UNDERSTANDING CONFLICT AND WAR:
VOL. 1: THE DYNAMIC PSYCHOLOGICAL FIELD

Chapter 3 - Psychological Field Theories

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> **We have taken one of the simplest examples of the reflex are and attempted to apply stimulus-response concepts to it. In trying to do this we have discovered that we do not know what the stimulus is unless we know what the response is and what previous stimuli and responses were and that, as a matter of fact, we need quite a good understanding of the transaction in order usefully to call anything the stimulus.**
> **----Charles Slack, "Feedback Theory and the Reflex Arc Concept," *Modern Research for the Behavioral Scientist***

At the outset I must point out that field can mean two things: a region of space (such as psychological, social, cultural, or linguistic spaces) within which things are located as a function of space-time coordinates or the area in which a force operates. The latter presupposes the former and adds to it the notion of forces spread continuously throughout the region. I will call the former view a *spatial theory* and the latter a *field theory.* It is helpful to keep this distinction in mind when considering psychological and social science perspectives, approaches, and theories, for what is called a field is often meant as a particular space, as in Arthur Bentley's or in Pitirim Sorokin's work,

In this and in subsequent chapters, I will limit my survey to self-professed field theories of humankind, or such applications, or studies clearly involving a field perspective. This will eliminate from consideration many spatial theories, such as those of Osgood, Sorokin, Parsons, Cattell, and Bentley, or theories of social gravity and of social distance, but not those spatial theories explicitly meant by their authors to be field theories, such as Quincy Wright's.

Perhaps we can most appropriately begin this discussion with psychological fields, particularly as proposed in Gestalt theory, and move to Kurt Lewin's work, with which field theory has become most associated for social scientists, and then to his successors. Subsequently, I will consider sociocultural fields and Ushenko's field of power. This review is not a comprehensive survey, as such[1] My purpose is to exemplify the use of "field" in our attempts to understand ourselves, particularly as these attempts create insight into the nature of our intentional field and its eventual bearing on violence and war. A picture is enhanced and its central figures better seen against a well-constructed background. These chapters in Part I of *The Dynamic Psychological Field* comprise such a background.

3.1 THE PSYCHOLOGICAL BACKGROUND

To medieval philosophers, our inner being was an arena of conflicts and inconsistencies between the spirit and the flesh, between the forces of darkness and of light. Moreover, we had our own inner nature which was innate and unaffected by experience. This inner nature, our soul (of which there were the rational, intuitive, and sensitive aspects), was supreme over us in that it directed, drove, or captained the body.

In the seventeenth century, the period of so many intellectual and scientific revolutions, it is not surprising that this medieval view of us also changed. First, Descartes introduced the radical idea that the mind and body *interact,* that the soul (which Descartes limited to a thinking function) was copartner with the body which is a machine. The mind receives sensations and the body reacts to them. In this Descartes was the first to explicitly develop a kind of a behavioral reflex theory.[2]

Descartes's radical perspective was carried to its limits by Hobbes, who proposed a psychological empiricism which was later elaborated by Locke, Hume, and James Mill and flowered as the dominant orientation of British philosophy. In short, Hobbes argued[3] that sensations comprise particle motion in the brain caused by external objects. Moreover, the physical contiguity of these effects gives us our "association of ideas." And motivation, which is basically to avoid pain or seek pleasure, results from the motion of external objects moving to the heart. Behavior and cognition are thus the effects of external reality: we are a passive automaton moved about by material forces.

Locke precisely articulated this view in *An Essay Concerning Human Understanding* and put psychological empiricism on a firm basis, clearly using Newton's then impressive physical system as a model.[4] The basic units the mind employs in thinking (like Newton's particles) were *ideas,* which could be simple (those derived directly from experience) or complex (those composed of simple ideas). These ideas attract and repulse each other, and the resulting configurations comprise our knowledge. Locke is most well known for his *tabula rasa* pronouncement that the mind is a blank tablet upon which our experience becomes written.

After Locke's influential writing, this mechanical view of human beings moved in two directions. One was to emphasize the mechanical, but subjective, aspects of perception and the association of ideas (like Berkeley and Hume). The other direction was to apply mechanical principles to the body and treat the mind as a physiological product, as in de la Mettrie's thesis that we are a machine. Both directions were within the same seventeenth-and eighteenth-century mechanical paradigm, the consequence of which was to deflate us to the animal level, to inflate the importance of experience and environment, to magnify pleasure and pain as springs to action, and to fit us within the Newtonian mechanical view of nature.[5]

The first significant shift from this mechanical perspective was created by the forceful reasoning of Immanuel Kant's *Critique of Pure Reason.* For Kant the mind had a sovereign sphere of its own. Experience was a prerequisite for knowledge, to be sure, but it was not sufficient. The mind itself must provide a framework (such as space and time, cause and effect) for understanding experience, for making external reality intelligible. This idea that the mind conceptually and actively contributes to perception, especially when carefully argued within Kant's comprehensive architectonic philosophy of judgment, made a deep impact on German philosophy and created the possibility of other innate mental endowments. As I will show, this idea is also a fundamental assumption of this book, *The Dynamic Psychological Field*.

German philosophers after Kant[6] increasingly moved toward positing opposing internal mental forces, toward viewing perception as an equilibrium of forces, and toward a pre-Freudian conscious-unconscious distinction.[7] Nonetheless, there was also a growing interest in the relation between mental operations and a central nervous system conceived of electrically; and many philosophers came to believe (as institutionalized by the birth of the Berlin Physical Society in 1845) that (1) physical principles explain all mental phenomena and that (2) "Newtonian" forces of attraction and repulsion underlie all mental-organic forces.[8]

Within this context, Gustav Fechner began the psychophysical movement with the argument that psychology could and should be an exact, quantitative, experimental science.[9] Believing that life and matter are quantitatively the same, he focused on determining the mathematical-functional relationship between stimuli and sensations. A member of Fechner's movement, Wilhelm Wundt, established one of the first psychophysical labs; he rounded out and extended Fechner's views to found what was soon called the New Psychology.[10]

The keynote of these movements in Germany (as of a similar movement in contemporary American social science) was an explicit and wholesale attempt to adapt the philosophy and methods of the physical sciences, namely physics, to psychology. What may surprise some humanists is that Sigmund Freud had the same purpose in his first studies of psychical processes.[11] Freud believed that the neuronic system held the key to understanding our mentality: that neurons build up energy which beyond a tolerable level must be discharged; that pain is the eruption of too much energy; and that pleasure is the release of energy. Innately, we strive to keep energy at a minimum and thus our ultimate goal is achieving pleasure and avoiding pain. When wishes that could lead to pain emerge, however, our unconscious defense mechanisms repress them, therefore protecting us. The energy thus unreleased may be displaced through substitute wishes or seep out through our dreams.

The *unconscious* for Freud functioned to contain such repressed wishes, and an *ego* served to guide and direct the expenditure of energy. Our instincts, contained in the id, simply represent internal energy the ego must somehow channel and relieve. At one time Freud argued that self-preservation instincts were manifestations of erotic instincts, that *Eros* was primary.[12] But in later works[13] he finally argued that we were driven by two opposing forces: the *Eros* and the *Death* instincts.

Both the physicalistic psychological theories which were developed in Germany during the early twentieth century and the then still influential British psychological empiricism commonly focused on the mind, on the internal process of perception, on thinking and the association of ideas, on consciousness in short. This focus was radically shifted in a largely American movement started by John B. Watson, who had essentially two governing beliefs: one that consciousness and all such mentalistic concepts were unnecessary, and the other that psychology should concentrate on observable behavior, specifically the reflex in its relationship to stimuli.[14] Building eventually on Ivan Pavlov's conditional stimulus-response experimental findings, Watson made the conditioned reflex the core of his behavioral psychology.

