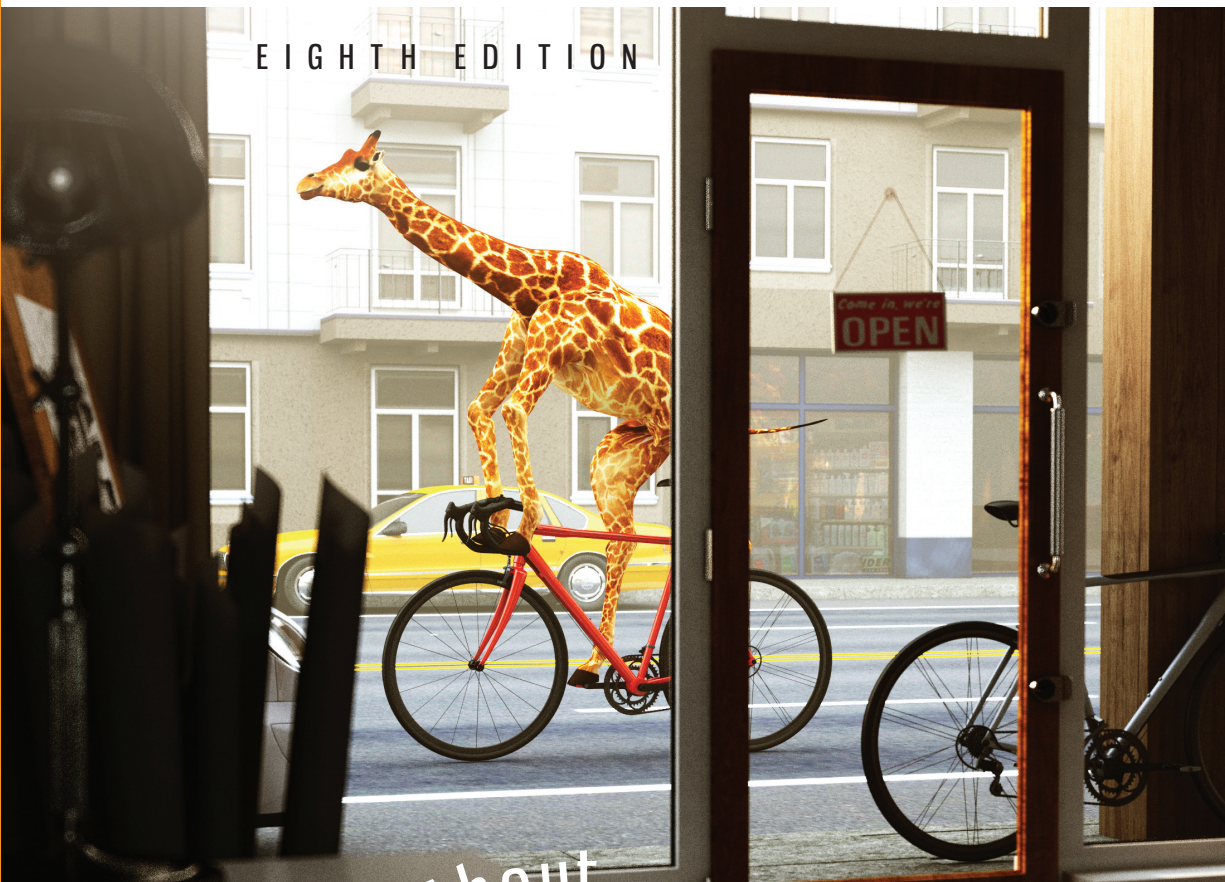


This International Student Edition is for use outside of the U.S.

EIGHTH EDITION



How to Think About

# weird things

CRITICAL THINKING FOR A NEW AGE

Mc  
Graw  
Hill  
Education

Theodore Schick, Jr. | Lewis Vaughn

# How to Think About Weird Things





# How to Think About Weird Things

Critical Thinking for a New Age

**EIGHTH EDITION**

**Theodore Schick Jr.**

*Muhlenberg College*

**Lewis Vaughn**

Foreword by Martin Gardner

**Mc  
Graw  
Hill**  
Education



## HOW TO THINK ABOUT WEIRD THINGS

Published by McGraw-Hill Education, 2 Penn Plaza, New York, NY 10121. Copyright © 2020 by McGraw-Hill Education. All rights reserved. Printed in the United States of America. No part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written consent of McGraw-Hill Education, including, but not limited to, in any network or other electronic storage or transmission, or broadcast for distance learning.

Some ancillaries, including electronic and print components, may not be available to customers outside the United States.

This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 LCR 21 20 19

ISBN 978-1-260-54807-5

MHID 1-260-54807-4

Cover Image: ©*Mediaparts/Shutterstock*

All credits appearing on page or at the end of the book are considered to be an extension of the copyright page.

The Internet addresses listed in the text were accurate at the time of publication. The inclusion of a website does not indicate an endorsement by the authors or McGraw-Hill Education, and McGraw-Hill Education does not guarantee the accuracy of the information presented at these sites.

[mheducation.com/highered](http://mheducation.com/highered)

*To Erin, Kathy, Katie, Marci, Patrick, and T. J.*



# Foreword

Every year, in English-speaking countries alone, more than a hundred books that promote the wildest forms of bogus science and the paranormal are published. The percentage of Americans today who take astrology seriously is larger than the percentage of people who did so in the early Middle Ages, when leading church theologians—Saint Augustine, for example—gave excellent reasons for considering astrology nonsense. We pride ourselves on our advanced scientific technology, yet public education in science has sunk so low that one-fourth of Americans and 55 percent of teenagers, not to mention a recent president of the nation and his first lady, believe in astrology!

