



*ZEN-BRAIN
REFLECTIONS*

James H. Austin, M.D.

Zen-Brain Reflections

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Zen-Brain Reflections

**Reviewing Recent Developments in Meditation and States of
Consciousness**

James H. Austin, M.D.

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To my early teachers Nanrei Kōbō-Rōshi, Myōkyō-ni, and Joshu Sasaki-Rōshi,
for inspiration; to my wife Judy for her support; and to all those whose
contributions to Zen, and to the brain, are reviewed in this book.

The test of a religion or philosophy
is the number of things it can explain.

Ralph Waldo Emerson (1803–1882)

Contents in Brief

	<i>Contents in Detail</i>	xi
	<i>Chapters Containing Testable Hypotheses</i>	xvi
	<i>List of Figures</i>	xviii
	<i>List of Tables</i>	xix
	<i>Preface</i>	xx
	<i>Acknowledgments</i>	xxii
	<i>By Way of Introduction</i>	xxiii
Part I	<i>Starting to Point toward Zen</i>	1
Part II	<i>Meditating</i>	27
Part III	<i>Neurologizing</i>	71
Part IV	<i>Exploring States of Consciousness</i>	227
Part V	<i>Quickening</i>	277
Part VI	<i>The Absorptions</i>	313
Part VII	<i>Insightful Awakenings</i>	327
Part VIII	<i>Openings into Being; and Beyond to the Stage of Ongoing Enlightened Traits</i>	389
Part IX	<i>Pointing at Moonlight: Allusions and Illusions</i>	403
	<i>In Closing</i>	457
Appendixes		
A	<i>Other Links between the Moon and Enlightenment in the Old Zen Literature</i>	459

B	<i>On Wilderness Poetry during the Tang and Sung Periods</i>	462
C	<i>Daio Kokushi "On Zen"</i>	464
	<i>Glossary</i>	465
	<i>References and Notes</i>	475
	<i>Source Notes</i>	552
	<i>Index</i>	553

Contents in Detail

	<i>Chapters Containing Testable Hypotheses</i>	xvi
	<i>List of Figures</i>	xviii
	<i>List of Tables</i>	xix
	<i>Preface</i>	xx
	<i>Acknowledgments</i>	xxii
	<i>By Way of Introduction</i>	xxiii
Part I	Starting to Point Toward Zen	
1	<i>Is There Some Common Ground between Zen Experience and the Brain?</i>	3
2	<i>A Brief Outline of Zen History</i>	4
3	<i>Western Perspectives on Mystical Experiences</i>	6
4	<i>An Outline of the Path of Zen</i>	7
5	<i>The Semantics of Self</i>	11
6	<i>Developing Our Conscious Levels of Self</i>	12
7	<i>Some ABCs of the I-Me-Mine</i>	13
8	<i>Constructing Ourselves, Inside and Outwardly</i>	15
9	<i>Two Interpreters: One Articulate, the Other Silent</i>	19
10	<i>Dissolving the Psychic Self and Its Veils of Interpretation</i>	21
11	<i>Further Commentary on the Several Meanings of Zen-Brain "Reflections"</i>	23
12	<i>First Mondo</i>	24
Part II	Meditating	
13	<i>The Attentive Art of Meditation</i>	29
14	<i>Just This</i>	33
15	<i>Meditative Attention: Accessing Deeper Avenues of Seeing and Hearing</i>	37
16	<i>Interpreting Synchronized Brain Waves</i>	40
17	<i>Some Gamma EEG and Heart Rate Changes during Meditation</i>	48
18	<i>EEG and Heart Rate Changes in Zen Meditation</i>	51
19	<i>Delayed Physiological Responses to Meditation</i>	54
20	<i>Breathing In; Breathing Out</i>	58
21	<i>A Quest for "No" Answers: Koan, Huatou, Jakugo, Mondo</i>	61
22	<i>The Roshi</i>	64

