

Explaining Mysteries of Living (Expanded)

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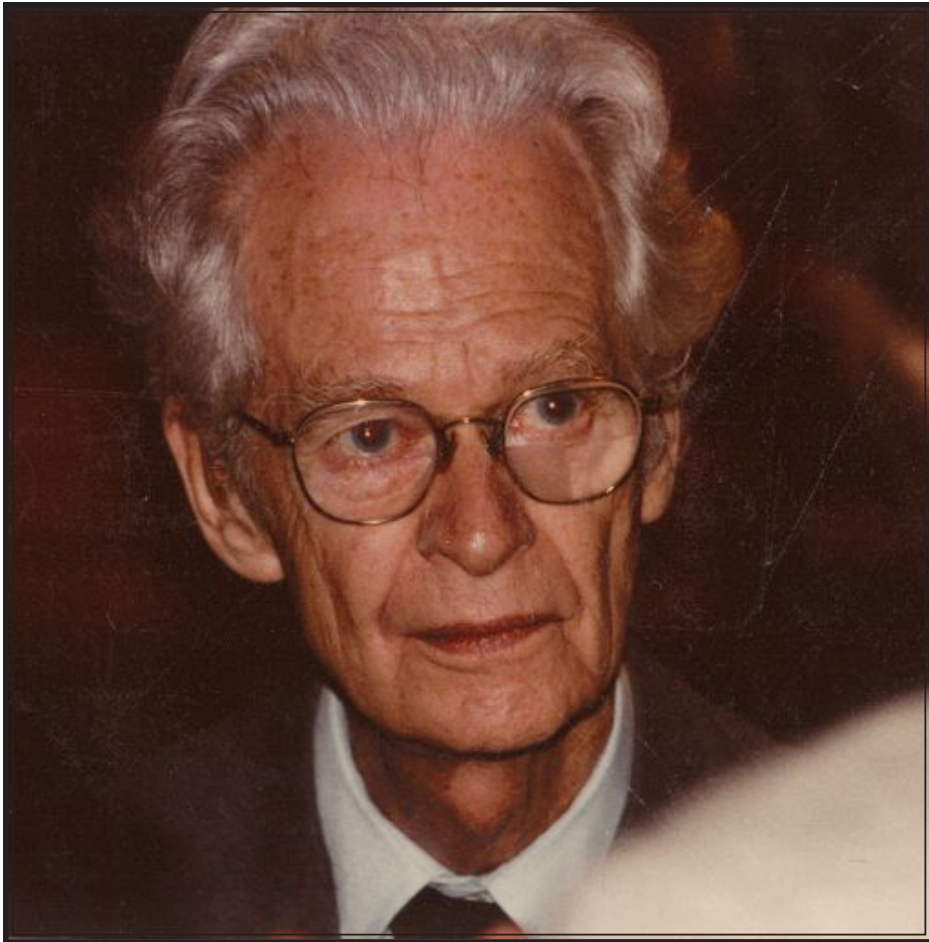


Photo by Stephen F. Ledoux

Burrhus Frederic Skinner

(1904–1990)

Conversing at a convention in 1982

The products of the contingencies of his life established behaviorology.

*Explaining Mysteries
of Living (Expanded)*

Stephen F. Ledoux

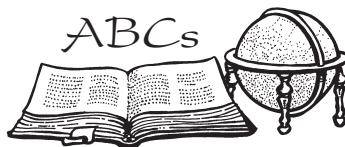
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Explaining Mysteries of Living (Expanded)

Stephen F. Ledoux, Ph.D.

Published by ABCs of Los Alamos, NM, USA
(Previously of Canton, NY.)



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by Stephen F. Ledoux

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This book provides information regarding the subject matter covered with the understanding that the author and publisher are not providing *any* professional services; if problem behaviors occur, and expert assistance is desired or required, contact a competent applied behaviorologist or BCBA (Board Certified Behavior Analyst). The publisher and author hereby exclude all liability to the extent permitted by law for any errors or omissions in this book and for any loss, damage, or expense (whether direct or indirect) suffered by a third party relying on any information contained in this book.☺

Books by Stephen F. Ledoux

Study Questions for Paul De Kruif's Microbe Hunters (1972).