Watson was the originator and dialectician of behaviorism; Clark Hull was its chief theoretician.[15] Hull explained behavior as resulting from the operation of mechanical principles, and in the following manner. The organism has certain innate behavioral inclinations which may be associated with a range of stimuli. Now, through what Hull called response-contingent reinforcement certain behavior becomes reinforced, thus developing a high probability of occurrence, while other unreinforced behavior becomes extinct. The number of times a response was reinforced equaled its habit strength; and the reaction potential, which is the likelihood of a particular response, was at its simplest a (mathematical) product of drive state and habit strength. As for consciousness, it was simply a stimulus-response relationship.

Taken largely by American psychologists in the early 1920s, behaviorism was one path in the evolution of psychological theory. It carried positivism to its empirical extreme: only discrete observables were acceptable, and the job of psychologists was to determine mathematical relationships between them. Now, behaviorism did share some significant views with the Continental and English psychologies prevailing at turn of the century. First, *discrete* stimuli give birth to *discrete* responses. Second, (and Kant notwithstanding), the brain was a *passive* recipient of stimuli. Moreover, in the view of Wundt's New Psychology, sensory receptors pass *punctaform sensations* to the brain, which in the simple aggregate then compose our perceptions. Thus, lines could be perceived, but not configurations or patterns, which were mental inferences and not perception. Forms were not directly given in experience. Finally, the New Psychology argued that mental activities were the resultant, one to one, of the brain's anatomical nature, of its neural pathways and connections.

The second theoretical path was by psychoanalysis, primarily as initiated by Freud. This psychological theory grew out of psychophysics and the New Psychology (and thus shared its above characteristics), but matured into a vigorous independent approach to problems of "abnormal" psychology that orthodox psychology had ignored. In doing so Freudian theory displayed a realistic, everyday picture of our mental conflicts, anxieties, contradictions, neuroses, and the like. In short, Freud, as Lowry puts it,[16] created a real-life person.

3.2 GESTALT THEORY

A third path in the evolution of psychology was taken by Gestalt theory. The origins of this new theory lie in an 1890 article published by Charles von Ehrenfels. In this seminal article, Ehrenfels argued that there was a quality, which he called *Gestalt-qualitat* ("form-quality"), that should be treated as equal to other qualitative sensations like color.[17] For example, when we listen to a melody we hear something more than the individual tones. This something more is what gives the melody its particular quality, a quality as real as the tones themselves, a Gestalt-qualitat.

Although some research was subsequently done on the properties of Gestalt-qualitat, an unfortunate early connection with vitalism hurt the development of Gestalt psychology. Not until the writings of Max Wertheimer[18] differentiating Gestalt psychology from vitalism and mechanism and the later work of W. Köhler[19] did Gestalt psychology flower. Subsequently, considerable research has been done on the Gestalt-qualitat, especially affecting perceptions, and the movement has had considerable impact on psychology, psychoanalysis, and social psychology (especially through the work of Kurt Lewin). Many of its principles now underlie much contemporary psychological theorizing (such as with cognitive dissonance and systems theories).

Let me now focus on these Gestalt principles.[20] The keynote principle, appearing throughout the Gestalt literature, is that there are wholes with real properties beyond what is contributed by the parts composing them; that is, there are wholes that are greater than the sum of their parts. Moreover, in such wholes, the parts will be interdependent and take on significance by virtue of their role in the whole.[21] Such is the first principle. At the time, this idea was a remarkable philosophical departure in psychology, for the dominant orthodoxy emphasized discrete units of stimuli, reflexes, neurons, punctaform sensations, and such, which were thought to be the building blocks of behavior, consciousness, perception.

A second principle was that within us there occurs a "dynamic organization of process," that is, there are distributions of energy under a stress relieved only by transforming the distributions to an equilibrium. Now this energy level is a result of the Gestalt-the form or structure-of the sensory field. We innately try to reduce the stress associated with these energy distributions by bringing them into balance. This is called the tendency toward *Pragnanz*,[22] and involves the disposition to minimize the mental energy level by transforming sensations into the simplest and most regular arrangement in a total sensual field.[23]

Internal dynamics, however, may relieve the stress produced by stimuli. Then we unconsciously behave so as to balance the distribution of energy in the sensory field.[24] The sensory field's organization is itself a force toward behavior, which remains until Pragnanz is achieved. There is therefore an interplay of humankind and environment, an active involvement of human beings in their perception, a reaching out to the outer world to bring about greater order.

Athird principle of Gestalt psychology is that consciousness is isomorphic to the brain's underlying physiological nature.[25] Mental activities are but phenomenal manifestations of physical processes. In this principle we see Gestalt psychology as a continuation of the philosophy of psychophysics and the New Psychology, with the difference being that the Gestalt model was based on physical fields rather than on Newtonian mechanics.

Let us take a closer look at how the field notion was employed.[26] Stimuli trigger the inner dynamic organization of process within a force field. If these forces are in equilibrium and not upset by new stimuli, then stimuli and perception correspond. However, if the forces are in disequilibrium, a field process alters perception in a direction to bring about an equilibrium manifesting Pragnanz. In fact, all psychological phenomena (a hypothesis that some psychoanalysts have not overlooked[27]) are considered the effects of this dynamic process.

The corresponding energy field is spread continuously throughout the brain and is not localized in neural pathways and connections (as for orthodox psychology). For this reason, form qualities can be directly perceived, rather than inferred from punctaform sensations. Because of the field's continuous character, processes in one region of the perceptual field influence processes in another. There is then a dynamic relationship among perceptual processes, and the resulting overall perception depends on their relative properties within the whole field. Thus, we discern clusters of objects amid a diverse collection; thus, we turn random shadows at night into people or animals; thus, we perceive an object as being smaller or larger than another depending on background. Each Gestalt is a field within which lines, forms, relationships are mediated and influenced, much like a landscape painting is a field within which mountains, lakes, trees, clouds, sky, and colors take on their sensory properties as parts of the whole.[28] Change one part of the field and the whole itself is altered.

In sum, then, Gestalt psychologists argued that the brain's field distribution of forces determines perception and behavior.[29] Clearly, this field was an imported physical model, but it was still a solitary approach to psychological processes. Where psychological empiricism and the New Psychology emphasized discrete units of sensation (simple ideas) and insisted that form was either a complex of punctaform sensations, discrete sensations, or an inference from them, Gestalt psychology asserted that form--organization--was directly perceived. Where the prevailing view was that energy (excitation) was transmitted along discrete paths in the brain, Gestalt psychology argued that energy forms a continuous field. Where the New Psychology assumed that the brain processes were isomorphic to stimuli, Gestalt psychology assumed that the isomorphism was to perception. Where perception was passively portrayed (excepting Freudian psychoanalysis), Gestalt psychology made us an active participant. Where psychological empiricism and the New Psychology emphasized stimulus-perception-response, behaviorism keynoted stimulus-organism-response, and Freudian psychoanalysis linked stimulus-(energy level and distribution)-response, Gestalt psychology proposed Gestalt-(field conditions)-response. Where the dominant orthodox mechanistic view (even of psychoanalysis) saw the whole as simply comprising its parts, Gestalt psychology saw the whole as more than the sum of its parts. And finally, where other psychological theories looked to Newtonian mechanics for their model, Gestalt psychology was the first and is still the only coherent psychological theory to use physical fields as an analogy.

3.3 KURT LEWIN

Field theory in the social sciences has become indelibly associated with Kurt Lewin's name. For this reason and because Lewin's work stands in ancestral line to the field orientation[30] of this book, *The Dynamic Psychological Field*, and to that of subsequent field theorists, I will devote some time to his ideas.

