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**N**OTE: Prior to Volume 16, Number 1 (Spring 2013) the *Journal of Behaviorology* went by the name of *Behaviorology Today*, which occasionally published fully peer-reviewed articles, explicitly so labeled. Beginning with Volume 15, Number 1, in January 2012, *all* material receives full peer review. See the *Submission Guidelines* for details.

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\* This issue does not contain any new or updated TIBI course syllabi. New syllabi, or updates of previous syllabi, may appear in future issues. (See the *Syllabus Directory* for details.)

## Editorial

### James O’Heare & Stephen Ledoux

(Action Editors for this issue)

This issue of the *Journal of Behaviorology* carries a theme of concern for humanity’s future in two articles that converge on this theme. The first article, by Lawrence Fraley, contributes to the discussion of behaviorology’s place in the cultural community. In particular, it draws attention to the distinction between, and the implications of, a naturalist and a mystical set of philosophical assumptions. This article exposes the unfortunate compromise that religious forces imposed on early natural scientists. For them to avoid burning at the stake (at least most of them) they had to accept religion as the sole arbiter of answers to questions about human behavior while they were then allowed to study everything else from their natural scientific perspective. The long-term result, still dangerously present today where it delays effectively solving global problems, is the ongoing prevention of natural-science units in higher

education from offering curricula in the natural science of behavior, the natural science that we call behaviorology. Instead accounts for behavior, especially human behavior, are mostly limited to the non-scientific accounts offered in social “science” departments. Humanity cannot afford this situation to continue much longer if it is to survive.

The second article, by Murray Sidmay, is another excerpt from his 2001 book, *Coercion and Its Fallout Revised Edition*. Originally drafted in the late 1980s, this excerpt reminds us of the long history over which natural scientists of behavior have been discussing the accelerating rise of world problems and some steps needed to address them. These steps include correcting the errors in higher-education curricular arrangements to which Fraley’s article alluded so that increasing numbers of natural scientists of behavior become available to help solve global problems. ☺

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# *The Cultural and Academic Regard for a Natural Science of Human Behavior*

Lawrence Fraley\*

*Abstract:* This essay calls attention to some of the fundamentals that tend to set the behaviorological perspective apart from other so-called behavior “sciences.” Behaviorology exists as a strictly natural science in the same sense that biology, chemistry, and physics are natural sciences. The principles of behaviorology are objectively discovered, and their demonstrable validity stands independent of belief regardless of whether such belief endorses or opposes those principles. This writing then addresses the historical academic accommodation of behavior science including some difficulties that have been resolved and some as yet unresolved difficulties that have been created.

Consider the familiar comparative exemplification of science and religion. The basic assumptions of science and religion are often mutually contradictory, and historically within those two communities, a disregard of the other’s perspective, in some instances tainted with disdain, has tended often to arise. Nevertheless, over the past few centuries, as the human population has come increasingly to rely on scientifically produced outcomes, the objectivity of modern science has become increasingly difficult for advocates of contrary philosophies to dismiss. One result has been an increase in arguments that natural science and religious mysticism are philosophically compatible. Increasingly, advocating that position has become more fashionable, including the insistence that a single individual can logically respect both of those philosophical approaches concurrently.

## ***Can Science and Mysticism be Philosophically Compatible?***

As will later be explored, a more penetrating analysis reveals that mysticism and the objectivity of science are at opposite extremes of the same scale. Thus, behavior representing one of those extremes precludes its representation of the other. As a thorough and objective scientific inquiry proceeds, supplementary appeals to supernatural intrusions tend increasingly to seem unnecessary if not futile. Nevertheless, an individual’s pretenses of compatibility can often be maintained simply by working, with scientific objectivity, on particular problems having solutions that seem not to require supernatural interventions. Thus, a practitioner, working

within such a particular, appropriately narrowed field of science may maintain rather unadulterated objectivity in dealing with that narrowed subject matter, and may seem, to careless observers, entirely committed to science. Such observers, often postured remotely, thus conclude, invalidly, that such an exhibition of narrowed objectivity reflects a character of more scientific integrity than may actually be the case.

All behavioral events, whether muscular or neural, like all other kinds of real events, are *totally* controlled via energy fluctuation. As the philosophy of science holds in general reaction to an absence of adduced exceptions, spontaneous behavioral events do not occur in the first place. Spontaneity, in the sense of an isolated beginning, remains fictional because, given the occurrence of an event, its functionality, if not yet explored, has existed to be discovered and explained. That natural functionality leaves nothing productive about an occurring event, behavioral or otherwise, for an intervening mystical essence to initiate no matter what capacity for doing so may wishfully be attributed to it.

In respect of general logic, the expending of resources to evoke the superfluous is considered wasteful. Nevertheless, when trying to solve a problem of the behavioral kind, most people tend readily to evoke the presumably helpful intervention of a deity, whether of the religious or secular variety, thus relying on mysticism in place of an as yet undescribed but totally relevant functionality. Although blatantly illogical, humans, ever resourceful, have developed cultural ways to celebrate such illogic, typically by paying homage to mystical forces

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\*A relevant reference is Sidman, 2001, regarding “freedom” as freedom *from* coercion. Address correspondence regarding this paper to the author at fraley@citlink.net.

*Key words:* Behaviorology, education, mysticism, natural science, natural science of behavior, philosophy of science, science education.

conjured to fill generally temporary gaps in their more objective accounts. Much of this logical and analytical inconsistency would be dispelled were people simply provided more adequate educations in the nature of basic science per se, and in the various natural–science fields, especially behaviorology, beginning in elementary school and continuing through the university graduate level.

### ***Some Cultural Effects of the Disparity Between a Philosophy of Science and a Philosophy of Mysticism***

Among the prevailing forms of mysticism in human culture, religious varieties tend to predominate, thus leading frequently to wishful assertions that scientific and religious ideas are logically compatible. Certain prestigious individuals may be cited as examples of respected scientists who are personally religious. Most “scientists” featured in such proffered examples of science–religion compatibility tend to pursue specializations that keep them away from the natural science of behavior per se, especially human behavior. Thus, they tend not to acknowledge the reach of natural science to behavior in general, including to the scientific behavior that they reputedly exhibit as “scientists.” If sufficiently pressed to explain such apparent philosophical inconsistencies in their lives, such “scientists” may allow that life and behavior as subject matters are too complex and mysterious to yield to scientific investigation.

