniformity of dimitant form-motion asymmetry (which is a state of complete heterogeneity or absolute randomness of dimitant form and dimitant motion) in the field as a whole. (This upward-swinging movement of the unitary field and its dimitants is observed as the fundamental chaos by particle physics.) The dimitants of the unitary field also manifest an intrinsic downward-swinging tendency which appears as an intrinsic movement of the dimitants toward form-motion homogeneity in localized regions of the field. These two intrinsic movements of the dimitants toward complete uniformity of dimitant form-motion randomness or asymmetry in the field as a whole and toward dimitant form-motion homogeneity in localized regions of the field are both manifestations of one intrinsic tendency of the unitary field

(cont'd.) discovery of an infinite number of such sub-particles which he regards as units of particle interaction.) The dashed vertical line between the second and third uppermost complexity levels indicates that several sociological levels had to be left off the chart. The thin vertical line with the downward pointing arrows to the left of the vertical cross-hatching symbolizes the unitary formative process on all complexity levels above that of the dimitant. The three small continuous circles extending from the vertical cross-hatching symbolize the static and cyclic structure-functional organizations organized by the unitary normalizing-organizing process in facilitating normalization that results in the extension of a system's form over space and through time on each level of the complexity hierarchy.

and its dimitants to move toward spatial symmetry. Thus, in the total context of the unitary field, the apparently contrasting movements of the dimitants toward a state of complete uniformity of dimitant form-motion asymmetry in the field as a whole and the movement of the dimitants toward form-motion homogeneity in localized regions of the field are both but different aspects of one tendency toward dimitant spatial symmetry in the field as a whole.

- b. The unitary principle. Newton set forth his law of gravity and his three laws of motion and Einstein set forth the field equations of the General Theory of Relativity to describe how their concepts of the ultimate structure operate. In contrast, Whyte asserts that the unitary field's operation can be described by the unitary principle which can be described in one sentence: **Dimitant asymmetry tends to disappear in an isolable process.** An "isolable process" is a localized region in the unitary field in which both intrinsic movements of the dimitants appear so that dimitant asymmetry is continuously disappearing (or so that dimitant symmetry is appearing) in both an upswinging and a downswinging movement of the unitary field's dimitants. Thus, in an isolable process, the dimitants continuously move toward both a complete uniformity of form-motion dimitant asymmetry in the field as a whole and toward form-motion dimitant homogeneity in the localized region which is the isolable process.
- c. The unitary process. The unitary principle applied to the context of the unitary field and to its dimitants predicts that when both of the intrinsic movements of the dimitants appear in the same localized region of the unitary field so that an isolable process is formed, a formative-organizing process (operating on the unitary principle) will make its appearance in that region of the field as part of the isolable process. This formative-organizing process (operating on the unitary principle) is the unitary process of UFT.
- d. The formative process of the unitary process as a structure-forming process. The unitary principle implies that, in the downswinging unitary process or in the downswinging movement of the dimitants, a more homogeneous (form-motion) dimitant combination is formed. (Note: The term "dimitant combination" is not meant to imply that a mechanical summative process produces the dimitant combination. This is not the case since emergent properties appear in the dimitant combination. For this reason the unitary process is often spoken of as a "creative process" for emergent properties are entirely novel and are not due to a mechanical

summative process.) Thus, the formative process is a structure-forming process. The type of unit structure that is formed by such formative processes depends on the particular level of the field's complexity hierarchy upon which the unitary process is operating. Thus, the unit structure formed by a unitary formative process may be a cimitant combination per se, a fundamental particle, an atom, a molecule, a colloidal compound . . . a human individual, a social group, a society with a civilization, etc., depending upon which level of the field's complexity hierarchy the formative process involves.

- 1) See footnote *1 and Fig. 1 for the symbolic representation of the unitary formative process. Note again that the unitary formative process appears on all levels of the complexity hierarchy above the dimitant level. It is the unit emergent structures structured by the unitary formative process that are responsible for the levels of the complexity hierarchy coming into existence in the first place.
- e. The normalizing-organizing process of the unitary process.
- 1) First, the concepts of the norm and the normalizing process. The unitary principle also implies that the dimitants in the field as a whole move through the unit structure formed by the formative process so as to restore the constituent dimitants of the structure to the level of uniformity of dimitant form-motion asymmetry in the field as a whole. Due to this intrinsic movement and intrinsic symmetry tendency of the dimitants in the field as a whole, two possible events can result depending on the stability of the unit structure formed (structured) by the formative process. The first possibility is that the unit structure of the formative process is dispersed into its constituent dimitants by the force of the upward moving dimitants; this dispersal would in effect restore the dimitants of the unit structure to the level of uniformity of dimitant form-motion asymmetry in the field as a whole. (An example is the “annihilation event” of particle physics whereby a particle is observed to be spontaneously dispersed by, and into, the fundamental chaos.) The second possibility is that the unit structure of the formative process is too stable to be dispersed or is only partially dispersed by the force of the upward swinging dimitants of the field as a whole. (An example of the former is the stable electron, proton, neutron particles of particle physics and an example of the latter is the actin-myosin muscle system “free energy

to mechanical energy transformer” associated with the ATP-catabolic cycle.) The dimitants of the unitary field are continuously moving toward a level of complete uniformity of dimitant form-motion asymmetry in the field as a whole, and this intrinsic movement of the dimitants is blocked or impeded by the stable or partially stable unit structures. Therefore, instead of appearing as a dispersal process per se, the intrinsically upward moving dimitants appear 1) as a randomizing causal process within these unit structures, 2) as a number of dimitants and a high level of dimitant asymmetry (free energy) within these unit structures, and 3) as a process within and external to these unit structures that continuously sustains the number of dimitants and, hence, sustains the high level of dimitant asymmetry (free energy) within those unit structures.

a) By the term, the norm, UFT refers both to the number of dimitants and to the high level of dimitant asymmetry in the stable and partially stable unit structures; by the term, the normalizing process, UFT refers to the continuous process or to the continuous upward movement of the dimitants in the unitary field as a whole. This continuous upward movement, or normalizing process, sustains the high level of asymmetry, or the norm, in the unit structure. Thus, the norm or asymmetry (free energy) level in such stable and partially stable unit structures is the manifestation of a certain number of dimitants within these structures and of the symmetry tendency of the upward moving dimitants. The normalizing process, then, is none other than the universe-wide, upward moving dimitants moving toward a level of complete uniformity of dimitant form-motion asymmetry in the unitary field as a whole.

