Preface

This book sets out to present a rounded picture of the psychologist Otto Selz, his work and his influence. It contains translated selections from his voluminous writings, chapters outlining and assessing his major contributions to psychology as well as sections describing psychological research influenced by his thinking. It is clear in informed hindsight that Otto Selz, who wrote his major works in the early decades of this century, may be acclaimed the prime mover of the present-day information-processing approach to the psychology of thinking and intelligence. A pupil of Oswald Külpe, and a member of the Würzburg School of *Denkpsychologie*, he started out as a critic of association psychology and came to develop an approach to the experimental study of thinking which differed drastically from those of his predecessors as well as his contemporaries and, for a long time, from those of later students of cognitive processes. The pivotal notions of mental operations and problem-solving goals which he introduced, were then unknown, at least as technical concepts, and remained absent from mainstream psychology until the fifties.

One of the causes of this neglect was certainly the climate of the times, dominated as it was by behaviorism in America and by Gestalt psychology in Europe. Another cause, no doubt, was the inaccessibility of his major works. His meticulous analyses of thought processes are buried in two huge volumes, written in a painstakingly precise but tortuous and slow-moving German that, even by the standards of the time, was forbidding. No English translation of his main works, nor of the condensed version of his theory (*Kurzgefasste Darstellung*, Ch. 3 of this book), nor

of any other of his publications has ever been published—with the exception of part of one paper translated by the Mandlers in 1964. As a consequence, even moderately extensive references to his theory by authors writing in English are scarce: Woodworth (1938) and Humphrey (1951) are, as far as we know, the only ones.

This is regrettable. The unavailability—or neglect—of the work of Otto Selz is, as the German psychologist Theo Herrmann recently put it, 'dysfunctional in the psychology of memory, knowledge and problem solving of our day' (1981). Selz's conceptions of thought processes and of intelligence, his methods of analysis as well as the analyses themselves are of contemporary interest. This may already be inferred from the affinity between his conceptual approach and that of present-day information-processing psychology. In the opinion of the editors, however, the relevance and modern flavor of Selz's work can be appreciated much more readily when one reads his own texts, and those of the few investigators who were directly influenced by him.

It is not for historical reasons, therefore, that the translated selections are published, and that original contributions by Simon and De Groot as well as a discussion of the work of Julius Bahle have been added. It is true that the centenary of his birth has provided the immediate impetus for the publication of this book; the major motive, however, is the editors' conviction that Otto Selz's contribution to psychology is of considerable contemporary interest.

Selz's publications fall into three main categories. Except for a few more or less purely philosophical essays, some scattered articles on various, mainly applied psychological problems, and reports on university and institutional matters, each of the remaining (circa 30) publications is in the domain of either cognitive psychology, educational psychology, or philosophical psychology (for a full bibliography, see Seebohm 1970 and Groffmann 1981). In this book the selection of translations and of original articles by others focuses on Selz's contribution to cognitive psychology, that is, on his *Denkpsychologie* proper. Except for one text on his 'theory of space, time and form' (Ch. 10) and a brief report on the educational importance of his 'experiments in raising the intel-

ligence level' in Chapter 8, nothing of his work in fields other than cognitive theory has been included. Apart from the fact that these publications are of a more restricted scope and occupy a relatively minor place within Selz's life work, they were judged, by the editors, to be more dated, or otherwise of less interest to present-day readers, and to present-day psychology in particular.

A few more introductory words on the importance of Selz's approach to the psychology of thinking seem to be necessary. Some of its main assets are, as suggested above, his operational point of view and his elaboration of the effects of the problem solver's goal or task conception upon the problem-solving process. In his protocol analyses he demonstrates how this task conception, as a 'schematic anticipation' of the goal or subgoal to be attained, specifically determines the subject's selection of relevant information and the solving methods employed by him. He shows in detail how partial results specify and modify, and are in turn modified by, the subject's current goal conception. In addition, some of his notions concerning information representation such as *Schema*, or, with specific regard to task representation, *Gesamtaufgabe*, or with respect to the relationships stored, *Sachverhalt*, appear to lie at the root of contemporary notions of labeled information networks. Because of their well-considered formulation and their similarity to present-day conceptualizations such Selzean constructs deserve to be studied anew.

