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Editorial 9: Our New Name

When we began this periodical four years ago, we thought it would be merely a newsletter. However, right from the start, it has regularly provided minimally peer-reviewed professional papers (mostly from a "staff" of

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writers—faculty, and board members), as well as organizational information. It has been, and continues to be, both newsletter and magazine. With this issue we recognize this reality by assuming a new name, *Behaviorology Today*, with the International Standard Serial Number (ISSN) 1536-6669. Thus, we bid farewell to the name used for our first four volumes (eight issues): *TIBI News Time*.

Also, as described in the editorial in the last issue, the volume and issue numbers continue without interruption under our new name. Thus this first issue under the new name is volume 5, number 1. Furthermore, to enhance access to previously printed materials, we will reprint most, if not all, of the past featured articles and organizational information items (such as by-laws) in the two issues of volume 5. In this issue we include the con-

ceptual articles related both to the behaviorology discipline and to education. In the next issue (volume 5, number 2) we will include both data-based articles and book-related articles as well as the principle organizational documents. In every issue we also include new articles, the reports of recent meetings, membership information, and our Statement of Purpose. Generally, reprinted articles will appear in the same order as their original appearance. Also, in some cases, reprinted articles will receive some minor edits to enhance their reappearance.

However, the only editorial to be reprinted will be the first one, "Welcome to TIBI," even though many previous editorials included both comments on the featured articles and information on the *conventions* of The International Society for Behaviorology (ISB; see p. 14 in this issue). (All earlier editorials, and the original versions of articles reprinted here, are available for perusal at www.behaviorology.org which is TIBI's web site.)

Behaviorology conventions are important for many reasons. One main reason inheres in constraining mysticism. Mystical causes of behavior abound, based mostly on scientifically unsupported presumptions of an inner-agency origin of behavior (as in "mind," "psyche," and "self"). The cultural-history bound acceptance of such mystical causes of behavior by the general public as well as by professionals—even other natural science professionals—delays humanity's adequate problem solving (Fraley & Ledoux, 2002). Behaviorology conventions, along with conferences and courses and other disciplinary activities, help give humanity scientific alternatives to its past reliance on mysticism, especially regarding our own behavior. And the sooner humanity replaces mystical mistakes like "mind" with even the currently available natural science principles and practices pertaining to the full range of human behavior—from interpersonal relations and family practices to international relations and cultural practices (e.g., see Sidman, 2001)—the faster humanity will solve more of its problems and face a finer future.

This issue also contains the complete *Table of Contents* from each of the eight issues of the first four volumes, including items repeated in every issue. Referring to these, readers can more easily identify, and retrieve from TIBI's web site, any items not reprinted in the two issues of volume 5.

This issue includes two new articles as well. The first article is "Remembering Glenn Latham" and was provided by Carl Cheney. The second article begins a series in which the syllabus for one of TIBI's courses (available online) is printed in *Behaviorology Today*. The series will continue when, and as long as, there are syllabi that have yet to be printed (or that need to be reprinted due to being updated). This issue features the syllabus for TIBI's course on the fundamentals of the behaviorology discipline, BEHG 101.

On a related note, TIBI now has four regular courses available online at its web site. Three of these comprise

TIBI's *Behavior Literacy Certificate*. These three are (a) BEHG 101: Introduction to Behaviorology I, (b) BEHG 102: Introduction to Behaviorology II, and (c) BEHG 201: The Behaviorology of Child Care Practices. The fourth course is BEHG 425: The Behaviorology of Non-Coercive Classroom Management and Preventing School Violence. All TIBI's courses are offered on two, or even three, levels: If you only seek the personal benefits from learning the content of the courses, then you can take them for free. Simply follow the coursework instructions in the syllabus for each course. If you also seek credits toward a TIBI certificate, then you can enroll in them as a TIBI-tuition-paying student (and a TIBI faculty member will help you). If you seek regular academic credit, you can enroll in equivalent courses at a regular college or university. (The four courses mentioned here are among the behaviorology courses offered by SUNY-Canton. You can check them out by clicking on "Ledoux" in the faculty directory at www.canton.edu which is that college's web site.)

Furthermore, the TIBI Board of Directors has decided to offer an additional certificate. This would be a five-course *Certificate in Autism Recovery Training* for paraprofessionals, parents, and teachers in contact with autistic and other behaviorally challenged children. The five courses whose satisfactory completion would earn this certificate are the four already listed as currently online, plus BEHG 415: The Behaviorology of Autism Analysis and Recovery Methods, which will be the next course TIBI makes available online. Revisiting the "developing opportunities" theme of recent editorials and articles (see "Developing opportunities to disseminate the natural science of behavior" elsewhere in this issue), SUNY-Canton now offers two similar, four-course certificates, one for parents and paraprofessionals and another for teachers, both as a result of a grant from the New York State Education Department—Office of Vocational and Educational Services to Individuals with Disabilities.

Lastly, after the featured and reprinted articles in this issue, you will find the minutes of the fall 2001 Board of Directors meetings, the Treasurer's report, and the usual organizational materials. (These include information on TIBI's web site and membership considerations, as well as how to subscribe without membership and how to obtain back issues of this periodical.) ✻

References

- Fraley, L.E. & Ledoux, S.F. (2002). Origins, status, and mission of behaviorology. In S.F. Ledoux. *Origins and Components of Behaviorology—Second Edition* [pp. 33-169]. Canton, NY: ABCs.
- Sidman, M. (2001). *Coercion and its Fallout—Revised Edition*. Boston, MA: Authors Cooperative. ☪

Remembering Glenn Latham

Carl D. Cheney

Utah State University

Dr. Glenn Latham died suddenly last summer (July 2001) of heart failure. He was 70. He was a great friend and teacher. He was a good writer and an excellent applied behavior analyst. He was a most amusing and informative speaker, and there were no classroom or family problems that he couldn't resolve.

Dr. Latham was Professor emeritus of Special Education at Utah State University. He traveled the world collecting data and educating and inspiring people. As a passionate, productive, and dedicated behavior analyst, at the time of his death he was enroute to Australia to deliver several of his entertaining and educational lectures. His major book, *The Power of Positive Parenting*, is a very informative and useful treatise for the management of families. It is based firmly on behavior principles which he illustrates with the many and varied experiences he has had directly or through teachers and parents. I recommend this book in all my classes and, without exception, users report it helped a great deal with family and personal management issues. Glenn was expert at analysis and treatment design and application. He had a world of experience and therefore he rarely encountered a new behavior problem. It seemed that he had heard it all and treated it all. He was a genuine behavior management expert.