(1) Refer to *1 and Fig. I for a symbolic representation of the normalizing process. The vertical cross-hatching also symbolizes the universe-wide normalizing process. Thus, the cross-hatching symbolizes: 1) the fundamental chaos; 2) the unitary field composed of dimitants; 3) the normalizing process of the unitary field which consists of the dimitants of the unitary field intrinsically moving to restore the level of uniformity of dimitant form-motion asymmetry in the unitary field as a whole.

- (2) When UFT states that a normalizing process is operating in a system that continuously sustains the high asymmetry norm of the unit structures formed in the system, UFT is maintaining that the normalizing process is inducting a specifiable number of dimittants into the unit structures that sustain their high asymmetry norm. In more familiar thermodynamic terms, when UFT states that there is operating in a system a normalizing process that continuously sustains a high asymmetry norm in the system, it is being said that there is operating in the system a free energy mobilizing process (e.g., the ATP-catabolistic system) that continuously sustains the high free energy level of the system. Physical chemistry has long been able to measure the free energy change (ΔF) of chemical processes but it has been maintained that the absolute free energy (F) of chemical processes is unmeasurable. UFT maintains that the absolute free energy (F) of chemical processes is a function of a specifiable number of dimittants in the reactants of a chemical process.
- 2) The normalizing-organizing process and UFT's concept of form.
- a) Whyte points out that any differentiated system governed by a unitary process (which is any natural system more complex than a dimittant) would (or could) be subjected to both extrinsic (environmental) and intrinsic (internal) sources of normalizing distortion. Such sources of normalizing distortion, if disruptive, would lower the asymmetry norm (or free energy level) of the system. This, in turn, would serve to impede the normalizing process in its intrinsic tendency to sustain continuously the asymmetry norm in that system. Based on the implications of the unitary principle and on experimental observations, Whyte maintains that the normalizing process working within a system, synthesizes (organizes) the unit structures formed (structured) by the formative processes of the system into static and cyclic structure-functional organizations which, in turn, serve to offset extrinsic and intrinsic sources of normalizing distortion of the system. If the sources of extrinsic and/or intrinsic normalizing distortion persist, the normalizing process further develops (organizes) these static and cyclic structuro-functional

organizations to offset the normalizing distortion so that the form of a system is progressively extended over space and through time. (Refer to *1 and Fig. I., the three small continuous circles. These three small continuous circles symbolize the static and cyclic structuro-functional organizations developed by the normalizing process to offset normalizing distortion and extend the form of a system over space and through time. Such extension of form occurs on each level of the complexity hierarchy.) The normalizing process extends the form of a system over space and through time as long as the development of the system facilitates the intrinsic tendency of the normalizing process which is the restoring and sustaining of its own norm. Another way of saying the same thing is that the normalizing process, through its organizing operations within a system, continually sustains its own norm. It goes without saying that if a system lacks the intrinsic potentialities from which the normalizing process might develop structro-functional organizations that would facilitate the restoring and sustaining of its norm, the system would cease to exist.

- (1) The essence of the normalizing process as an organizing process is that the normalizing process develops, over space and through time, the form of systems that facilitate its continuity. Thus, UFT claims that all natural systems in the universe extended over space and through time are the structuro-functional resultant forms organized by the organizing operations of the normalizing process in its intrinsic tendency of promoting its own norm within these systems. The normalizing process in extending the form of these systems over space and through time by its organizing operations thus facilitates its own continuity and extension over space and through time on the various levels of the complexity hierarchy.
- b) The unitary concept of form is developed in Whyte's The Next Development In Man (1949). This concept of form as interpreted by Baranski refers to both the underlying characteristic continuity of order in a system and to the characteristic continuity of the macro features of the same system. For example, in the physical sphere, the unitary

concept of form refers to both Baranski's concept of space (that is not a fixed framework, but as developed in the Scientific Basis.) and to the characteristic asymmetry to symmetry continuity features of the macro galactic systems. (It is held that the evolution of this type of space in part determines the developmental sequence of these galactic systems.) In the biological sphere, the unitary concept of form refers to both the continuity of genetic order within DNA (which is the genotype) and to the characteristic continuities of macro structuro-functional characteristics and traits (which is the phenotype) of evolving species. In the sociological sphere, the unitary concept of form refers to both the continuity of a fundamental cognitive assumptive framework in a succession of human individuals manifesting itself in the culture of a sociological system and to the continuity of economic, political and social institutions associated with that culture.

- f. Natural systems as unitary dualities. UFT holds that all natural systems on all levels of the unitary field complexity hierarchy are the resultant of a one-way process of unitary development. These systems not only emerged and evolved from the unitary field but they are still a part of the universe-wide unitary field being dynamically connected to it by the normalizing-organizing process of the unitary field. Thus, UFT predicts the experimental discovery of unitary systems (each with highly specific indices as set forth by UFT) on the physical, biological and sociological levels of the unitary field complexity hierarchy. These natural systems have come about due both to a unitary formative process working within them forming unit structures and to the unitary normalizing process organizing these structures to extend the form of these systems over space and through time as long as the systems facilitate the intrinsic tendency of the normalizing process. Whyte has named these systems and the fully differentiated subsystems within them, unitary dualities. A duality is a system or a subsystem that is divided into two highly differentiated and seemingly independent parts that nevertheless work closely together (work interdependently) to perform and/or to produce some characteristic total function and/or product which, in turn, serve(s) to facilitate the continuity of the normalizing process working within the system or subsystem. By putting forth the duality concept, Whyte is maintaining that all natural systems and genuine subsystems of the universe (no matter their size) are

simply differentiated unitary processes. The duality concept asserts that all natural systems and genuine subsystems can be divided into two interdependent parts. One part is a formative process and the other is a normalizing-organizing process. The two parts of the system or subsystem furthermore will be found to perform a characteristic function and/or to produce a product which facilitates the intrinsic tendency of the normalizing process working in the particular system or subsystem.