As a young man in Germany, Lewin was attracted to Gestalt psychology, perhaps partly due to his experiences as a soldier in World War I and his observations on how battlefield involvement affects perception,[31] and perhaps partly because of his quantitative experiments and consequent disillusionment with the classic theory of association. Soon after the war, Lewin accepted an appointment at the Psychological Institute, University of Berlin, where the Gestaltists, Köhler and Wertheimer (who was director), were accomplishing their famous research. He remained there until Hitler's assumption of power caused Lewin (a Jew) to seek and accept a position in the United States. By then, through his students, research, and writings, he had developed a considerable reputation, and in his new homeland he continued to enhance it. By the time of his death in 1947, some psychologists were convinced that Lewin's name should rank with Freud's among those contributing the most to contemporary psychology.[32]

With a background in philosophy and the history of science,[33] Lewin was one of the most philosophically oriented of psychologists. He concerned himself with psychology's theoretical-philosophical foundations,[34] and his ideas and philosophical knowledge buttressed him against the criticisms of orthodox psychologists. Lewin believed that modern science was distinguished from

Aristotelian science by a revolutionary shift in perspective, and not by greater precision, mathematization, or theoretical elaboration, as often thought.[35] As Karl Popper was to do later, Lewin pointed out that Aristotelian science was classificatory, emphasizing the similarities of things and contrasting things to their opposites; by method Aristotelian science was dependent on comparing things and assigning each to its own sphere. Things were seen as having essential qualities, therefore, as being discrete, and as falling into dichotomies.

A revolutionary shift in this view as initiated by Galileo gave birth to modern science. Galilean science saw things as constituting a boundless continuum, not as a dichotomy. Things were seen not as classifications, but in dynamic sequence. Most important, lawfulness was seen not as connecting frequent observations (phenotypes), but as linking fundamental constructs (genotypes) underlying observations. Scientific laws were then universals, and not empirical generalizations as for Aristotelian science.

Applying this Aristotelian-Galilean dichotomy (!) to psychology, Lewin saw that a Galilean revolution had yet to appear. Hoping to encourage one, he argued that psychology must concern itself less with frequencies and averages and more with the totality of single cases and all the relevant forces as a way of discovering general laws. Each concrete psychological situation is a manifestation of psychological laws, and not simply the repetition of a statistical event or a datum in a frequency distribution. Moreover, Lewin thought, psychology must begin to use constructs, genotypes (like the ideas of force, mass, and energy developed in physics), as a way of connecting observations and representing causal influences.

Whatever constructs and formalization develop, however, Lewin was convinced that they should be created only as the need arises from experience and research. He wished to avoid empty formalism and narrow constructs-to keep clear the connections between the abstractions and observations, Finally, and increasingly in his later years, Lewin believed in combining research, theory, and application. In engaging practical problems of industrial relations, marketing, social conflict, juvenile delinquency, and prejudice, he unified the separate worlds of everyday problems, experimental research, and abstract theory in a socially and scientifically creative and useful way.[36] It is thus that Lewin's ideas and results have become the core of social psychology and the social sciences have become enriched by such concepts as action research, valence, sensitivity training, and group dynamics.[37]

Turning to Lewin's theoretical work,[38] his core conceptions were that of the mind as a complex energy field containing systems of tension in various states of equilibrium and of behavior as a change in the state of this field. In unpacking these conceptions, I will confront several particularly ambiguous concepts of Lewin's, such as life space, needs, tensions, forces, field, behavior, and regions. Moreover, I should discuss Lewin's biggest theoretical misstep: his mode of formalization, his topological psychology. To begin with one's *life space,* Lewin firmly believed that objective facts are psychologically relevant only as they have subjective meaning. It is the person's subjective world, his personal perspective that is the reality of psychological significance. And it is this subjective reality that comprises a life space, a space including all that is personally meaningful or significant in the external environment (such as other people, possessions, the weather, and a garden) and in the mind (such as needs, goals, thoughts, and beliefs). In sum, a person's life space is the totality of subjectively relevant person-environment elements.

As a totality, however, it is not a mere aggregation but a whole whose subjective elements have a dynamic interdependent relationship to each other. The life space is not a homogenous whole, however, for there are areas of more or less interdependence; it is differentiated into a variety of related dynamic systems, which include needs, goals, barriers, and regions of alternative behavior. Moreover, the life space also comprises the irreality level of daydreams, wishful thinking, hallucinations, and fantasy, as well as a person's past and future time perspective.

Central to the life space are a person's *needs.* These organize behavior and influence the space's cognitive structure. Lewin considered it fundamental that inner needs be studied as part of the total psychological situation (which includes the salient external environment) and as structured by the

person himself. Unlike his contemporaries, Lewin did not anchor needs to instincts. He preferred to leave their source open to empirical research, although he felt that needs were in part socially derived.

Now, needs are gratified in achieving some desired goal (or its substitute). Goals, thus linked to needs by their ability to satisfy them, are repulsive or attractive in character. That is, goals have what Lewin calls a *valence,* or so it seems. Valence is one of the most ambiguous constructs in Lewin's theory. In German, Lewin originally used the term *Aufforderungscharakter,* which after much struggle his translator[39] rendered as "valence."[40] The meaning at this time was of a goal's degree of attraction (positive valence) or repulsion (negative valence), but Lewin grew to use valence sometimes as if itself a value, as if constituting needs or motivation,[41] or as if referring to activity.[42] This ambiguity notwithstanding, I will use the construct here in line with the original interpreted meaning.

So far needs are satisfied by goals which have positive or negative valences. The higher the positive valence, the more the person is attracted to it; the higher the negative valence, the greater the repulsion. If the need is hunger, for example, food will have a high positive valence. If the need is security or self-preservation, a dangerous object will have high negative valence and escape from it will have high positive valence. We try to move either toward or away from that which has high positive or negative valence in our life space. Lewin calls this movement *locomotion.* To be clear, this is a subjective action such as mentally moving toward a deduction, or moving toward higher status, or away from fearsome thoughts. Of course, the subjective movement may have physical correlates--movement toward food may involve opening a refrigerator or going to a restaurant, for example--but the movement is still in a person's subjective life space.[43]

Locomotion, however, may be prevented by a barrier of some sort, such as the goal of candy for a child being blocked by a fear of her mother or the goal of a college degree thwarted by a language requirement. A barrier, therefore, may be some perceived[44] physical or subjective resistance to locomotion toward a goal.

This brings us to *tension*, one of the most important of Lewin's constructs. For Lewin, inner personal reality is a field of tensions--of energy--in various states of equilibrium and processes of discharge.[45]These tensions spring from our needs and are increased by any barrier to discharging the motive energy resulting from them. Thought and action themselves arise from the energy comprising this psychic field of tension. Schematically, (needs) cause (tensions) cause (intentions) cause (goals with positive valence) cause (locomotion toward goal) cause (achievement of goal) cause (discharge of energy) cause (reduction of tension). Conscious intentions thus manifest our inner tensions and will direct our thoughts and actions to achieving some salient goal.

At this point, I can mention Lewin's force construct. He conceived of several different kinds of forces, such as driving forces causing locomotion toward a goal, restraining forces resulting from barriers, and induced forces corresponding to the wishes of others.[46] Lewin focused on driving forces, but never did a careful analysis of the meaning of "forces." He left it to context and use for their definition, which unfortunately often implied inconsistent meanings.[47] With this in mind, the best interpretation of Lewin's driving force is as the inner drive created by a need and associated with the valence of the corresponding goal. Need leads to tension, which leads to valences being attached to a goal, and then to a drive--a push--toward that goal (for positive valence).