That conclusion, perhaps rendered casually or just implicitly, may come not only from “scientists” who resort to the supernatural when trying to analyze difficult behavioral issues but also from many other kinds of people who may be associated with the scientific community in general. Such an excuse for going mystical, even if secularly (as is often the case), may stem from a quite mistaken assumption that human bodies are inhabited, and their behavior driven, by mysterious agential selves that are often referenced by pronouns (i.e., by I, me, you, etc.). Whatever one of those is supposed to be, it presumably acts as if it is a secular, body–dwelling mini–deity. Presumably, body parts then behave in accordance with its will, a kind of event, for example, implicit in a statement such as, “I raised my right arm to reach the highest shelf.”

According to cultural lore, those mysterious internal controllers of behavior tend to be adequate to control the behavior of everyday life. But such a body–driving self–agent may be regarded as fundamentally unprepared to meet the seemingly more difficult challenges that may be posed by more complex behavioral issues. Hence, the need to summon the aid of implicitly more powerful, externally dwelling deities. However, a culturally endorsed but invalid assumption that behavioral issues can be intrinsically unsusceptible to scientific logic is, of course,

neither necessary nor appropriate (see Ledoux, 2021). Note, too, that a successful search of the endenvironment that would validate the presence of either an internal behavior–initiating and behavior–managing self–spirit, or the temporary presence of a deity summoned from without, would in most, if not all, instances of such a search seem to require blatant recourse to mysticism. After all, recourse to the supernatural seems, in most cases, to be the only course of action to deal successfully with the impossible.

The tolerance of nonsensical views of behavioral phenomena, even within scientific communities, including those in academic settings, is due largely to the failure of the academic natural–science community to expand the purview of its natural–science programs to include the study of human behavior from the strict perspective of natural science. However, the scientific study of behavior, with that study occurring by way of an organized and recognized basic natural science, apart from the complexity of that subject matter, has been rendered especially difficult by a massive cultural mislead about the nature of behavioral phenomena. The mystical assumptions about human behavior that human culture tends heavily to promulgate, although entirely erroneous, affect nearly everyone. Language has evolved to respect and imply the substance of such false assumptions, so that everyone, merely in exercising recourse to language, tends implicitly to endorse that nonsense.

A natural scientific approach to behavior can easily be deemed as important, and certainly as necessary, as a natural–science approach to any other class of basic phenomena (such as energy, matter, and living things). Yet, in almost all cases, current academic institutions fail to offer programs in which to study behavior within the natural–science paradigm. Typically their natural–science curricula include no programs, nor even isolated courses, pertaining to behavior per se as the subject matter. Thus, with respect to behavioral phenomena, natural scientists typically remain formally uneducated in the natural science of human behavior. As a result of that curricular neglect, a substantial fraction of the natural science community remains excessively susceptible to the prevailing cultural seduction relative to nearly any behavior–related issue.

That absence of behavioral studies from the current natural–science curricula is partly due to the late emergence of a natural science of behavior, most of which occurred only during the past century. Another factor that helps account for the absence within academia of a natural science of human behavior has a longer history. The neglect of behavioral subject matter among the natural sciences is a legacy of the tacit historical and continuing compromise, which allowed the emerging non–behavioral natural sciences, while antithetical to

supernatural accounts, to exist and grow in the midst of a general human culture traditionally committed to a heavy reliance on appeals to the supernatural, many of a religious nature.

The integrity of that compromise has relied on the tacit deal between organized science and organized religion. Organized religion has long enjoyed the organizational integrity and massive membership required to marshal significant challenges to the cultural influence of the scientific community, although their implicit, if lopsided, balance of power remains subject to shift. Traditionally, scientists have needed sufficient cultural independence to pursue and teach their objective kind of inquiries. Furthermore, at the same time, across the culture at large, the individual members of the vast religious community were coming to rely, with ever increasing necessity, upon the products derived by way of scientific activity. Typically, within organized religion, quiet ways were found to let the increasingly necessary scientific community prosper as long as that natural–science community posed little or no apparent threat to the religious kind of organized superstition, the kind of threat that could occur if science deals with human behavior, so the natural–science community originally left dealing with human behavior to religion.

In secular educational institutions the natural science community fulfills its obligation to that tacit compromise in part by ignoring behavior as a subject matter for natural science inquiry. Under such a largely intuitive science/religion compromise, the academic natural–science community has simply continued its tacit forfeiture of behavioral subject matter to the academic “soft” sciences, where philosophical behavior remains largely privatized, disparately personalized, and more subject to curricular neglect than in natural–science units. That prolonged neglect of a natural science of behavior by academic natural scientists in general has been bolstered also by the intrinsic difficulty traditionally encountered in attempts to study behavioral subject matter. Importantly, under the prevailing science/religion compromise, the necessary developmental foundations for academic attention to a natural science of behavior have, in general, been subject to retarded maturation.

Nevertheless, within the general academic setting, the scientific community has shared, along with other kinds of disciplines, in developing a rational defense of its right and obligation to teach its particular kind of subject matter, even to persons who disavow the scientific approach. Traditionally, in academic settings at any level, a student will have been required to learn about anything deemed by the faculty to be worthy as subject matter, but without that student being required to profess belief in it, of it, or for it. In that simple way, anything deemed worthy of knowing could be taught to any student. That

student could then be tested to ascertain that that student could describe that element of subject matter accurately. Beyond that accurate description, the student would not be required to “believe” in it, like it, or otherwise embrace it. However, for example, as an aspect of learning more thoroughly about certain scientific skills, the student could be required to apply those skills or practice such skills in specified ways to produce certain typically anticipated outcomes. But again, a student would not be required to like, approve of, or in any way endorse such performances beyond demonstrating that he or she then knew, in performance detail, that to which he or she may be opposed or disbelieve. On the other hand, however, for a higher education student to be accepted formally as majoring in that particular natural science and receiving an advanced degree in that field, that student, beyond merely knowing about, and demonstrating, such skills, would have to display some convincing evidence, that he or she deemed personal recourse to such skills as valid and appropriate.

In secular academic institutions the faculty members within the “soft science” programs, despite any personal declarations of academic secularity, have tended to operate under an umbrella of approval by the large religious faction of the general population, a mostly tacit approval that has been partly dependent upon the explicit personal religiosity of a significant fraction of soft–science faculty members, a characteristic that may be exhibited to an extreme in religiously sponsored schools.