Grandpa Fred's Baby Tender, or Why and How We Built Our Aircrabs
with co-author Carl Cheney (1987; a free download at www.behaviorology.org).

The Panda and Monkey King Christmas—A Family's Year in China
with first author Nelly Case (1997).

Eight other books of *Study Questions* for various texts, one with two co-authors (1999–2015; see BOOKS at www.behaviorology.org).

Behaviorology Majors Make a Difference
with 11 student authors (2013; a reassembly of a 1977/1979 book).

Running Out of Time—Introducing Behaviorology to Help Solve Global Problems
(2014; a textbook for majors and graduate students).*

An Introduction to Verbal Behavior—Second Edition
with first author Norman Peterson (2014; a verbal-behavior workbook).

Origins and Components of Behaviorology—Third Edition
(2015; a book of readings).*

Beautiful Sights and Sensations—Small Collections of Native American and Other Arts
(2016; this book includes not only a scientifically grounded definition of art, but also a discussion of the Chinese signature seals that appear at the end of some parts of the author's works, including this one—see the *Introduction*).

What Causes Human Behavior—Stars, Selves, or Contingencies?
(2017; a general-audience primer).*

Science Works on Human Behavior
(2018; a book of readings).*

Catalog of Select Art Photographs by Stephen F. Ledoux (2019).

Explaining Mysteries of Living (Expanded)
(2021; this first volume contains 72 newspaper columns covering basic topics in the natural science of behavior, plus color graphics and supporting papers).

Science Is Lovable—Volume 2 of Explaining Mysteries of Living (Expanded)
(2021; this second volume contains 72 more newspaper columns covering deeper topics in behaviorology, plus color graphics and supporting papers).📖

* The Appendices contain the *Table of Contents* for these titles to aid finding details about topics mentioned in the 72 newspaper columns. All of these books, and more, have full descriptions on www.behaviorology.org (and can be obtained, “Print-On-Demand,” from www.lulu.com by clicking the magnifying glass and entering the author's name).

On *Typography & Related Resources*

Part I of this book is set left, in the Times New Roman typeface collection, because the 72 pieces in Part I originally appeared as newspaper columns, and this is a common typeface for newspapers. The rest of this book is set justified, in the Adobe Garamond, Adobe Garamond Expert, and Tekton collections of typefaces.

In addition, a valuable basis for the typographic standards of this work deserves acknowledgment. As much as possible, this book follows the practices described in two highly recommended volumes by Ms. Robin Williams (both of which Peachpit Press, in Berkeley, CA, USA, publishes). One is the 1990 edition of *The Mac is Not a Typewriter*. The other is the 1996 edition of *Beyond the Mac is Not a Typewriter*.

For example, on page 16 of the 1990 book, Williams specifies practices regarding the placement of punctuation used with quotation marks, an area in which some ambiguity has existed with respect to what is “proper.” In addition the present book follows the advice in these books about avoiding “widows” (which is the name for leaving less than two words on the last line of a paragraph) and “orphans” (which is the name either for leaving the first line of a paragraph alone at the bottom of a page, or for leaving the last line of a paragraph alone at the top of the next page).

Also, since some confusing alternatives remain regarding the use of hyphens and dashes, this book would simply limit hyphens to separating the parts of words that break at a line end, although this book never breaks words at line ends, because good software (e.g., Adobe InDesign5) makes that old, hard to read practice unnecessary. (Too many publishers think that this—hyphenless lines, especially with “justified” lines, like on this page—is impossible without producing “rivers of white,” but the book you hold in your hands, and all of the books described in the appendices of this book, among others, which are justified throughout, prove otherwise.)

Beyond hyphens, “en dashes” most commonly separate the whole words of compound adjectives, and “em dashes” most commonly set off multiple-word—a compound adjective with an en dash—phrases or clauses (as with these examples). These easy-reading characteristics developed across humanity’s centuries of successful printing-press practices. Be aware, however, that ebook formatting, while it has its own benefits, typically destroys most of these easy-reading characteristics.

