

# CHAPTER



# TOPOLOGY AND THE REPRESENTATION OF PSYCHOLOGICAL FORCES

## The Topology Meetings

If the *Quasselstrippe*—in Berlin or Iowa—was a forum for an exchange of ideas among Lewin's current students, the loose-knit organization that came to be known as the Topology Group performed the same function on a more extended basis for former students, associates, and those who simply counted themselves as Lewin's professional friends. It started spontaneously when some of those who had been with Lewin in Berlin decided they would like to get together with him to discuss theory on an informal basis. The group had no formal membership, no officers, and no by-laws—indeed, even the decision to meet annually was taken casually as a result of the success of the first gathering. Over the years the core group was augmented by friends or new members, but the number at any one meeting generally was limited to thirty-five or forty so

that size would not hinder free interaction. With the exception of the World War II years, when travel was restricted, and two years in the early 1960's, the meetings continued annually through 1965.

The first get-together was held during the Christmas holiday at Smith College in Northampton in 1933. Kurt Koffka was on the faculty of Smith, and the group's informal meetings were held in his laboratory there. In attendance was the small circle of colleagues who had known Lewin in Berlin—among them, MacKinnon, Adams, Zener, Heider, Dembo, and several others. A few local people also joined in. There was no plan of continuing yearly meetings. The idea of other meetings developed as the group enjoyed and felt the value of these days that they spent together.

The second meeting, a year later, was held at Duke University, where Adams and Zener were faculty members; and the third gathering, held at Bryn Mawr, was one of the most memorable, for the eminence of its participants and for the spirited discussions which lasted over the three-day period. Adams and Zener came from Duke; Tolman and Krech, from California. Among the others present were Dembo, Erik Erikson, L. K. Frank, Fritz and Grace Heider, Koffka, Köhler, Gerti Lewin, MacKinnon, Margaret Mead, William Stern, and others. In part, the number of those able to be present was increased by the generosity of Lewin's benefactor Lawrence Frank, who obtained a grant from the Laura Spelman Rockefeller Fund to help underwrite expenses.

Despite its informality, with few prepared papers, it was an exciting meeting. As was true of the other topology meetings, everyone said something about what he was working on or what currently interested him. When Margaret Mead, Edward Tolman, Kurt Koffka, and Erik Erikson, with their quite different approaches, joined in, everything that was said and each response to it would stimulate a new idea. There was no atmosphere of attacking and rejecting, and there was none of the painful conflict often present in discussions of theoretical differences.

Typical of the format was the meeting at Harvard the following year, 1936. It opened with a paper by Henry A. Murray on factors within the personality and how they might be approximately esti-

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mated, giving details on specific experiments at the Harvard Psychological Clinic. Donald MacKinnon followed with a paper entitled "The Recall Value of Satiated and Non-Satiated Activities." David Shakow reported on the level of aspiration of schizophrenics, and David Krech ended the first day with a paper entitled "Measurement of Negative Valences Induced by Frustration." While the papers were being delivered, Lewin sat quietly in the back of the room, sometimes appearing to be only half listening. But once the discussion began, he was his usual animated self, bursting with ideas, comments, criticism, and encouragement.

The second day was as strenuous as the first, with a report by Barker on his experiments with frustrations and regression in children; one by Ruth Benedict on "Groups of Differentiation Type, Structure, and Degree of Differentiation"; and a paper by Tamara Dembo on "The Conceptual Representation of Certain Facts Important for Psychology and Sociology." By the third day the Topological Society members were down to only two papers—one by Harold Lasswell, on "The Effect of Political Circumstances on Changes in the State of Groups," and one by Gordon Allport, on "The Effect of the Group on the Individual."

Gardner Murphy, who had first met Lewin at the Columbia Faculty Club when he was en route to Stanford in 1932, became much better acquainted with him during the meeting of the Topology group at Cornell during Christmas of 1938. "Edward Tolman was there, and it was a gay, grand party—an intellectual feast—a personal glimpse of intense intellectual companionship," Murphy comments. "Lewin sat characteristically to one side, in an inconspicuous place, while various speakers presented ideas, methods, results. He was always in good humor; he particularly enjoyed having people disagree with him."