Part III Neurologizing

23	<i>Landmarks. Brain in Overview</i>	73
24	<i>Messenger Molecules: Some New Data</i>	75
25	<i>The Septal Region and the Nucleus Accumbens</i>	79
26	<i>The Wide Variety of Cingulate Gyrus Functions</i>	82
27	<i>The Amygdala as a Gateway to Our Fears</i>	85
28	<i>Expanded Roles for the Insula</i>	95
29	<i>Remembrances and the Hippocampus</i>	99
30	<i>The Well-Concealed Hypothalamus</i>	108
31	<i>GABA Inhibits; Glutamate Excites</i>	110
32	<i>Stress Responses within the Brain</i>	113
33	<i>Laid-Back Nurturing Promotes Laid-Back Limbic System Receptors</i>	116
34	<i>Peptides in Social Affiliative Behaviors: Oxytocin and Vasopressin</i>	120
35	<i>Our Brain's Own Opioids</i>	123
36	<i>Opioids, Acupuncture, and the Placebo Response</i>	126
37	<i>Metabolic Cascades That Transform the Next Nerve Cell's Firing Responses</i>	137
38	<i>Neurotrophins and Change</i>	140
39	<i>The Pineal and Melatonin</i>	141
40	<i>Cortical Anatomy by the Numbers</i>	146
41	<i>Where Is It? A Prelude to My Action. The Parietal Lobe</i>	148
42	<i>What Is It? The Temporal Lobe Pathway</i>	152
43	<i>What Should I Do about It? The Frontal Lobes</i>	158
44	<i>The Thalamus</i>	167
45	<i>The Pulvinar</i>	175
46	<i>The Reticular Nucleus and Its Extrareticular Allies</i>	176
47	<i>Higher Mechanisms of Attention</i>	179
48	<i>Ever-Present Awareness</i>	184
49	<i>Neuroimaging, EEG Tomography, Event-Related Potentials, and Caveats</i>	187
50	<i>Self/Other Frames of Reference; Laboratory Correlates?</i>	193
51	<i>Moving Away from the Self; Embodied Teachings</i>	201
52	<i>Neuroimaging Data from Different Studies of Self-Referent Functions</i>	204
53	<i>Imaging a Meditating Brain: A Commentary</i>	214

Part IV Exploring States of Consciousness

54	<i>Words and Metaphors in Religious Traditions</i>	229
55	<i>Multiple Meanings of "Taste"</i>	232
56	<i>Witnessing Awareness during Sleep (Continued)</i>	237
57	<i>Tilting the Emotional Set Point?</i>	239
58	<i>The Roots of Our Emotions</i>	240
59	<i>Attributing Different Emotions to Various Brain Regions</i>	243
60	<i>Conditioning: Learning and Unlearning</i>	248
61	<i>Addictions</i>	251
62	<i>Being in Love</i>	255
63	<i>The Male Animal: Libido and Ex-Libido</i>	260
64	<i>Cracks in the Bowl: The Broken Seal</i>	265
65	<i>Empathies, Mirror Neurons, and Prolonged Affirmative Attitudes</i>	267
66	<i>Through What Steps Does Ordinary Insight Transform Consciousness?</i>	271
67	<i>Second Mondo</i>	275

Part V Quickening

68	<i>The Remarkable Properties of Nitric Oxide</i>	279
69	<i>The Nitrous Oxide Connection</i>	288
70	<i>Self-Abuse by Drugs</i>	291
71	<i>How Do Certain Drugs "Alter" Consciousness?</i>	297
72	<i>Triggers</i>	303
73	<i>The Extraordinary Scope of Migraine: "The Hildegard Syndrome"</i>	306

Part VI The Absorptions

74	<i>The Varieties of Absorption</i>	315
75	<i>Space</i>	323

Part VII Insightful Awakenings

76	<i>Affirming One Reality: A Commentary on the Sandokai</i>	329
77	<i>Varieties of "Oneness" and "Unity." Category I: A and B</i>	333
78	<i>Varieties of "Oneness" and "Unity." Provisional Categories II and III</i>	342