C. Three examples of unitary processes.

1. Mechanistic-materialism vs. UFT on galactic evolution.

- a. Fig. II displays the schema of galactic evolution (based on Hubble's classification of galaxies) as organized on the basis of the entropy tendency as interpreted by classical and statistical thermodynamics. The entropy tendency (as per the excellent formulation by F. Allport on Fig. II) should manifest itself in the breakdown of the organization of complex systems into their simplest components and in the degrading of all their ordered energy motions into random heat motion at a low temperature. Thus, since an astronomical system in a state of maximum entropy would manifest a maximum of heterogeneous form and a maximum of random motion, mechanistic-materialism has predicted that galactic evolution would proceed as Fig. II's schema depicts, from spheroidal galaxies that possess maximum form-motion order (and, hence, minimum entropy as per Statistical Dynamics), through the less organized form-motion stage of the elliptical galaxies, through the stage of the spiral galaxies (which take two parallel evolutionary pathways) wherein increasing form-motion disorder is observable in the galactic arms, to the stage of irregular galaxies wherein the form of the galaxy is heterogeneous and its constituent stars moving at random. It is to be understood that this schema of galactic evolution never had any objective astronomical basis for support but was organized solely on the basis of the entropy tendency as interpreted by the thermodynamic branch of mechanistic-materialism. Yet this schema of cosmological evolution dominated astronomical thought explicitly or implicitly for more than a century and was the reason Mach's essentially correct observations and statements on astronomical evolution were ignored.
- b. While interned as an enemy alien on Mount Wilson during WW II, W. Baade discovered that two contrasting categories of stars could be

experimentally discerned among the stellar population: Population I stars which are very young stars and Population II stars which are very old stars. These two extreme groups of contrasting “very young” (Population I) and “very old” (Population II) stars provided astronomy, for the first time, an objective criterion for arranging galaxies and galactic groups into a chronological (and, hence, into an evolutionary) sequence based on the relative proportion of the two star types in the galaxies of Hubble’s classification system. The chronological arrangement of galaxies based on this objective criterion is depicted by the 1962 Morgan-Mayall schema of galactic evolution, Fig. III. (Note the exclusive presence and preponderance of Population I stars in the irregular and spiral galaxies respectively. Note also the increasing size of the central core of the spiral galaxies which consist of all Population II stars and note the exclusive presence of Population II stars in the elliptical and spheroidal galaxies.) A comparison of the structural features of galactic evolution of Fig. III with that of Fig II shows that the theoretical schema of galactic evolution as predicted by mechanistic-materialism is in 100 percent error!

1) In the Scientific Basis, Baranski has shown that the established data of observational astronomy can be accounted for by the concepts of UFT. UFT holds that the two aspects of the unitary field take on the features of a creative formative-organizing process in each galactic group unit of the unitary field-universe which promotes the intrinsic tendency of the unitary field: dimitant form-motion asymmetry tends to decrease and dimitant form-motion symmetry (entropy) increases as the system evolves. UFT thus predicts an evolutionary tendency in galactic systems from a state of maximum form-motion (dimitant) asymmetry, to a state of increasing form-motion (dimitant) symmetry, to a state of preponderance of form-motion (dimitant) symmetry, to a point of maximum form-motion (dimitant) symmetry and a cyclic return of the systems’ dimitants to their nascent asymmetry form-motion state. Thus, UFT is the theoretical explanation of the Morgan-Mayall schema of galactic evolution depicted in Fig. III and supports the steady-state, homogeneous universe which is the universe as observed by observational astronomy.

a) UFT maintains that the universal tendency toward increasing entropy, the passage of time per se, and all formative processes of the universe are all based on increasing three-dimensional (spatial)

dimitant symmetry. Such increasing dimitant spatial symmetry or increasing entropy would, of course, also occur in all the particles of particle physics, including the photon, which means that increasing dimitant symmetry is responsible for the red-shift of observational astronomy. UFT thus holds that the steady-state, homogeneous universe of observational astronomy is not an artifact that needs to be explained away or compromised by that the expanding state theory of the universe and the mechanistic Doppler-principle interpretations of the red shift (upon which the expanding state theory of the universe is largely based) both are invalid mechanistic interpretations.

b) Fig. III, on the one hand, indicates how the normalizing process of the unitary field extends the form of galaxies (actually galactic groups) over vast distances and through incredibly long eons of time. Fig. I, on the other hand, depicts how the same normalizing process interrelates all levels of the unitary field complexity hierarchy into a comprehensive unity of Being and Becoming.