The classroom was a special context in which Glenn solved problems. He visited classrooms in all 50 states, always took data, and was usually disappointed in what he observed. He had given up on education as an institution and we agreed that it could not be salvaged. Our hope was to start over with a professional workforce whose analysis and procedures in education were scientific and based on an experimental analysis of behavior. We know how to teach effectively, we have known for decades, but we have been unable to break into colleges of education and have adopted what our science can do to improve the preparation and performance of teachers.

Glenn had friends, colleagues and students all over the world and he was busy writing and planning future activities involving them. Louise, Glenn's wife, was a major source of support and assistance and she frequently accompanied him to conferences and on speaking tours. Glenn could have been a professional golfer and he exercised this skill regularly. He was a great spokesman and promoter for behavior science and the field will miss his

contributions. We will miss him as a gentle, good humored, productive buddy.✻

A paragraph of the Editorial from the last issue of this magazine (i.e., volume 4, number 2, under the old title of *TIBI News Time*) is also relevant to remembering Glenn Latham. In keeping with the reprinting of all the important parts of those earlier issues in this first volume under our new name, here is that paragraph (—Ed.):

Unfortunately, I must also report some sad news. One of the four founding members of TIBI, who was also one of our faculty members and on our Board of Directors, Glenn Latham, has died. He had a surprise heart attack in July while on his way to more of the professional activities that so characterized his life. We share this loss with his family, friends, and colleagues, both nationally and internationally. Throughout his professional life, Glenn labored to bring the benefits of the natural science of behavior to everyone everywhere. On the international front, this was especially evidenced by his trips to the Peoples Republic of China (e.g., see Latham, 2002). He not only supported the natural science of behavior organizationally (e.g., through his part organizing TIBI) but also academically, through his articles and audio/visual materials and books (e.g., *The Power of Positive Parenting* and *Keys to Classroom Management*, and their related A/V resources—see the Afterword in [the same book containing Glenn's paper] for an extensive list). Even while his contributions to scientific knowledge and practice endure, continuing to help more people daily, he will be missed. As reported in the minutes of the annual meeting, in this issue, the Board of Directors voted to confer "Member in Perpetuity" status on Glenn in honor of his continuing contributions. (Reference: Latham, G.I. [2002]. China through the eyes of a behaviorologist. In S.F. Ledoux, *Origins and Components of Behaviorology—Second Edition* [pp. 297-302]. Canton, NY: ABCs.)

Also, some academic courses using Prof. Latham's books are available to provide education in the knowledge, principles, and practices that he promoted. An easy way to find these courses is to click "Ledoux" in the directory at www.canton.edu which is my faculty web page. Below the courses are several web links, and one of these is www.parentingprescriptions.com where you will find not only Glenn's parenting products and advice but also several tributes to him by other colleagues.—Ed.✻

TIBI Online Syllabus for BEHG 101: Introduction to Behaviorology I

Stephen F. Ledoux

SUNY-Canton

Note #1: This syllabus contains some notes that supplement the more traditional syllabus parts. Each note is numbered for convenient reference. And some notes, like this one, have multiple paragraphs.

This syllabus is a long document. It is longer than a syllabus for a face-to-face course as it contains material that the professor would otherwise cover in person. *Hence it was designed to be printed out for reading!* Furthermore, it was designed to be used not only for reading, *but it was also designed as a task check-off list.* Please print it out and use it these ways.

Indeed, the only thing for which you *must* have access to a computer for this course is to print out this syllabus so you can see how this course works and follow the directions it contains to complete this course. This is a matter of access, student access to education, so that everyone who wants this course can take it regardless of whether they own several computers or only have access to one in their local library (for an hour a week) or even just one in a friend's home (for just an hour).

Students can, if they wish, study the topics of this course for free, to fulfill their own interests; they would do so simply by completing the activities described in this syllabus. Students can also study the topics of this course for TIBI (The International Behaviorology Institute) credit, perhaps toward a TIBI certificate; they would do so by paying the necessary fee to be assigned a professor to provide feedback on, and assessment of, their efforts.

Also, students can study the topics of this course for regular academic credit by contacting any accredited institution of higher education that offers behaviorology courses accepted by TIBI such as the State University of New York at Canton (SUNY-Canton) at www.canton.edu which is SUNY-Canton's web site. At SUNY-Canton this course is offered as *SSCI 245: Introduction to the Science and Technology of Behavior*. TIBI automatically accepts A or B grades from the academic-credit version of this course as equivalent to its own course toward its certificates (and C and D academic-credit grades can be remediated through TIBI for TIBI credit; contact TIBI for details). Alternatively, the work done completing the course through TIBI may make taking the course for aca-

demically easier; ask the professor who teaches SUNY-Canton's equivalent course about this.

The parts of this syllabus cover many topics. While the headings may be different, these include (a) the course content and objectives, (b) the text, study, and assessment materials, (c) the grading policy, (d) the necessary work-submission methods and professor feedback, and (e) the study-activity sequence and completion timelines.

Note #2: This course has no prerequisites. Completing this course, however, fulfills a fundamental prerequisite for many other behaviorology courses.

Course Description

BEHG 101: Introduction to Behaviorology I. Introduction to Behaviorology is a two-course sequence, for both majors and non-majors, on the natural science of the variables controlling the behavior of humans and other animals. This first course of this sequence introduces the student to the range of components that comprise the discipline of behaviorology including (a) its philosophy of science and selection paradigm, and (b) its experimental methods, theory, and technology. The philosophy and paradigm include the criteria for natural science, the fallacy of inner causes, the significance of control and selection, the status of private events, and the behavior of the scientist. Methods include basic single-subject designs and measurement. Theory includes the fundamental natural laws describing the antecedent and postcedent relations between behavior and its controlling variables; these include such basic principles as added and subtracted—and primary and conditioned—reinforcement and punishment, extinction, simple schedules, stimulus control (discrimination and generalization), and concept formation. Technology includes the basic practices used to apply behaviorological principles to change accessible variables so as to change and especially to expand behavior repertoires through behavior engineering. Basic techniques include differential reinforcement, shaping, fading, chaining, and modeling and imitation. Other topics include avoidance and escape, emotion, deprivation and satiation, and superstitious behavior.

In summary, this course introduces students both to the elementary scientific principles governing behavior, and to the basic behavior-engineering techniques derived from these principles (i.e., why people do what they do, and what can be done about it). The principles are discovered, and the practices are developed, by the discipline of behaviorology which is the *natural* science of behavior. It was known originally as behavior analysis and now is known more precisely as behaviorology. This is the *independent* discipline of strictly *naturalistic* explanations of behavior and so should not be confused with the discipline of fundamentally *mystical* explanations of behavior (which thus cannot be a natural science) known as psychology.