You can address correspondence regarding this book to the author (at ledoux@canton.edu). For more information, visit www.behaviorology.org where you can find all the back issues of the journal of TIBI (The International Behaviorology Institute). Previously named *Behaviorology Today* (ISSN 1536-6669), TIBI renamed it *Journal of Behaviorology* (ISSN 2331-0774) in 2013. This journal became fully peer reviewed as of January 2012 under the older name. You can also find full descriptions of most of the author’s books, and behaviorology books by others, on this website. ☞

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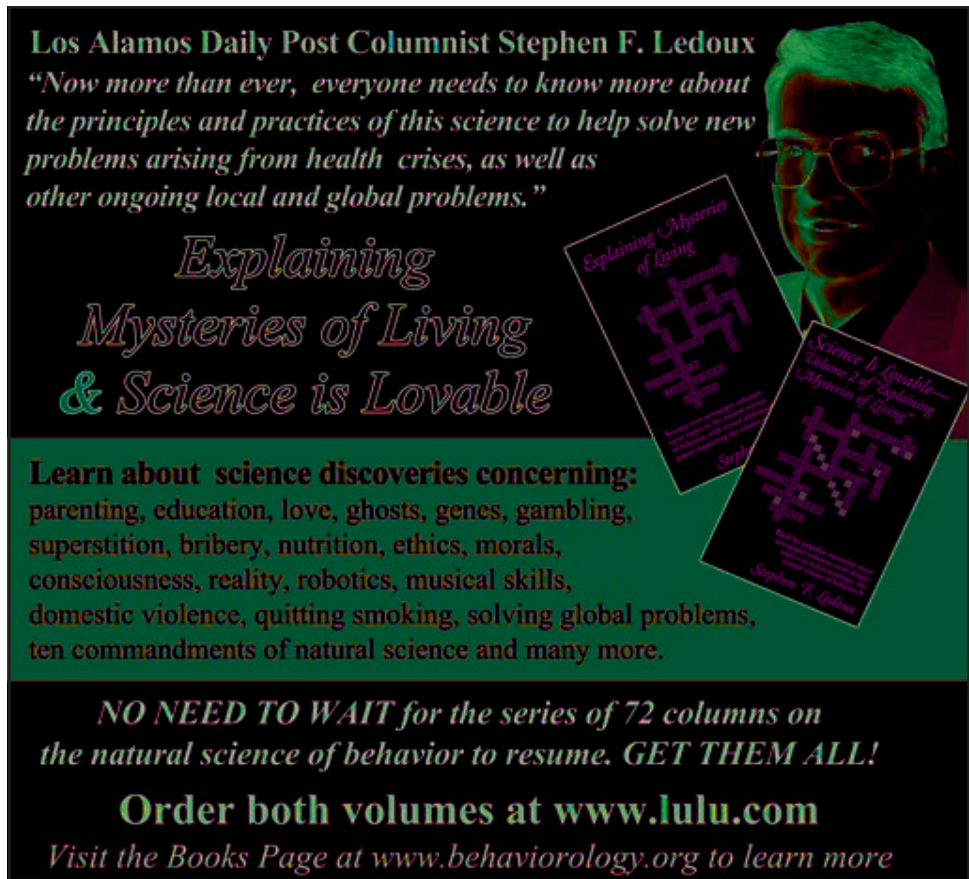
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About this “Expanded” Edition

During the year that followed the publication of the original editions of both the first and second books of newspaper columns, work began on the development of the www.BehaviorInfo.com website, which is to provide open access to the scientific information in the columns presented in these books. As part of these development efforts, various supporting graphics got paired with just over half of the columns.

The design of those graphics aimed at visually improving the information content of the associated columns in their appearance online. A handful of these graphics already appeared with their columns, because they were already directly connected with the column contents. While the rest of the graphics played supplemental roles with their columns, reader/viewer feedback suggested that this role was valuable enough to include these graphics with their columns in an *expanded* edition of these books. (Except where specified otherwise, the author is also the photographer for these graphics.) Like the first book, the second book also now includes additional papers supportive of the column topics.