2. The fundamental biochemical process (FBP) of biochemistry as a unitary process. (See Fig. I, the level of colloids.) The FBP is delineated in E. Baldwin's 1953 Dynamic Biochemistry.
 - a. Note that the FBP manifests a downswinging process. This downswinging process consists of all the known biological transformers (represented by the “T” and the downswinging side arrows) and their specific products and functions. (The “products” of the FBP denote over two thousand known syntheses of cellular anabolism.)
 - 1) UFT identifies this aspect of the FBP as the unitary formative process on the colloidal level of the complexity hierarchy.
 - b. Note (on Fig. I) that the FBP also manifests an upswinging process. This upswinging process is known to maintain all the transformers at a high level of (free and) potential energy in their resting state by continually supplying them with free energy, part of which is used to partially disperse the transformers. (The partially dispersed transformers are the source of the resting state potential energy of the transformers.) As, or shortly after, the formative process aspect of the FBP performs a function or synthesizes a unit structure by a

stimulus activating the potential energy of a particular transformer into its kinetic state, the upswinging process (via the excitatory and inhibitory hormonal and enzymatic agents) organizes these functions and structures into static and cyclic structuro-functional organizations which serve in various ways either to supply the FBP with a continuous source of free energy or to assist the upswinging process in performing its intrinsic function of sustaining the high free energy level of the transformers. An example of a cyclic structure evolved in the phylogenetic past by this upswinging process is the Krebs tri-carboxylic acid system. Krebs tri-carboxylic system operates so as to divest certain catabolites of their free energy which is passed on to the upswinging process via the ATP system. The initial reactants of the Krebs system undergo a series of breakdowns and transformations in supplying the upswinging process with a continuous source of free energy but the last step in the system restores the initial reactants again so that the system is cyclic. Thus, the Krebs system is a cyclic structural process that supplies the upswinging process with a continuous supply of free energy via the ATP system and the upswinging process, in turn continuously sustains the FBP's transformers in their resting state with a high level of (free and) potential energy. In a recent symposium on the “Origin of Life and Evolution”, conducted by the Society of Experimental Biology in England, J. Pringle cites evidence that the entire enzymatic system of modern organisms was evolved by a free energy level sustaining process.

- 1) UFT thus identifies the FBP's upswinging process as the normalizing-organizing process aspect of the unitary process on the colloidal level of the complexity hierarchy. The FBP thus constitutes a unitary process. UFT postulates that the biological order within DNA and the macro characteristics and traits of the four billion species that evolved on the earth are the form extended by this unitary process over space and through time.
 - a) Refer to the level of “Molecules” on Fig. I and note that a simple ATP unitary process is symbolized as appearing on this level of the complexity hierarchy. In the Berkeley Paper, Baranski shows that this simple ATP unitary process was in existence, deep in volcanic pools, during the earliest

years of the earth's nascent existence. The Berkeley Paper asserts by experimentally testable hypotheses that it was the natural radiation of the earth (terrestrial photons, in other words), and not simple chemical catabolites in the primary hydrosphere, that was the continuous source of free energy for this primordial ATP unitary FBP. It can be shown that this simple ATP unitary FBP some 4.8 billion years ago (which is the age of the earth accepted by the National Academy of Science) possessed all the potentialities to evolve the living processes including the psychological processes. All that this primordial ATP unitary FBP needed to bring about the rise of bio-psychological process on the earth was an ever-changing external and internal environment.

3. The mid-brain reticular formations (MBRF) as a hypothetical unitary process.
 - a. Beginning with the epoch-making research of Flourons in 1825, the associationistic tradition of mechanistic-materialism has regarded the cortex as the site of conscious psychological functions. The vast majority of college-level and professional textbooks dealing with the nervous system and its functions depict this view of the cortex to the present. On the other hand, beginning with the clinical work of Penfield in 1945 and with the experimental work of Magoun et al in 1947, experimental research has established that the MBRF is the central site of all conscious psychological function (phenomena). The associationistic tradition has long regarded the MBRF as a “diffusely organized and as a diffusely projecting cortical system”. More recently, the associationistic tradition has regarded the MBRF as a cortical arousal or as a cortical activating system which meant that the cortex is still the dominant functional system and that the MBRF subserves only a crude cortical arousing or activating function. Such views of the associationistic tradition have been rejected by experimental research which shows the MBRF to be the dominant functional system and the cortex to be the site of memory structures that are initially formed in the MBRF. It can also be said that the nerve impulse and the nerve impulse pattern as the carriers of psychological information in the nervous system have been

experimentally rejected. (See the six transactions on the Nerve Impulse edited by Nachmansohn et al.) However, since neither the dimutant nor the dimutant combination replacements for the nerve impulse doctrine have been experimentally established as yet, this example of the MBRF as a unitary process must be put forth in the hypothetical-postulate form.

- b. Note the convex lens-shaped symbolic representation of the MBRF on Fig. I. Also note the three horizontal lines within the MBRF. These three horizontal lines represent a three-level hierarchy of psychological processes in the adult human. The respective content of the three-level hierarchy of psychological processes in the MBRF of the adult human is indicated by the adjacent terms in the column of terms at the right of Fig. I. Note that the three terms at the left (cognitive, perceptual and sensory) constitute an exteroceptive hierarchy of psychological processes, that the three middle terms (feelings, emotions, physiological drives) constitute an interoceptive or affective hierarchy of processes, and that the right hand terms (speech, instinct and reflex) constitute a motoric hierarchy. The exteroceptive, interoceptive and motoric hierarchies each contain six levels of memory structures within themselves that feed into the three major horizontal levels of psychological processes. These three major horizontal levels of psychological processes and their associated six levels of memory structure evolved together during separate evolutionary periods in the past. The sensory-physiological (drive)-reflex level and associated memory levels one and two took four billion years to evolve whereas the cognitive-feelings-speech level and the two memory levels exclusively associated with the cognitive level, memory levels five and six, took only some five hundred thousand years to evolve. Memory level six is present in the human species alone and is responsible for man's unique intellectual, spiritual and speech capacities. The three major horizontal level processes clear across the board are often referred to as a whole by the terms sensory, perceptual and cognitive level processes respectively and are symbolized by the letters S, P and C on Fig. I.