The history of these developments is also considered. For example, as a name for the natural science of behavior, behavior analysis is the older and so still the more widely used term. But it is a less accurate name than behaviorology because psychology claims it as a type of psychology, as this name came into use during the period when behavior analysis and psychology were sharing their history. During this 50-year period, the natural scientists of behavior, the behavior analysts, tried to get psychology to shed its inherent mysticism and become a natural science. However, psychology *as a discipline* (and not necessarily as individual psychologists) did not (could not?) do so, and *that* created the basis for today's separate and independent disciplines...

Note #3: The second course in the two course sequence is BEHG 102: Introduction to Behaviorology II. (with the equivalent SUNY-Canton course being SSCI 345: Applied Science and Technology of Behavior).

To check out other behaviorology courses offered by TIBI, visit their locations on the TIBI web site (www.behaviorology.org).

(To check out other behaviorology courses offered by SUNY-Canton, see the list and descriptions—and in some cases, the syllabi for the online versions—on the faculty web page of the professor who teaches them [which currently is Dr. Stephen F. Ledoux; click Ledoux in the faculty directory at www.canton.edu].)

Since SUNY-Canton's behaviorology—natural science of behavior—courses carry the SSCI (i.e., social science) designator for the course numbers, an accounting is in order: These courses are natural science of behavior courses because they are concerned with behavior solely from a strictly naturalistic perspective, thereby necessarily and automatically leaving out mystical perspectives, while using scientific methods with a subject matter focused on people. [For some details, see the article titled "Defining Natural Sciences" in this issue.—Ed.] Indeed, SUNY-Canton's behaviorology courses were originally proposed and approved with the BEHG (i.e., behaviorology) designator for the course numbers (e.g., BEHG 135—Parenting Knowledge and Skills). However administrators, out of concern to simplify student credit transfer, had the designator changed to SSCI because this designator is not only more common but it also is appropriate to the scientific-method-based *people focus* of these courses. So it would indeed simplify the transfer of credit for students. Hence, for administrative convenience, SUNY-Canton's natural science of behavior—behaviorology—courses carry the SSCI (social science) designator. [For additional details, see the article titled "Developing Opportunities to Disseminate the Natural Science of Behavior" in this issue.—Ed.]

Course Objectives

The main objective of this course is *to expand the student's behavior repertoire* measurably in these areas of behaviorological course content:

- ✧ Fundamental principles;
- ✧ Basic methods and measurements;
- ✧ Elementary practical technologies;
- ✧ Technique applications in several common prevention/intervention settings;
- ✧ Historical perspectives;
- ✧ Philosophical perspectives;
- ✧ Ethics;
- ✧ Trends.

Additional Objectives

✧ Successful, A earning students will be able to use (at an accuracy level of 90% or better) basic disciplinary terminology when discussing the general contents, problems, methods, theories, and practices of the natural science and technology of behavior.

✧ Such successful students will also ask questions, seek answers, converse about, and act on the uses and benefits of this discipline for humanity.

✧ Such successful students will also behave more effectively in other ways with respect to themselves and others.

Required Materials (in their order of use)

✧ Wyatt, W.J. (1997). *The Millennium Man*. Hurricane, WV: Third Millennium Press. (We refer to this book as the *MM* book. [ISBN 0-9663622-0-9])

✧ Ledoux, S.F., Wyatt, W.J., & Bias, E.F. (1999). *Study Questions for W. Joseph Wyatt's The Millennium Man*. Canton, NY: ABCs. (We refer to this book as the *MM-SQs* book.)

✧ Holland, J.G. & Skinner, B.F. (1961). *The Analysis of Behavior*. NY: McGraw-Hill. (We refer to this book as the *H&S* [for Holland & Skinner] book.)

✧ Ledoux, S.F. (2002). *Origins and Components of Behaviorology—Second Edition*. Canton, NY: ABCs. (We refer to this book as the *Origins* book. [ISBN 1-882508-08-4])

✧ Ledoux, S.F. (2002). *Study Questions for Origins and Components of Behaviorology—Second Edition*. Canton, NY: ABCs. (We refer to this book as the *Origins-SQs* book.)

Note #4: After being in print for about 40 years, the *H&S* book went out of print in 2001. It was in print so very long because it was so very effective in teaching its contents to readers. This was because it was comprehensively designed and thoroughly tested (and revised) as a completely programmed text using the very same laws of behavior that it taught to readers. (No other programmed textbook has reached this level.) This course uses it because it is still the very best introduction to basic behaviorological methods, principles, and practices.

When *H&S* went out of print, its copyright went to the B.F. Skinner Foundation. If you cannot locate a copy, contact the course professor or ledoux@canton.edu or TIBI for assistance. (You can work on the *MM* book assignments while locating a copy...)

The simplest way to order the other books is through the College Association Bookstore at www.canton.edu or call 1-315-386-7112 to speak directly with bookstore staff. Parts of some of these books (#s 4 and 5) carry over as part of the materials for the next course in the two-course introductory behaviorology sequence (described in Note #3). Most of these books can also be ordered through the online bookstore at www.behavior.org which is run by the Cambridge Center for Behavioral Studies.

Also, this course is grounded in the Shaping Model of Education which is informed by behaviorological science (rather than the Presentation Model of Education which is informed by psychology). In the Shaping model teaching is not seen as mostly talking (nor is learning seen as mostly listening). Instead, teaching is the scientifically grounded design, arrangement, and application of educational materials, methods, and contingencies in ways that generate and maintain small but continuously accumulating behaviors whose short and long range consequences are successful in producing ever larger academic and practical response repertoires (i.e., learning) on the part of the student.

Grades

Grading policy does not involve curves, for you are not in competition with anyone (except perhaps yourself). That is, all students are expected to produce the academic products upon which the judgment can be based that they have, individually, achieved at least mastery of the subject matter, if not fluency. Therefore, all students are expected to earn an A or a B (although inadequate products will produce a lower result that requires remediation before it can become a passing grade). Also, all students will receive the grades they earn. This holds even if the expectation for which the course is designed—that all students earn As—is met: If all earn As, then all receive As.

Passing grades, limited to A and B, are earned according to the amount of assigned work that is completed as part of assessing the acquisition of the course-related behavior repertoire:

✧ Earning an A consists mainly of satisfactorily completing 90% or more of the work and/or study question answers on each of the three textbooks.

✧ Earning a B consists mainly of satisfactorily completing more than 80% of the work and/or study question answers on each of the three textbooks (but not more than 90% on all three).