Now and then a courageous publisher, more concerned with enlightening the public than with profits, will issue a book that honestly assesses pseudoscience and the paranormal. Works of this sort now in print can be counted on your fingers. It is always an occasion for rejoicing when such a book appears, and there are several ways in which *How to Think about Weird Things* is superior to most books designed to teach readers how to tell good science from bad.

First of all, this book covers an enormous range of bogus sciences and extraordinary claims that currently enjoy large followings in America. Second, unlike most similar books, the authors heavily stress principles that help you critically evaluate outlandish claims—and tell you *why* these principles are so important. Third, the book's discussions are readable, precise, and straightforward.

I am particularly pleased by the book's clearheaded assessment of scientific realism at a time when it has become fashionable in New Age circles to think of the laws of science as not "out there," but somehow a projection of our minds and cultures. Yes, quantum mechanics has its subjective tinge. There is a sense in which an electron's properties are not definite until it is measured, but this technical aspect of quantum theory has no relevance on the macroscopic level of everyday life. In no way does the mathematical formalism of quantum mechanics imply, as some physicists smitten by Eastern religions claim, that the moon is not there unless someone looks at it. As Einstein liked to ask, Will a mouse's observation make the moon real?

The authors give clear, accurate explanations of puzzling physical theories. Quantum theory indeed swarms with mind-boggling experiments that are only dimly understood. None of them justify thinking that  $E = mc^2$  is a cultural artifact, or that  $E$  might equal  $mc^3$  in



Afghanistan or on a distant planet. Extraterrestrials would of course express Einstein's formula with different symbols, but the law itself is as mind-independent as Mars.

As the authors say simply: "There is a way that the world is." It is the task of science to learn as much as it can about how this universe, not made by us, behaves. The awesome achievements of technology are irrefutable evidence that science keeps getting closer and closer to objective truth.

As the authors tell us, there are two distinct kinds of knowledge: logical and mathematical truth (statements that are certain within a given formal system), and scientific truth, never absolutely certain, but which can be accepted with a degree of probability that in many instances is practically indistinguishable from certainty. It takes a bizarre kind of mind to imagine that two plus two could be anything but four, or that, as the authors put it, cows can jump over the moon or rabbits lay multicolored eggs.

The authors are to be especially cheered for their coverage of unsubstantiated alternative treatments, some of them weird beyond imagining. Preposterous medical claims can cause untold harm to gullible persons who rely on them to the exclusion of treatment by mainstream physicians.

The authors are also to be commended for finding colorful and apt quotations from other writers. Bertrand Russell, for instance, gave three simple rules for curbing one's tendency to accept what he called "intellectual rubbish"<sup>1</sup>:

1. When the experts are agreed, the opposite opinion cannot be held to be certain.
2. When they are not agreed, no opinion can be regarded as certain by a nonexpert.
3. When they all hold that no sufficient grounds for a positive opinion exist, the ordinary person would do well to suspend judgment.

"These propositions seem mild," Russell added, "yet, if accepted, they would absolutely revolutionize human life."

I am under no illusions about how effective this book will be in persuading readers to adopt Russell's three maxims. I *can* say that to the extent it does, it will have performed a service that our technologically advanced but scientifically retarded nation desperately needs.

—Martin Gardner

<sup>1</sup>Bertrand Russell, *Sceptical Essays* (Psychology Press, 2004), p. 225.

# Preface

Few claims seem to arouse more interest, evoke more emotion, and create more confusion than those dealing with the paranormal, the supernatural, or the mysterious—what in this book we call “weird things.” Although many such claims are unbelievable, many people believe them, and their belief often has a profound effect on their lives. Billions of dollars are spent each year on people and products claiming supernatural powers. Channelers claim to communicate with aliens from outer space, psychics and astrologers claim to foretell the future, and healers claim to cure everything from AIDS to warts. Who are we to believe? How do we decide which claims are credible? What distinguishes rational from irrational claims? This book is designed to help you answer such questions.

*Why* do you believe in any given claim? Do you believe for any of the following reasons?

- You had an extraordinary personal experience.
- You embrace the idea that anything is possible—including weird things.
- You have an especially strong feeling that the claim is true or false.
- You have made a leap of faith that compels you to accept the claim.
- You believe in inner, mystical ways of knowing that support the claim.
- You know that no one has ever disproved the claim.
- You have empirical evidence that the claim is true.
- You believe that any claim is true for you if you believe it to be true.

This list of reasons for belief could go on and on. But which reasons are *good* reasons? Clearly, some are better than others; some can help us decide which claims are most likely to be true, and some can't. If we care whether any claim is actually true, whether our beliefs are well founded (and not merely comfortable or convenient), we must be able to distinguish good reasons from bad. We must understand how and when our beliefs are justified, how and when we can say that we *know* that something is true or believable.

The central premise of this book is that such an understanding is possible, useful, and empowering. Being able to distinguish good

reasons from bad will not only improve your decision-making ability; it will also give you a powerful weapon against all forms of hucksterism. This volume shows you step-by-step how to sort out reasons, how to evaluate evidence, and how to tell when a claim (no matter how strange) is likely to be true. It's a course in critical thinking as applied to claims and phenomena that many people think are immune to critical thinking.

The emphasis, then, is neither on debunking nor on advocating specific claims, but on explaining principles of critical thinking that enable you to evaluate any claim for yourself. To illustrate how to apply these principles, we supply analyses of many extraordinary claims, including conclusions regarding their likely truth or falsity. But the focus is on carefully wielding the principles, not on whether a given claim goes unscathed or is cut down.