Force has direction and magnitude (strength) in the life space, and locomotion is along the direction of the force. Thus, force is a psychological *vector* and was so represented by Lewin. Now, when a force comes into existence, a person will either move in its direction or change their cognitive structure (such as by reinterpreting a goal[48]) equivalent to such locomotion. Therefore, a (driving) force depends on three psychological facts: the inner need, the nature of the corresponding goal, and the psychological distance (or different activities) to the goal.[49] For example, the force on a person toward eating pickled pig brains (if in his life space) is a function of his need for food (hunger), this food's positive or negative valence, and the number of different activities required to eat it. For some, pig brains may be

delicious and thus little force is required to move them toward it. For me, only near starvation could bring this about.

We have finally accumulated enough conceptual baggage to safari into Lewin's *field*. Lewin sometimes makes "field" synonymous with the whole life space, field then being a genotype underlying the space's subjective manifestations. The most consistent interpretation of his meaning, however, is that field refers to energy localized in systems of tension associated with forces driving and restraining a person in his life space, energy that may increase or decrease as a person locomotes within space (such as the increase in force toward a goal when a person is subjectively approaching it). These forces are adjusted and oriented among themselves by means of the valences given different goals; the various tension systems within us (such as needs for security, sex, and food) themselves tend to equalize, to distribute energy to other systems. The person's life space can be considered a medium in which energy moves with "moderate fluidity" from one tension system to another. Thus, if goals are not achieved, tension systems in time become equalized.[50]

The field of tensions (energy) and forces is dynamic, with force and tension systems being mutually altered as goals are achieved, needs grow, barriers emerge, and forces resulting from other people develop. Within this interplay of forces, tensions, and goals, some tension systems and forces may be in a *quasi-equilibrium,* a slowly changing balance. For example, our job as a goal toward which we locomote each day may have negative valence, while the wages we thereby receive may be positively valenced. Our relevant behavior then represents a quasi-equilibrium between the resulting and opposite forces. If the job becomes subjectively more repulsive for us while our wages increase (and we cannot change jobs), then the inner tension associated with these forces will increase while equilibrium is maintained. Of course, this high tension may manifest itself in ulcers, aggressiveness, and the like.

Within the context of this field of tensions and forces, Lewin specifically defines *goals.* A goal is itself a force field of a particular structure. It is a distribution of forces in a person's life space all pointing to the same region. If a goal is so defined, then what are *values*? Unlike goals, they are not force fields but rather that which induces force fields. Values determine whether the valences associated with goals are positive or negative.[51] Thus, that I value it so little as a food gives pig brains negative valence for me.

Where does behavior fit into all this? Axiomatic to Lewin is the formula that *behavior is a function of person and environment.* By environment Lewin means a person's subjective life space, and in this sense Lewin is saying that a person's behavior depends on his total subjective situation. And in the context of Lewin's field interpretation, it follows that behavior is then a change in the field of tensions and forces. For behavior is either locomotion toward or away from goals in the life space, and this movement changes the constellation of coexisting forces or tensions. It is crucial that behavior be understood as referring to locomotion and not necessarily bodily activity. There are essentially three kinds of behavior within the life space: mental locomotion (as when one cognitively approaches a conclusion), bodily motion (as in reaching for food), or social behavior (as in status mobility). All three kinds constitute behavior and are part of the life space; all three depend on a person's position in his life space and the coexisting systems of tension and forces.

As so understood, behavior is always goal directed.[52] Now, between where we are subjectively in our life space and our goal is a sequence of actions perceived necessary to achieve the goal. For example, the college freshman perceives between himself and the goal of a college degree a sequence of actions, such as taking freshman literature, courses in science, and selecting a major field, through which he must move. Lewin calls such a sequence of actions a path. A path constitutes the anticipated change in position of a person in his life space toward a goal; it comprises a sequence of distinct actions each one of which is a *region* (or cell) in the life space.

Here we come to a central construct which has bedeviled interpretations of Lewin. A *region* in a life space is a possible cognitive, bodily, or social *activity*.[53] It is through such possible activities that we perceive things in our life space.[54] Our life space is therefore subdivided into regions, each constituting a separate activity; and a path between us and our goal may cross several such regions, that is, involve different activities.

A goal is located in a specific region, which means that there is a behavior at the end of a path which will finally achieve the goal. Tension associated with one goal-region may spread to other regions, and a discharge of tension by reaching a goal-region may do the same in other regions. For example, the job-region may generate tensions affecting activities at home, causing angry exchanges with our mate and impatience with our children.

Within this field conception, what is inner-personal *conflict*? Conflict is the overlapping of force fields (goals) such that the driving forces bearing on a person are pointing in opposite directions and are about equal in strength. In this sense, conflict for Lewin has the same meaning as frustration. For example, if in seeing candy a little boy is caught between a candy's positive valence and its negative valence because of his fear of a spanking, the force toward the candy may balance the force away from it, constituting an inner-personal conflict for him. A person may also be caught between two equally desirable goals--a condition of ambivalence--or two equally negative goals, such as fear of the dentist and fear of a toothache.

This completes the conceptual essentials of Lewin's field theory. Details have been omitted, of course, and the theory's remarkable experimental results and practical applications have not been covered.[55] Suffice it to say that the theory has had amazing experimental confirmation, accounting for a variety of behavior that was beyond the reach of other theories and approaches, and great practical usefulness and success in application to a range of community and industrial problems. Measured by scientific and pragmatic yardsticks, Lewin's field theory is a most successful general psychological theory.

The reader may be perplexed at this point. First, the Lewin I have described is not one most psychologists or social scientists easily recognize. Second, if Lewin is so great, why has psychology generally kept his work at arm's length? Besides the observation that the great contributors to science are usually outside the orthodoxy of their age,[56] there is a reason my description of Lewin is unfamiliar and his work in unappreciated.

The answer ties in Lewin's attempt to formalize this theory. Note that Lewin's conceptions are not really unreasonable and convey a great deal of common sense. Moreover, consider how his complete theory can help us to understand much about human behavior and, as does Freud's theory, seems to portray the person as is with all his needs, desires, behavior, tensions, and conflicts hanging out, so to say. If Lewin had been content with this conceptual approach, perhaps his theory would have been as intellectually influential as Freud's.

However, Lewin strode a gigantic misstep in formalizing his system by simple topological geometry and then almost always couched his field theory in ugly topological pseudopods. He placed the theoretical emphasis on his topology and not his conceptions,[57] and his tool was inadequate to its task. To illustrate this statement (and present a more recognizable Lewin to those familiar with him), consider Figure 3.1a. This is a topological diagram of a person's life space, which is divided into separate regions of distinct activities. The significance of topology here is that it only assumes a contact or separateness of regions geometrically. Spatial distance and direction have no meaning in topological space, although one can define a kind of "distance" (as Lewin did) as the number of regions intervening between one region and another.

Figure 3.1b shows the life space at a particular time with both the person P and a goal region G represented. Now, by Lewin's theory there are forces pushing the person toward the goal region G, as shown in Figure 3.1c by the vector. The dotted line defines P's expected path through two intervening regions and thus involves two different activities. This line defines the psychological distance (in Lewin's terms) between P and the goal. For example, if G is a desire to swim and P is currently at home, then one intervening region may be driving to the beach area and the second walking from the car to the water.

These diagrams can be made more complicated, of course, by subdividing more regions, depending on the significance of the intervening activities, and adding barriers, detour regions, opposing forces, and so on. But the essential topological Lewin is captured in Figures 3.1a-c. Is this all there is to Lewin's formalization? Essentially, yes.[58] And he worked this simple formalization to death, even though it was fundamentally inconsistent with his ideas. First, his topological diagrams were classificatory and dichotomous, showing presence or absence and contact or separateness, and were thus an application to psychology of Aristotelian science, as he defined it. His diagrams hardly reflected the Galilean approach (continuity and dimensional quantities) he thought psychology should follow. But this is only an inconsistency between his norms and his practice.