For convenience a point-accumulation system is invoked to keep track of progress through the course. Each

of the three assignments on *The Millennium Man* and its SQS is worth 40 points, for a total of 120 points. Each of the seven assignments on the *Origins* book readings and their SQS is worth 30 points, for a total of 210 points. And each of the assignments on the 14 Parts of the *H&S* book is worth 20 points for a total of 280 points. This provides a grand total of 610 possible points. The percentage used to consider what grade you are earning is the percentage of these possible points that you actually earn.

However, point accumulation is not the grade determiner but is merely used as a convenient way to track progress *on the presumption that all course tasks are in progress*. This is because doing work on *all* of the tasks for the course is the more relevant determiner of grades than the accumulation of points. (For example, a student who tries to accumulate just enough points, on some easier tasks, to get a B—while ignoring other course tasks—would not that way actually meet the criteria for a B and so would have to continue and complete all the required work satisfactorily to earn one of the passing grades.)

These practices are in place because the scientific-research-based Shaping Model of Education recognizes the student/professor relationship as a professional relationship in which coercive practices (i.e., aversive educational practices) are seen as inappropriate (so long as extreme conditions do not exist making such practices unavoidable). Instead, the more effective, efficient, and productive non-coercive practices of carefully designed and sequenced assignments emphasizing added reinforcement for timely work well done is seen as more appropriate as much as possible. So, your effort and cooperation are expected and presumed; please do not disappoint your professor *or yourself*.

About using the texts & the study question books

You need to write out your answers in longhand. The reason you are to write out your answers by hand is that this type of verbal response brings about more learning than merely saying—or even typing—the answer. This is because—as you would/will learn in a more advanced behaviorology class—writing the answer in longhand involves both point-to-point correspondence and formal similarity between the stimuli and the response products of the answer. This applies to writing out the answers for all assignments.

The MM book

The Millennium Man is a short novel featuring a natural-science perspective on viewing, and dealing with, behavior. While it is basically a work of fiction, it makes use of many facts from a range of arts and sciences. It was designed to be enjoyable. It was also designed to develop critical thinking skills and to improve attitudes toward learning and the educational process.

The author wrote this novel for many reasons and for readers of many ages. One of the reasons was to help readers become more aware of certain aspects of art history, especially some interconnections between art and science. Another reason was to help readers become more aware of the multitude of beneficial scientific and technological advances, from a wide range of natural science and engineering disciplines, that accumulated in the twentieth century after many centuries of far less development. Yet perhaps the most significant reason was to help readers become more aware of the many similar advances from a particular scientific and engineering discipline that itself arose in the twentieth century, the natural science of behaviorology (for which the author uses the older and less accurate name: behavior analysis). This natural-science perspective on behavior is a significant alternative to the mysticism-based perspective presented by traditional psychology; thus it is important to know about it, and the *MM* book introduces it well.

The MM Study Question book

The *MM* study questions were prepared to help you absorb the content in the *MM* book. You are to complete the novel's study questions as assigned. You complete the assignment by reading the book and then completing the assigned study questions by *writing out* the answer to each question as you come to it in your *rereading* of the chapters (i.e., first read the novel through quickly as you will enjoy it more that way). You *write out* the answers right in the *Study Question* booklet. The study questions booklet starts with a section titled To the Student and Teacher. *Read this section first!* It explains more on how to do the study questions successfully. (You will also find it helpful to mark the number of each SQ in the margins of the novel at the location of the SQ's answer...) Assignments will be given in the Course Contents Coverage Checklist section and will follow the *MM-SQ* book's division of the novel into three sets of chapters.

To submit your work (if your are taking the course for TIBI credit), scan and fax the filled-in pages of each assignment to your professor. Or (Preferred!) photocopy those pages and send them to your professor by regular postal mail. (Addresses and phone/fax numbers will be clarified upon enrollment.) You are to keep the original of your work both to insure against loss and to make it easier for you and your professor to communicate about your work (as you will then both have an identical copy). Email, and email attachments, are neither reliable enough for this purpose, nor identical enough for this purpose, so they are not to be used for this purpose.

Your answers will be perused (and point accumulations allocated according to the level of your work) to assure their general correctness which would indicate that you seem to be comprehending the material. Should any

inadequacies be apparent, you will be informed so that you can make improvements. While sometimes your professor will provide "a pat on the back" for a job well done, if you do not hear of any inadequacies, then pat yourself on the back for a job well done even as you continue on to the next assignment.

The H&S book

The Holland and Skinner book is a book that teaches the laws of behavior by using those laws to teach them. The authors wrote this book to accomplish that task and succeeded so well that the book has been used as a first textbook in this science for over 40 years!

After *all* of the textbooks for this course are described, and before giving the Course Content Coverage Checklist, you will find an extensive set of guidelines on "How to Use the *H&S* Text." After the Guidelines, assignments will be given in the Course Contents Coverage Checklist section.

To submit your work (if your are taking the course for TIBI credit), scan and fax the pages with your answers for each Part to your professor. Or (Preferred!) photocopy those pages and send them to your professor by regular postal mail. (Addresses and phone/fax numbers will be clarified upon enrollment.) You are to keep the original of your work both to insure against loss and to make it easier for you and your professor to communicate about your work (as you will then both have an identical copy). Email, and email attachments, are neither reliable enough for this purpose, nor identical enough for this purpose, so they are not to be used for this purpose.

Your answers will be perused (and point accumulations allocated according to the level of your work) to assure their general correctness which would indicate that you seem to be comprehending the material. Should any inadequacies be apparent, you will be informed so that you can make improvements (or take a supervised test, to demonstrate mastery of the course content). While sometimes your professor will provide "a pat on the back" for a job well done, if you do not hear of any inadequacies, then pat yourself on the back for a job well done even as you continue on to the next assignment.

The Origins book

Origins and Components of Behaviorology is a book comprised of a dozen or so papers, of which seven (a little over half of the book) will be used in this course. These papers introduce and exemplify the broader discipline whose basic principles and practices are introduced in this course. (Other parts of this book carry over as parts of the next course in the two-course introduction to behaviorology sequence.)

The Origins Study Question book

The *Origins* study questions were prepared to help you absorb the material from each of the papers in the *Origins* book. You are to complete each paper's study questions in the sequence assigned. You complete the assigned study questions by *writing out* the answer to each question as you come to it in your reading. You *write out* the answers right in the *Study Question* booklet. The study questions booklet starts with a section titled To the Student and Teacher. *Read this section first!* It explains more on how to do the study questions successfully. (You will also find it helpful to mark the number of each sq in the margins of the textbook at the location of the sq's answer...) Assignments will be given in the Course Contents Coverage Checklist section.