79	<i>Varieties of “Oneness” and “Unity.” Provisional Category IV</i>	351
80	<i>Prajna: Insight-Wisdom</i>	357
81	<i>Words for the Inexpressible</i>	358
82	<i>Suchness and the Noumenon: An Allocentric Perspective</i>	361
83	<i>The Construction of Time</i>	372
84	<i>Disorders and Dissolutions of Time</i>	378
85	<i>Emptiness</i>	383
86	<i>Third Mondo</i>	386
Part VIII	Openings into Being; and Beyond to the Stage of Ongoing Enlightened Traits	
87	<i>Problem Words: “Pure Consciousness”; “Being”; “Cosmic”</i>	391
88	<i>Are There Levels and Sequences of “Nonattainment?”</i>	394
89	<i>Cultivating Compassion, a Native Virtue</i>	396
90	<i>On “Moral Cognition”</i>	398
91	<i>Some Aspects of Maturity That Are Nurtured during Long-Range Meditative Training</i>	399
Part IX	Pointing at Moonlight: Allusions and Illusions	
92	<i>Pointing toward a Late Lunar Phase of Objective Vision</i>	405
93	<i>A Contemporary “Taste of Kensho”: Its Profile of Early and Late Phenomena</i>	407
94	<i>How Our Brain Normally Perceives Light and Colors</i>	410
95	<i>Significance of the Late “Moonlight” Phase within the Whole Profile of Kensho</i>	414
96	<i>Significance of the Illusions at the Close of the Moonlight Phase</i>	425
97	<i>Some Cultural and Neural Origins of Moon Metaphors and Visual Symbols</i>	432
98	<i>The Hernandez Connection: A Darkened Sky and Moonglow</i>	439
99	<i>Other Ancient Fingers Pointing toward the Moon</i>	440
100	<i>People Differ in Their Response to Illusions: Psychological Considerations</i>	447
101	<i>People Differ in Their Susceptibility to Illusions</i>	448
102	<i>Fourth Mondo</i>	452
	<i>In Closing</i>	457

Appendix A	<i>Other Links between the Moon and Enlightenment in the Old Zen Literature</i>	459
Appendix B	<i>On Wilderness Poetry during the Tang and Sung Periods</i>	462
Appendix C	<i>Daio Kokushi "On Zen"</i>	464
	<i>Glossary</i>	465
	<i>References and Notes</i>	475
	<i>Source Notes</i>	552
	<i>Index</i>	553

Chapters Containing Testable Hypotheses

It is a good morning exercise for a research scientist to discard a pet hypothesis every day before breakfast.

Konrad Lorenz (1903–1989)

These chapters suggest potential correlates between brain functions, meditative training, and the phenomena of alternate states of consciousness. Discard any that do not pass critical testing (at any time of day or night).

16	Interpreting Synchronized Brain Waves	40
20	Breathing In; Breathing Out	58
27	The Amygdala as a Gateway to Our Fears	85
29	Remembrances and the Hippocampus	99
33	Laid-back Nurturing Promotes Laid-back Limbic System Receptors	116
36	Opioids, Acupuncture, and the Placebo Response	126
42	What Is It? The Temporal Lobe Pathway	152
43	What Should I Do about It? The Frontal Lobes	158
44	The Thalamus	167
48	Ever-Present Awareness	184
50	Self/Other Frames of Reference; Laboratory Correlates?	193
51	Moving Away from the Self; Embodied Teachings	201
54	Words and Metaphors in Religious Traditions	229
60	Conditioning: Learning and Unlearning	248
62	Being in Love	255
68	The Remarkable Properties of Nitric Oxide	279
84	Disorders and Dissolutions of Time	378

101	People Differ in Their Susceptibility to Illusions	452
102	Fourth Mondo	457

List of Figures

Figure 1	An outline of the Path of Zen	8
Figure 2	The trialities	22
Figure 3	The left cerebral hemisphere	74
Figure 4	The right cerebral hemisphere, viewed from its inner surface	74
Figure 5	Stress responses within the brain	115
Figure 6	Neural correlates of reduced adult fearfulness; a response to early, "laid-back" nurturing	118
Figure 7	Brodmann's mapping by the numbers	147
Figure 8	The thalamus	168
Figure 9	The ordinary mental field of the physical self	317
Figure 10	The mental field of internal absorption with sensate loss	318
Figure 11	Parallel universes, transformed by insight into Oneness	340

List of Tables

Table 1	The Pejorative Self and the Direction of Its Transformation	14
Table 2	The Attentive Art of Meditation	30
Table 3	Opioids and Their Receptors	124
Table 4	Relationships between Frontal EEG Activities and Tendencies toward Different Patterns of Behavior	164
Table 5	The “Three Poisons” and Their Antidotes	241
Table 6	Some Neural Correlates of Maternal Attachment and Female Romantic Love	257
Table 7	Stress Responses Potentially Involved in an Episode of Internal Absorption	319
Table 8	Varieties of “Oneness”	343
Table 9	Relationships among the Terms for Mundane, Suchness, and Noumenon	365
Table 10	Beyond Mere Transitory States Lies the Stage of Advanced Practice	395
Table 11	A Succession of Earlier and Late Phenomena during “a Taste of Kensho”	415
Table 12	The Early Hallucination in Internal Absorption Differs from the Late Visual Illusions of Kensho	451

Preface

More wisdom is latent in things-as-they-are than in all the words men use.