Margaret Mead, too, first got to know Lewin at one of the Christmas meetings—an earlier one held at Bryn Mawr in 1935. "Already the shape of later conferences was foreshadowed," she relates, "in that contributors each spoke from their special inspiration, referring to—but not using—Kurt's own complex diagrams and formulations."

One memorable year, 1940—when the group was again at Smith

College—Lewin himself opened the meeting on New Year's Eve with a talk entitled "Bringing the Life Space Up to Date." That evening, under the agenda heading marked "New Year Ceremonies," Margaret Mead led the group in a folk-dancing session that lasted past midnight. By 9:30 in the morning, however, the whole group was up and listening raptly to a lecture by Dan Adler on "The Nature of Repression," followed by Margaret Mead's paper, "Family Organization and the Superego." Brown, whose 1929 paper on Lewin in the *Psychological Review* first brought him to the attention of American psychologists, led the discussion of Miss Mead's paper in the light of psychopathological data.

Fritz Heider, who had known Lewin in Berlin from 1921 to 1924, attended most of the meetings with his wife, Grace. At the 1945 meeting at Smith, Heider gave his first presentation of balance or consistency theory and at the 1948 gathering gave a second talk on this important contribution to social psychological theory.

Jerome Frank, who attended many meetings of the Topology Group, states that these gatherings offered a particularly effective way for Lewin to develop his ideas. There was a quality of freedom and non-defensiveness in the discussion, and—one realized later—a good deal of planning of the sessions which was not apparent to the participants. "It seemed to me," says Frank, "that Lewin exerted influence through innumerable casual contacts of all sorts—perhaps at a meal or in a small group meeting or individually. Because he valued everyone's contribution and could be critical without hurting, he stimulated creativity in all those about him. He indulged in none of the power struggles waged by many of his contemporaries in experimental and clinical psychology or the other social sciences. Yet he was intensely ambitious. Confident of the importance of his own ideas, he accepted the contributions of others but had a way of melting them into his point of view. This self-confidence often made him indifferent to the question of how his work might relate to the theories, research techniques, or results reported by colleagues in the literature or at professional meetings."

MacKinnon, the host at the 1935 Bryn Mawr meeting, has remarked that "in every group of psychologists I was ever part of, it

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was Kurt's reactions and Kurt's ideas that stimulated the group more than anyone else's. I think the reason why Kurt had such a following was that he loved the ideas people brought with them. Kurt's rewards were the rewards of intrinsic motivation as opposed to extrinsic motivation. Lewin didn't do anything for the pay or other external rewards; he did it because he was vitally interested—in psychoanalytic terms we would say that he invested his own libido—and *loved* the problems we were talking about and he was working with. It was this love that existed and drew the group together—not a personal love of one person for another, but a love that was generated because of Kurt's interest in, and real devotion to, everyone's problems and the time he spent with us on them. Lewin enjoyed what he was doing."

The Topology Group continued to meet annually except, as previously noted, for several years during World War II. In 1964, by informal vote, the Group decided to cease further meetings except for a final dinner meeting in connection with the A.P.A. convention in 1965. Thus, after thirty-two years, as Roger Barker reports, "we put a period to an important sentence in the history of psychology." The meetings had continued to attract outstanding younger psychologists, as well as to retain many of the original participants.

### The Representation of Psychological Forces

During his years in Berlin and continuing through Iowa, Lewin continued to be a vigorous advocate of the use of mathematical models in psychology and devoted a major effort to developing formal systems suitable for representing psychological phenomena. In 1938, two years after the publication of *Principles of Topological Psychology*, he completed a monograph entitled "The Conceptual Representation and Measurement of Psychological Forces," which was published that year in *Contributions to Psychological Theory*. In this he actually worked out a formal definition of "valence" in terms of fields of force, divorcing it somewhat from its

original phenomenological flavor. The monograph was difficult reading, as was the earlier work on topology, and too few psychologists were willing to devote the time to careful study of his complex system of concepts.

Leeper<sup>1</sup> undertook the task of digesting and restating Lewin's concepts in a monograph published in 1943. This work is an indispensable guide to psychologists who want to understand what Lewin's concepts are all about.

In a 1940 paper<sup>2</sup> Lewin commented favorably on the new interest in theory among American psychologists. While enthusiastic about this trend, he thought it necessary to point to certain dangers. He wrote, "We will produce but an empty formalism if we forget that mathematization and formalization should be done only to the degree that the maturity of the material under investigation permits at a given time."