To submit your work (if you are taking the course for TIBI credit), scan and fax the filled-in pages of each assignment to your professor. Or (Preferred!) photocopy those pages and send them to your professor by regular postal mail. (Addresses and phone/fax numbers will be clarified upon enrollment.) You are to keep the original of your work both to insure against loss and to make it easier for you and your professor to communicate about your work (as you will then both have an identical copy). Email, and email attachments, are neither reliable enough for this purpose, nor identical enough for this purpose, so they are not to be used for this purpose.

Your answers will be perused (and point accumulations allocated according to the level of your work) to assure their general correctness which would indicate that you seem to be comprehending the material. Should any inadequacies be apparent, you will be informed so that you can make improvements. While sometimes your professor will provide "a pat on the back" for a job well done, if you do not hear of any inadequacies, then pat yourself on the back for a job well done even as you continue on to the next assignment.

Note #5: Since you are to write out your answers to the study questions directly in the sq books, you need to have your own study question books. To assure that this is followed by everyone equally, you need to fill out and send in to your professor (by regular postal mail) the original of the ownership forms in the rear of each of your study question books.

Guidelines for using the H&S text successfully

These guidelines, which are about using the *H&S* (Holland and Skinner) text: *The Analysis of Behavior*, are needed because this book is not a typical book. Rather, it is a program of instruction in book form. Originally written for an early teaching machine—predating computers—this program is a successful applied example of the natural science that it teaches. To ensure its effectiveness,

the authors thoroughly researched and tested the program with regular, undergraduate students prior to publication. Evidence for this effectiveness can be seen in the continuing demand for the book by professors which has kept it in print since 1961. That demand occurs because, as a result of completing the book, students acquire an extensive repertoire in the fundamentals of the natural science of behavior. Indeed, this book's success was an important factor leading to an extensive movement in programmed instruction in many disciplines and in many geographical areas worldwide. (That movement is now limited to those who are willing to do *all* the work needed not only to write a program but also to research and validate the program's effectiveness—such as in the case of today's effective computer instructional programs.)

To learn more about why this book is effective, and how to use it, read both the To the Instructor and To the Student sections (which start on pages v and vii respectively). Since this book covers fundamental laws of behavior that have not changed, it remains up-to-date for those laws. (To bring students up to date on progress since its publication, today's professors combine its use with other sources.)

In the time since publication in 1961, some significant disciplinary changes have taken place. As a result, the references in the To the Instructor and To the Student sections to "psychology...the analysis of behavior" have become somewhat inaccurate. For that reference implies—perhaps adequately then but inadequately now—that the analysis of behavior is, or is part of, psychology. Today, neither of these is the case, at least in the West. The problem stems from the book's being published near the end of what can now be seen as a period of 30 to 40 years in which psychology and the analysis of behavior shared, under the psychology label, their academic departments and history. That is, Western psychology (which is a discipline of fundamentally *mystical* explanations of behavior because it allows non-natural events in its explanations) and what was called behavior analysis or, now, behaviorology (which is a discipline of strictly naturalistic explanations of behavior because it *disallows* non-natural events in its explanations) shared their history from the 1930s through the 1960s. However, the incommensurable differences between Western psychology and behaviorology have gradually led, since then, to recognition of their status as separate disciplines.

However, there is no need to change those uses of the term psychology in the *H&S* book since what this book reports did arise during the shared history, and so is a part of the history of both disciplines. What *is* needed is *this* direction of update: Many advances and developments in the natural science of behavior (i.e., what the authors call *The Analysis of Behavior*) have occurred since publication in 1961. These advances have been little reported in

Western psychology (and so cannot be reasonably seen as ongoing advances in that discipline). Furthermore, these advances *have* been fully reported in behavior analysis/behaviorology (and so *are* to be reasonably seen as ongoing advances in that natural science). Thus, the continuity between this book and subsequent advances resides with the developments occurring in behavior analysis/behaviorology. (See Ledoux, 2002, for further details about the shared history. See Fraley & Ledoux, 2002, for extensive details on disciplinary differences and developments. References are at the end of the syllabus.)

More How-to-Use Details

The details provided here presume that the To the Student section has already been read. Using the book according to that section and these notes and procedures will increase the efficiency with which a student's repertoire is effectively expanded; the student is unlikely to need repeating part of the book if she or he follows these procedures. He or she will get it right the first time. Here are the detailed "how-to-use" procedures:

✧ Be clear on the difference between Parts and Sets. The book has 14 Parts, and each Part contains two or more Sets. There are 53 Sets altogether. The Parts are numbered with Roman numerals while the Sets are numbered with Arabic numerals. (And each Set contains many, many individual Frames which will soon be described.) The distinction is important because the course assignments involve Parts, not Sets. If you are not clear on the difference, and so only cover Sets 1 and 2 (pages 1-13), rather than Parts I and II (i.e., Sets 1 through 11; pages 1-71), for the first assignment, you will miss lots of material that needs to be completed before the next assignment. Note that there is no need to test your knowledge, other than to track your successful completion of the assignments, because one *cannot* successfully progress through later Parts/Sets without first having mastered the material in all earlier Parts/Sets, for later material presumes, uses, and builds upon the earlier material. (Indeed, you may be occasionally asked to complete a Set in a classroom or other supervised setting, because completing a Set in a supervised setting to the usual high standard will demonstrate that you yourself must indeed have completed the prior sets successfully also, since comprehending them would be the needed foundation for success in the supervised Set. In this way you would be assuring that you yourself are properly doing the work you turn in, and that you yourself are benefiting from that work.)

✧ Each Set is made up of frames that have a word or phrase missing. You read each frame and, based on experience with previous frames, provide a response for the missing part of the frame. To do this, you follow the numbers. That is, *you do not read down the page* as is the usual fashion. Rather, *you read the frames in the order in*

which they are numbered, which means you read across each page, page after page, at the same level, until instructed to turn back to a particular page and drop down to the next level. Each frame and its corresponding answer box (which is usually on the next page) has the same number, and you follow them in sequence. (The numbers have two components: the Set number followed by the frame/answer box number. So 25-18 would be Set 25, frame/answer box 18.)

✧ Note that each Set is titled at the top of its first page, but the first frame of the Set is on the top of the *next* page. For example, Set 1 is titled on the top of page 1, but frame 1-1, the first frame in Set 1, is on the top of page 2.

✧ Note also that some Sets have an exhibit page, before their first page, to which you will need to refer while doing the Set. For example, while Set 3 is titled on page 15, an exhibit needed for the Set appears on page 14.