- 1) UFT postulates that the FBP – known to be present within each exteroceptor and interoceptor (which are the external and internal receptors or the external and internal psychological transformers) – maintains their high free energy level or dimutant

asymmetry norm as a stable configured dimitant norm due to the differentiated structural properties of the receptor-nerve-nerve fiber system being impressed onto the pattern of pure form-motion symmetry being furnished by the FBP in each receptor. (See J. Müller's "specific energy of nerves", Lotze's "local signs", Helmholtz's "place theory and specific fiber energies" and von Frey's "specific end organs" for antecedents to the UFT receptor-nerve-nerve fiber concepts in Boring's History of Experimental Psychology.) Adequate stimuli are postulated to modulate, both in pattern and in vibrational frequency, those stable configured dimitant norms in the receptors; the modulated configured norms then travel from the receptor-transformers as a core to their respective specialized subcortical and cortical loci. The incoming core then combines in a transactional manner in these loci with configurationally similar patterns of "memory structures or dimitant combinations" which is the context. (The core-context theory has had a long history being initiated by Berkeley, developed by Titchner and given a central place in psychological theory by the Princeton transactional psychologists; this development is to be found in R. Allport's Theories of Perception and the Concept of Structure.) Research on the MBRF indicates that the core-context is then projected down from the cortex to terminate in the sensory (S) and perceptual (P) and cognitive © levels of processes within the MBRF. When the core-context enters the S, P and C levels of the MBRF, UFT postulates, dimitant combinations are structured by the formative process of the MBRF in accordance with the Musatti-Gestalt-UFT unitary principle. Thus, the outputs of all the peripheral external and internal receptor-transformers find their formative termini in the MBRF.

- a) The configured dimitant asymmetry norm in the receptor-transformers, the route of the modulated core and its transactional combination with the context, the projection of the core-context into the MBRF, and the formation of a dimitant combination within the MBRF are symbolized by the line connecting the level of dimitant combinations to the FBP-colloidal level that in turn connects with the humps that are representative of the

core-context transactional process in subcortical and cortical loci and that then descends and terminates on the S, P and C levels of the MBRF.

- 2) UFT postulates that the entire downswinging process – initiated with the stimulus activating the receptor-transformers, to the transactional core-context process in the subcortex and cortex to the structuring of the dimitant combination and to the phenomenal experiencing of the process – constitutes the unitary formative process on the sensory, perceptual and cognitive levels of the MBRF.
- c. The normalizing-organizing process of the MBRF. Aristotle’s functionalism, Leibnitz’s “dynamic intellect”, Kant’s “12 innate organizing categories of the mind”, Brentano’s act psychology in all its modern forms including the Goethe-Freud organizing libido and Tolmans macro learning cycle are all antecedents of UFT’s normalizing-organizing process concept.
- 1) Note on Fig. I that the MBRF has an upswinging process that passes through and synchronizes its three levels, projects upward (via the intrinsic nuclei of the thalamus) into the cortex, and projects down from the cortex to the MBRF forming a closed feedback cycle connecting the MBRF and the cortex into one system. This upswinging process constitutes a flow of free energy or dimitant asymmetry into the MBRF. The closed feedback cycle has been established as the thinking-attention process. The portion of the closed cycle within the MBRF is apparently able to originate new dimitant combinations for it is known to control the switching of the attention process and it is also known to control voluntary motoric behavior such as speech. In reference to this closed cycle, its upswinging phase is continually passing through memory levels four, five and six, combining with their structures in a transactional manner so that transacted memory structures are constantly being brought into the MBRF in the downswinging phase of the cycle; this process we experience as thinking while awake and dreaming when asleep. The downward portion of this cycle within the MBRF seems to be involved in all our cognitive processes: recall, recollection, reasoning, judgment, decision-making, etc. The upward swinging phase of this cycle controls our attention

process which, when directed inward, is an internal set called "directed or concentrated thinking" and, when directed outward, results in various sets and predispositions. This closed feed-back cycle contains more than twenty thousand circuits of which only a fraction are involved in the conscious attention-thinking process. The subconscious and unconscious aspects of this closed feed-back cycle are no doubt involved in subconscious and unconscious motivation and are also responsible for the incubation and insight stages of creative thought.

- 2) As a receptor-transformer output terminates in a formative process in the MBRF, the upswinging process of the MBRF interrupts the symmetry tendency of the dimitant combination that is being formed by inducting dimitants into the dimitant combination. (If the upswinging process did not adequately interrupt the dimitant combination in its intrinsic symmetry tendency, the dimitant combination might be rigid as the phenomenal experiences involved in hallucinations or delusions or it would be static and dead. If the upswinging process inducts too many dimitants, the phenomenal experience would be disrupted. Osgood discusses just such a pathological condition in the visual system on p. 224 in his Method and Theory In Experimental Psychology.) The induction of dimitants into the dimitant combination that is undergoing structuring terminates the formative process thereby preventing the dimitant combination from going too far toward its intrinsic form-motion symmetry and it is at these moments that conscious psychological phenomena are postulated to be experienced. (Thus, dimitant asymmetry or "free energy" is postulated to be the "stuff" of contentless consciousness or of crude awareness; the configuration of the dimitant combination and its differential vibrational frequencies are postulated to be, respectively, the basis of the figural qualities and dimensional attributes of phenomenal experience.) Stevens, Volkman, Corso, etc., have established that some central formative process forms, in the nervous system, discrete, quantal units whose structuring times have been measured and which may interact in various ways ("figural after-effects", "sensory-tonic", etc.) The quantal concept corresponds to the UFT concept that

the MBRF formative process forms discrete unit structures. (See the "Quantal Hypothesis" in Chapter Two and the two chapters on perception in Osgood's Method and Theory. Also see the Sensory-Tonic chapter in F. Allport's Theories of Perception.) Very shortly after a unit structure (dimitant combination) is formed, it is replicated by the upswinging process. The upswinging process then utilizes the dimitant combinations to organize various types of static and cyclic structuro-functional organizations that serve to sustain a number of free energy norms within the system of an individual and his diverse subsystems.