The general cultural compromise between strict objectivity and mysticism, under review in this essay, has long prevented the academic focus of natural scientists on precisely why particular behavioral events occur (i.e., their precise functionality) as well as on how to exert an engineering kind of control over such events. Thus, attention to complex behavioral matters has been left to occur mostly at the intuitive level, although resolutions of those complexities typically would require very complex treatments. It is rather like having to invent and effectively utilize a new kind of electricity–producing battery without recourse to chemistry. Nevertheless, regardless of endless practical needs for a natural science of behavior, the academic natural–science faculties have tended to project an often reluctant and typically vague acknowledgment that the social “sciences” have behavioral phenomena “covered.”

Thus, the natural scientists now working within academia can remain confused and misguided about behavioral phenomena. In general, natural scientists may seem to accept and tolerate behavior as vaguely mysterious, ...an approach that can reflect their participation in the ongoing science/religion compromise, although they, as natural scientists, disallow mystical approaches within their own non–behavioral specializations. Importantly,

under the compromise between superstitiously anchored academicians and natural–science academicians, the academic natural–science departments have been permitted to maintain their physical separation from the “soft” science departments. This separation has tended to prevent much of what natural scientists regard as the intellectual corruption that would tend to be visited upon their community by their physical integration with the soft–science departments.

Today, increasingly, critical observers tend to agree that excluding the natural science of why specific behaviors occur (i.e., behaviorology) from natural–science attention within academia is inappropriate and unnecessary. Arguably it is time for a new cultural era in which the organized natural–science community fully expresses itself on the basis of its own proven merits. But such a complete manifestation of natural science within academia requires that natural scientific attention be focused upon all real phenomena including behavioral varieties.

As a practical matter on behalf of cultural tranquility, the differing philosophies that respectively inform soft–science and natural–science traditions of inquiry into behavior may continue for a time to be represented concurrently within academic institutions, although by differing and physically well–separated respective academic units (schools, colleges, departments, etc.). But the old preclusive compromise under which the natural sciences deliberately ignored behavioral phenomena must now be ended. The organized natural–science communities within academia must be free to address, in their own natural–science way, any and all real subject matters, and that certainly includes all behavioral phenomena, especially, though not necessarily exclusively, the behavior mediated by humans.

Thus, within institutions of higher education, the academic institutional structuring (of schools, colleges, departments, majors, minors, courses) should no longer be determined only by the phenomena being studied, but also, as appropriate, by how given subject matters are being regarded and studied. Thus, for a time at least, students could study either the functionality of behavior or, alternatively, its drive by psyches, selves, or other manifestations of internal pronominal agents. But those two study options would be offered in separated units and without any officially sanctioned, nonsensical, pretense that a physical integration of those units could–or–would overcome the logical bifurcation that separates them.

Appealing to the distinction between (a) how bodies mediate behavior and (b) why, in particular situations, they will do so in particular ways, it can be noted that physiologists will continue, from a biological perspective, to concern themselves with *how* a body exhibits its

mediated behaviors—fundamentally an issue of bodily structure. But it is the behaviorologist who is prepared to focus on the functional relations between environment and body to account (a) for *why* behavior of a particular form occurs on a particular occasion and (b) for how the relevant functional relations can be controlled, mostly by altering environmental variables and thus giving rise to behavior engineering. A behavior engineer works to produce precisely the behaviors that result in particular, reinforcing, environmental outcomes. For the majority of people, who continue to operate at the level of personal intuition, such phrases as “striving to do the right thing,” or “trying to bring out the best in certain people,” imply a layman’s informal and mysteriously agential view of such engineering needs.

All behavior occurs according to totally controlled functionality, and behaviorology is about getting that functionality analyzed correctly. A status of “freedom” is fictional. It cannot and does not exist, and has never existed. References to “freedom” remain but an admission of ignorance about the prevailing functionality. This truth is well understood, albeit intuitively, by the long succession of successful manipulators of behavior who continue their relatively easy exploitations of the human population through various appeals to people’s “freedom.” It is time for science to rescue humanity from their grip.

Students who want to pursue a natural science of behavior causation, including its engineered control, should no longer have to turn away from educational institutions that purport to excel in the breadth of their academic opportunities, simply because those institutions fail to include the natural science of behavior among their curricular offerings. Modern academia’s political abstention from a natural scientific approach to what is arguably humanity’s most important subject matter should no longer stand as modern academia’s most salient contribution to this dilemma.

One ill–conceived approach to fixing this academic debacle has been for behavior–focused soft–science departments to import a modest compliment of otherwise academically “homeless” natural scientists. The faculty members in such isolated clusters of natural scientists, operating within otherwise soft–science departments, are pressured to adopt the previously discussed academic social ethics of such units. In addition, those small clusters of ill–placed natural scientists usually remain a politically impotent minority within those relatively larger soft–science units. However, such an isolated and politically controlled faculty cluster, if or when encouraged to step forth, may inject a much needed air of scientific authenticity into those philosophically motley units. Such pathetic gestures pay the rent for their departmental shelter.

Traditionally, within contemporary academic institutions, the “soft science” faculty members are organized into departments within larger social–science schools or colleges. Each such academic social–science department has purported to teach some relevant aspect of the relation of human behavior to human culture. Typically such departmental programs neither encourage nor enforce the intellectual integrity that characterizes the natural–science departments, and a majority of their faculty members may support keeping it that way. In such an academic department, a student, in pursuing the study of the subject matter, can be guided either by a personal philosophy of unfettered mysticism or by a personal philosophy of naturalism (or some inconsistent mix of the two). Furthermore, in those “soft science” academic departments, such individual displays of philosophical intermingling, although profoundly affecting a student’s analytical constructs, tend to go without formal analytical challenge. Nor in soft–science units do similar challenges tend to arise informally among faculty colleagues, insofar as such probes into what is being treated as a strictly personal matter could be regarded as intrusively impolite and inappropriate, or even unconstitutional.