✧ Here is the basic procedure: (a) Read the frame. (b) Form your response for the missing part of the frame. (c) Write down your response by hand on the page of a notebook you have just for this purpose. (Put only the Set number at the top of the page for the Set, and then put one answer-response on each line of the page. Do not put any line, frame, or answer numbers on your notebook pages.) (d) Turn to that frame's answer box and check your response with the correct response in that box. (e) Either go on to the next frame (if your response was correct) or *cross out your response and write the correct response* while rereading the frame (if your response was incorrect). Do not write in you book as often there is insufficient room for the correct answer. Also, *do not write out the contents of the frame!*

✧ You really *must* cross out an incorrect answer and write the correct one next to it while/after rereading the frame. If you do not do so, then you are most likely to have learned that incorrect answer. And then you will have to unlearn it before later learning the correct answer, and that is no fun at all!

✧ The program works by providing you with the occasion to make responses that can then get learned through the consequences provided by seeing the correct response *after* writing your own response. Thus, peeking ahead to see the correct response before writing out your own response will not help you; in fact, peeking ahead will prevent you from learning. *It is imperative that you understand this danger of peeking ahead!* If you peek ahead, what you then write will not be the product of a response that would be learned by seeing the correct answer *after* writing; peeking ahead will only necessitate redoing the material so that the required progress can be made.

✧ As you turn each page, the left side of the book is either blank or looks up-side-down. Actually, what you are seeing is pages from the second half of the book;

when you get to the end of Set 24, you turn the book over and proceed back with Set 25, etc.

✧ Making, on average, one or two incorrect responses (that you then correct) in every ten is typical and acceptable even for students earning an A. However, if you find that you are, on average, providing incorrect responses on three or more frames out of ten, then you need to verify that you are following all the procedures, and check with your professor. You do not want to learn the material in some Sets weakly because all the Sets that come after that will be more difficult to master.

✧ The title box for each Set includes an estimated time that is reasonably realistic when the program is presented on a teaching machine. You will probably find that using the book to cover the Sets takes a little more time (e.g., when using the book, Set 1 may take 30 minutes rather than the estimated 23 minutes). The estimated times for all the Sets totals less than 15 hours; you can probably expect to spend more like 25 hours overall, or about 1.5 to 2 hours *average* on each Part, as you go through the book. If English is not your first language, then perhaps you may need 3 hours for each part. (With two Parts assigned each week, that would be about the right amount of time and work for each week of a course.)

✧ Due to the focused nature of your interaction with the material in this book, you will probably find yourself more aware of the time you spend on this book in comparison with your awareness of time spent in normal reading of a regular textbook. Do not let this deter you from putting in as much time as you need to master the book's material.

✧ Some extras and reminders. The more fluently (thoroughly) you master earlier Sets, the more easily you will master later Sets. Remember to consider the whole of each frame, and not just the blank, because the rest of the frame is preparing the foundation for success with future frames. Concepts are usually used in different ways across several frames before any frame asks you to provide that concept as a response. Indeed, if you find a frame difficult, or making a response difficult, then go back and repeat/review the last few frames; doing that will often provide the assistance you need just then. And *always write a response before going to the answer*; (a) you will be correct more often than you might suspect, (b) a correcting consequence for a wrong answer can keep you from learning the wrong answer but if you have made no answer response then you can learn nothing, and (c) similarly, seeing a correct answer without having made a response conditions peeking which does not teach you anything of value. If your response was correct but you were not confident about it (i.e., you guessed) then back up a few frames to find out why that response is correct. Similarly, when you are wrong, make sure you know why your response was not correct, and figure out what made you think you were cor-

rect. You may feel that doing these things will slow you down, but *they are a part of doing it right the first time*. You will be much happier following these procedures than you will be having to repeat several Sets because you did not follow them and so find yourself inadequately prepared to continue and succeed with later Sets.

✧ Also, studying after midnight is usually a waste of time because so little is actually learned under that circumstance, in spite of all your effort. Similarly, avoid studying for hours and hours continuously; instead, take a short (five or ten minute) break during each hour of study.

✧ If you follow these guidelines, you will learn the contents of the Sets well. Then the later Sets in the book will be just as easy for you as the early Sets are, since you will be well-prepared for them.

Other General Comments

Again, this book teaches by applying the same laws of behavior that it is teaching. It uses numerous small steps that are immediately consequted through the added reinforcement of correct-answer presentation, and the steps successfully build on each other, accumulating to form a large, new part of your behavior repertoire that you can apply beneficially in numerous areas of human concern.

Caution: Still, for all its efficiency and effectiveness, many people do not find reading the *H&S* book to be an enjoyable endeavor. Probably no one reads it twice, and few would read it the first time unless they are required to do so as part of a course. Nonetheless, the success—over the last few decades—of the students who have read this book demonstrates that you will learn more from reading this one book than you would from reading two or three ordinary textbooks. (Or, to put it another way, to get the same amount of knowledge, you would have to read an ordinary textbook two or three times over; now *that* would likely be worse than reading this book once!)

Course Content Coverage Checklist

Students should work their way through the course by reading and studying the texts, answering the questions, and sending in their work for each assignment in this sequence (which can be used as a check off list):

- A. The *MM* novel and its sqs book, Chs. 1-7.
- B. The *MM* novel and its sqs book, Chs. 8-14.
- C. The *MM* novel and its sqs book, Chs. 15-22.
- D. The *H&S* book, Part 1.
- E. The *H&S* book, Part 2.
- F. The *H&S* book, Part 3.
- G. The *H&S* book, Part 4.
- H. The *H&S* book, Part 5.
- I. The *H&S* book, Part 6.
- J. The *H&S* book, Part 7.
- K. The *H&S* book, Part 8.
- L. The *H&S* book, Part 9.

m. The *H&S* book, Part 10.

n. The *H&S* book, Part 11.

o. The *H&S* book, Part 12.

p. The *H&S* book, Part 13.

q. The *H&S* book, Part 14.

r. The *Origins* book, the Terminology paper on pages 199–204 (with the study questions on pages 47–49 of the *Origins-SQs* book).

s. The *Origins* book, the China Eyes paper on pages 297–302 (with the study questions on pages 63–65 of the *Origins-SQs* book).

t. The *Origins* book, the Philosophy of Science paper on pages 25–32 (with the study questions on pages 11–13 of the *Origins-SQs* book).

u. The *Origins* book, the Adventitious Control paper on pages 303–306 (with the study questions on pages 66–68 of the *Origins-SQs* book).

v. The *Origins* book, the Introduction to Behaviorology Origins paper on pages 3–24 (with the study questions on pages 1–9 of the *Origins-SQs* book). [Skip the questions on p. 10.]

w. The *Origins* book, the Multiple Operants paper on pages 205–241 (with the study questions on pages 50–54 of the *Origins-SQs* book).

x. The *Origins* book, the Therapy paper on pages 243–258 (with the study questions on pages 55–58 of the *Origins-SQs* book).