On an historical note, as the 2020 health crisis developed, the local paper carrying these columns found that its pages were needed for too many other different kinds of crisis-related articles. As a result the paper put these science columns on pause. In their place appeared various article types that provided stress relief (e.g., articles and photos about pets and recipes). This seemed to the editors to be more beneficial during the ongoing health crisis than science articles, even though these science articles address many of the concerns for which people were seeking knowledge and skills so that they could deal more effectively with them, especially during the crisis (e.g., parenting, education, domestic coercion, smoking control)... So the paper ran several newspaper-designed, paid ads—like the one on the next page—so that interested readers could know that alternatives existed for continuing with this series of columns.☺



Los Alamos Daily Post Columnist Stephen F. Ledoux
“Now more than ever, everyone needs to know more about the principles and practices of this science to help solve new problems arising from health crises, as well as other ongoing local and global problems.”

*Explaining
Mysteries of Living
& Science is Lovable*

Learn about science discoveries concerning:
parenting, education, love, ghosts, genes, gambling,
superstition, bribery, nutrition, ethics, morals,
consciousness, reality, robotics, musical skills,
domestic violence, quitting smoking, solving global problems,
ten commandments of natural science and many more.

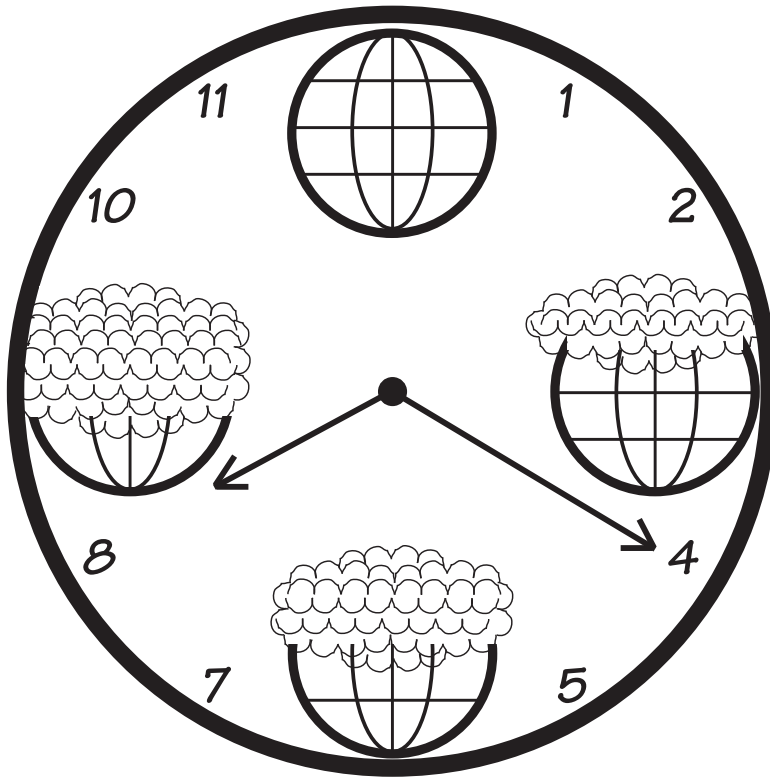
NO NEED TO WAIT for the series of 72 columns on
the natural science of behavior to resume. **GET THEM ALL!**

Order both volumes at www.lulu.com
Visit the Books Page at www.behaviorology.org to learn more

Summer 2020 ad about the previous edition

Explaining Mysteries of Living (Expanded)

Seventy–two newspaper columns cover topics in the natural science of behavior, with several additional papers supporting the column topics.♣



Running Out of Time

PART I

The 72

“Exploring Mysteries of Living”

Newspaper Columns

Each of the newspaper columns originally featured a small version of this photo of the author. In *Part I* of this book, however, the photo only appears on this page.☘



College 2012 portrait; photo courtesy of SUNY-Canton

Note: The www.BehaviorInfo.com website, as it develops in 2020 and beyond, provides readers with occasional video clips of the author answering questions about some of the topics in the columns. (The clips come from a video interview. The [MEDIA](http://www.behaviorology.org) page on www.behaviorology.org has a full description. The author describes this video as “aurally interesting but visually boring.”) The www.BehaviorInfo.com website may also contain questions and comments from readers and answers and replies by the author.☘

Introduction

(Traditionally called the *Preface*)

After retiring, my interactions with various groups led to several talks, and then to requests for more details, short of book-length treatments. A series of newspaper columns filled these requests. Then requests accrued for the complete set of columns in a single source. For those of you who share an interest in why behavior happens, these writings try to provide support for your interest.