Antoine de Saint-Exupéry (1900–1944)

Over a century ago, William James chose “Religion and Neurology” for the title of his first Edinburgh lecture, a series that evolved into his classic work, *The Varieties of Religious Experience*.¹ As this millennium began, Koenig and colleagues published their *Handbook of Religion and Health*. Its 768 pages cite evidence suggesting that a person’s religious orientation could benefit both brain and body.² Skeptics still wonder: can religion help our brains and bodies, and if so, how?

In late 1997, I sent off my manuscript of the earlier book that ventured to integrate Zen with the brain. Since then, countless books and journal articles have been published on separate aspects of neuroscience, Buddhism, and consciousness. For the present book I have selected pivotal areas in which to integrate these huge, separate topics.

This volume is no rehash. It takes up where the earlier book left off. Its new chapters address such questions as: How does acupuncture work? Can neuroimaging localize where our notions of self arise? How can brain imaging during meditation become more informative? Is there more than one kind of experience of “Oneness?” How do decades of meditative training and momentary enlightened states transform the physiology of the brain?

Requests for a less bulky sequel have been met by including far fewer source notes and references than were included in the 113 pages of reference citations of its 1998 predecessor.

Reflections occurs in the latest title for two reasons. First, “Reflections” represents a major update of the chapter in the first book entitled “Reflections on Ken-sho, Personal and Neurological.” Second, the new title serves also to introduce a major new section, part IX. These final chapters do more than explore ancient literary and artistic traditions that had linked Zen enlightenment with moonlight. They present novel interpretations. These arose when I rethought earlier personal experiences and reviewed the latest research. These are new reflections, based on data new and old. They envision links that I could never before have imagined between four diverse topics: migraine, metaphors, moonlight, and mysticism.

In the past, Zen has also had more than a fair share of unimaginably dense riddles. Herein, I try to clarify matters and demystify the subject. Do not be surprised when you encounter chapters uneven in texture which set old lines of historical evidence right next to new research data out at the very frontiers of neuroscience. I integrate topics when possible, but offer no final pat answers. As before, a few testable hypotheses are ventured. Page xvi lists the chapters that contain them.

Part I revisits a major Zen theme: our personal interior *self*. I ask: How do we relate our private self, both to other people and to other things that we think lie “outside” our self/other boundary? Part II highlights several preliminary studies of meditation. I examine both the limitations inherent in their design and those of neuroimaging methods in general.

Part III updates information about the brain, including the amygdala and other parts of the “old” limbic system. Here, I comment on recent research that clarifies its “paralimbic” extensions. Do not get bogged down in these 31 chapters. Lay readers are encouraged to skim them and move on to part IV, which explores states of consciousness. Part V considers some elementary expressions of these states and comments on how appropriate it is to use drugs to simulate them.

Part VI pays a brief visit to the superficial states called absorptions, leaving more room for part VII to revisit the later states that confer crucial insights. Zen refers to such insightful “peak experiences” as *kensho* and *satori*. Part VIII comments on still more advanced states of awakening that realize “Being,” then moves beyond to the rare ongoing *stage*. Only very few persons manifest this stage of “sage wisdom.”

Part IX is the new section just referred to. It reviews the old history of how “moonlight” came to be linked with *kensho*. Its personal reflections begin by focusing on an unusual *late phase* of “*kensho*.” This delayed “moonlight” phase has implications for the neurosciences, for Zen Buddhism, and for steering clear of the confusion caused by misidentifying genuine visual *illusions* as mere literary *allusions*.

Meditation, enlightenment, and consciousness are complex topics. The Path of Zen and its intricate interrelationships with the neurosciences call out for some temporary oversimplifications. Cast in this secular role, your author/guide invites you to peruse the simplified figures, tables, four (mondo) summaries, and glossary.

