

K. LEWIN, *Werkausgabe, vol. 1, Wissenschaftstheorie I*. Edited by Alexandre Métraux. Bern: Huber; Stuttgart: Klett-Cotta; 1981. (Distribution in English-speaking countries by Louisiana State University Press, Baton Rouge, Louisiana.) 400 pp. \$32.50.

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1. *Logic as theory of science*. Recent work on Bolzano's *Wissenschaftslehre* has tended to concentrate on its many anticipations of ideas which have since become part of the canon of modern logic, both mathematical and philosophical. There was, however, an earlier, German reception of the work on the part of both neo-Kantians such as Rickert, Windelband and Bauch, and of members of the Brentano school such as Twardowski, Husserl and Höfler.

The neo-Kantian school was impressed particularly with the normative (logical objectivist) strains of Bolzano's thought, conceiving the Bolzanian *an-sich-Sein* as a variant of what they called *Geltung* or *objektives Sollen*. (Some loose remarks on the relation of Frege, and of Frege's teacher Lotze, to this school are to be found in Goedecke 1927.) More important from our present point of view is the development by students of Brentano of that strain of Bolzano's thought which centres around the conception of logic as a *theory of science*.

Husserl's praise for the *Wissenschaftslehre* as 'a work which . . . far surpasses everything that world literature has to offer in the way of a systematic sketch of logic' is well known. Less well known is the work by Husserl's teacher and colleague Carl Stumpf (1906) on the implications of Bolzano's work for our understanding of the nature of the sciences themselves. Stumpf is remembered today almost exclusively for his work in psychology, particularly in the psychology of perception. It was around Stumpf, in Berlin, that Wertheimer, Köhler and Koffka founded the Gestalt school. But his philosophical work on the theory of science closely resembles and may have influenced Husserl's notion of 'regional ontologies' (Husserl 1952) and contributed to the development of Wolfgang Köhler's work on 'physical Gestalten' and on the logic of summative wholes (Köhler 1920; compare also Becher 1921).

It is Stumpf's ideas in the theory of science which seem to have served as the paramount influence upon the author of the papers collected in the present volume. Lewin, too, was a member of the Berlin Gestalt school, though he had greater talents as a methodologist and philosopher than its other principal members. He himself studied under Stumpf from 1910 to 1914, and his life-long indebtedness to his teacher is acknowledged in the obituary reprinted here (pp.339–345). *Wissenschaftstheorie*, as Lewin conceived it, is a science of science, a metadiscipline which seeks to describe the structures of those peculiar objects of scientific investigation which are the individual lower-order sciences themselves (compare pp.49–79: 'On the idea and task of the comparative theory of science'). Lewin inherits from Bolzano the conception of

sciences as meaning-structures or as structures of propositions, but his theory of science differs from that of Bolzano in having a purely descriptive character. Lewin's science of science seeks not to describe how sciences *should* be, but how these actually existing complex objects *are*, what special formal principles they employ, how they evolve, how they relate to each other and to their respective branches or sub-disciplines. It seeks further to describe the nature of the *intended objects* of these disciplines (and here we see one further point of contact with the phenomenological tradition).

Lewin's descriptive science of science differs likewise from epistemology as this was conceived by the neo-Kantians, i.e. as a discipline which deals with the question of the possibility or impossibility of scientific knowledge. Normative questions concerning science can be sensibly put, Lewin argues, only on the basis of a proper understanding of the nature of the sciences themselves. The *description* of the sciences as they are is, therefore, a necessary prerequisite of epistemology thus conceived.

2. *Identity and spatio-temporal continuity.* It cannot be denied, however, that there is a Kantian dimension to Lewin's thinking. There is, first of all, a similarity between many ideas of his theory of science and ideas that we find in the work of Cassirer. But the Kantian influence is revealed most importantly in Lewin's almost obsessive interest in the role of space, time and conservation principles in the foundations of the sciences, clearly illustrated by the second and third essays in the volume—'On the principle of conservation in psychology' (pp.81–86) and 'Conservation, identity and change in physics and psychology' (pp.87–110). These essays, published here for the first time on the basis of *Nachlaß* materials from 1911–1912, represent Lewin's first faltering steps towards his later, more rigorous and more fruitful investigations of the way in which the formal principles relating to identity and conservation accepted by a given science contribute to determining the structure of the object-domain of that science—in ways which only the science of science can bring to light.

The present pair of essays concern specifically the question whether the physical conservation principle applies to or can be extrapolated to the psychological sphere. Should this question be answered positively, then this would imply that psychology might properly be assigned the status of a sub-discipline of physics—as is presupposed, for example, in the psychology of Helmholtz. But Lewin points out that the applicability of the physical conservation principle rests upon the fact that physical objects are extended and localised in space (and here it is irrelevant whether space be conceived in absolute or in relativistic terms). In the psychological sphere, however, the objects with which we have to deal (the objects implicitly defined by the actually existing science of psychology: thinkings, perceivings, imaginings, remembering, or whatever) cannot be assigned spatial extent, and nor can they be assigned spatial position, either relative to each other or relative to the objects of physics. Hence they cannot be brought within the scope of a physical conservation principle.