- a) An example of both a static and cyclic structuro-functional organization organized by the upswinging process that serves to sustain free energy norms in the individual system and in his subsystems is illustrated by the following modified version of Tolman's learning system. The learning process is initiated by a motive of the motivational system that disrupts the norm or that disrupts the homeostasis of some specialized subsystem. The closed feedback cycle of the MBRF is activated by the motive or by the disrupted norm which, in turn, activates means-ends-readinesses (MERs) that are relevant to the goal of the motive. Tolman calls the relation between these MERs "gross expectancies". These MERs activated by the closed MBRF cycle are manifested in gross cognitive, perceptual, affective and motoric sets that are oriented toward the goal of the motive and that predispose the individual to selectively transact with environmental stimuli. The predisposed learner encounters stimuli in the environment which become signs if they elicit a meaning relevant to the goal. The sign or meaning in turn elicits a second meaning in the individual called a "significant" which is the anticipated goal-consequences (based on past experiences) of behaving in a certain way toward the sign. A relation develops between the sign-significant which is variously called a gestalt, a specific expectancy or a specific hypothesis. The individual behaves toward the sign on the basis of (say) the specific hypothesis and perceives the consequences of his response which either

confirms or denies the validity of the specific hypothesis. The perceived consequences (confirmation or denial) of the response feeds back to the specific and gross expectancies and strengthen or weaken these sign-significant and MER relations.

- 1) Motivation is the first leaning condition. When the learner perceives the consequences of his response, the second learning condition of contiguity outside the learner leads to the formation of an initial learned unit or dimittant combination within the MBRF which is structured according to the Musatti-Gestalt-UFT unitary principle. (In other words, it is being asserted that the learning condition of contiguity is a subprinciple included within the unitary principle that governs the structuring of dimittant combinations in the formative process of the MBRF.) Thus, contiguity leads to learned units in the exteroceptive system through the formative process of the MBRF. When the unit learned structure is formed within the MBRF, the upward swinging process replicates the structure and feeds it back to its specialized subcortical or cortical memory areas and deposits the dimittant combination as a static memory structure in a to-and-fro (MBRF to the cortex) "memory-fixing" feedback process. Reinforcement (the restoration of a disrupted norm which in turn restores homeostasis), which Tolman calls "confirmation", causes the repetition of the events which involves the repeated formation of the same unit learned structure and the repetition of the events which involves the repeated formation of the same unit learned structure and the repetition of the "memory fixing" process which leads to the progressive organization of the exteroceptive hierarchy's structural memory system. Repetition is the third learning condition.
- 2) The feedback from the perceived consequences of the response and of the behavioral act that connects the sign-significant and the MER into a structuro-functional

whole demonstrates the cyclic nature of Tolman’s behavioral act. UFT maintains that such behavioral acts are the cyclic structuro-functional organizations organized by the upward swinging process of the MBRF. UFT maintains that the “memory fixing” learning process that leads to the progressive organization of the exteroceptive memory system is an example of a static structuro-functional organization organized by the upward swinging process of the MBRF. Thus, the whole subcortical and cortical memory system is the static structure organized by the upswinging process of the MBRF.

- 3) Reinforcement restores the disrupted asymmetry norm of the closed feedback cycle of the MBRF which, in turn, restores homeostasis in the individual’s system and subsystems. It is the homeostatic processes of the fluid matrix which directly sustain all the free energy norms of an individual’s system and subsystems on the lower levels. (Motivation also has a growth and actualization aspect on the higher cognitive level that sustains tension in the interest of far-off goals; this is also an aspect of the closed feedback cycle of the MBRF.) The closed feedback cycle of the MBRF, by controlling homeostatic processes through its control over excitatory and inhibitory hormonal and enzymatic agents (especially those associated with the limbic system), in effect sustains the high free energy level or the dimittant asymmetry norms of an individual’s system and subsystems.
- d. The upswinging process of the MBRF – including the MBRF-cortex closed feedback cycle, the static subcortical and cortical memory subsystems of the whole psychological process hierarchy, all the cyclic structuro-functional organizations organized by the upswinging process of the MBRF, the homeostatic processes and the restoration of all norms – UFT postulates, is the unitary normalizing-organizing process on the sensory, perceptual and cognitive levels of the MBRF. The normalizing-organizing process of the MBRF is symbolized on Fig. I as stemming from the normalizing process of the unitary

field-universe.

- e. UFT postulates that the formative (-normalizing-) organizing process of the MBRF is an evolved and highly differentiated unitary process duality appearing on the three psychophysiological levels of the unitary field's complexity hierarchy indicated on Fig. I.
4. As per this third example of a unitary process, the basic substratum of the universe – which Quantum Field Theory asserts is a “fundamental chaos” – UFT regards as the basic source of the most orderly processes known to science: the human cognitive processes. UFT consequently rejects the characterization by particle physics and Quantum Field Theory of the fundamental substratum underlying the universe as a “fundamental chaos” qua fundamental chaos. UFT holds that this fundamental substratum is a creative formative-organizing unitary field process that possesses all the immanent properties of matter, the living processes, the psychological processes and the social group in potential form which appear in an emergent evolutionary process. With specific reference to the human personality, this means that the human as a creative process is the replica and the highest manifestation on this planet of a creative process universe.
- D. The unitary process as the basis of sociological development and evolution.
 1. Social psychology recognizes the existence and evolution of four successive cultural eras: superstition, religion, philosophy and pure science. Each of these four successive cultural eras were, and are still, characterized by a particular cognitive fundamental assumptive framework (CFAF) which in turn structures a particular type of cognitive phenomenal world or belief matrix in its group members. The basic source of each of the original four CFAFs lies in the answers given to certain perennial questions that have been asked by reflective men and women in all societies of all generations past and present. The answers given to the perennial questions took the nature of four basic theories of an underlying causal agency or process whose assumed operations provided the answers to the perennial questions.
 - a. On memory level six of the human's exteroceptive hierarchy, the formative-organizing process or the closed feedback cycle of the MBRF initially developed each CFAF of the four successive cultural eras in certain individuals who functioned as cultural agents. The CFAFs of the cultural agents in turn were the product of a long line of quantal antecedent development that was contributed to by many