Often in the realm of the weird, such principles themselves are precisely what's at issue. Arguments about weird things are frequently about *how people know* and *if people know*—the main concerns of the branch of philosophy called *epistemology*. Thinking about weird things, then, brings us face-to-face with some of the most fundamental issues in human thought. So we concentrate on clearly explaining these issues, showing why the principles themselves in this book are valid, and demonstrating why many alternatives to them are unfounded. We explore alleged sources of knowledge such as faith, intuition, mysticism, perception, introspection, memory, reason, and science. We ask: Do any of these factors give us knowledge? Why or why not?

Since we show how these principles can be used in specific cases, this book is essentially a work of *applied epistemology*. Whether you're a believer or nonbeliever in weird things, and whether or not you're aware of it, you have an epistemology, a theory of knowledge. If you ever hope to discern whether a weird claim (or any other kind of claim) is true, your epistemology had better be a good one.

The principles discussed in this book can help you evaluate any claim—not just those dealing with weird phenomena. We believe that if you can successfully use these principles to assess the most bizarre, most unexpected claims, you're well prepared to tackle anything run-of-the-mill.

## NEW EDITION, NEW MATERIAL

For this eighth edition, we have added new sections, new boxes, and new practice questions, revised or updated several existing sections, and included new discussions of topics that now draw a great deal of popular interest. These changes include:

- New sections on evaluating sources of information, identifying fake news, and detecting cognitive errors
- New boxes on recognizing bias, the flat Earth hypothesis, the Advanced Aviation Threat Identification Program, and paranormal monetary awards
- New practice questions to help students hone their critical thinking skills
- Updated or revised material on near-death experiences, creationism, parapsychology, and psychic predictions

## IMPORTANT CONTINUING FEATURES

This volume also includes the following:

- Explanations of over thirty principles of knowledge, reasoning, and evidence that you can use to enhance your problem-solving skills and sharpen your judgment.
- Discussions of over sixty paranormal, supernatural, or mysterious phenomena, including astrology, ghosts, fairies, ESP, psychokinesis, UFO abductions, channeling, dowsing, near-death experiences, prophetic dreams, demon possession, time travel, parapsychology, and creationism.
- Details of a step-by-step procedure for evaluating any extraordinary claim. We call it the SEARCH formula and give several examples showing how it can be applied to some popular weird claims.
- Numerous boxes offering details on various offbeat beliefs, assessments by both true believers and skeptics of extraordinary claims, and reports of relevant scientific research. We think this material can stimulate discussion or serve as examples that can be assessed using the principles of critical thinking.
- A comprehensive treatment of different views about the nature of truth, including several forms of relativism and subjectivism.
- A detailed discussion of the characteristics, methodology, and limitations of science, illustrated with analyses of the claims of parapsychology and creationism. This discussion includes a complete treatment of science's criteria of adequacy and how those criteria should be used to evaluate extraordinary claims.

## ACKNOWLEDGMENTS

The authors shared equally in the work of writing this book and thus share equally in responsibility for any of its shortcomings. But we

are not alone in the project. We're grateful to Muhlenberg College for the research funds and library resources made available to us, to the Muhlenberg Scholars who participated in the course based on this book, and to the many people who helped us by reviewing the manuscript for accuracy, giving expert advice, and offering insightful commentary.

For the eighth edition, these included the following people:

Richard Beno, Wilmington University  
Joy Branch, Southern Union State Community College  
Martin C. Fowler, Elon University  
Courtney Heinle, Wilmington University  
Gene Kleppinger, Eastern Kentucky University  
Keith Korcz, University of Louisiana at Lafayette  
Ryan M. Lozano, Alamo Colleges–Central Texas Technology Center  
Lucia Nemeth, Wilmington University  
Erin Rowe, Wilmington University

And we continue to thank the reviewers of the sixth and seventh editions, who include:

H. E. Baber, University of San Diego  
Anne Berre, Schreiner University  
Tim Black, California State University, Northridge  
James Blackmon, San Francisco State University  
Douglas E. Hill, California State University, Fullerton  
William Holly, Modesto Junior College  
Michael Jackson, St. Bonaventure University  
Don Merrell, Arkansas State University  
Rebekah Ross-Fountain, Texas State University–San Marcos  
Tadd Ruetenik, St. Ambrose University  
Dennis Shaw, Lower Columbia College  
Weimin Sun, California State University at Northridge  
Mark C. Vopat, Youngstown State University  
Helen Woodman, Ferris State University





# connect®

Students—study more efficiently, retain more and achieve better outcomes. Instructors—focus on what you love—teaching.

## SUCCESSFUL SEMESTERS INCLUDE CONNECT

### FOR INSTRUCTORS

#### You're in the driver's seat.

Want to build your own course? No problem. Prefer to use our turnkey, prebuilt course? Easy. Want to make changes throughout the semester? Sure. And you'll save time with Connect's auto-grading too.

# 65%

## Less Time Grading



#### They'll thank you for it.

Adaptive study resources like SmartBook® help your students be better prepared in less time. You can transform your class time from dull definitions to dynamic debates. Hear from your peers about the benefits of Connect at [www.mheducation.com/highered/connect](http://www.mheducation.com/highered/connect)

#### Make it simple, make it affordable.

Connect makes it easy with seamless integration using any of the major Learning Management Systems—Blackboard®, Canvas, and D2L, among others—to let you organize your course in one convenient location. Give your students access to digital materials at a discount with our inclusive access program. Ask your McGraw-Hill representative for more information.