However, contrary to some familiar arguments, the neglect of personal philosophy has important qualitative implications, because philosophical assumptions steer the interpretive activities of whatever studies are in progress. Within the United States, in the natural–science departments of academic institutions, because every citizen’s personal philosophy is constitutionally protected from the imposition of alternative philosophies, natural–science units simply tend to avoid hiring or promoting faculty members whose personal philosophies encourage serious recourse to mysticism or to any kind of superstition in pursuing the departmental subject matter. Furthermore, the professional work done in natural–science departments is expected to proceed according to methodologies that maintain a strict objectivity, which tends to preclude individual recourse to any form of the supernatural in pursuit of scientific outcomes. In general, within natural–science departments, faculty colleagues tend to disrespect the thinking of those whose work products seem reliant on superstitious or mystical recourse. In natural–science units, as that name implies, an individual faculty member’s professional accomplishments thus tend to be kept reliant on the objectivity of natural science.

The often disguised philosophical carelessness and philosophical disparity that may characterize traditional social–science faculties typically derives from lack of the stringency that characterizes operations in natural–science units. A prime example is the frequent reliance on indirect measurements. That rather common and widely acceptable approach in the social sciences often

features surveys of people’s reactions to events of interest instead of more direct measurements of the phenomena in question, although those phenomena, rather than people’s reactions to them, have been designated as the phenomena of interest. Such an indirect approach, often easily pursued, may be deemed appropriate in a “social science” department, whereas natural scientists, considering similar situations, may tend to regard such an indirect approach as weak or imprecise.

When recourse to such easy indirectness is challenged, a typical answer is that more direct measurements, especially of behavioral events, are unnecessary, perhaps because they are too difficult, inconvenient, or costly. It is a response cast from within a kind of argumentative box in which behaviorologists would tend not to be trapped in the first place. Behaviorologists, as practical behavior engineers who must conduct their inquiries in perpetual contact with such difficulties, have become accustomed to developing effective strategies that tend to avoid entrapment by the ease of careless soft–science methodologies. When one knows the nature of behavior and how behavior works, one realizes that all relevant, and perhaps critical, behavior–controlling variables do actually exist to be identified and, theoretically, to be contacted directly. However, such directness may be difficult and, in some cases, may remain beyond one’s capabilities. Nevertheless, the relevant functional relations that involve those variables are extant and thus theoretically describable—a familiar challenge within any basic natural science.

Historically, a few hundred years ago as the early stages of natural science were just beginning to emerge, the compromise between the natural scientists and followers of organized superstition, in avoiding direct public contradictions of each other’s approaches, prevented most but not all early natural scientists from being burned at the stake by religious zealots who for an extended time enjoyed the political power to do so. And in some cases they did not hesitate to exercise it (e.g., check the fate of Giordano Bruno).

In more contemporary times, this quiet compromise between organized science and organized superstition has allowed academic natural science to develop in relatively safe isolation. That cultural isolation of developing science occurred largely within two kinds of settings: (A) companies that relied on their teams of applied scientists for the products that they marketed, and (B) academic institutions that, in addition to teaching, also focused on the development of science per se. Thus, in the latter case, communities of scientists could prosper within the safe isolation and relative neglect afforded by their own separate colleges on academic campuses—provided, of course, that the faculties of those natural science departments continued to allow academic studies

of human behavioral phenomena to remain under the control of social–science units where the cultural influences of organized superstition can more easily intrude and predominate politically.

With such a compromise in place, natural scientists in training, usually as a matter of necessity, must pursue any formal study of the occurrence of human behavior by taking courses offered in academic “soft” science units. But natural scientists in training, who attempt to study behavioral events in such academic units, seldom get the most effective and beneficial training possible, in part because the intellectual rigor of the natural sciences tends not to be respected there. The substitution of (a) soft–science, behavior–related, training for (b) training in the natural science of behavior, including what makes the latter “natural,” tends to leave such compromised scientists–in–training with conspicuous and increasingly unaffordable gaps in their professional repertoires—gaps that many were mistakenly led to assume could be filled by taking soft–science courses in behavioral phenomena. That mislead of natural–science students seeking training in the science of behavior represents the complicity, by their academic institutions, in the tacit compromise being discussed in this essay.

An appropriate personal philosophy is critical to natural scientists for the maintenance of their objectivity, and the training of such scientists must include a philosophical basis for a reliance on objectivity. Nevertheless, as a characteristic of the “social sciences,” one’s personal philosophy, typically after an early–life indoctrination, tends to remain a private matter not to be formally reconstructed in any subsequent academic retraining program. Thus, when students should be receiving instruction in the objectivity of science, the human culture at large endorses the formal neglect of instruction pertinent to a change in personal philosophy per se, ...a neglect reflected in most social–science curricula. Thus, in the social sciences, the philosophical aspects of science per se may be left, academically, to a lengthy, subtle, and perhaps haphazard indoctrination, or re–indoctrination, that tends to affect individuals differently.

A purely natural science of human behavior exists along with its philosophy of objectivity. At issue is how long the study of that critical field of natural science will continue to be unavailable within academic natural–science programs, ...a heavily obfuscated omission that remains unaddressed by simple transfers of philosophically disparate social–science departments to natural–science colleges that tend to be located elsewhere on academic campuses.❖

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- Sidman, M. (2001). *Coercion and its Fallout Revised Edition*. Boston, MA: Authors Cooperative.

## Annotated Bibliography

For recommended introductions to the natural science of behaviorology, see any of these titles:

- Fraley, L. E. (2008). *General Behaviorology: The Natural Science of Human Behavior*. Canton, NY: ABCs (a 1,600–page, doctoral–level single volume; contact the author for current sources; see the BOOKS page at [www.behaviorology.org](http://www.behaviorology.org)—which does not sell books—for a full description).
- Ledoux, S. F. (2014). *Running Out of Time—Introducing Behaviorology to Help Solve Global Problem*. Ottawa, Canada: BehaveTech Publishing (a 600–page, comprehensive textbook; see the BOOKS page at [www.behaviorology.org](http://www.behaviorology.org)—which does not sell books—for a full description and current sources).
- Ledoux, S. F. (2017). *What Causes Human Behavior—Stars, Selves, or Contingencies?* Ottawa, Canada: BehaveTech Publishing (a 450–page, general–audience primer that is less comprehensive but also less technical than the *Running Out of Time...* book; see the BOOKS page at [www.behaviorology.org](http://www.behaviorology.org)—which does not sell books—for a full description and current sources).❖



# Can Conduct Be Analyzed?

Murray Sidman\*

*Abstract* [by the Action Editor]: This paper documents (from Sidman, 2001 [1989]) the long-standing nature of some recognized concerns of the natural science of behavior under any label (e.g., behaviorology and behavior analysis). Years before the world in general recognized these concerns, natural scientists of behavior like Murray Sidman were already discussing the accelerating rise of world problems and some steps needed to address them. *The problems continue to outpace the solutions* in part because society still lacks adequate access to broad education in the natural science of behavior pertinent to the behavior components of both the problems and the solutions (e.g., see Ledoux, 2021a). Reminders, like this excerpt from Sidman's book, of the roles that increasing numbers of natural scientists of behavior must fill, regarding these problems and their solutions, help evoke outcomes that support more—and better focused—solution efforts.

