

Purpose and Cognition

This book discusses the development of Tolman's purposive behaviorism from the 1920s to the 1950s, highlighting the tension between his references to cognitive processes and the dominant behaviorist trends. It shows how Tolman incorporated concepts from European scholars, including Egon Brunswik and the Gestalt psychologists, to justify a more purposive form of behaviorism and how the theory evolved in response to the criticisms of his contemporaries. The manuscript also discusses Tolman's political activities, culminating in his role in the California loyalty oath controversy in the 1950s. Tolman was involved in a number of progressive causes during his lifetime, activities that drew the attention of both state legislators in California and the Federal Bureau of Investigation. It treats Tolman's theoretical and political activities as emanating from the same source, a desire to understand the learning process in a scientific manner and to apply these concepts to improve the human condition.

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Edward Chace Tolman.
Courtesy of Kathleen Whitney.

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*Edward Tolman and the Transformation of
American Psychology*

David W. Carroll

University of Wisconsin-Superior



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Preface

When I entered the graduate program in cognitive psychology at Michigan State University in 1972, the field was bursting with excitement. I understood that psychology had recently undergone something akin to a revolution and that, after a long period of dormancy, the scientific study of the mind was now something that was considered respectable. The sharp break with the behaviorist past was palpable as I entered the Psychology Research Building. Animal researchers were housed on the first floor and their laboratory animals in the basement, thus leaving the second floor available for those of us interested in investigating higher mental processes.

It would be some time later when I learned of the productive career of Edward Chace Tolman. I was not alone in being engaged by his writing style, intrigued by the ingenious studies, and occasionally baffled by his theoretical explanations. Tolman argued that laboratory rats developed a spatial representation of their environment, which he eventually referred to as a cognitive map. He proposed what he variously called purposive behaviorism or molar behaviorism (or, for a time, operational behaviorism) but which others sometimes referred to as cognitive behaviorism. The concept of cognitive behaviorism seemed to be an oxymoron in light of the talk of a cognitive revolution and invited further exploration into the historical context in which Tolman conducted his research.

In time, I would also learn that Tolman was a heroic figure during the contentious period known as the California loyalty oath controversy. Nor would his stand be an aberration. To the contrary, Tolman was actively engaged in the political and social issues throughout his life. He was an unabashed liberal, with roots in the Quaker and Unitarian traditions, and actively participated in the political debates of the 1930s and 1940s. He also lent his prestige to the development of the Society for the Psychological Study of Social Issues in the 1930s.

For many psychologists and historians, these two features – his studies of cognitive maps and his principled stance for academic freedom – have been viewed as two distinct pillars of his career. As I learned more about

Tolman, I arrived at a different conclusion: that there were fundamental commonalities in the way he approached scientific and political issues. In both arenas, he had clear goals but flexible strategies that shifted when his environment changed. Tolman navigated the political and scientific arenas as adroitly as his laboratory rats navigated his mazes.

The notion that Tolman embodied similar qualities as scientist and citizen may provide insights into the evolution of his theoretical system. Tolman arrived at the University of California, Berkeley, in 1918 and retired in 1954. Thus, the entire span of his career was during the heyday of behaviorism in American psychology. In an environment inhospitable to references to cognitive processes, Tolman sought to include the concepts of purpose and cognition within a behaviorist framework. His response to this challenge took several shapes over the course of several decades, but a central feature was his incorporation of notions from European psychology, particularly Gestalt psychology, into his behavioristic theory. I have tried to present the choices available to Tolman as he might have perceived them at the time, even as we may now be able to assess such choices with the advantage of our position of several decades of hindsight.

In characterizing the evolution of Tolman's thinking, I have focused principally on a close reading of his published writings and those of his contemporaries, supplemented by pertinent aspects of the public record. On certain matters, it was useful to consider his personal correspondence with friends and family members. But for the most part I have focused on understanding his behavior within the environment – both time and place – in which it occurred. Tolman rejected the method of introspection and chose to study the behavior of laboratory rats, drawing inferences from their actions. In a sense, I have approached Tolman in much the manner in which he studied his rats: from the outside in.

There is an inherent danger in attempting to portray the life and career of a figure such as Tolman. He was a beloved figure in Berkeley and properly regarded as a heroic figure in the loyalty oath crisis. It is my hope that a consideration of the context in which he operated will help to humanize Edward Tolman and provide a clearer picture of his contributions to contemporary psychology.

It is a pleasure to acknowledge the help and support from a number of people. I wish to thank Don Dewsbury, Chris Green, Larry Smith, and Ben Harris for showing interest in this project, offering advice at key junctures, and providing critical reviews of drafts of various chapters. John Staddon kindly shared the unfinished manuscript of Nancy Innis, a scholar who studied and wrote about Tolman for decades but tragically died before she could complete her biography. James McGaugh provided

some vivid memories of Tolman and Krech. Jerome Bruner shared insights regarding Edward Tolman's brother and sister-in-law, Richard and Ruth Tolman. Elizabeth Stevens helped me gain access to information about Tolman's family background. Rich Ivry made the Warner Brown reading room at the University of California, Berkeley, available for my use, and put me in contact with Al Riley and Steve Glickman, with whom I enjoyed a delightful lunch. Al shared memories of the Psychology Department and of Tolman, and Steve directed my attention to the connections between Tolman and Donald Hebb. I am grateful for and have learned from the suggestions and advice of these colleagues. Any errors that remain are mine and mine alone.

I am particularly thankful for the opportunity to meet Deborah Tolman Whitney and Mary Tolman Kent, Edward Tolman's daughters. They graciously shared their time and memories, along with a number of documents and family photographs. I thank Dave Kent, Margaret Love, and Kathleen Whitney for making these visits possible.

This book would not have been made possible without the staff assistance from many historical archives. The Bancroft Library at the University of California, Berkeley, was essential in locating manuscripts on the loyalty oath. The Wellcome Library in London contained correspondence from both Edward and his wife Kathleen along with family remembrances and recollections of Tolman's graduate students. Holly Snyder of the John Hay Library at Brown University helped me gain access to both manuscripts and photographs of the family of Elizabeth Buffum Chace, and the archives at Harvard University shared correspondence between Edward Tolman and B. F. Skinner. Lizette Royer Barton and Jodi Kearns of the Drs. Nicholas and Dorothy Cummings Center for the History of Psychology at The University of Akron provided access to documents and photographs that were essential in my research.

It was a pleasure to work with the staff at Cambridge University Press. Hetty Marx served as the initial commissioning editor and secured some excellent reviews of the manuscript before passing the baton seamlessly to Janka Romero, who provided valuable assistance in numerous ways.

Finally, I dedicate this book to my wife Deb for her patience and loving support during the writing of this book.

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