Note #6: The usual higher education workload expectation for a course is about 150 hours. This can break down to a range of averages from about 50 hours per week over three weeks (a minimum time for instructional success—and life—to occur) to about ten hours per week over the typical 15 weeks of a semester. Of course, some students may take a little less than 150 hours, while others may take more than 150 hours, to do the work to the same acceptable and expected high standard.

You can—and are encouraged to—go through the assignments almost as fast as your life-and-work schedule allows. This could mean doing the whole course in as little as—but not in less than—3 weeks, as one would do the *single* allowed course in a 3-week summer school term. That is, you could do the course full-time (i.e., without doing anything else while working at the course assignments at the rate of about 50 hours per week).

The slowest reasonable self-pacing of the coursework (presuming a typical 15-week semester) would involve time allocations like these (referring to the already given assignment letter codes):

Week 1: Assignment a: The *MM* novel and its sqs book, Chs. 1–7.

Week 2: Assignment b: The *MM* novel and its sqs book, Chs. 8–14.

Week 3: Assignment c: The *MM* novel and its sqs book, Chs. 15–22.

Week 4: Assignments d & e: Parts 1 & 2 of *H&S*.

Week 5: Assignments f & g: Parts 3 & 4 of *H&S*.

Week 6: Assignments h & i: Parts 5 & 6 of *H&S*.

Week 7: Assignments j & k: Parts 7 & 8 of *H&S*.

Week 8: Assignments l & m: Parts 9 & 10 of *H&S*.

Week 9: Assignments n & o: Parts 11 & 12 of *H&S*.

Week 10: Assignments p & q: Parts 13 & 14 of *H&S*.

Week 11: Assignments r & s: the *Origins* book & sqs, the Terminology & the China Eyes papers.

Week 12: Assignments t & u: the *Origins* book & sqs, the Philosophy of Science & the Adventitious Control papers.

Week 13: Assignment v: the *Origins* book & sqs, the Introduction to Behaviorology Origins paper.

Week 14: Assignment w: the *Origins* book & sqs, the Multiple Operants paper.

Week 15: Assignment x: the *Origins* book & sqs, the Therapy paper.

If you go slower than that, assignments could easily back up on you to the point where insufficient time remains to complete them in a satisfactory manner.

Note #7: Be sure everything you send in is readable and contains your name!

At various points in the course, you will be provided with feedback about your work. Upon completing all the coursework, you will be provided with your earned grade. The grade, of course, is provided for the person whose work earned the grade.✻

Reference

- Ledoux, S.F. (2002). An introduction to the origins, status, and mission of behaviorology: An established science with developed applications and a new name. In S.F. Ledoux. *Origins and Components of Behaviorology—Second Edition* (pp. 3–24). Canton, NY: ABCs.
- Fraleigh, L.E. & Ledoux, S.F. (2002). Origins, status, and mission of behaviorology. In S.F. Ledoux. *Origins and Components of Behaviorology—Second Edition* [pp. 33–169]. Canton, NY: ABCs.✻



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ISB-XIV Convention

As we have in each spring issue, we report here what we know about the annual convention of the International Society for Behaviorology (ISB): The fourteenth ISB convention is scheduled for 18-20 March 2002 in Malibu, CA. Contact Dr. Henry Slucki, the site coordinator, at hslucki@hsc.usc.edu for the latest details. (Behaviorology conventions are important; see the editorial in this issue.)

Discipline-Related Articles From Volumes 1-4

This section contains the conceptual articles, related both to the behaviorology discipline and to education, featured in volumes 1 to 4 of the newsletter/magazine that was originally named *TIBI News Time* and that has become *Behaviorology Today*. (In the next issue [volume 5, number 2] we will include both data-based articles and book-related articles as well as our principle organizational documents.) Generally, reprinted articles will appear in the same order as their original appearance. Also, in some cases, reprinted articles will receive some minor edits to enhance their reappearance. Relevant comments from earlier editorials will appear after the author's affiliation or at appropriate points in the text. Wherever meaningful, the most recent versions of the references will be the ones cited. As indicated in this issue's Table of Contents, this section has its own table of contents, presented here.—Ed.

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Welcome to TIBI [Spring 1998 Editorial]

Through an exchange of papers, proposals, and perspectives over the last couple of years, David Feeney, Lawrence Fraley, Glenn Latham, and I [Stephen Ledoux] recognized certain needs, and acted to meet those needs. The needs were for an organizational structure (a) that could provide training in behaviorology, especially for those who lacked ready access to that training, and (b) that could provide support for professionals who have been trained in behaviorological science. Our actions were to found The International Behaviorology Institute (TIBI), a non-profit educational corporation. The materials in this inaugural issue [volume 1, number 1, spring 1998] of TIBI's newsletter cover our concerns and indicate our directions. Due to the wide-ranging nature of these materials, an overview of historical items is in order.

Fraley and Ledoux (1997) recounted the origins and cultural mission of the natural science discipline concerned with the study of behavior, behaviorology. In the process they stressed both (a) the need to maintain disciplinary organizations fully supportive of all the various disciplinary components of behaviorology (including philosophical, experimental, conceptual, analytical, and technological components) and (b) the need to establish a variety of disciplinary homes for behaviorology, including academic programs and departments.

In 1990 Ledoux described possible curricula for training behaviorologists (see Ledoux, 1997a). Later, Ledoux (1997b) and Latham (1997) addressed the specific need to provide behaviorological training for Chinese behavior scientists who, like some professionals in other countries, aspire to bring behaviorology to bear on their country's concerns, especially in education and childcare, even though behaviorology training opportunities are few in those countries. TIBI's first visiting scholar, in the USA to study behaviorology, introduces himself in the first issue.

Ledoux (1997c) sketched the evolving nature of disciplinary organizations. And Ledoux (1997d) examined the specific need to assure continuous and actively organized support for a balance of activity in all of behaviorology's disciplinary components, recognizing that behaviorological scientists work all over the planet and that different behaviorologists are skilled in different disciplinary components.