The same holds for the way in which he analyzes the problem-solving process in terms of a series of operations: the schematic anticipation that starts off the process, the subsequent 'consecutive determinations', the sequence of cumulative or alternative couplings, the function of control operations and revisions, etc. It must again be emphasized, however, that it is not only the Selzean theoretical conceptions and notions that are worth reconsidering in contemporary psychology, but also and even especially Selz's detailed demonstration of their mode of operation and, generally, of information utilization in concrete problem-solving processes. It is for this reason that a large selection of his protocol analyses is made available here to English readers.

Since the Mannheim School did not have the *ius promovendi* in psychology until 1929–1930—when Selz was Vice Chancellor and again had little opportunity of attracting Ph.D. students—he had

few direct pupils; then, in 1933, he was dismissed by the Nazi regime. He did have one official Ph.D. student, Heinrich Kindler, who obtained his doctor's degree (1930–1931, in economics) under his supervision. However, Selz's thinking on human thought clearly influenced Karl Duncker, whose work has been translated into English (1945) and has become well known. Much more directly inspired by Selz, however, are two researchers who studied cognitive processes in specific fields, Bahle and De Groot. In his investigations of musical composition Bahle cooperated closely with Selz. Bahle's impressive work (1930, 1936, 1939) has remained entirely unknown in the English-reading world of psychology, and unjustifiably so. It is, to our knowledge, the only detailed, empirically based analysis of creative endeavor along operational lines. It demonstrates convincingly how a creative process can fruitfully be treated as a problem-solving process. De Groot's main work on chess thinking (1946) has long been available in an integral translation (1965), revised in 1978, but to date no relatively brief version has appeared in English. Since this work has its rightful place in the picture of Selz-inspired psychology of thinking it was considered worth revisiting—in this case by the author himself. The picture is completed by Herbert Simon's contribution acknowledging the relation between Selz's theories and the rise of present-day information-processing psychology.

Although minor in terms of number of publications and research effort, Selz's views on intelligence deserve a place in this volume. These views, and the research program for improving intelligence, grew out of his theory of thinking; and they are part of his more extensive efforts in the domain of educational psychology. More important, the editors believe that modern educational and intelligence psychology could derive great benefit from Selz's work in this field. The translated passages and De Groot's comments in Chapters 8 and 9 argue that Selz's central ideas on psychology as a science, on cognition, and in particular on intelligence as a function and as a person attribute might be powerful instruments in efforts to overcome the present impasse in intelligence theory.

Finally, one paper from Selz's later work on perceptual structure has been included. Here again, his ideas are highly original. His theoretical—or metatheoretical?—notion of 'structural

psychological laws' deserves consideration; and the laws themselves might command the interest of workers on perceptual structure and perceptual inference processes.

The reader may wonder how this book devoted to a German psychologist came to be prepared by these Dutch editors. First of all, Selz spent the last part of his life in Amsterdam, where he found professional hospitality at the university with which the editors are (or were) connected. In 1971, Selz's relation with the University of Amsterdam was recognized by a highly appreciated gesture of the Deutsche Gesellschaft für Psychologie, who posthumously awarded Otto Selz the Wilhelm Wundt Plakette, to be placed in the Amsterdam Psychological Laboratory.

A more intrinsic motive for our undertaking is that we feel related to him. One of us (dG) knew him personally in the years from 1939 to 1941, when as a graduate student he attended some of Professor Selz's seminars and benefited from his advice on the chess study; the other (F) remembers him from childhood, mainly as a nervous but friendly refugee, whom one could ask for cigar bands—which children collected in those days. We have both been influenced by his work—one in the domain of chess thinking and intelligence, the other in the domain of information representation in memory. Both of us, finally, still are distressed by the manner in which this intelligence was destroyed, along with six million others.

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