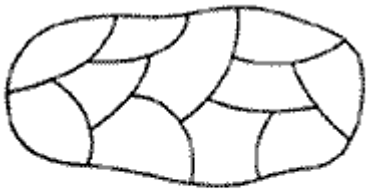

FIGURE 3.1a

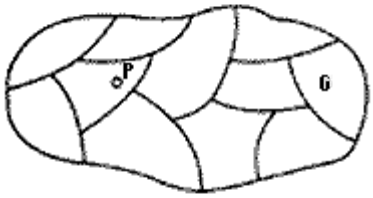

FIGURE 3.1b

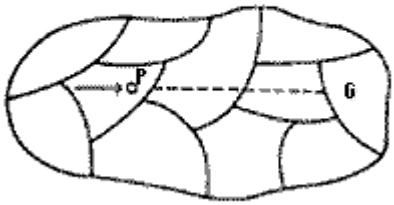

FIGURE 3.1c

More fundamental, is his use of topology to represent a theory of forces having direction and magnitude, when topology allows no such possibilities. This involved him in all kinds of verbal maneuvers and topological gyrations, simply adding formal complexity to his work without, in many instances, really resolving the theoretical problems his scheme presented (as, for example, how to deal mathematically with spatial distances or a resolution of forces). It was no wonder that attention to the value of his conception was deflected to his formalization, that *Principles of Topological Psychology* received bad reviews, that psychologists and others have been chased away from engaging Lewin by legions of amoebas and pseudopods, and that, when coupled with his constructs of force, region, locomotion, and barrier, his work exuded an overwhelming physicalistic odor.

Very early in his work Lewin recognized the value of mathematics to theoretical work, and particularly the value of geometric conceptions. In particular, because topology could be applied to qualitative and structural concepts, it seemed to Lewin in his early years as the best mathematical representations of his developing theory. Unfortunately, Lewin and his students became locked into this scheme. Even though the theory outgrew topology, they were unable to discard or move around it.[59] Why this was so is partly explained by Lewin's comment that geometric angles, straight lines, distances, and directions usually have no sociopsychological meaning.[60] He simply was unaware of how geometries, such as Euclidean, could be given psychological content and of linear algebra's usefulness in representing his fields, vectors, and distances. This observation is particularly pointed, because at the time (1939) he made the above comment there was a well-established and vigorous school of multivariate psychologists[61] doing precisely the kind of interpretation Lewin thought impossible. In the final analysis, what defeated his attempts at formalization was an intellectual isolation from the mathematical work of other psychologists[62] and his own narrow acquaintance with mathematics itself.

Although my own psychological theory to be presented here differs in many respects from Lewin's, there is considerable similarity in essentials. Especially, the linear algebraic formalization used in place of Lewin's topology corrects the major problems in his formalization and synthesizes his ideas and those of Cattell and Sorokin.

In summary, what is Lewin's field theory? First, it is an emphasis on a person's subjective perspective. Second, it incorporates the whole that is subjectively relevant to a person and that organizes behavior, goals, needs desires, intentions, tensions, forces, and cognitive processes into one system. Third, the elements composing this whole are interdependent and stand in dynamic mutual relationship. Fourth , the key to the dynamic nature of this subjective whole is the idea of tension (energy) systems created by needs and discharged by achieving associated goals. Fifth, the dynamic psychological construct is that of inner-personal forces, which result from the intensity of personal needs and the valence of

associated goals. Sixth, blocked goals can lead to increase in tension and a variety of behavioral and psychological consequences. And finally, inner-personal conflict is the result of opposing psychological forces.

3.4 EDWARD TOLMAN

model **advances field theory by considering questions totally ignored by Lewin, such as the psychological interface between roles and culture.[63] Moreover, the use of Tolman's model for the psychological foundations of the Parsonian social theory elaborated in *Toward A General Theory of Action*[64] gives Tolman's model special interest.**

Tolman wisely avoids any mathematical pretense. He uses concepts such as field forces, regions, locomotion, and distance conceptually and employs diagrams only as communication aids. He avoids, and given his long association with Lewin it must be purposely, any reference to topological spaces, hodological paths, and he makes no use of pseudo-mathematical equations.

Conceptually, Tolman's model generally follows Lewin's theory, except that rather than making genotype versus phenotype and Aristotelian versus Galilean science distinctions basic, Tolman adopts a recent and more conventionally acceptable theoretical distinction between independent, dependent, and intervening variables: The *dependent variables* comprise the behaviors (actions) of a person; the *independent variables* consist of (1) heredity, age, sex, drugs, endocrines, and so on; (2) conditions of drive arousal; and (3) the stimuli from the external environment.

It is in defining and connecting the *intervening variables* into a whole with the independent and dependent variables that Tolman elaborates on field theory. In *structure*, the intervening psychological variables consist of five kinds. First, there are capacity and temperamental *traits* defining "individual difference variables,"[65] which Tolman conceives of as causally basic to the intervening content variables to be mentioned, but Tolman can do no more than mention them for lack of clear hypotheses providing traits with psychological content.[66]

Second , there is a system of intervening variables defining a person's *needs.* These needs form interconnected compartments containing positive and negative charges of energy. The magnitude of the energy given to the needs (as for example, the magnitude of the hunger or sex need) comprises the *tension* associated with them, while the energy charges express the readiness to move toward (positive charges) or away from (negative charges) particular objects.

The third set of variables define a *belief-value matrix.* This construct may be Tolman's most significant contribution to Lewin's field theory and is similar to the cultural schema and meanings-values matrix of psychological space described in Section 7.2 of Chapter 7. Tolman's matrix comprises the person's cognitive differentiations, categorizations, types, beliefs, and values, and enables him to know how to satisfy his needs as they arise and to evaluate the objective world relative to them. Although Tolman does not carry this point very far, he does mention that the belief-value matrix can represent the sociocultural beliefs and values shared by the community.[67] If a modal, general belief-values matrix could be determined for a whole society, then it would define a culture's *ethos*.[68]

We now come to a fourth set of intervening variables, which Tolman calls the (immediate) *behavior space.* It is dependent upon the other intervening variables so far mentioned, as well as directly responsive to the stimulus situation. That is, traits, needs as interpreted and evaluated by the belief-value matrix, and stimuli feed into the behavior space. "A behavior space is thus to be defined as a *particularized* complex of perceptions (memories and perceptions) as to objects and relations and the 'behaving self,' evoked by the given stimulus situation and by a controlling and activated belief-value matrix (or perhaps several such matrices)."[69]

The objects in behavior space include the self, and the spatial directions and distances among all these objects may define his mechanical, aesthetic, mathematical, and other interrelations. Moreover, these

objects have positive or negative *valences* attached to them, where a valence is a particularization in the case of an object of a universal value contained in the belief-value matrix.[70] Except for greater specificity, Tolman's use of the valence construct follows Lewin.

Before describing the dynamic principles involved here, there are two more sets of intervening variables to consider. The first defines a person's locomotion, which is "a passage from one *region* of the behavior space to another (or through a succession of such regions)."[71] And it is this passage between regions which is manifested in overt behavior. Clearly, some specificity is called for here, and Tolman is far more careful than Lewin in precisely delineating these central constructs.