[Due to the importance of maintaining some focus on the dangers of coercion to humanity, professor Murray Sidman gave this journal general permission to occasionally reprint excerpts from his book, *Coercion and Its Fallout Revised Edition* (Sidman, 2001). Accordingly, this journal has reprinted (a) the second half of Chapter 19 (see Sidman, 2003) and the Preface (see Sidman, 2004). Now it reprints an early section (pages 51–55) of Chapter 3, a section that appeared a few pages earlier in the original 1989 edition. This 1989 date is germane to the appearance of this excerpt now.

During the years before releasing his 1989 book, *Coercion and Its Fallout*, Murray Sidman was among the natural scientists of behavior who, along with leaders from other natural sciences, already clearly saw the “handwriting on the wall” regarding the extreme—and coercive—dangers of human behavior producing global problems, and the concomitant need to begin solution behaviors. The solutions have not kept up with the problems. Sidman's comments, in the first few pages of Chapter 3 of *Coercion and Its Fallout*, remain pertinent today, as does the rest of his book! Reminders, such as this reprinting of this example of Sidman's statement about his long-standing concerns, as one of the most respected of natural scientists of behavior, can help sharpen the focus of this science on producing its share of the needed contributions to the solutions to global problems.

Note that much of Sidman's writing for the original 1989 edition of this book occurred in the years around the 1987 meeting formally establishing the label “behaviorology” as the name for the independent natural science of behavior. That means that much of Sidman's writing for this book occurred in the period when nearly everyone, including many potential behaviorologists, used the label “behavior analysis” as a name for the natural science of behavior. Across subsequent personal communications (e.g., at conventions; Sidman attended some TIBA [The International Behaviorology Association] conventions), Sidman expressed concern about these labels causing potential confusion because, as he phrased it, he used his tact, “behavior analysis,” as equivalent to the tact, “behaviorology,” as a tact that specifically separates the independent natural science of behavior from any discipline espousing magical, mysterious or spontaneous events (see Ledoux, 2021b) as causes of behavior (e.g., inner agents like minds, souls, psyches, selves, choosers, deciders, judges, and so on). For this article, however, nothing more is said or done about his tact beyond this note.—Action Editor]

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\* Reprinted with permission from pages 51–55 of (2001 [1989]) *Coercion and Its Fallout Revised Edition*. Boston, MA: Author's Cooperative. This material initially appeared a few pages earlier in the original 1989 edition. Address correspondence about this paper to the Action Editor at ledoux@canton.edu.

*Key words:* Applied Behavior Analysis (ABA), coercion, behavior analysis, behaviorology, education, global problems and solutions, natural science, natural science of behavior.

## Can Conduct Be Analyzed?

We inflict injury on each other daily with our coercive practices, and we sometimes seem on the verge of inflicting the ultimate injury on ourselves. This de facto state of emergency lends a certain urgency to the need for getting acquainted with the science of behavior analysis. Many of our most serious troubles arise from our inability to predict and manage behavior. What are other people up to at the moment and what are they going to do in the future? How might we best influence them in our own interest, in their own interest, or in the interest of the greatest number? Can labor get management to pay higher wages? Can management increase worker productivity? Are fines and imprisonment necessary to stop Captains of Industry from polluting our atmosphere and rivers? How can we get the military establishment to cease poisoning our earth and oceans with atomic waste? Does it make sense to maintain a military establishment so huge that its insatiable demands for resources threaten to destroy the very way of life it is supposed to defend? What will it take to convince public officials that this is a reasonable question? And is there any way to prevent some power-mad or paranoid government leader from throwing the switch that will destroy us all?

Each of us is also concerned with our own actions. We all have to control ourselves. Can we get ourselves to stop smoking, to lose weight, to select food more wisely, to exercise? Many people need to learn basic social skills: How to overcome loneliness? How to negotiate that business deal? The theme “How to win friends and influence people” has provided a livelihood for many writers.

Behavior analysis deals with the management of our own and others’ conduct. We are always adjusting our actions to the demands of the world around us. To analyze behavior is simply to study those adjustments. Assuming that people, places, and things are always controlling the actions of any individual, behavior analysts try to find out how to establish, facilitate, prevent, or get rid of that control. The discovery of general principles makes it possible to predict our own and others’ actions and to modulate the control that already exists. Behavior analysis does not advocate but simply investigates behavioral control. It is for society to determine when deliberate control of conduct is desirable and when it is not, and whether or not it wants particular kinds of control.

Cultural and personal practices attest to our general recognition that behavior can be analyzed and shaped. We use many different methods for changing our own and others’ conduct.

Formal education is one area in which society recognizes the malleability of behavior. To be in favor of education is to recognize that behavior is analyzable and controllable. A teacher’s job is to control the behavior

of his or her students. I am not talking now about classroom discipline but about the teacher’s fundamental task of getting students to say and do things they had been unable to say and do before. We call it “giving them new knowledge” or “getting them to appreciate” what the world has to offer them, but new knowledge and appreciation can only be demonstrated by new actions. A successful teacher is one who changes students’ behavior in ways that demonstrate their new capabilities.

There are few among us who would not agree that the family provides an appropriate and effective context for the shaping of behavior. Most parents set more or less clearly defined standards for their children, some knowing exactly what they want to see their children become and others content just to raise decent, happy human beings. At the very least, we all want children to gain the skills they will need for survival. To achieve that end, we bring all the influence at our disposal to teach children to behave adaptively.