©Hill Street Studios/Tobin Rogers/Blend Images LLC

#### Solutions for your challenges.

A product isn't a solution. Real solutions are affordable, reliable, and come with training and ongoing support when you need it and how you want it. Our Customer Experience Group can also help you troubleshoot tech problems—although Connect's 99% uptime means you might not need to call them. See for yourself at [status.mheducation.com](http://status.mheducation.com)



# FOR STUDENTS

## Effective, efficient studying.

Connect helps you be more productive with your study time and get better grades using tools like SmartBook, which highlights key concepts and creates a personalized study plan. Connect sets you up for success, so you walk into class with confidence and walk out with better grades.

“I really liked this app—it made it easy to study when you don't have your textbook in front of you.”

- Jordan Cunningham,  
Eastern Washington University

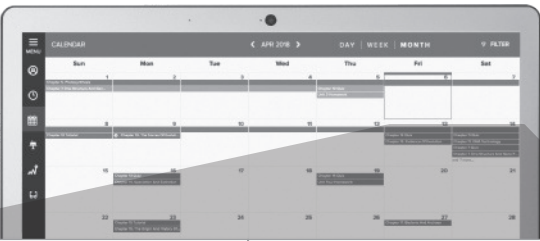
## No surprises.

The Connect Calendar and Reports tools keep you on track with the work you need to get done and your assignment scores. Life gets busy; Connect tools help you keep learning through it all.

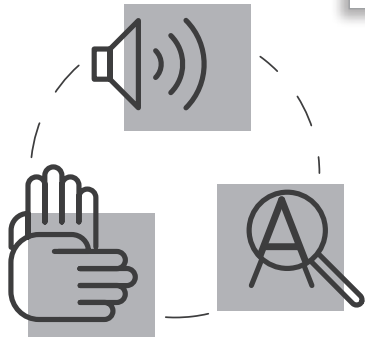
## Study anytime, anywhere.

Download the free ReadAnywhere app and access your online eBook when it's convenient, even if you're offline. And since the app automatically syncs with your eBook in Connect, all of your notes are available every time you open it. Find out more at [www.mheducation.com/readanywhere](http://www.mheducation.com/readanywhere)

©Shutterstock/wavebreakmedia



13	14
Chapter 12 Quiz	Chapter 11 Quiz
Chapter 13 Evidence of Evolution	Chapter 11 DNA Technology
	Chapter 7 Quiz
	Chapter 7 DNA Structure and Gene...
	and 7 more...



## Learning for everyone.

McGraw-Hill works directly with Accessibility Services Departments and faculty to meet the learning needs of all students. Please contact your Accessibility Services office and ask them to email [accessibility@mheducation.com](mailto:accessibility@mheducation.com), or visit [www.mheducation.com/about/accessibility.html](http://www.mheducation.com/about/accessibility.html) for more information.





# Contents

FOREWORD VII

PREFACE IX

## Chapter 1 Introduction: Close Encounters with the Strange 1

THE IMPORTANCE OF WHY 2

BEYOND WEIRD TO THE ABSURD 4

A WEIRDNESS SAMPLER 6

Notes 13

## Chapter 2 The Possibility of the Impossible 14

PARADIGMS AND THE PARANORMAL 15

LOGICAL POSSIBILITY VERSUS PHYSICAL IMPOSSIBILITY 16

THE POSSIBILITY OF ESP 23

THEORIES AND THINGS 24

ON KNOWING THE FUTURE 25

Summary 29

Study Questions 30

Evaluate These Claims 30

Discussion Questions 30

Field Problem 31

Critical Reading and Writing 31

Notes 32

## Chapter 3 Arguments Good, Bad, and Weird 34

CLAIMS AND ARGUMENTS 35

DEDUCTIVE ARGUMENTS 40

INDUCTIVE ARGUMENTS 43

Enumerative Induction 44

Analogical Induction 47

Hypothetical Induction (Abduction, or Inference to the Best Explanation) 48

INFORMAL FALLACIES	50
Unacceptable Premises	50
<i>Begging the Question</i>	50
<i>False Dilemma</i>	51
Irrelevant Premises	51
<i>Equivocation</i>	51
<i>Composition</i>	51
<i>Division</i>	52
<i>Appeal to the Person</i>	52
<i>Genetic Fallacy</i>	52
<i>Appeal to Authority</i>	53
<i>Appeal to the Masses</i>	53
<i>Appeal to Tradition</i>	53
<i>Appeal to Ignorance</i>	54
<i>Appeal to Fear</i>	54
<i>Straw Man</i>	54
Insufficient Premises	55
<i>Hasty Generalization</i>	55
<i>Faulty Analogy</i>	55
<i>False Cause</i>	55
<i>Slippery Slope</i>	56
STATISTICAL FALLACIES	56
Misleading Averages	56
Missing Values	57
Hazy Comparisons	57
EVALUATING SOURCES: FAKE NEWS	58
<i>Confirmation Bias</i>	60
<i>Denial of Contrary Evidence</i>	60
<i>Availability Error</i>	61
<i>Social Reinforcement</i>	61
<i>Credibility by Repetition</i>	61
Summary	66
Study Questions	66
Evaluate These Claims	67
Fact-Checking Fake News	68
Discussion Questions	68

Field Problem 69  
Critical Reading and Writing 69  
Notes 70

## Chapter 4 Knowledge, Belief, and Evidence 72

BABYLONIAN KNOWLEDGE-ACQUISITION TECHNIQUES 73  
PROPOSITIONAL KNOWLEDGE 74  
REASONS AND EVIDENCE 75  
EXPERT OPINION 81  
COHERENCE AND JUSTIFICATION 84  
SOURCES OF KNOWLEDGE 85  
THE APPEAL TO FAITH 87  
THE APPEAL TO INTUITION 89  
THE APPEAL TO MYSTICAL EXPERIENCE 91  
ASTROLOGY REVISITED 94