I mentioned that for Lewin a region seems to mean an activity; this is the interpretation that Leeper gives to it and that Tolman adopts. In his model the regions of behavior space define the possible behaviors perceived by us as available while we are in a stimulus situation and from the perspective of the region we are now in. For example, this region may consist of a person reading at his desk and the associated perceived objects (desk, lamp, book, and the like) supporting that activity. Now, if this person becomes hungry, the range of activities he will perceive as available to satisfy his hunger will depend on his currently inhabited region (what he is doing now) and on the other activities (and supporting objects) comprising the other regions (such as taking food from the refrigerator) of behavior space in this stimulus situation. The sequential *selection of behaviors* to move from one region to another region (behavior) is then locomotion in behavior space.

The final intervening variables define the behavior space now restructured as a result of locomotion. When a person locomotes from his current region (for example, reading at a desk) to another (say, the refrigerator), the stimulus-perceptual situation is altered and the objects in behavior space change. Thus, the newly inhabited region is in the context of a new behavior space, from which subsequent locomotion will take place. There is thus a continual sequence of behavior spaces correlative with our locomotion from one region to another.

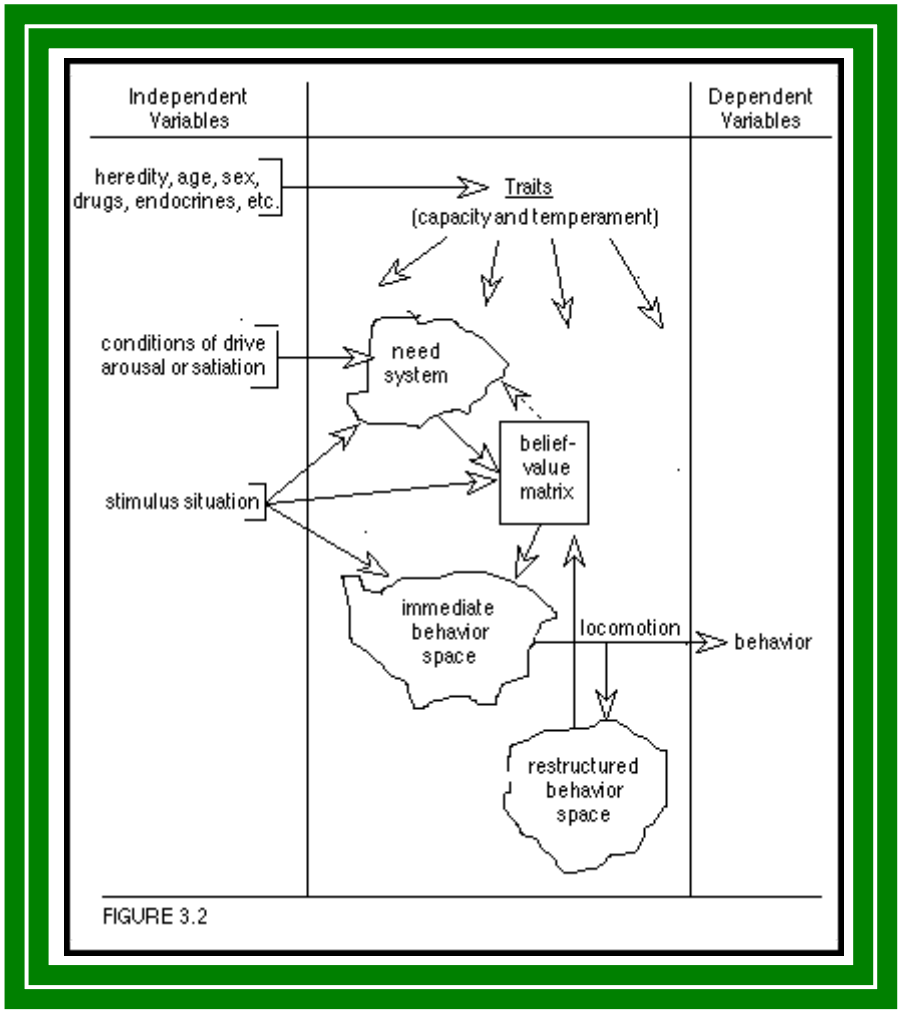

FIGURE 3.2

I will summarize Tolman's model at this point through Figure 3.2.[72] The figure shows the three kinds of variables, and the arrows represent postulated causal connections (the dotted arrows represent feedback). The dependent variables comprise actual behavior; the independent variables are of the three types shown. Intervening variables then denote how external objective stimulus and physiological conditions get transformed into objective behavior. The how is explained by four sets of variables.[73] One set, mainly influenced by heredity and the like, comprises the individual differences--the traits--people have. These traits causally affect the content of the other intervening variables, but in unknown ways. Another set of intervening variables makes up a person's *need* system (say, hunger, sex, or security), which is influenced by external drive arousing or satiating conditions (such as a full meal) and the stimulus situation (such as an erotic story).

The need system influences and is influenced in turn by a third set of variables, the belief-value matrix.[74] This provides cognitive differentiation to objects and values by which to weight them, and is influenced--triggered--by a particular stimulus situation. Both the belief-value matrix and the stimulus situation affect the immediate *behavior space,* the final set of intervening variables.

The immediate behavior space is divided into *regions,* which delineate the behaviors (and supporting objects) available to a person as seen from a region currently inhabited, and the perceptual objects and his relationships supporting this range of behavior (as invoked by the perceived stimulus situation and defined by the belief-value matrix).[75] The sequence of behaviors selected in order to satisfy a need (that is, the movement from one region to another) is called locomotion and is manifested in the dependent variables called *behavior*.[76] As shown in the figure, locomotion restructures the behavior space (the person is now in another region of behavior space) and this new space in turn influences the belief-value matrix (that is, a different set of beliefs-values may now be activated).

Such is the structure of Tolman's model. What are the dynamic principles underlying it and how does field come in? First, our need system is a source of energy, of tension. When a "compartment" of our need system, such as hunger, is activated, it develops positive and negative charges corresponding in number to the magnitude of our need. *Tension* is associated with this activated need and constitutes a readiness for action that will discharge this energy--satisfy the need.[77] Second, this energy activates a *need deprivation* "compartment" of our belief-value matrix with negative charges. The matrix then points to behaviors (say, eating) and objects (food in this case) that will move the person to a *need satisfaction* end of the matrix, which will then carry positive charges.[78]

Third , a person is located in his behavior space relative to objects and possible behaviors as perceived by him.[79] These objects and behaviors will have positive or negative *valences,* depending on the values they exemplify in the belief-values matrix.

Now, finally, to put these components together, the negative charge in the belief-value matrix associated with need deprivation is a negative charge on the person in his behavior space. It is, in Tolman's terms, *a need-push* evoked in a person and forcing him toward behaviors and supporting objects with positive valence (for example, hunger forces him toward positive valenced foods[80]) and away from those with negative valences. Once the need is satisfied, that is, positive changes in the belief-value matrix are created, then one is repulsed from relevant positive-valenced objects (a satiated person is repulsed by food, for example). Thus, in total, the person locomotes in behavior space as a consequence of a variety of need-push forces, activated by needs and directed by the belief-value matrix. The *field* is then the forces in behavior space resulting from the negative or positive need-pushes and the valenced behaviors and objects. That is, "given a positive valence and a complementary negative need-push, there will result a field force tending to repel the behaving self away from such a negatively valenced object."[81] The field is then for Tolman a configuration located anywhere in a person's behavior space, depending on the state of the energy system at a particular time.