So this book contains the full set of 72 behavior-related newspaper columns that I wrote in 2019. These columns cover various standard topics on mostly normal human behavior and why it occurs. This book also contains half a dozen papers that support those topics by filling in some background gaps in the science and its philosophy (i.e., its assumptions) and history. Of course, these newspaper columns and papers are not psychology papers, since the natural science of behavior, behaviorology, that they discuss is neither a part of, nor any kind of, psychology. No column or paper in this book has previously appeared in any of my books of readings, and most of the papers have appeared in the peer-reviewed disciplinary literature of behaviorology. However, some excerpts from my 2017 general-audience book (i.e., *What Causes Human Behavior—Stars, Selves, or Contingencies?*) will seem similar to some columns.

A young behaviorology—only 75 years old when made independent under the behaviorology label in 1987—needed the opportunity to develop as well as to help solve individual, local, and global problems. That contingency-driven separation of the natural science of behavior from its somewhat coincidental shared history with psychology work units (see Fraley & Ledoux, 2015, in the references) induced several authors, including me, to commit most, if not all, of their post-1987 writing productivity to expanding the explicit disciplinary literature of behaviorology. As a result a growing disciplinary literature now exists, including the writings in this book.

For references to many of those works, and many of the pieces in this book, see the bibliography in this book and the bibliography in Ledoux, 2014, or the five-year-indexes of the behaviorology journal that appear online at www.behaviorology.org. That is the website of the non-profit professional organization, The International Behaviorology Institute (TIBI).

Part I contains the 72 newspaper columns under the general title “Exploring Mysteries of Living.” Each column also has its own specific title, with some added details in brackets in the *Table of Contents*. For publication in this book, these columns retain their set-left newspaper-column format, in the Times New Roman typeface family, the way they were originally set. (Individual newspapers may have made changes that result in differences between these columns and the versions that they printed.)

Part II contains six papers, set-justified and in the Adobe Garamond typeface family, presented in roughly chronological order, that support the topics in the columns. The editing for these papers included, where appropriate, updating their references. These papers come from the last few years of my tenure at SUNY–Canton through the first few years of my retirement. While both of my previous books of readings contain some papers from this period, none of them are repeated in this third book of readings.

After these two *Parts* come some *Appendices*. Each appendix contains the regular *Table of Contents* to one of my four most useful books. The list of topics in these *Tables of Contents* offers an easy way to find further material for details on any of the many behavior topics that might interest you.

Here is some additional information on the six papers in *Part II*:

- ⌘ **Behaviorism at 100 Unabridged.** This fully peer-reviewed paper appeared in the Spring 2012 issue of *Behaviorology Today*, 15 (1), 3–22. An abridged version appeared on pages 60–65 in the January 2012 issue (volume 100, number 1) of *American Scientist*. A slightly expanded version appears as Chapter 1 in Ledoux, 2014, where it serves either as a preview of the book for readers already somewhat familiar with behaviorology, or as a review for new readers, after they have completed the rest of the book.

- ⌘ **More Assistance in Developing Behaviorology Courses and Programs.** This fully peer-reviewed paper appeared in the Fall 2018 issue of the *Journal of Behaviorology*, 21 (2), 3–16.

- ⌘ **Ten Commandments of Natural Science.** This fully peer-reviewed paper appeared in the double (Spring & Fall) 2019 issue of the *Journal of Behaviorology*, 22 (1–2), 3–12.

- ⌘ **Changing Terms is Insufficient to Save our Science and Practice—A response to the Special Section on the term Behavioral Materialism.** This fully peer-reviewed paper appeared in the Spring 2020 issue of the *Journal of Behaviorology*, 23 (1), 3–9.