Summary 100  
Study Questions 101  
Evaluate These Claims 101  
Discussion Questions 101  
Field Problem 102  
Critical Reading and Writing 102  
Notes 103

## Chapter 5 Looking for Truth in Personal Experience 106

SEEMING AND BEING 107  
PERCEIVING: WHY YOU CAN'T ALWAYS BELIEVE WHAT YOU SEE 109  
    Perceptual Constancies 109  
    The Role of Expectation 110  
    Looking for Clarity in Vagueness 111  
    The Blondlot Case 114  
    "Constructing" UFOs 116  
REMEMBERING: WHY YOU CAN'T ALWAYS TRUST WHAT YOU RECALL 120  
CONCEIVING: WHY YOU SOMETIMES SEE WHAT YOU BELIEVE 126  
    Denying the Evidence 127

Subjective Validation	128
Confirmation Bias	133
The Availability Error	136
The Representativeness Heuristic	141
Anthropomorphic Bias	144
Against All Odds	146
ANECDOTAL EVIDENCE: WHY TESTIMONIALS CAN'T BE TRUSTED	150
The Variable Nature of Illness	151
The Placebo Effect	153
Overlooked Causes	154
SCIENTIFIC EVIDENCE: WHY CONTROLLED STUDIES CAN BE TRUSTED	155
Summary	158
Study Questions	159
Evaluate These Claims	159
Discussion Questions	160
Field Problem	160
Critical Reading and Writing	161
Notes	161
<b>Chapter 6 Science and Its Pretenders</b>	<b>166</b>
SCIENCE AND DOGMA	167
SCIENCE AND SCIENTISM	168
SCIENTIFIC METHODOLOGY	169
CONFIRMING AND REFUTING HYPOTHESES	174
CRITERIA OF ADEQUACY	180
Testability	181
Fruitfulness	183
Scope	186
Simplicity	187
Conservatism	189
CREATIONISM, EVOLUTION, AND CRITERIA OF ADEQUACY	190
Scientific Creationism	192
Intelligent Design	200
PARAPSYCHOLOGY	206

Summary	222
Study Questions	223
Evaluate These Claims	223
Discussion Questions	224
Field Problem	224
Critical Reading and Writing	224
Notes	225

## Chapter 7 Case Studies in the Extraordinary 231

THE SEARCH FORMULA	233
Step 1: State the Claim	233
Step 2: Examine the Evidence for the Claim	234
Step 3: Consider Alternative Hypotheses	235
Step 4: Rate, According to the Criteria of Adequacy, Each Hypothesis	236
HOMEOPATHY	238
INTERCESSORY PRAYER	242
UFO ABDUCTIONS	244
COMMUNICATING WITH THE DEAD	257
NEAR-DEATH EXPERIENCES	262
GHOSTS	276
CONSPIRACY THEORIES	284
CLIMATE CHANGE	290
Summary	295
Study Questions	296
Evaluate These Claims	296
Field Problem	297
Critical Reading and Writing	297
Notes	298

## Chapter 8 Relativism, Truth, and Reality 304

WE EACH CREATE OUR OWN REALITY	306
REALITY IS SOCIALLY CONSTRUCTED	310
REALITY IS CONSTITUTED BY CONCEPTUAL SCHEMES	315
THE RELATIVIST'S PETARD	320
FACING REALITY	322

Summary	324
Study Questions	325
Evaluate These Claims	325
Discussion Questions	325
Field Problem	326
Critical Reading and Writing	326
Notes	327
INDEX	I-1

# ONE

## Introduction: Close Encounters with the Strange

**T**HIS BOOK IS FOR you who have stared into the night sky or the dark recesses of a room, hairs raised on the back of your neck, eyes wide, faced with an experience you couldn't explain but about which you have never stopped wondering, "Was it real?" It's for you who have read and heard about UFOs, psychic phenomena, time travel, out-of-body experiences, ghosts, monsters, astrology, reincarnation, mysticism, acupuncture, iridology, incredible experiments in quantum physics, and a thousand other extraordinary things, and asked, "Is it true?" Most of all, it's for you who believe, as Einstein did, that the most beautiful experience we can have is the mysterious—and who yet, like him, have the courage to ask tough questions until the mystery yields answers.

*Wonder is the feeling of a philosopher, and philosophy begins in wonder.*

—PLATO



But this is not primarily a book of such answers, though several will be offered. This book is about *how to find the answers for yourself*—how to test the truth or reality of some of the most influential, mysterious, provocative, bewildering puzzles we can ever experience. It’s about how to think clearly and critically about what we authors have dubbed *weird things*—all the unusual, awesome, wonderful, bizarre, and antic happenings, real or alleged, that bubble up out of science, pseudoscience, the occult, the paranormal, the mystic, and the miraculous.