This field theory model is a very general one, able to accommodate, as Tolman shows in his presentation, a variety of psychological mechanisms, processes, and approaches. For example, learning becomes "the acquisition of perceptions of objects, directions, and valences in the behavior space, and eventually in the resultant acquisition of generalized categorizations, beliefs, and values in a superordinate belief-value matrix."[82] Moreover, psychodynamic mechanisms like identification, self ideal, repression, and symbolic substitution find explanation by the model.[83] And the model integrates value standards, Parsonian pattern variables,[84] social roles, and personality.[85] In general, as a psychological field theory Tolman's model is a distinct improvement over Lewin's. ┼

NOTES

*** Scanned from Chapter 3 in R.J. Rummel, *The Dynamic Psychological Field*, 1975. For full reference to the book and the list of its contents in hypertext, click book. Typographical errors have been corrected, clarifications added, and style updated.**

1. For such a comprehensive review of social science field theories and the variety of usages of "field," see Harold Mey, *Field-Theory: A Study of Its Application in the Social Sciences,* trans. Douglas Scott (New York: St. Martin's Press, 1972).

2. Richard Lowry, *The Evolution of Psychological Theory* (New York: Atherton, 1971): 10.

3. In *Human Nature* (1651).

4. Although Locke provided room for our will and volition (see sections 30.1 and 31. 1 of Chapter 30 and 31), in effect our will was still a slave to the empirical world.

5. Lowry, op. cit.

6. Kant is discussed in more detail in connection with the question of our freedom (section 30.2 of Chapter 30).

7. For example, see J. F. Herbart, *A Text-Book in Psychology,* trans. M. K. Smith (New York: Appleton, 1891).

8. Lowry, op. cit., pp. 80-81.

9. G. T. Fechner, *Elements of Psychophysics, vol. I* (D. H. Howes and E. G. Boring, eds.), trans. H. E. Adler (New York: Rinehart and Winston, 1966).

10. W. Wundt, *Lectures on Human and Animal Psychology,* trans. J. E. Creighton and E. G. Titchener (New York: Macmillan, 1894).

11. Sigmund Freud, *The Origins of Psychoanalysis: Letters to Wilhelm Fliess, Drafts and Notes: 1887-1902* (M. Bonaparte, A. Freud, and E. Kris, eds.) trans. E. Mosbacher and J. Strachey (London: Imago, 1954).

12. Sigmund Freud, "On Narcissism," in *The Standard Edition of the Complete Psychological Works of Sigmund Freud,* ed. and trans. J. Strachey, vol. 14 (London: Hogarth, 1957).

13. *Beyond the Pleasure Principle* and *Civilization and Its Discontents* in *Standard Edition,* op. cit., vol. 18 (1955), and vol. 21 (1961), respectively.

14. J. B. Watson, *Psychology from the Standpoint of a Behaviorist* (Philadelphia: Lippincott, 1919); *Behaviorism* (New York: Norton, 19 24).

15. C. L. Hull, *Principles of Behavior: An Introduction to Behavior Theory* (New York: Appleton-Century-Crofts, 1943).

16. Op. cit., pp. 80-8 1.

17. T. R. Miles, "Gestalt Theory," *The Encyclopedia of Philosophy* (Paul Edwards, ed.), vol. 3 (New York: Macmillan and Free Press, 1967): 318.

18. M. Wertheimer, "Experimentelle Studien uber das Seben von Bewegung," *Zeitschrift far Psychologie,* Part 1, vol. 71 (1912): 161-265.

19. See note 20.

20. Willis D. Ellis (ed.), *A Source Book of Gestalt Psychology* (New York: Harcourt, Brace & Co., 1939); K. Koffka, *Gestalt Psychology: An Introduction to New Concepts in Modern Psychology* (New York: Liverright, 1947); W. Köhler, *Dynamics in Psychology* (New York: Liverright, 1942), and *The Place of Value in a World of Facts* (New York: Liverright, 1938).

21. There will be reason later in this book, *The Dynamic Psychological Field*, to give this principle more careful analysis. See Chapter 33.

22. W. Köhler, "Physical Gestalter," in Ellis, op. cit., pp. 17-54.

23. The artist is well aware of this process and uses it frequently. He does not paint all that is seen, but rather creates on canvas a field of tension, of lines, colors, masses, and hues, which exist in a dynamic balance. The completion of the painting is left to the viewer, who perceptually connects the parts into a living scene. This approach has been perfected by the traditional Japanese painter who leaves much of his medium untouched by paint, provides a mere suggestion of winter in the mountains with the fewest possible lines, grays, and brush strokes, and thus involves the viewer in bringing closure and consistency to the scene. An excellent theoretical analysis of this Gestalt phenomena in art is given by Andrew Ushenko, *Dynamics of Art* (Bloomington: Indiana University Press, 195 3).

24. Note that this idea (developed in the 1920s) that we balance our distribution of energy through perception (tendency toward Pragnanz) or behavior is the core theoretical position of the Heider-Festinger cognitive balance theories proposed in the 1950s.

25. Köhler, "Physical Gestalter," op. cit.

26. Although early Gestalt psychologists had an excellent acquaintance with physical science and could be quite precise in discussing it (see for example Köhler, ibid.), there was not a coherent charting of the field nature of Gestalt phenomena. Field came in as an operative concept, but was not treated itself in a conceptually integrated manner.

27. Lowry, op. cit.

28. Gestalt psychology provides a major bridge between the fine arts and science, as so well demonstrated by Arthur Koestler in *Insight and Outlook* (Lincoln: University of Nebraska Press, 1949).

29. A minor point made by Wertheimer ("The Syllogism and Productive Thinking," in Ellis, op. cit., p. 274) is that often a person's judgment will remain fairly constant across a wide body of information, until suddenly a few facts click together, bringing about a radical reorganization of judgment. This idea of trigger facts (or events) and reorganization plays a

central role in Koestler's theory of creativity *(The Act of Creation,* New York: Macmillan, 1969) and in my description of perception and behavior (section 15.4 of Chapter 15). This insight into conceptual processes cannot be explained well by orthodox association of ideas,

punctaform sensations, or reflexive psychological theories, but is easily accounted for by the balance-of-forces-in-a-field explanation of Gestalt psychology.

30. This ancestral relationship is more of mood and perspective than detail and structure, however. The intentional field I will present in this book, *The Dynamic Psychological Field*, owes as much formally and empirically to the ideas of Raymond Cattell and Pitirim Sorokin, as it does to those of Lewin. Because my conception of an intentional field is in part a synthesis of Lewin, Cattell, and Sorokin, it is interesting that each of these great scientists would consider the work of the other two as nonsense, irrelevant, or misguided. Except for some negative references to the "physicalist, meaningless" work of Lewin and his students made by Sorokin *(Sociocultural Causality, Space, Time,* Duke University Press, 1943: 108-113), they mutually ignored each other's conceptions and results.

31. For Lewin's biography, see Alfred F. Marrow, *The Practical Theorist: The Life and Work of Kurt Lewin* (New York: Basic Books, 1969).

32. Edward C. Tolman, "Kurt Lewin--1890-1947," *Psychological Review* 55, no. 1 (1948).

33. At the University of Berlin where he took his degree, one of his professors was Ernst Cassirer, who had a lasting philosophical influence on Lewin.

34. His essay "The Conflict Between Aristotelian and Galilean Modes of Thought in Contemporary Psychology" (reprinted in his *A Dynamic Theory of Personality,* New York: McGraw-Hill, 1935) has become an influential classic (Marrow, op. cit., p. 59).

35. Lewin, "The Conflict Between Aristotelian and Galilean Modes of Thought. . . op. cit.

36. Marrow, Op. Cit.

37. Marrow, ibid. I also should mention the deep influence Lewin had on students or colleagues who have worked closely with him, such as Gordon Allport, Alex Bavelas, Dorwin Cartwright, Morton Deutsch, Leon Festinger, John French, Jr., Fritz Heider, Margaret Mead, Gardner Murphy, John Thibault, and Edward Tolman.