The very existence of a code of laws testifies also to our awareness that people’s conduct is controllable. We base the “rule of law” on the controllability of conduct. Laws are statements of contingencies. If people act in certain ways, certain consequences will follow. Our legal system clearly recognizes that we manage people by attaching consequences to their actions.

Even the techniques we have developed for achieving self-control corroborate our fundamental acceptance of behavioral control. By setting an alarm clock, we arrange our environment to control our own behavior. We also control ourselves when we write reminder notes, keep an appointment book, eliminate certain foods from our refrigerator, purchase an exercycle, join a dating club, take a marketing course, get rid of our gun, turn out the lights at bedtime, change a burned-out bulb in a reading lamp, turn a hearing aid on or off, or run through the alphabet to remember someone’s name.

In many aspects of our lives, therefore, we implicitly acknowledge that behavior is controllable. Does the control have to be coercive? Unfortunately, too many will answer, “What else is there?” Their consequent distaste for the notion of control has prevented them from acquainting themselves with behavior analysis, the science that can help them understand the nature of behavioral control. Ignoring the realities of control has prevented them from taking advantage of noncoercive methods for bringing about desired behavior change.

A simple assertion that it would be advantageous to become acquainted with behavior analysis understates the case dangerously. Given the disasters our world is hurtling toward because of our failures to manage ourselves and others effectively, it is more than reasonable to contend that we cannot survive without such a science. This stronger assertion is to be taken literally: Without

a science of behavior humanity will not last. There is, of course, no guarantee; we may not survive even with a science of behavior. But without one to show us how to change the ways we conduct our affairs, the world is going to die either from neglect or by suicide.

We are polluting our environment on a grand scale, burning fossil fuels, increasing the carbon dioxide in the atmosphere, and raising world temperatures to the point where the melting ice caps will flood our coastal civilizations into oblivion. Education has perhaps sharpened our awareness of the danger but has provided no solution. We will avert this global disaster only by learning to manage our own and others' behavior—also on a global scale. It will take continued development and application of an effective behavioral technology to overcome the side effects of other sciences' technical advances.

Modern technology has raised additional problems. We are storing radioactive waste in containers that, on a time scale of generations, are guaranteed to leak. Publicity has helped expose the problem, but righteous public indignation has not sufficed to solve it. A science of behavior analysis, considerably more advanced than it is currently, will have to find out how we can bring such remote consequences to bear on contemporary problem-solving behavior.

An increasing conflict between biological and economic constraints has intensified the environment's coercive influence over the human condition. The world's population is expanding at a rate in excess of its productivity, causing a steady increase in the number of people who have nothing or next to nothing. Neither enlightened self-interest nor a sense of brotherhood has been able to ameliorate the resulting human misery. It will take a highly developed science of behavior analysis to show us how to help others apply the technical information we already possess to create living conditions supportive of population growth.

The nations of the world duel in the Mideast, maneuvering for continued access to the oil that is required for the survival of their military machines. Depletion of the Earth's energy reserves threatens to ignite international conflicts that are highly likely to end in total nuclear destruction. Can we depend on an instinct for survival, or place our faith in the human spirit and intellect to curb this suicidal impulse? Economic considerations have kept us from giving the development of new energy sources a high priority. In comparison to oil and gas as power sources, for example, the exploitation of water power, wind power, and solar power is currently [1989] judged too expensive. In the long run, however, will it cost us more to have paid the higher price now or to engage in later wars for dwindling oil and gas reserves? So far, the coercive option has governed public policy. Money apparently conquers fear.

The nuclear disaster we face is one we have never yet experienced and are likely to be able to experience only once. Even those who were alive and cognizant of the destruction when Hiroshima and Nagasaki experienced atomic bombing are dwindling in number, leaving fewer whose behavior has been directly influenced by those disasters. In spite of the incredible increase in the destructive capability of modern nuclear weapons, the presumed remoteness of their actual use gives that potential only weak control over our current actions. The immediacy of economic expense and inconvenience gives these consequences considerably more power over our conduct than does the more destructive but also more distant conflicts we are heading for. It will take both a basic and an applied science of behavior analysis to find out how to bring consequences that are both unfamiliar and delayed into contact with current policy making.

Perhaps these problems are not solvable. The science of behavior analysis has shown that delayed consequences affect conduct weakly. A rigorous analysis may yield the conclusion that the laws of behavior make our disappearance as a species inevitable. Having the science provides no assurance of survival. Yet, failure to strengthen our understanding of our own conduct would surely deprive us of an effective resource in the search for ways to halt our rush toward extinction.✻

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## Fourth Five-Year Index: Volumes 20–24

This is the Fourth five-year index for the TIBI journal. It covers volumes 20–24 of *Journal of Behaviorology* (previously, *Behaviorology Today*). This Index lists the references to the main articles that appeared in these volumes, which covered the years 2017–2021. Most of the references are listed by volume in their order of inclusion in each issue. All articles are fully peer reviewed. If content is not clear from the title, the entry includes an annotation.

The first five-year index, for volumes 5 through 9 (2002–2006) appeared in Volume 9, Number 2, Fall 2006, pp. 32–34. (Volume 5, and the first five-year index, also include the main articles from volumes 1 through 4 [1998–2001], which appeared while the journal was called *TIBI News Time*.) The second five-year index, for volumes 10 through 14 (2007–2011)—appeared in Volume 14, Number 2, Fall 2011, pp. 11–12. The third five-year index, for volumes 15 through 19 (2012–2016) appeared in Volume 20, Number 2, Fall 2017, pp. 26–27.\*

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[Plus four TIBI syllabi; see the *Syllabus Directory*...]

### Volume 20 Number 2 (Fall 2017)

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& [All TIBI Board members; see page 20]

### Guest Reviews:

& Dr. Matthew Lewon

& Mr. Michael Shuler

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### Considerations

The Journal entertains experimental or applied research papers and theoretical or conceptual or literature review articles (all of which will have at least three reviewers) as well as Book Reviews, On Terms, In Response, and program descriptions (two reviewers) plus letters, memorials, etc. The members of the TIBI Board of Directors constitute the basic Editorial Review Board (ERB) on which others can serve as members or guests. Authors will not be identified to reviewers and reviewers will not be identified to authors, except when they opt to sign their reviews. (Some reviewers prefer to sign, usually in acknowledgement of the additional assistance that they are prepared to offer the author.) Each reviewer will provide constructive feedback as well as a recommendation: accept, or accept with revisions, or revise and resubmit, or reject.