Also for the reader’s convenience, many topics here have been cross-referenced to pages in the earlier book. For example, when you come across a citation in brackets like [Z: –], it points you to relevant pages in *Zen and the Brain* that can serve as an introduction.

Why are samples of Zen poetry included? Because their verses often express meaning more accurately than do my words of prose.

Even so, the reader will find not only that the essence of Zen continues to elude words but that crucial facts in the neurosciences still remain to be discovered. We are still very early on that path toward which James was pointing, still straining to integrate the potentials latent in “religion and neurology” into that singular unification which Saint-Exupéry distilled into the phrase, *things-as-they-are*.

Acknowledgments

Professor Nick Gier kindly invited me to give several lectures in his course on Buddhism. Fortunately, this led to an invitation to teach an entire course entitled “Zen and the Brain,” and to my becoming formally affiliated with the University of Idaho. I am most grateful to him and to the Department of Philosophy for the opportunity this provided to access the library and interlibrary loan facilities of the university.

I also thank the many editors and program directors, now too numerous to list, who—because they invited me to write or speak at conferences—stimulated me to update and simplify the subject matter for the general audience.

This sequel is the direct result of my being invited by MIT Press to write a *slender* update of the first book. I now take this opportunity to thank Barbara Murphy, the neuroscience editor, for her constant encouragement, to thank Katherine Arnoldi Almeida for her skilled editorial assistance, and to thank Yasuyo Iguchi for her artistry in novel cover designs and illustrations.

I am especially grateful to Kathy Mallory for her ongoing patience and skill both in deciphering my handwritten revisions of her excellent typing, and in bringing the drafts of the manuscript to completion. Many thanks also to James W. Austin, Scott Austin, and Lynn Austin Manning for reviewing and commenting on the manuscript.

In recent years, as a member of Mountain Lamp Idaho, I have been privileged to share in the inestimable bounties of regular Zen practice with our local sangha, as well as in the retreats led by Eileen Kiera and Jack Duffy.

By Way of Introduction

Zen lies beyond the details of words and letters, outside mental conditions, in the inconceivable, in what ultimately cannot be grasped.

Eisai (1141–1215)¹

This is the second book in a quest for the inconceivable. Its author has been attempting to repair his ignorance in three major areas: (1) Zen—What *is* it? (2) The human brain—How does it *actually* function? (3) Meditation and enlightened states—What *really* goes on? And there is a fourth area we still need to know more about: How has the brain been transformed in the rare sage who has entered the late *stage* of ongoing enlightened traits?

Most chapters in this book are expressed as essays, yet some require the form of a personal narrative. All chapters reflect the personal biases of someone raised as a Unitarian, trained to solve neurological problems at the bedside, who then pursued clinical questions into the research laboratory.

By 1967, I had become fascinated with the psychology of the underlying creative process in biomedical research. So much so that I started to write about it.² I soon realized how little I knew about the basic physiology of creative intuition. When I began Zen training in Kyoto 7 years later, my ignorance was compounded. I knew nothing about what caused another flashing form of insight: the flash of enlightenment known as *kensho* or *satori*.

What else happens that steers an otherwise conventional academic neurologist in the direction of Zen? It may help to revisit an interview conducted in 1998. It addresses this and other questions related to the earlier book, entitled *Zen and the Brain*.

You came to Zen both as a medical doctor and as a practicing scientist. What attracted you to it?

Well, I encountered Zen by chance during my first sabbatical in Japan. I was first attracted to it by the aesthetic qualities of the Zen temples and gardens in Kyoto. I was also drawn to it because I had seen that Zen had shaped the cultural life of Japan in many influential ways. There was one final crucial factor: the opportunity to learn from Kobori-Roshi. He was a remarkable Zen master. His presence communicated the essence of Zen, and I could converse with him in English.

Did Zen largely challenge, or corroborate, what you knew from science?

It did both, at different times. At the outset, nothing in my previous medical or neuroscience training had prepared me for Zen. The challenge stimulated me to learn more—both about Zen and about the rapidly expanding frontiers

- [click Demon's Door \(Jim Rook, Book 7\)](#)
- [Clinical Research: Case Studies of Successes and Failures online](#)
- [read The Inmates Are Running the Asylum: Why High Tech Products Drive Us Crazy and How to Restore the Sanity \(2nd Edition\)](#)
- [click *The Hitchhiker's Guide to the Galaxy*](#)

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