## THE IMPORTANCE OF WHY

*Skeptical habits of thought are essential for nothing less than our survival—because baloney, bamboozles, bunk, careless thinking, flimflam and wishes disguised as facts are not restricted to parlor magic and ambiguous advice on matters of the heart.*

—CARL SAGAN

Pick up almost any book or magazine on such subjects. It will tell you that some extraordinary phenomenon is real or illusory, that some strange claim is true or false, probable or improbable. Plenty of people around you will gladly offer you their beliefs (often unshakable) about the most amazing things. In this blizzard of assertions, you hear a lot of *whats*, but seldom any good *whys*. That is, you hear the beliefs, but seldom any solid reasons behind them—nothing substantial enough to justify your sharing the beliefs; nothing reliable enough to indicate that these assertions are likely to be *true*. You may hear naiveté, passionate advocacy, fierce denunciation, one-sided sifting of evidence, defense of the party line, leaps of faith, jumps to false conclusions, plunges into wishful thinking, and courageous stands on the shaky ground of subjective certainty. But the good reasons are missing. Even if you do hear good reasons, you may end up forming a firm opinion on one extraordinary claim, but fail to learn any principle that would help you with a similar case. Or you hear good reasons, but no one bothers to explain why they’re so good, why they’re most likely to lead to the truth. Or no one may dare to answer the ultimate why—why good reasons are necessary to begin with.

Without good whys, humans have no hope of understanding all that we fondly call *weird*—or anything else, for that matter. Without good whys, our beliefs are simply arbitrary, with no more claim to knowledge than the random choice of a playing card. Without good whys to guide us, our beliefs lose their value in a world where beliefs are already a dime a dozen.

We especially need good whys when faced with weirdness. For statements about weird things are almost always cloaked in swirling mists of confusion, misconception, misperception, and our own yearning to disbelieve or believe. Our task of judging the reality of these weird things isn’t made any easier by one fact that humbles and inspires every scientist: Sometimes the weirdest phenomena are absolutely

real; sometimes the strangest claims turn out to be true. The best scientists and thinkers can never forget that sometimes wondrous discoveries are made out there on the fringe of experience, where anomalies prowl.

Space aliens are abducting your neighbors. Psychic detectives solve crimes. You were a medieval stable boy in a former life. Nostradamus predicted JFK's assassination. Herbs can cure AIDS. Levitation is possible. Reading tarot cards reveals character. Science proves the wisdom of Eastern mysticism. The moon landing was a hoax. Magnet therapy works. Near-death experiences prove there's life after death. Crystals heal. Bigfoot stalks. Elvis lives.

Do you believe any of these claims? Do you believe that some or all of them deserve a good horselaugh, that they're the kind of hokey that only a moron could take seriously? The big question then is *why*? Why do you believe or disbelieve? Belief alone—without good whys—can't help us get one inch closer to the truth. A hasty rejection or acceptance of a claim can't help us tell the difference between what's actually likely to be true (or false) and what we merely want to be true (or false). Beliefs that do not stand on our best reasons and evidence simply dangle in thin air, signifying nothing except our transient feelings or personal preferences.

What we offer here is a compendium of good whys. As clearly as we can, we explain and illustrate principles of rational inquiry for assessing all manner of weirdness. We give you the essential guides for weighing evidence and drawing well-founded conclusions. Most of these principles are simply commonplace, wielded by philosophers, scientists, and anyone else interested in discovering the facts. Many are fundamental to scientific explorations of all kinds. We show why these principles are so powerful, how anyone can put them to use, and *why they're good whys to begin with*—why they're more reliable guides for discovering what's true and real than any alternatives.

We think this latter kind of explanation is sorely needed. You may hear that there's no reliable scientific evidence to prove the reality of psychokinesis (moving physical objects with mind power alone). But you may never hear a careful explanation of why scientific evidence is necessary in the first place. Most scientists would say that the common experience of thinking of a friend and then suddenly getting a phone call from that person doesn't prove telepathy (communication between minds without the use of five senses). But why not? Only a few scientists and a handful of others bother to explain why. Say 100 people have independently tried eating a certain herb and now swear that it has cured them of cancer. Scientists would say that these 100 stories constitute anecdotal evidence that doesn't

*Call him wise whose actions, words, and steps are all a clear "because" to a clear "why."*

—JOHANN KASPAR LAVATER

*A man is a small thing, and the night is very large and full of wonders.*

—LORD DUNSANY

*I really think we are all creating our own reality. I think I'm creating you right here. Therefore I created the medium, therefore I created the entity, because I'm creating everything.*

—SHIRLEY MACLAINE

prove the effectiveness of the herb at all. But why not? There is indeed a good answer, but it's tough to come by.

The answer is to be found in the principles that distinguish good reasons from bad ones. You needn't take these principles (or any other statements) on faith. Through your own careful use of reason, you can verify their validity for yourself.

Nor should you assume that these guides are infallible and unchangeable. They're simply the best we have until someone presents sound, rational reasons for discarding them.

These guides shouldn't be a surprise to anyone. Yet, to many, the principles will seem like a bolt from the blue, a detailed map to a country they thought was uncharted. Even those of us who are unsurprised by these principles must admit that we probably violate at least one of them daily—and so run off into a ditch of wrong conclusions.

## BEYOND WEIRD TO THE ABSURD

To these pages, we cordially invite all those who sincerely believe that this book is a gigantic waste of time—who think that it's impossible or pointless to use rational principles to assess the objective truth of weird claims. To this increasingly prevalent attitude, in all its forms, we offer a direct challenge. We do the impossible, or at least what some regard as impossible. We show that there are good reasons for believing that the following claims are, in fact, false:

- There's no such thing as objective truth. We make our own truth.
- There's no such thing as objective reality. We make our own reality.
- There are spiritual, mystical, or inner ways of knowing that are superior to our ordinary ways of knowing.
- If an experience seems real, it is real.
- If an idea feels right to you, it is right.
- We are incapable of acquiring knowledge of the true nature of reality.
- Science itself is irrational or mystical. It's just another faith or belief system or myth, with no more justification than any other.
- It doesn't matter whether beliefs are true or not, as long as they're meaningful to you.