men and women of each cultural era. Then, when the *Zeitgeist* permitted, the cultural agent projected his memory level six CFAF into the sociological sphere which became the basis of the sociological formative process which is the cultural system. Thus, the basic source of culture lies in the cultural agent's CFAF (which involves a basic theory of an underlying causal agency or process whose assumed operations provide the answers to mankind's perennial questions) projected into the sociological sphere by the cultural agent. (The CFAF which becomes the basis of culture in turn is then thereafter acquired through the socialization learning process.) The CFAF as the external culture gives rise to a particular belief matrix that defines the roles, values (goals) and norms (standards, laws, etc.) of all social and sociological units and by so doing fundamentally determines the nature of a society's economic system. The economic system in turn assumes the operations of a normalizing-organizing process on the sociological levels of the unitary field complexity hierarchy. Thus, the cultural-economic system constitutes a unitary duality or a sociological formative (-normalizing-) organizing process that forms all social and sociological units and that organizes them into the status and prestige hierarchies such that characterize the diverse subgroups and groups of all human societies. The sociological unitary process continues to extend the form of these societies over space and through time only so long as the societies continue to facilitate the intrinsic tendency of the unitary process on the sociological levels of the complexity hierarchy which takes the form of the continuous cultural and economic development of the society.

- 1) On Fig. I, the three small continuous circles extending from the closed cycle on the MBRF to the cognitive-feeling-speech level of the human's psychological process hierarchy and the line connecting this level to the cultural system which in turn is set amidst various sociological systems, symbolizes the process whereby the unitary process working in the human's MBRF expresses itself in continuous sociological development and evolution.
 - a) Thus, the so-called “fundamental chaos” of Quantum Field Theory is not only the basic source of the most complex of human psychological processes which are the cognitive

level processes but it is the basic driving force underlying sociological development and evolution! The point being, of course, that both the so-called "fundamental chaos" and sociological development and evolution are either unitary processes per se or are due to the operation of a highly differentiated unitary process.

2. If Whyte's concept of the unitary formative-organizing process succeeds as the belief matrix of pure science or if Whyte's concept of the unitary process gives rise to a family of unitary field-process concepts and if one of these is selected as the permanent belief matrix of pure science, Whyte's concept of the underlying unitary process can be seen as the cultural form that interrelates the four successive cultural eras into one continuous line of cultural evolution. (The assumption that such a continuous line of cultural evolution has occurred is the accepted assumption [by pure science] that underlies social psychology's schema of the evolution of the four cultural eras. This continuous line of cultural evolution had its inception some 200,000 years ago and projects into the present and is called the evolution of "fundamental thought" by pure science.) The cultural era of superstition was the first of mankind's cultural traditions to recognize an underlying causal process, but this era put forth the doctrine in a context of animism, magic and superstition. The era of (monotheistic) religion recognized the monistic or the unitary nature of an underlying causal process (agency), but put forth the doctrine in a context of anthropomorphism. The era of philosophy put forth a number of possible monistic bases for the underlying unitary process, but philosophy and the humanities lacked the objective methods for selecting and hence, discriminating, among these possible bases for the unitary process. The scientific tradition of mechanistic-materialism reduced the number of possible monistic bases to two (matter or field) and, by over-emphasizing its own conceptual development, hastened the realization of the fundamental limitations of its own doctrine which left the field doctrine as the sole candidate for the monistic basis of the underlying unitary process. Thus, the problem of the future, as indicated by this long development of the foregoing cultural form, seems to be that of developing Whyte's field-process concept or a family of such field-process concepts as the basic framework for both pure science and as the basis for a universal world culture.

3. UFT asserts that the four successive cultural eras, as per the four levels of culture depicted in the upper right hand corner of Fig. I, constitute a natural cultural hierarchy. This four level natural cultural hierarchy constitutes a sociological formative process that has the function of developing a belief matrix which generates definitions that relate all humanity into one comprehensive psycho-biological-sociological unity which also meaningfully relates each individual to the totality of Being and Becoming as it is known to science. UFT also asserts that this four level natural cultural hierarchy or unitary sociological formative process should constitute a unitary cultural-economic duality for all mankind by virtue of this natural cultural hierarchy so defining the present economic systems of mankind that there is but one cultural-economic system that includes and serves all mankind.
 - a. The concept of a four level natural cultural hierarchy signifies that each successive cultural era must contain within itself what is valid and healthy in each preceding cultural era plus a new emergent CFAF and belief matrix of its own. Thus, if the cultural era of pure science constitutes a genuine level and the latest level of a natural cultural hierarchy, the cultural era of pure science must contain within itself all that is valid and healthy in the three earlier cultural eras plus an emergent CFAF and belief matrix of its own. The concept of a four level natural cultural hierarchy additionally means that each earlier cultural era and its continuous development must be maintained while that which is valid and healthy in the era must be incorporated into all later levels of the cultural hierarchy. It must be emphasized that such features of a natural hierarchy are not the invention of UFT but are the properties of all known natural hierarchies in the universe.
4. To achieve a four level natural cultural hierarchy that promotes human unity on all relevant levels of the complexity hierarchy from the current chaotic state of culture which is a virtual anarchy, UFT recommends to anthropology, the development of a new scientific discipline of culturology (the term being coined by G. Allport in G. Lindzey's [ed.] Handbook of Social Psychology, Vol. I, Chap. 1) within social psychology. (Social psychology is the only field that has the methods for studying the CFAFs and belief matrices from whence a culture is derived.) UFT proposes that the medicine man of the cultural era of superstition (or the cultural anthropologist) and all the fine arts and literary specialists of the