Both physical and psychological objects however exhibit *temporal* orderings. But in the physical sphere we have more than mere temporal succession; the physical temporal order is structured by what Lewin calls the relation of *genidentity* or 'being-such-as-to-have-come-forth-from' (*existentiellen Auseinanderhervorgegangenseins*),

illustrated, for example, by the relations between successive phases of or segments through given isolated physical or chemical systems. It is to the investigation of the logic of the principles governing such temporal orderings and to the comparison of the different ways in which different sciences chop up the world into sequences of genidentical objects, that some of the most important contributions of Lewin's *Wissenschaftslehre* are dedicated. These contributions are all the more valuable because Lewin, unlike so many other authors, does not confuse the two notions of genidentity or spatio-temporal continuity and identity in the strict and proper sense: he seeks rather to define the precise relation between these notions for each specific scientific domain.

In the present volume we find reprinted Lewin's paper on 'The order of temporal genesis' ('Die zeitliche Geneseordnung', pp.213–232), an examination of the Minowskian notion of a world-line on the basis of the formal theory of genidentity relations. In a longer work, *The concept of genesis in physics, biology and evolutionary history. An investigation in comparative theory of science* (Lewin 1922), to be reprinted, with addenda, as vol. 2 of this edition, Lewin extends the scope of his investigations of genetic series beyond the sphere of physics. He exhibits a family of specifically biological genidentity relations (relations which might be illustrated by the genetic series which consist of, say, an embryo and a child, a chicken and an egg, an acorn and an oak, or of successive generations of a family or of a tribe or species). I hope to deal with this work, an early and neglected treatment of notions fundamental to the logic of time and genidentity, in a future review.

3. *Law and experiment.* Given Lewin's background, it is natural that the discipline which lies at the centre of his interests in *vergleichende Wissenschaftslehre* should be that of psychology, and the present volume is completed by a number of essays and reviews given over principally to the foundations of theoretical and empirical psychology. The most important of these, 'On law and experiment in psychology' (pp.279–320) contains an interesting discussion of the logic of causality from the standpoint of the theory of dependence relations developed by Husserl and Stumpf. As Lewin points out, treatments of causal relations too often concentrate on the paradigm of events or phases related merely by the relation of temporal sequence. Consider, however, a causal relation such as that expressed in the sentence: 'if a gas is heated then it expands (or its pressure increases)'. Here we have not separate events at all, but rather two dependent moments of a single event, which are distinguishable only in thought, not in fact. Physical laws, Lewin argues, often 'deal not with a relation between a "cause" and an "effect" in the sense of temporally distinct events at all, but with the fact that certain characteristic moments of *one* event-type can be brought together in a relation of functional dependence' (p.305).

The present volume represents some of the major fruits of what might be called the German phase of Lewin's thinking. As will already be clear, it manifests a combination of two superficially conflicting methodological tendencies. On the one hand he consistently adopts in these writings a descriptive approach which is close in spirit

to the work of Stumpf and of the phenomenological movement. On the other hand, however, as already pointed out, his interest in the categorial role of space and time and of conservation principles is much more characteristic of the neo-Kantian movement. After Lewin's emigration to America in the early 1930s a third, empiricist dimension in his thinking comes to the fore, a change which is marked by his essay, not unknown among philosophers in the English-speaking world, on the transition from an Aristotelian to a Galilean mode of thought in biology and psychology.

During this later, empiricist phase of his work, Lewin made seminal contributions in the areas of the so-called 'field theory' (collected in vol. 4 of this edition), child psychology (vol. 6) and group dynamics (vol. 7). Of the remaining planned volumes, vol. 3 will deal with Lewin's peculiar brand of 'topological' psychology and vol. 5 with his largely empirical work on the dynamical theory of personality. All items, including those English works published by Lewin during his time in America, are to be published in German versions. The work includes full bibliographies of the forthcoming volumes in the edition. The editors deserve praise for the care with which they have conceived and realised this ambitious undertaking. It is intended that the collection shall be concluded with a supplementary volume dealing with the reception and influence of Lewin's thinking.

### Bibliography

- Becher, E. 1921 *Geisteswissenschaften und Naturwissenschaften. Untersuchungen zur Theorie der Realwissenschaften*, Munich and Leipzig (Duncker and Humblot).
- Goedecke, P. 1927 *Wahrheit und Wert*, Dissertation, Munich.
- Husserl, E. 1952 *Ideen zu einer reinen Phänomenologie und phänomenologischen Philosophie*, Drittes Buch, *Die Phänomenologie und die Fundamente der Wissenschaften* (ed. Marly Biemel), Hague (Nijhoff).
- Köhler, W. 1920 *Die physischen Gestalten in Ruhe und im stationären Zustand, eine naturphilosophische Untersuchung*, Braunschweig (Vieweg).
- Lewin, K. 1922 *Der Begriff der Genese in Physik, Biologie und Entwicklungsgeschichte. Eine Untersuchung zur vergleichenden Wissenschaftstheorie*, Berlin (Borntraeger).
- 1931 'Der Übergang von der aristotelischen zur galileischen Denkweise in Biologie und Psychologie', pp. 233–272; originally published in *Erkenntnis*, 1, 421–466. English translation as Ch. 1 of *A dynamic theory of personality*, 1935, New York and London (McGraw Hill).
- Stumpf, C. 1906 'Zur Einteilung der Wissenschaften', *Abhandlungen der Königlichen Preußischen Akademie der Wissenschaften*, phil.-hist. Kl., 97pp.