- ⌘ **Revisiting Culturology.** To support solving global problems, this fully peer-reviewed paper revisits much of the content in Chapter 6 of Fraley & Ledoux, 2015. It appeared in the Fall 2020 issue of the *Journal of Behaviorology*, 23 (2), 3–9.

- ⌘ **Obituary—Scientifically Accurate.** This paper appears here in place of the usual “About the Author” piece that the publisher likes to put at the end of books so readers can know something about the author. This piece will likely not appear in print again until the appropriate time, as it is, indeed, an obituary; *as this book goes to press, any rumors of the author’s demise are greatly exaggerated*. Why write such a piece? Because writing this piece provided an exercise in writing about someone’s life *with some scientific accuracy*. That is, this piece avoids the usual, distracting, even misleading

and unscientific chatter or implications about inner agents causing behaviors, while focusing on some of the particular known contingency causes driving directions and behaviors during the described life, which actually emphasizes our humanity better.

Many other behaviorology books, on a range of topics, remain available. And many of them receive full descriptions on the BOOKS page at www.behaviorology.org. You will not regret finding a few moments to peruse this website. Note that it changes regularly, particularly after the release of each issue of the *Journal of Behaviorology*.✿

References

- Fraley, L. E. & Ledoux, S. F. (2015). Origins, status, and mission of behaviorology. In S. F. Ledoux. *Origins and Components of Behaviorology—Third Edition* (pp. 33–169). Ottawa, Canada: BehaveTech Publishing. This multi–chapter paper also appeared across 2006–2008 in these five parts in *Behaviorology Today*: Chapters 1 & 2: 9 (2), 13–32. Chapter 3: 10 (1), 15–25. Chapter 4: 10 (2), 9–33. Chapter 5: 11 (1), 3–30. Chapters 6 & 7: 11 (2), 3–17. See the JOURNAL page at www.behaviorology.org. (ABCs released a softcover edition of this *Origins and Components of Behaviorology...* book in 2020 for “Print–On–Demand” status at www.lulu.com.)
- Ledoux, S. F. (2014). *Running Out of Time—Introducing Behaviorology to Help Solve Global Problem*. Ottawa, Canada: BehaveTech Publishing. (The publisher switched production of this book to “Print–On–Demand” status at www.lulu.com in 2020.)☺

Stephen F. Ledoux
Los Alamos NM USA
August 2019



Occasional blank pages provide extra space for:

Reader's Notes



[Column 1] Exploring Mysteries of Living: Welcome

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A Los Alamos member of The International Behaviorology Institute

Welcome to the first of many columns exploring some of the mysteries of life and living, especially some behavior-related mysteries. Each column will include where to find more information. And each column provides some basics of a scientific account for its mystery.

Behaviorology, the little known 100-year-old natural science of behavior, supplies the informing science. Indeed, in these columns, the words “science” and “scientist” always mean “natural science” and “natural scientist.” This avoids confusion. Alone, “science” can mean something very different. For example the theology department at the university in Leuven, Belgium, officially goes by the name, “Faculty of Theological Sciences.”

Your columnist (whose last name is pronounced “la–due”) holds a Ph.D. in The Experimental Analysis of Behavior. That’s a mouthful, which is one reason for the name change to behaviorology. Well over 35 years of college teaching and research experience led the author to retire in 2015 as emeritus professor of behaviorology at the State University of New York at Canton. Having grown up in California, I now make New Mexico my home.

To start, consider the problem of talking about a science with which people feel little familiarity compared to their familiarity with such traditional sciences as physics, chemistry, or biology. People have some knowledge, especially intuitive, that is, not instructed, knowledge, about a natural science of behavior, particularly if they have pets, and train their pets. Yet the emphasis in these columns will be on scientifically discussing human behavior.

People’s knowledge of human behavior often comes from a wide range of traditional cultural perspectives taught to us early in life. Some of these are pre–scientific and others simply non–scientific plus a few that are actually anti–scientific. If you were giving a scientific talk (or writing a scientific column) you would prefer that your audience had more than these kinds of knowledge.

You would probably prefer audience members to have at least the equivalent of a high school course in the science being discussed. In this country, most people have at least that amount of familiar knowledge for the basic sciences of physics or chemistry or biology (or all of these).