era, the theologian et al of the cultural era of religion, the philosopher et al of the cultural era of philosophy, and the unitary field theorist et al of the cultural era of pure science all be granted roles as culturologists and that culturologists of all eras be granted equal status and rank. UFT further proposes that each college student be required to take 12 quarters (or 8 semesters) of culturology courses during his college experience. (The liberal arts college implicitly recognizes such culturology courses in a haphazard manner at the present time by requiring the college student take courses in: religion and philosophy; the fine arts, drama and literature; an "experimental science"; the social sciences; etc. The recommended culturology courses, aside from presenting the cultural system in a meaningful and orderly manner, would likely serve actually to reduce the number of the currently required cultural courses.) Thus, on the freshman level of college, the era of superstition would be taught for three quarters; on the sophomore level the era of religion would be taught for the same period; on the junior level, the era of philosophy would be taught for the same period; on the senior level, the era of pure science would also be taught for the same period. The cultural eras taught at each college level would be relatively independent from one another but each cultural era would be required to show that it incorporates what is valid and healthy in all the earlier cultural eras. The dominant cultural level – which would be that of pure science – would have the additional requirement that it establish the validity of its CFAF and its belief matrix by showing that they accord with the total context of truth as determined by all the methods of pure science. All cultural eras in turn would have as their over-riding theme man's search for spiritual unity in relation to the totality of Being and Becoming and all cultural eras would also be expected to promote human unity on all levels of the complexity hierarchy that are relevant to the human and to human societies. The culturology program in the college or university would be coordinated by an anthropologist or by one or another of the culturology specialists who displays this coordinating aptitude and who can facilitate the goals of the whole four level cultural hierarchy. Perhaps only by the development of such culturology programs can the cultural system once again assume its rightful central place in human life and be able to play its necessary primary role in modern society. Such culturology programs would aim for the involvement of all men, women and children of society, not only the college and university trained.

a. In addition to developing a world-wide cultural system, the primary task of the four level cultural hierarchy must be to redefine the economic systems of mankind so that there emerges one economic system that has the aim of sustaining and enhancing the economic development of all mankind. There exists a one-to-one correlation between the utilized energy in a society (the sociological configured asymmetry norm) and a society's standard of living. The fact that nuclear energy will become commercially feasible by 1970 portends a subsequent unprecedented expansion of mankind's standard of living. This outlook, however, must be tempered by the fact that an underdeveloped economy must first develop its conventional technology before nuclear energy can be utilized to any significant degree. Yet, it can be said that an economic system dedicated to all mankind falls into the realm of practical economic feasibility.

- 1) Aside from various forms of domestic inertia and resistance, the external political prospect for genuine internationalism is grim. Four years ago, according to realistic assessment, the probability that Chinese nationalism would not engage us in nuclear war was regarded as 30-70. In 1968, in the wake of the monumental failures of Chinese revolutionary expansionism that has materially weakened the Chinese power structure, the probability of nuclear war is perhaps 50-50. Such odds are likely to diminish again in favor of nuclear war with each advancing year. It is the task of the four level cultural hierarchy to keep this probability at 50-50 or better in favor of peaceful development.
- 2) The events of the past generation, however, have shown that mankind has an enormous capacity for inertia, delusion and irresponsibility. Never-the-less, the sociological unitary process demands continuous cultural and economic growth in all societies in the context of the times. In the context of the nuclear age, this signifies that all autonomous national cultures, economic systems and blocs will be dispersed and one world culture and one world economic system will take their place. Only the manner of dispersal remains to be determined: wars of continental devastation or the development of a universal cultural-economic system.
- 3) After the formation of a universal sociological system, the next step would be the formation of a political union or a union of united nations as indicated in the column of terms on Fig. I. Such a political union

would constitute a political hierarchy much like the cultural hierarchy but with certain sovereign rights of nations, such as the right to wage war abrogated.

- b. Since a cultural system promotes the fulfillment of the affiliative need of belongingness and is a major source of group cohesiveness, the development of a four level cultural system will attract power-oriented individuals and groups who are also seeking purpose for their lives. Such individuals and groups will tend to dominate and monopolize the developing cultural system which would thereby circumscribe the universality of the cultural system and inhibit its development. UFT recommends that political science be entrusted with the continuing responsibility for developing the governing structure of the four level cultural hierarchy. Political science must, however, find ways to exclude no one from the cultural system including such individuals and groups who would presume to dominate and monopolize the system. In the opinion of the writer, cultural power should be jointly wielded by an institution comprised of the specialists in culturology and of representatives of the public. Certain aspects of cultural power must be left to the culturology specialists alone but most cultural power must rest with the men and women of all humanity.
 - c. In order to develop a four level cultural hierarchy, each current cultural system will be required to give up some of its present autonomy in order to become an interdependent part of a four level cultural hierarchy serving all mankind. Since pure science would be the dominant level of such a four level cultural hierarchy, great care must be given to various types of cultural sensitivities at this stage of mankind's cultural history. Since the basic conceptual development of UFT is still in its very early stages and since UFT as a cultural system has hardly begun, maximum participation for all in both the basic development of UFT and its cultural system would be possible. It is also recommended that a substantial number of potential culturologists of the three earlier cultural eras as well as mechanistic-materialists from the tradition in science, be retrained and developed as unitary field theorists. Moreover an ever present sensitivity must be maintained to the demands (and special allowances made) for equal representation for all peoples from underdeveloped societies as unitary field theorists.
5. Until anthropology assumes its role of developing the discipline of culturology, UFT will fulfill this role. (It is understood that all decisions made by UFT are to be regularized by subsequent duly constituted bodies.) This outline summary is

the first article in the Journal of Culturology. This section (section D) will be the subject of a follow-up article which will supplement this section. Subsequent articles will be accepted as time, finances and assistance permit.

DEDICATION

As indicated in the preface of the Scientific Basis and in Whyte's Focus and Diversions (which constitutes Whyte's autobiography), the development of UFT and its extrapolations have followed no easy road. For example, since the publication of the Scientific Basis, a certain group unsuccessfully aimed to assume monopolistic control over UFT and its extrapolations which led to a prolonged political struggle. In the context of such events, I would like to recognize a man of great vision, courage, academic talent, possessor of both honesty and integrity, who has done much in the way of providing conditions for the development of both UFT and the embryonic discipline of culturology. This outline summary of unitary field theory is dedicated to Dean Bernhard Hillila.