Lewin's basic aspiration for psychology was that it become a true science. He was convinced that in order to do so it must develop a formal system of concepts, coordinating definitions, and laws which, taken as a whole, would adequately deal with the empirical facts of psychology. He believed that mathematics, especially those branches dealing with the abstract concept of "space," provided an indispensable tool for the psychological theorist. It was this belief that led him to spend so much time on efforts to construct formal systems. Despite this fundamental commitment, he recognized the dangers of what he called "premature formalization," and he was quite prepared to deal with research problems not amenable to rigorous treatment.

Lewin expanded on his own basic position on a number of later occasions. He explained that to him the guiding principle of psychology was to find new knowledge about, and deeper insight into, psychological processes. For this purpose, theory, mathematization, and formalization are the tools. They are of value only insofar as they serve as a means to fruitful progress in subject matter. They

<sup>1</sup> R. W. Leeper, *Lewin's Topological and Vector Psychology: A Digest and a Critique* (Eugene: University of Oregon, 1943).

<sup>2</sup> "Formalization and Progress in Psychology," *University of Iowa Studies in Child Welfare*, 1940, 16, No. 3, 7-42.

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should be applied, as complex tools always should, only when and where they help and do not hinder progress.

Lewin was optimistic that quantitative measurement of psychological forces would soon be accomplished. "This," he added, "will provide the answers for the laws of the composition of forces and aid in the measurement of tensions." When such progress had been made, he believed, it would be realistic to expect that phenomena such as hope or friendship could be presented by mathematical concepts.

At Iowa and later at M.I.T., empirical studies made use of formal derivations from Lewin's theory. Among them were Kounin's work on satiation, Cartwright's thesis on decision time, Festinger's on the same topic, and Bavelas' thesis and subsequent work on the mathematics of group structure.

Lewin wrote a paper with Karl Korsch in 1939<sup>3</sup> in which he again strongly expressed his commitment to the idea that the dynamic interdependence of psychological processes could be mathematically represented. He attributed the progress of psychology to three developments: (1) strict experimental procedures, (2) progressive formalization and mathematization, and (3) the dynamic constructs of field theory. "But," he concluded, "all methodological problems today are overshadowed by the problem of how to find a mathematization which adequately represents this dynamic interdependence between psychological processes." Lewin did not claim that topological psychology had arrived at the answer. He offered it as a highly promising approach.

In another article, written for the *American Journal of Sociology* in 1939, Lewin described more fully the need for a unifying approach which a mathematical model could provide. He said, in part, that the variety of facts which social psychology has to treat might really seem frightening to even a bold scientific mind. They include "values"; "ideologies"; "the style of living and thinking" and other aspects of culture; "sociological problems," of group and group structure; "psychological" facts, such as the intelligence of a

<sup>3</sup> "Mathematical Constructs in Psychology and Sociology," *Journal of Unified Science*, 1939, 9.

person, his goals and fears, and his personality; "physiological" data, such as the person's being healthy or sick, strong or weak; finally, such "physical" actualities as the size of the physical area in which the person or a group is located.

It is utterly fruitless and merely a negative scientific treatment to put these facts into classifying pigeonholes. We need positive means of bringing these various types of facts together in such a way that one can treat them on one level without sacrificing the recognition of their specific characteristics. A way must be found to treat bodily changes, shift of ideology, and group-belongingness within one realm of scientific language, in a single realm of discourse of concepts. The question is "How can that be done?"

It can be accomplished by the use of constructs which characterize objects and events in terms of interdependence rather than of phenotypical similarity or dissimilarity. Thus, if one "characterizes an object or event by the way it affects the situation, every type of fact is placed on the same level and becomes interrelated with any other fact which affects the situation. The problem of whether or not one is permitted to combine, e.g., concepts of values with those of bodily weight, vanishes when confronted with the simple truth that both facts influence the same situation. [In the field approach], instead of picking out isolated facts, and later on trying to 'synthesize' them, the total situation is taken into account and is represented from the beginning. The field-theoretical approach, therefore, means a method of 'gradual approximation' by way of a stepwise increasing specificity. Picking out isolated facts within a situation may lead easily to a picture which is entirely distorted. A field-theoretical representation, on the other hand, can and should be essentially correct at any degree of perfection."