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#### ABOUT THE AUTHOR

Steven Pinker, a native of Montreal, studied experimental psychology at McGill University and Harvard University. After serving on the faculties of Harvard and Stanford universities he moved to the Massachusetts Institute of Technology, where he is currently Professor of Psychology and Director of the Centre for Cognitive Neuroscience. Pinker has studied many aspects of language and of visual cognition, with a focus on language acquisition in children. He is a fellow of several scientific societies, and has been awarded research prizes from the National Academy of Sciences and the American Psychological Association, a teaching prize from MIT, and book prizes from the American Psychological Association, the Linguistics Society of America and the *Los Angeles Times*. His classic *The Language Instinct* is also available in Penguin.

# HOW THE MIND WORKS

Steven Pinker



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Published by the Penguin Group

Penguin Books Ltd, 27 Wrights Lane, London W8 5TZ, England

Penguin Putnam Inc., 375 Hudson Street, New York, New York 10014, USA

Penguin Books Australia Ltd, Ringwood, Victoria, Australia

Penguin Books Canada Ltd, 10 Alcorn Avenue, Toronto, Ontario, Canada M4V 3B2

Penguin Books (NZ) Ltd, 182-190 Wairau Road, Auckland 10, New Zealand

Penguin Books Ltd, Registered Offices: Harmondsworth, Middlesex, England

First published in the USA by W. W. Norton 1997

First published in Great Britain by Allen Lane The Penguin Press 1998

Published in Penguin Books 1998

1 3 5 7 9 1 0 8 6 4 2

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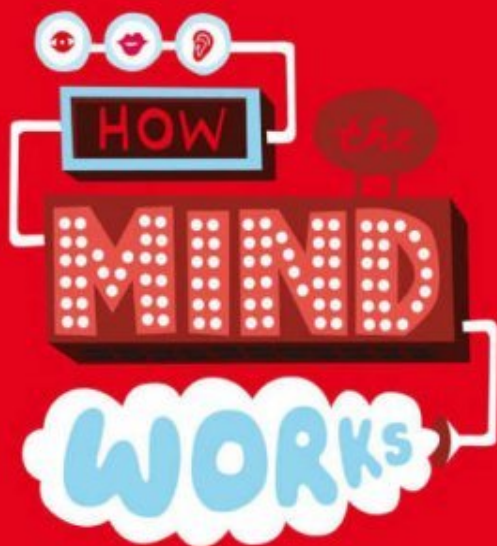
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## PREFACE

**A**ny book called *How the Mind Works* had better begin on a note of humility, and I will begin with two.

First, we don't understand how the mind works—not nearly as well as we understand how the body works, and certainly not well enough to design Utopia or to cure unhappiness. Then why the audacious title? The linguist Noam Chomsky once suggested that our ignorance can be divided into *problems* and *mysteries*. When we face a problem, we may not know its solution, but we have insight, increasing knowledge, and an inkling of what we are looking for. When we face a mystery, however, we can only stare in wonder and bewilderment, not knowing what an explanation would even look like. I wrote this book because dozens of mysteries of the mind, from mental images to romantic love, have recently been upgraded to problems (though there are still some mysteries, too!). Every idea in the book may turn out to be wrong, but that would be progress, because our old ideas were too vapid to be wrong.

Second, I have not discovered what we do know about how the mind works. Few of the ideas in the pages to follow are mine. I have selected, from many disciplines, theories that strike me as offering a special insight into our thoughts and feelings, that fit the facts and predict new ones, and that are consistent in their content and in their style of explanation. My goal was to weave the ideas into a cohesive picture using two even bigger ideas that are not mine: the computational theory of mind and the theory of the natural selection of replicators.

The opening chapter presents the big picture: that the mind is a system of organs of computation designed by natural selection to solve the problems faced by our evolutionary ancestors in their foraging way of life. Each of the two big ideas—computation and evolution—then gets a chapter. I dissect the major faculties of the mind in chapters on perception, reasoning, emotion, and social relations (family, lovers, rivals, friends, acquaintances, allies, enemies). A final chapter discusses our higher callings: art, music, literature, humor, religion, and philosophy. There is no chapter on language; my previous book *The Language Instinct* covers the topic in a complementary way.