We discuss these ideas because they're unavoidable. If you want to evaluate weird things, sooner or later you'll bump into notions that challenge your most fundamental assumptions. Weirdness by

definition is out of the norm, so it often calls into question our normal ways of knowing. It invites many to believe that in the arena of extraordinary things, extraordinary ways of knowing must prevail. It leads many to conclude that reason just doesn't apply, that rationality has shown up at the wrong party.

You can learn a lot by seriously examining such challenges to basic assumptions about what we know (or think we know) and how we know it. In fact, in this volume you learn three important lessons about the above ideas:

1. If some of these ideas *are* true, knowing anything about anything (including weird stuff) is *impossible*.
2. If you honestly believe any of these ideas, you cut your chances of ever discovering what's real or true.
3. Rejecting these notions is liberating and empowering.

The first lesson, for example, comes through clearly when we examine the idea that there's no such thing as objective truth. This notion means that reality is literally whatever each of us believes it to be. Reality doesn't exist apart from a person's beliefs about it. So truth isn't objective, it's subjective. The idea is embodied in the popular line "It may not be true for you, but it's true for me." The problem is, if there's no objective truth, then *no* statement is objectively true, including the statement "There's no such thing as objective truth." The statement refutes itself. If true, it means that the statement and *all* statements—ours, yours, or anybody else's—aren't worthy of belief or commitment. Every viewpoint becomes arbitrary, with nothing to recommend it except the fact that someone likes it. There could be no such thing as knowledge, for if nothing is true, there can be nothing to know. The distinction between asserting and denying something would be meaningless. There could be no difference between sense and nonsense, reasonable belief and illusion. For several reasons, which we'll discuss later, people would be faced with some intolerable absurdities. For one thing, it would be impossible to agree or disagree with someone. In fact, it would be impossible to communicate, to learn a language, to compare each other's ideas, even to think.

The point of the third lesson is that if such outrageous notions shackle us, rejecting them sets us free. To reject them is to say that we *can* know things about the world—and that our ability to reason and weigh evidence is what helps us gain that knowledge. In part, the purpose of much that follows is to demonstrate just how potent this ability is. Human reason empowers us, like nothing else, to distinguish between fact and fiction, understand significant issues, penetrate deep mysteries, and answer large questions.

*The essence of the independent mind lies not in what it thinks but in how it thinks.*

—CHRISTOPHER HITCHINS

*Light—more light.*

—JOHANN WOLFGANG VON GOETHE

## A WEIRDNESS SAMPLER

*People everywhere enjoy believing things that they know are not true. It spares them the ordeal of thinking for themselves and taking responsibility for what they know.*  
—BROOKS ATKINSON

How many people actually care about weird things? Plenty. Book sales, coverage in magazines and on television, movies, and opinion polls suggest that there's widespread interest in things psychic, paranormal, occult, ghostly, and otherworldly. A Gallup poll published in 2005, for example, shows that:

- 55 percent of Americans believe in psychic or spiritual healing or the power of the human mind to heal the body.
- 41 percent believe in ESP (extrasensory perception).
- 42 percent believe that people on Earth are sometimes possessed by the devil.
- 32 percent believe that ghosts or the spirits of dead people can come back in certain places and situations.
- 31 percent believe in telepathy, or communication between minds without using the traditional five senses.
- 24 percent believe that extraterrestrial beings have visited Earth at some time in the past.
- 26 percent believe in clairvoyance, or the power of the mind to know the past and predict the future.
- 21 percent believe that people can hear from or communicate mentally with someone who has died.
- 25 percent believe in astrology, or that the position of the stars and planets can affect people's lives.
- 21 percent believe in witches.
- 20 percent believe in reincarnation, that is, the rebirth of the soul in a new body after death.

There are many, many more extraordinary things that thousands of people experience, believe in, and change their lives because of. Several will be discussed in this book. Here's a sampling:

- Hundreds of people who were near death but did not die have told of blissful experiences in the beyond. Their reports vary, but certain details keep recurring: While they were at death's door, a feeling of peace overcame them. They watched as they floated above their own bodies. They traveled through a long, dark tunnel. They entered a bright, golden light and glimpsed another world of unspeakable beauty. They saw long-dead relatives and a being of light that comforted them. Then they returned to their own bodies, awoke, and were transformed by their incredible experience. In each case, the experience seemed nothing like a dream or a fantasy; it seemed vividly *real*. Such episodes are known as near-death experiences (NDEs).

## Pseudoteachers

Two social scientists—sociologist Ray Eve and anthropologist Dana Dunn of the University of Texas at Arlington—tried to find out where pseudoscientific beliefs might come from. They theorized that teachers might be passing such ideas on in school.

To test their theory, they surveyed a national sample of 190 high-school biology and life-science teachers. Their findings: 43 percent thought that the story of the Flood and Noah's ark was definitely or probably true; 20 percent believed in communication with the dead; 19 percent felt that dinosaurs and humans lived at the same time; 20 percent believed in black magic; and 16 percent believed in Atlantis. What's more,

30 percent wanted to teach creation science; 26 percent felt that some races were more intelligent than others; and 22 percent believed in ghosts.

Although 30 to 40 percent of the teachers were doing a good job, says Eve, "it boils down to the observation that a large number of the teachers are either football coaches or home-economics teachers who have been asked to cover biology."

Is there hope for change? "Much like the Department of Defense," says Eve, "the education bureaucracy has become so intractable that even when you know something is wrong, the chances of fixing it are not great."<sup>1</sup>

Many who have had such experiences say that their NDEs give undeniable proof of life after death.