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All accepted pieces must contribute to the behaviorology discipline (e.g., by relating to or clarifying or expanding some aspect of the discipline such as the philosophical, conceptual, theoretical, experimental, applied, or interdisciplinary aspects). Accepted pieces must also be crafted in ways that convey as much consistency as possible with the principles, concepts, practices, philosophy, and terminology of the discipline.

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## Syllabus Directory\*

The most recent issue of *Journal of Behaviorology* that features a Syllabus Directory contains two lists of TIBI's current course syllabi. These lists show where to find the most up-to-date versions of these syllabi in number, title, and content. The first list organizes the syllabi by numerical course number. The second list organizes the syllabi by the chronological volume, number, and pages where you can find each course syllabus.

Each of these syllabi contain only information explicit to a particular course. You will find all the relevant generic information in the article, *General Parameters & Procedures for Courses from The International Behaviorology Institute*, in *Journal of Behaviorology*, Volume 18, Number 2 (Spring, 2015) pp. 3–6.

### Current Syllabi by Course Number

- BEHG 100: *Child Rearing Principles and Practices*;  
Volume 19, Number 2 (Fall 2016) 3–5.
- BEHG 110: *Introduction to Behaviorology Terminology*;  
Volume 20, Number 1 (Spring, 2017) 19–21.
- BEHG 210: *Introduction to Behaviorology I*;  
Volume 19, Number 2 (Fall 2016) 6–8.
- BEHG 211: *Introduction to Behaviorology II*;  
Volume 19, Number 2 (Fall 2016) 9–12.
- BEHG 330: *Companion Animal Training*;  
Volume 19, Number 2 (Fall 2016) 13–15.
- BEHG 340: *Introduction to Verbal Behavior*;  
Volume 19, Number 2 (Fall 2016) 16–18.
- BEHG 350: *Behaviorology Philosophy and History*;  
Volume 20, Number 1 (Spring, 2017) 22–24.
- BEHG 405: *Basic Autism Intervention Methods*;  
Volume 19, Number 2 (Fall 2016) 19–21.
- BEHG 425: *Classroom Management and Preventing School Violence*;  
Volume 19, Number 2 (Fall 2016) 22–24.
- BEHG 430: *Resolving Problem Animal Behavior*;  
Volume 20, Number 1 (Spring, 2017) 25–28.
- BEHG 435: *Performance Management and Preventing Workplace Violence*;  
Volume 19, Number 2 (Fall 2016) 25–27.
- BEHG 455: *Behaviorological Thanatology and Dignified Dying*;  
Volume 19, Number 2 (Fall 2016) 28–31.
- BEHG 465: *Behaviorological Rehabilitation*;  
Volume 19, Number 2 (Fall 2016) 32–34.

- BEHG 480: *Green Contingency Engineering*;  
Volume 20, Number 1 (Spring, 2017) 29–31.
- BEHG 512: *Advanced Behaviorology I*;  
Volume 19, Number 2 (Fall 2016) 35–37.
- BEHG 513: *Advanced Behaviorology II*;  
Volume 19, Number 2 (Fall 2016) 38–40.
- BEHG 541: *Advanced Verbal Behavior*;  
Volume 19, Number 2 (Fall 2016) 41–43.✻

### Current Syllabi by Volume & Number

- BEHG 100: *Child Rearing Principles and Practices*;  
Volume 19, Number 2 (Fall 2016) 3–5.
- BEHG 210: *Introduction to Behaviorology I*;  
Volume 19, Number 2 (Fall 2016) 6–8.
- BEHG 211: *Introduction to Behaviorology II*;  
Volume 19, Number 2 (Fall 2016) 9–12.
- BEHG 330: *Companion Animal Training*;  
Volume 19, Number 2 (Fall 2016) 13–15.
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- BEHG 513: *Advanced Behaviorology II*;  
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- BEHG 110: *Introduction to Behaviorology Terminology*;  
Volume 20, Number 1 (Spring, 2017) 19–21.
- BEHG 350: *Behaviorology Philosophy and History*;  
Volume 20, Number 1 (Spring, 2017) 22–24.
- BEHG 430: *Resolving Problem Animal Behavior*;  
Volume 20, Number 1 (Spring, 2017) 25–28.
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\*All of these TIBI course syllabi were either updated in 2016 or new in 2017. Many have older version appearing in earlier issues under different course numbers; see the *Syllabus Directory* in Volume 18, Number 1 (Spring 2015) for details.

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\*Subscriptions are US\$40 annually, the same as affiliate membership.

\*\*Back issues: US\$20 each.

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## ***TIBI/TIBIA Purposes\****

**T**<sub>I</sub>**B**<sub>I</sub>, as a non-profit educational corporation, is dedicated to many concerns. TIBI is dedicated to teaching behaviorology, especially to those who do not have university behaviorology departments or programs available to them. TIBI is also dedicated to expanding and disseminating the behaviorological literature at least through the fully peer-reviewed *Journal of Behaviorology* (originally called *TIBI News Time* and then *Behaviorology Today*) with editors being appointed by the TIBI Board of Directors, usually from among the TIBIA Advocate members. TIBI is a professional organization also dedicated to organizing behaviorological scientists and practitioners into an association (The International Behaviorology Institute Association—TIBIA) so they can engage in coordinated activities that carry out the purposes of TIBI/TIBIA. These activities include (a) encouraging and assisting members to host visiting scholars who are studying behaviorology as well as holding conventions and conferences; (b) enabling TIBI faculty to arrange or provide training for behaviorology students; and (c) providing TIBI certificates to students who successfully complete specified behaviorology curriculum requirements). And TIBI is a professional organization dedicated to representing and developing the philosophical, conceptual, analytical, experimental, and technological components of the discipline of behaviorology, the comprehensive natural science discipline of the functional relations between behavior and independent variables including determinants from the environment, both socio-cultural and physical, as well as determinants from the biological history of the species. Therefore, recognizing that behaviorology's principles and contributions are generally relevant to all cultures and species, the purposes of TIBI and TIBIA are:

A. to foster the philosophy of science known as radical behaviorism [AKA behavioral naturalism];

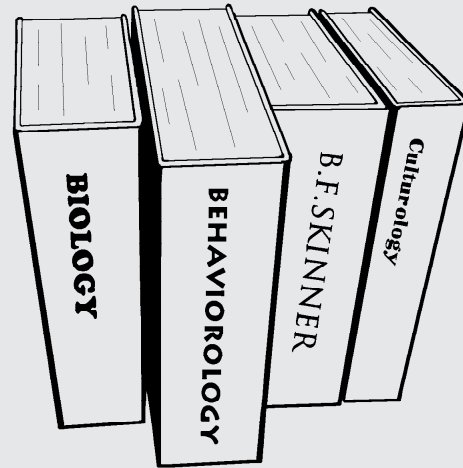
- B. to nurture experimental and applied research analyzing the effects of physical, biological, behavioral, and cultural variables on the behavior of organisms, with selection by consequences being an important causal mode relating these variables at the different levels of organization in the life sciences;
- C. to extend technological application of behaviorological research results to areas of human concern;
- D. to interpret, consistent with scientific foundations, complex behavioral relations;
- E. to support methodologies relevant to the scientific analysis, interpretation, and change of both behavior and its relations with other events;
- F. to sustain scientific study in diverse specialized areas of behaviorological phenomena;
- G. to integrate the concepts, data, and technologies of the discipline's various sub-fields;
- H. to develop a verbal community of behaviorologists;
- I. to assist programs and departments of behaviorology to teach the philosophical foundations, scientific analyses and methodologies, and technological extensions of the discipline;
- J. to promote a scientific "Behavior Literacy" graduation requirement of appropriate content and depth at all levels of educational institutions from kindergarten through university;
- K. to encourage the full use of behaviorology as the essential scientific foundation for behavior related work within all fields of human affairs;
- L. to cooperate on mutually important concerns with other humanistic and scientific disciplines and technological fields where their members pursue interests overlapping those of behaviorologists; and
- M. to communicate to the general public the importance of the behaviorological perspective for the development, well-being, and survival of humankind.

\*Adapted from the 2017–updated TIBI Bylaws.☺☺

## ***Another Free-Access Behaviorology Website***

Due to pandemic-related delays, by the middle of 2022, behaviorologists, friends, and everyone may finally be able to access freely another behavior-related website, [www.BehaviorInfo.com](http://www.BehaviorInfo.com). Primarily, and initially, this website features Stephen Ledoux's sets of newspaper columns about behaviorology so that more people can gain additional familiarity with this natural science. Humanity needs this, because human behavior causes global problems and changes in human behavior help solve these problems. The first set of columns, on basics, leads into the second set, on scientific answers to ancient human questions (e.g., on values, rights, ethics, morals, language, consciousness, personhood, life, death, reality, and even evolutions and robotics). Then may come columns by other authors. (Interested in writing some? Contact Ledoux at [ledoux@canton.edu](mailto:ledoux@canton.edu).)

ABOUT  
BEHAVIOROLOGY,  
TIBI, AND  
*Journal of Behaviorology*



BEHAVIOROLOGY IS AN INDEPENDENTLY ORGANIZED DISCIPLINE FEATURING THE NATURAL SCIENCE OF BEHAVIOR. BEHAVIOROLOGISTS STUDY THE FUNCTIONAL RELATIONS BETWEEN BEHAVIOR AND ITS INDEPENDENT VARIABLES IN THE BEHAVIOR-DETERMINING ENVIRONMENT. BEHAVIOROLOGICAL ACCOUNTS ARE BASED ON THE BEHAVIORAL CAPACITY OF THE SPECIES, THE PERSONAL HISTORY OF THE BEHAVING ORGANISM, AND THE CURRENT PHYSICAL AND SOCIAL ENVIRONMENT IN WHICH BEHAVIOR OCCURS. BEHAVIOROLOGISTS DISCOVER THE NATURAL LAWS GOVERNING BEHAVIOR. THEY THEN DEVELOP BENEFICIAL BEHAVIOROLOGICAL-ENGINEERING TECHNOLOGIES APPLICABLE TO BEHAVIOR-RELATED CONCERNS IN ALL FIELDS INCLUDING CHILD REARING, EDUCATION, EMPLOYMENT, ENTERTAINMENT, GOVERNMENT, LAW, MARKETING, MEDICINE, AND SELF-MANAGEMENT.

BEHAVIOROLOGY FEATURES STRICTLY NATURAL ACCOUNTS FOR BEHAVIORAL EVENTS. IN THIS WAY BEHAVIOROLOGY DIFFERS FROM DISCIPLINES THAT ENTERTAIN FUNDAMENTALLY SUPERSTITIOUS ASSUMPTIONS ABOUT HUMANS AND THEIR BEHAVIOR. BEHAVIOROLOGY EXCLUDES THE MYSTICAL NOTION OF A RATHER SPONTANEOUS ORIGINATION OF BEHAVIOR BY THE WILLFUL ACTION OF ETHEREAL, BODY-DWELLING AGENTS CONNOTED BY SUCH TERMS AS *mind*, *psyche*, *self*, *muse*, OR EVEN PRONOUNS LIKE *I*, *me*, AND *you*.

AS PART OF THE ORGANIZATIONAL STRUCTURE OF THE INDEPENDENT NATURAL SCIENCE OF BEHAVIOR, *The International Behaviorology Institute* (TIBI), A NON-PROFIT ORGANIZATION, EXISTS (A) TO ARRANGE PROFESSIONAL ACTIVITIES FOR BEHAVIOROLOGISTS AND SUPPORTIVE OTHERS, AND (B) TO FOCUS BEHAVIOROLOGICAL PHILOSOPHY AND SCIENCE ON A BROAD RANGE OF CULTURAL CONCERNS. AND *Journal of Behaviorology* IS THE REFERRED JOURNAL OF THE INSTITUTE. JOURNAL AUTHORS WRITE ON THE FULL RANGE OF DISCIPLINARY TOPICS INCLUDING HISTORY, PHILOSOPHY, CONCEPTS, PRINCIPLES, AND EXPERIMENTAL AND APPLIED RESEARCH. JOIN US AND SUPPORT BRINGING THE BENEFITS OF BEHAVIOROLOGY TO HUMANITY. (CONTRIBUTIONS TO TIBI OR TIBIA—THE PROFESSIONAL ORGANIZATION ARM OF TIBI—ARE TAX DEDUCTIBLE.)☺

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