This book is intended for anyone who is curious about how the mind works. I didn't write it only for professors and students, but I also didn't write it only to "popularize science." I am hoping that scholars and general readers both might profit from a bird's-eye view of the mind and how it enters into human affairs. At this high altitude there is little difference between a specialist and a thoughtful layperson because nowadays we specialists cannot be more than laypeople in most of our own disciplines, let alone neighboring ones. I have not given comprehensive literature reviews or an airing of all sides to every debate, because they would have made the book unreadable, indeed, unliftable. My conclusions come from assessments of the convergence of evidence from different fields and methods, and I have provided detailed citations so readers can follow them up.

I have intellectual debts to many teachers, students, and colleagues, but most of all to John Tooby and Leda Cosmides. They forged the synthesis between evolution and psychology that made this book possible, and thought up many of the theories I present (and many of the better jokes). By inviting me to spend a year as a Fellow of the Center for Evolutionary Psychology at the University of California, Santa Barbara, they provided an ideal environment for thinking and writing and immeasurable friendship and advice.

I am deeply grateful to Michael Gazzaniga, Marc Hauser, David Kemmerer, Gary Marcus, John Tooby, and Margo Wilson for their reading of the entire manuscript and their invaluable criticism and encouragement. Other colleagues generously commented on chapters in their areas of expertise: Edward Adelson, Barton Anderson, Simon Baron-Cohen, Ned Block, Paul Bloom, David Brainard, David Buss, John Constable, Leda Cosmides, Helena Cronin, Dan Dennett, David Epstein, Alan Fridlund, Gerd Gigerenzer, Judith Harris, Richard Held, Ray Jackendoff, Alex Kacelnik, Stephen Kosslyn, Jack Loomis, Charles Oman, Bernard Sher-

man, Paul Smolensky, Elizabeth Spelke, Frank Sulloway, Donald Symons, and Michael Tarr. Many others answered queries and offered profitable suggestions, including Robert Boyd, Donald Brown, Napoleon Chagnon, Martin Daly, Richard Dawkins, Robert Hadley, James Hillenbrand, Don Hoffman, Kelly Olguin Jaakola, Timothy Ketelaar, Robert Kurzban, Dan Montello, Alex Pentland, Roslyn Pinker, Robert Provine, Whitman Richards, Daniel Schacter, Devendra Singh, Pawan Sinha, Christopher Tyler, Jeremy Wolfe, and Robert Wright.

This book is a product of the stimulating environments at two institutions, the Massachusetts Institute of Technology and the University of California, Santa Barbara. Special thanks go to Emilio Bizzi of the Department of Brain and Cognitive Sciences at MIT for enabling me to take a sabbatical leave, and to Loy Lytle and Aaron Ettenberg of the Department of Psychology and to Patricia Clancy and Marianne Mithun of the Department of Linguistics at UCSB for inviting me to be a Visiting Scholar in their departments.

Patricia Claffey of MIT's Teuber Library knows everything, or at least knows where to find it, which is just as good. I am grateful for her indefatigable efforts to track down the obscurest material with swiftness and good humor. My secretary, the well-named Eleanor Bonsaint, offered professional, cheerful help in countless matters. Thanks go also to Marianne Teuber and to Sabrina Detmar and Jennifer Riddell of MIT's List Visual Arts Center for advice on the jacket art.

My editors, Drake McFeely (Norton), Howard Boyer (now at the University of California Press), Stefan McGrath (Penguin), and Ravi Mirchandani (now at Orion), offered fine advice and care throughout. I am also grateful to my agents, John Brockman and Katinka Matson; for their efforts on my behalf and their dedication to science-writing. Special appreciation goes to Katya Rice, who has now worked with me on four books over fourteen years. Her analytical eye and masterly touch have improved the books and have taught me much about clarity and style.

My heartfelt gratitude goes to my family for their encouragement and suggestions: to Harry, Roslyn, Robert, and Susan Pinker, Martin, Eva, Carl, and Eric Boodman, Saroja Subbiah, and Stan Adams. Thanks, too, to Windsor, Wilfred, and Fiona.

Greatest thanks of all go to my wife, Ilavenil Subbiah, who designed the figures, provided invaluable comments on the manuscript, offered constant advice, support, and kindness, and shared in the adventure. This book is dedicated to her, with love and gratitude.