But what if the topic involves the basic science of behaviorology? How many people have at least the equivalent of a high school course in this science? Not many. It is not any part or kind of psychology, and it is only rarely taught in high school today. That is a reality I would happily help change, because my first paid teaching job, back in 1972, was to teach this science, under another name, to high school sophomores and seniors.

That means columns like these must tread a thin line between deep coverage that leaves the audience behind, and shallow coverage that leaves the audience bored. To keep me successfully treading this thin line, I invite your feedback. Send comments to the Editor.

Meanwhile, really, why *should* anyone bother about a science of human behavior? After all, our traditional cultural perspectives say don’t bother. These perspectives get conditioned through what we all experience in our seldom questioned childhood upbringing. They generally say that there isn’t any such science, that there couldn’t be any such science, even that there shouldn’t be any such science, because it could contradict all manner of traditional cultural views.

Besides, we already have plenty of other kinds of accounts for human behavior. We have not only those pre-scientific or anti-scientific explanations, but also we have some more modern, non-scientific accounts that mimic them. Only when people think those are inadequate do natural-science explanations gain traction and value.

So, why bother with a natural science of human behavior? And why bother, here, and now? Are people that interested in human behavior? Apparently, people are. Witness the large number of non-scientific books about human behavior on the self-help, new-age, and psychology shelves in bookstores and online lists.

A smaller number of scientific books about human behavior appears on the science shelves and lists. You will find, however, that most of these books emphasize various engineering applications of the science of behavior. This is no surprise. Society usually needs more engineers than scientists. And the application areas that they cover concern mostly normal human behaviors.

Those application areas cover a wide range. They include parenting, regular and special education, behavioral medicine, green contingency engineering, dignified dying, companion animal training, behavioral safety, business and organizational management, penal rehabilitation, and autism and developmental disabilities interventions, among others.

Those engineering books, however, cover the science itself only minimally, only the principles, methods, or concepts needed to work the applications. Only a small handful of books thoroughly cover the science, including not only its principles, methods, and concepts, but also its extensions, implications, interpretations, and basic practices. These topics constitute the areas of these columns, with various books mentioned when they are relevant.

Regarding “why bother with a science of human behavior *here and now*,” consider the biggest, baddest, best reason, which involves the solving of global problems and human civilized survival. For decades, since Rachel Carson’s 1962 book, *Silent Spring*, and MIT’s 1972 book, *Limits to Growth*, traditional natural scientists (like physicists, chemists, and biologists) have noted that human behavior is a major cause of global problems, and that changes in human behavior are required to solve these problems. So they have repeatedly issued calls, some of book length, for a natural science of human behavior, because it is needed to help humanity solve its problems, and survive.

Without such a science, solving global problems that have human behavior components becomes much more difficult. Some suggest that without such

a science, solving these problems becomes impossible within the time frame that the problems themselves allow us.

Yet, while many traditional natural scientists have not taken much notice of it, such a science is already over 100 years old, and now is called behaviorology. So now what's needed is more people making more effort to become more familiar with this science, and take it into account in their work to solve global, or even individual and local, problems. *That is why we should bother with a science of human behavior. That is why we should bother here and now.* These columns aim to help fulfill these needs.

After 45 years of teaching this science to individuals, mostly in college classrooms, I have moved on in retirement. Now, I teach anyone prepared to gain some greater familiarity with this science. Now, I teach through “short courses” or, better, through columns like these, or through books. These constitute some of my contributions to helping solve global problems. And perhaps they can become part of your contributions.

Some topics for future columns include these: recombination of repertoires; fictional explanations of behavior; genes and behavior; memory and forgetting; music performance; concept formation; quitting smoking; dignified dying; parenting; nutrition; love; ghosts; boredom; superstition; bribery; language.

Such a list offers something for everyone.

For a book-length call for a science of behavior, see Lee McIntyre's 2006 book, *Dark Ages—The Case for a Science of Behavior*, published in Cambridge, MA, by MIT Press.

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[Materials in brackets, like this, are additions to *this* collection of the columns.]