- Some people report the often chilling experience known as a precognitive dream, a dream that seems to foretell the future. Here's an example: "I dreamed I was walking along a steep ridge with my father. He was stepping too close to the edge, making the dirt cascade to the rocks far below. I turned to grab his arm, but the ridge fell away under his feet, leaving him to dangle from my hands. I pulled as hard as I could, but he grew larger and heavier. He fell, in slow motion, crying out to me but making no sound. Then I woke up screaming. Three weeks later my father fell to his death from a second-story window while he was painting the windowsill. I was in the room with him at the time but wasn't able to reach him fast enough to prevent his fall. I rarely remember any dreams, and I had never before dreamed about someone falling." Such dreams can have a profound emotional impact on the dreamer and may spark a firm belief in the paranormal.

- There are probably hundreds of people claiming that they once lived very different lives in very different places—long before they were born. Tales of these past lives surface when people are "regressed" during hypnosis back to their alleged long-hidden selves. It all started in 1952 when Virginia Tighe, an American homemaker,

was apparently hypnotically regressed back to a previous life in nineteenth-century Ireland. Speaking in an uncharacteristic Irish brogue, she related an astounding account of her former life. Many others during hypnosis have related impressively detailed past lives in early Rome, medieval France, sixteenth-century Spain, ancient Greece or Egypt, Atlantis, and more, all the while speaking in what often sound like authentic languages or accents. A lot of famous people claim that they too have been hypnotically regressed to discover earlier existences. Shirley MacLaine, for example, has said that she's been a pirate with a wooden leg, a Buddhist monk, a court jester for Louis XV, a Mongolian nomad, and assorted prostitutes. Many believe that such cases are proof of the doctrine of reincarnation.

*Colt Born with  
Human Face—just  
like his father!*

—WEEKLY WORLD  
NEWS

- Some U.S. military officers have expressed strong interest in an astonishing psychic phenomenon called *remote viewing*. It's the alleged ability to accurately perceive information about distant geographical locations without using any known sense. The officers claimed that the former Soviet Union was way ahead of the United States in developing such powers. Remote viewing is said to be available to anyone, as it needs no special training or talents. Experiments have been conducted on the phenomenon, and some people have said that these tests prove that remote viewing is real.

- A lot of people look to psychics, astrologers, and tarot card readers to obtain a precious commodity: predictions about the future. You can get this commodity through websites, newspapers, magazines, TV talk shows, and hotlines. Predictions may concern the fate of movie stars, momentous events on the world stage, or the ups and downs of your personal life. Everywhere, there's word that some startling, unlikely prediction has come true. Here's an example: On April 2, 1981, four days after the assassination attempt on President Reagan, the world was told that a Los Angeles psychic *had predicted the whole thing weeks earlier*. On that April morning, NBC's *Today* show, ABC's *Good Morning America*, and Cable News Network aired a tape showing the psychic, Tamara Rand, offering a detailed prediction of the assassination attempt. The tape was said to have been made on January 6, 1981. She foresaw that Reagan would be shot by a sandy-haired young man with the initials "J. H.," that Reagan would be wounded in the chest, that there would be a "hail of bullets," and that the fateful day would occur in the last week of March or first week of April.

- Something strange is going on in physics, something so strange, in fact, that some people who've bothered to think about the strangeness now declare that physics is looking more and more like Eastern

mysticism. This weirdness is taking place in the branch of physics known as quantum mechanics, which studies subatomic particles, the tiny bits that make up everything in the universe. The notorious weirdness is this: In the quantum realm, particles don't acquire some of their characteristics *until they're observed by someone*. They seem not to exist in a definite form until scientists measure them. This spooky fact didn't sit well with Einstein, but it has been confirmed repeatedly in rigorous tests. It has caused some people to speculate that reality is subjective, that we as observers create the universe ourselves—that the universe is a product of our imagination. This quantum freakiness has prompted some people, even a physicist or two, seriously to ask, "Is a tree really there when no one's looking?"

- In 1894 the Society for Psychical Research published the first survey of personal encounters with ghostly phenomena. There were hundreds of firsthand accounts by people who claimed to have seen real apparitions. A recent scholarly history of apparitions documents an unsurprising fact: People have been reporting such encounters for centuries. Today, things haven't changed much. You're likely to hear at least one firsthand account yourself from somebody you know—somebody who says it's not a ghost *story* at all, but fact. Research suggests that the experiences can happen to perfectly sane persons, appear vividly real, and have a powerful emotional impact. There are also reports of people feeling a "sense of presence," as though another person, invisible, is close by. There's no end to the stories of more famous apparitions, told and retold, with eerie details that raise bumps on the skin. And you don't have to read a tabloid newspaper (more reputable newspapers will do) to discover that when someone wonders "Who ya gonna call?" there are real ghostbusters ready to handle a haunting.

- *The Exorcist* dramatized it. *The Amityville Horror* reinforced awareness of it. The Catholic Church endorses it. The news media eagerly report it. It is the idea of demon possession—that people and places can be haunted, harmed, and controlled by supernatural entities of immense evil. A typical case: On August 18, 1986, the Associated Press reported that demons were said to be haunting a house in West Pittston, Pennsylvania. Jack and Janet Smurl lived there with their four children and claimed that the demons were terrorizing them. According to the report: "The Smurls said they have smelled the stench of smoke and rotten meat, heard pig grunts, hoofbeats, and bloodcurdling screams and moans. Doors have opened and shut, lights have gone on and off, formless ghostly glows have traveled before them, and the television set has shot across the room. Even the

*Fat Woman's Bra  
Snaps—13 Injured!*  
—WEEKLY WORLD  
NEWS