



ZEN

STOP AND SMELL THE UNIVERSE

SCIENCE

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Acknowledgments

*Dedicated to our dear sister, Lorrie Bodger, who never
saw this book, but would have loved it.*

INTRODUCTION

“The most beautiful thing we can experience is the mysterious.”

—Albert Einstein

This is a book of science facts that are also Zen meditations.

They're meant to be read one at a time, savored, and then used as tools to experience the paradox of who we are in the universe—how we're both big and small... solitary and connected... ephemeral and eternal. When you look in a mirror, feel your feet on the ground, gaze at a flower, or stare at the sky, we hope you'll be able to retrieve these facts and use them to experience a sense of connection to all things; to see past the illusions of the material world and live more fully in the moment.

“The true purpose of Zen is to see things as they are, to observe things as they are, and to let everything go as it goes.”

—Shunryu Suzuki, Zen master

There are a lot of numbers in this book, because quantifying things is a key part of science. But don't get hung up on the numbers. We've tried to be accurate with them, but the truth is, they're really a moving target. Years

ago, for example, scientists estimated there were 200 billion galaxies in the universe; now they estimate two trillion. That's a huge disparity—so which is correct? We don't know... and it's reasonable to assume that the estimate will change again. But philosophically it really makes no difference. Either way, the point is to know that the universe is inconceivably vast... and we are part of it. That applies to most of the information included here as well. The details may change, but the larger message is constant.

And by the way, don't be fooled by the casual way we use the terms millions, billions, and trillions. Most of us understand what a million is and then we sort of naturally think of billions as “bigger” and trillions as “even bigger.” But philosophically, we lose a lot with that kind of thinking. A million seconds is slightly more than eleven days. A billion seconds is about 32 years, and a trillion seconds is about 32,000 years. As one observer puts it: “The difference between a billion and trillion is equivalent to the difference between your lifetime and the entirety of human history.” To get the most out of this book, keep that sense of perspective.

At their hearts, Zen and science have this in common: illumination. We hope this material adds a little bit of wonder, joy, illumination, and fulfillment to your life.

Earth is not our planet.

We think of it as ours, but for 99.9994 percent of Earth's existence—virtually all of it—there have been no human beings on the planet.



Scientists believe Earth formed some 4.6 billion years ago, and the first single-celled life-forms appeared about 800 million years later. The first dinosaurs appeared 230 million years ago, and they flourished for 160 million years before going extinct. It's estimated that our oldest primate ancestors appeared just seven million years ago, and that another million years passed before they began walking upright. It wasn't until about 200,000 years ago that our own species, *Homo sapiens*, appeared. So humans have

been around less than one-hundredth of 1 percent of the 3.8 billion years that life has existed on Earth.

Cleopatra's breath...

... is still in the air.

When Cleopatra took her last breath, she exhaled around 100 *sextillion* air molecules—that's 100 followed by 21 zeros—mostly carbon dioxide and nitrogen. So many were dispersed into the atmosphere that they're still floating around... everywhere.

What's the result? Every time you inhale, according to experts, you take in at least one molecule that came from Cleopatra's lungs, and Julius Caesar's, and George Washington's. In fact, it's likely that with every breath you take in at least one molecule breathed by every one of your ancestors all the way back to the very first humans who started your family tree.