38. For the remainder of this section on Lewin, I have relied on his A *Dynamic Theory of Personality*, op. cit.; *Field Theory in Social Science* (New York: Harper and Row, 195 1); *Principles of Topological Psychology* (New York: McGraw-Hill, 1936); *Resolving Social Conflicts* (New York: Harper, 1948). Also useful have been Harold Mey's *(Field Theory, op.* cit.) and Robert Leeper's *(Lewin's Topological and Vectory Psychology,* Eugene: University of Oregon, 1943) discussions and clarifications of Lewin's ideas.

39. This was Donald Adams in translation of "The Conflict Between Aristotelian and Galilean Modes of Thought . . . " op. cit.

40. Marrow, op cit., pp. 55-57. Here is a case in point where knowing Lewin's background and the development of his theory would have aided understanding. "Valence" was selected by Lewin's translator by virtue of its early English meaning ("valent" meant value or worth) *before* chemistry co-opted the term. To modern readers, however, "valence" now seems so much a natural science concept that its use by Lewin (which was via his translator) makes his ideas appear physicalistic mimicking. Sorokin, among others, in his interpretation of Lewin has been thus misled.

It is also interesting to note that "valence" has now been defined by Webster's Dictionary (111) to include the attractiveness of a goal.

4 1. Leeper, op. cit., pp. 83, 27 3.

42. Lewin, *Field Theory in Social Science, op.* cit., p. 273.

43. Here is another source of misunderstanding. Stumbling over Lewin's concept of locomotion, critics have interpreted it as physical motion and then criticized him for not recognizing that such motion is only a physical reflection of underlying subjective processes--the very point that Lewin meant to make.

Of course, each of us sees things from our own perspective which provides cues keying in our perception. For many critics, justifiably upset by the importation into psychology of unsuitable methods, models, and concepts from physical science by those hoping to duplicate its success, the appearance of such terms as valence, locomotion, field theory, and force in Lewin's work shunts perception onto this physicalistic track. And so it was for me in my first reading of Lewin's *Field Theory in Social Science.* Only after a wider reading and rereading of Lewin did I come to appreciate that among the great psychological theorists and experimentalist like Hull, Freud, Pavlov, Watson, Skinner, Wundt, and Köhler, Lewin was the most concerned with understanding behavior through purely psychological and social theories and constructs. Only coincidentally did his constructs also play a role in the physical sciences.

44. Here also is some ambiguity. I am following Leeper's interpretation (op. cit., p. 105).

45. This conception of psychic energy is not new, but has a long history in post-Kantian German psychology and was integral to Freud's theory. See section 3.1, above.

46. In Lewin's terminology, induced forces comprise a "power field" within the life space and are created by another person's power.

47. For example, he treats force as a vector in a topological space in which direction and distance, and thus vectors, have no meaning.

48. Such change in cognitive structure could be along the lines suggested by cognitive dissonance theories. Incidentally, the cognitive dissonance theorists Fritz Heider and Leon Festinger were both Lewin's students.

49. Lewin, *Field Theory in Social Science, op.* cit., p. 256. On psychological distance as distinct activities (or more technically, the number of intervening regions between the person and his goal), see ibid., pp. 121, 258, 323, and 325.

50. Perhaps, but it often seems that a system in high tension will "steal" energy from other tension systems, in effect, overshadowing other needs. Thus, the starving person will forget about sex and most other needs in his frantic search for food.

51. This is not an uncommon definition. Like Hume, Lewin is simply equating values with sentiments. Among the variety of contemporary interpretations, this would place Lewin among the *emotivists* like A. J. Ayer.

52. Keep in mind that goals discharge needs and thus are not necessarily the result of cognitive decisions. Thus, I may not *decide* to seek food because of my hunger. Rather, my hunger makes food a goal causing me to direct my thoughts toward it.

53. This seems the only interpretation consistent with Lewin's usage. Cf. Leeper, op. cit., p. 93.

54. Leeper, ibid., p. 93. See also Leeper, pp. 94-95.

55. Lewin discusses some of them in *Field Theory in Social Science, op.* cit. The best summary of the empirical results and practical applications is given in Marrow, op. cit. Marrow also lists in appendices the many publications growing out of Lewin's Berlin experiments and Iowa studies, and those of his Commission on Community Interrelations, and Research Center for Group Dynamics at M.I.T.

56. Besides Lewin, Raymond Cattell and Pitirim Sorokin are examples of men who made great contributions that are largely ignored. Although Sorokin is the greatest sociologist of this century, his work is largely unknown or unappreciated by orthodox-American sociologists. As for Cattell, he has done more than any other to place psychological knowledge on a firm empirical, conceptual, and mathematical basis, and yet his work has little influence on American psychology.

57. For example, he titled his major work *Principles of Topological Psychology* and buried his ideas under the weight of his topological formalization.

58. Lewin defines a "hodological space," which enables him to consider *directed paths* in his topological diagrams. "Hodology" is a term Lewin derived from the Greek *hodos,* meaning "path." This is simply a terminological supplement we need not consider seriously.

59. Leeper, op. cit., who tried to revise Lewin's theory to remove inconsistencies, commented on many of the problems topology creates, but was unable to propose an alternative mathematical system.

60. Lewin, *Field Theory in Social Science, op.* cit., pp. 151-152.

61. Such as C. L. Burt, Raymond Cattell, K. J. Holzinger, C. Spearman, G. Thomson, and L. L. Thurstone.

62. Many have commented on Lewin's lack of interest in or acquaintance with research outside his school of thought. See, for example, Marrow, op. cit.

63. Edward C. Tolman, "A Psychological Model," Talcott Parsons and Edward A. Shils (eds.), *Toward A General Theory of Action* (New York: Harper Torchbooks, 1951): 279-361.

64. Op. cit.

65. Tolman, op. cit., p. 301.

66. Ibid., pp. 301-302. What Tolman has in mind by traits are those uncovered by the multivariate personality studies of psychologists like Raymond Cattell, L. L. Thurstone, and Cyril Burt. I suspect that Tolman was not as familiar with this work as he should have been, for he seemed to be thinking wholly in terms of temperament and ability traits and not the motivational ones uncovered by, say, Cattell. For had he known about the motivational traits, which after all define the content of what Tolman considers *need*s, he could not have missed the connection between traits and content. In this Tolman is consistent with the traditional lack of appreciation and ignorance of multivariate psychological research results and theory by Lewin's school.

The dynamic psychological field described in this book, *The Dynamic Psychological Field*, does unite the trait variables of multivariate psychology and the psychological field's content (for example, needs, perception, balance, self, will, disposition, expectations, behavioral inclinations).

67. Ibid., p. 294.

68. Ibid., p. 295.

69. Ibid., p. 296.

70. Ibid., p. 296 and n. 10.

71. Ibid., p. 299, italics added.

72. Adopted from ibid., p. 286.

73. The term "variables" is really inappropriate, because some of Tolman's "variables" seem to function as parameters or constants; however, I am retaining Tolman's terminology.

74. Tolman underplays the role of the belief-value matrix. Rather than being a link in a causal chain, it should have an executive function selectively transforming and giving content to perception, needs, and behavior space.

75. Ibid., p. 299.

76. Ibid., pp. 299-300,

77. Ibid., pp. 289-290.

78. Ibid., pp. 290-294.

79. Perception for Tolman does not imply conscious awareness (ibid., pp. 296-297). We may unconsciously perceive behavior or objects.

80. Some foods may be negative valued, that is, repulsive.

81. Ibid., p. 298.

82. Ibid., p. 307.

83. Ibid., pp. 307-318.

84. These are affectivity versus affective neutrality, self-orientation versus collectivity orientation, universalism versus particularism, ascription versus achievement, and diffuseness versus specificity.

85. Ibid., pp. 343-359.