In the effort to meet the concerns expressed in those papers, the founders incorporated TIBI. To better meet these concerns, TIBI also includes a discipline-supporting association, TIBIA, *The International Behaviorology Institute Association*. The purposes of TIBI are listed in TIBI's by-laws and are the same as the original purposes of *The International Behaviorology Association* (TIBA—now called

the *International Society for Behaviorology*, ISB). These purposes are to be fostered through several activities, including these: TIBIA members would be encouraged to host visiting scholars who are studying behaviorology. TIBI faculty (who are TIBIA members) would arrange or provide training for behaviorology students. And TIBI would provide certificates to students who successfully complete specified behaviorology curriculum requirements.

As should be clear, TIBI (and TIBIA) are complementary with, rather than competing with, other organizations serving natural scientists of behavior locally and around the world including, for example, ISB and ABA (the Association for Behavior Analysis). While TIBIA is "yet another" organization for natural scientists of behavior, it does not fragment the movement. Instead, it complements the other organizations by addressing important concerns not currently covered by any other organization. And over the last couple of years, many readers will have sensed an increasing general interest in the existence of the kind of organization TIBIA represents. I suspect that most members of TIBIA will also be active members of the other organizations.

So all readers are welcome to become members of TIBIA. You are needed to help provide the known benefits of our science to humanity.✻

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Possible Geographically Based Behaviorology Associations

Stephen F. Ledoux

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The natural science of behavior needs to be organized formally and independently if it is to emerge fully to take its place at the natural science roundtable and meet the urgent demands of its cultural mission (see Fraley & Ledoux, 1997). So the development of more geographically based behaviorology organizations can be anticipated. This could parallel the rise of, for example, state and regional organizations affiliated with the Association for Behavior Analysis (ABA) that share in ABA's important political (coalition-and-advocacy) mission. For example, several cooperative regional behaviorology disciplinary organizations would be possible, perhaps based in different countries or sorted on the basis of members' native languages. These organizations may be composed of new as well as established behaviorological scientists from basic laboratories and applied fields around the world. Purposes would include furthering the cultural mission, science development and support, and general disciplinary organizing for all facets of the independent natural science of behavior.

Those groups could also serve to anchor the discipline in each group's geographic area, with mutual support worldwide. Their existence, by extending formal organizing of this independent natural science discipline, could be vital to the success of behaviorological science and its cultural contributions. Natural scientists of behavior everywhere are well-served by continuing to work toward more complete and formal disciplinary integrity. While disciplinary groups around the globe could address the task of formal organizing, The International Behaviorology Association (TIBA [now ISB]) is itself addressing a more precise and exclusive emphasis on the important mission of maintaining and developing the quality and productivity of the experimental science component of the behaviorology discipline through the medium of a small scientific society (see Vargas, 1996).

Still, behaviorological professionals around the world need organizational structures that support the other facets of their formal independent discipline. These structures could carry out programs of support for the world's increasingly numerous behaviorological scientists and practitioners. Organizational support is needed to consolidate the *independent*, natural science status of their

discipline and thus to promote vigorously their professional activities. The consolidation of behaviorology could redirect—to those professional activities—the energy that is currently directed either to dealing with “survival in disciplinary limbo” (as some experience in “behavior analysis” where disciplinary status is compromised by the competing claims to ownership of that label) or to dealing with “survival in contradiction” (as some experience in psychology, a disciplinary entity that accepts non-natural, mystical events in its explanatory accounts and so is not a natural science). (Why other existing organizations do not fill these needs was comprehensively addressed in Fraley & Ledoux, 1997, Ch. 4.)

The kind of geographically based organizations of behaviorological science professionals mentioned here could well serve those needs. Another chapter in the history of the organizations of and for behaviorologists—as they more formally organize and support the independence of their natural science discipline and so more capably contribute to world behavioral health—is beginning. Behaviorological scientists must have one or more organizations that promote the reality of behaviorological science and scientists worldwide, and that work to establish officially the accouterments of independent disciplinary status including behaviorology's own academic homes and programs. Developments such as these may not make that much difference in the future of behaviorology; the fact of its natural science status may carry enough momentum. Then again, such developments may make all the difference in the world.✻

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China Through the Eyes of a Behaviorologist

Glenn I. Latham*

Utah State University

China is a country with a huge population. It is altogether safe to say that at any given moment there is more behavior going on in China than anywhere else on earth. And, as is the case with people throughout the world, antecedents get behavior going and consequences determine what happens to it after that.

Since I was in China discussing matters of education and parenting, I was not surprised to find that among the people of China, there are two compelling concerns. The “one child policy” has created a sociological dilemma for China that has come to be known in many quarters as the “Little Emperor Syndrome.” It is a problem created by members of two and three generations of a family living together in very cramped quarters in high rise apartment buildings with little to no facilities for children to play and romp about outside. In most instances both parents are working and a child is left at home to be tended by two or three sets of grandparents. Before long the child is ruling the roost and chaos reigns.

As these children enter school, they bring with them a repertoire of behaviors that is unlike anything that modern-day school teachers in China have ever experienced; hence, the concern of parents for the schooling of their children—a concern, I hasten to add, that is expressed quietly.

None of the problems created by these perplexing circumstances are the least bit adequately addressed by the reigning political ideology of China. The top down centralized system of government that has ruled and reigned in China for the last 50 years doesn't seem to impress little children at home or students in school. Political and educational leaders, as well as parents, know they have a mammoth problem and they know they have no solutions.

Subsequent to the two talks I gave at West China University for Medical Sciences in Chengdu, Sichuan,

*With his wife Louise, Prof. Glenn Latham spent three weeks—29 August through 20 September, 1996—in China (PRC). They were guests of the West China University for Medical Sciences, in Chengdu, Sichuan. Written in November 1996, this is the report of that visit, the author's second professional visit to China. It is also, through its call to action, one of the major factors prompting the founding of TIBI.

people swarmed about me wanting to know how the science of human behavior could be adapted to the solution of China's parenting and educational problems. The talks I gave were entitled “Major Reform Issues in American Education” and “Strengthening Families.” In both talks I stressed the importance of what has been learned scientifically, through the study of human behavior, about the solution of difficult educational and family/parenting problems. (For some detailed information on this science and its application to these areas, see, Binder, 1988; Christophersen, 1988; Clark, 1996; Heward, 1994; Johnson & Layng, 1994; Latham, 1994, 1997; Lindsley, 1990, 1992, 1993; Skinner, 1953, 1968; Vargas, 1996; West & Hamerlynck, 1992; and Youth Policy Institute, 1988. [Also, see Latham, 1998, 1999; and Ledoux, 2000, 2001, 2002.—Ed.]

In my talk “Major Reform Issues in American Education,” I emphasized the importance of addressing educational reform with science rather than intuition, and the importance of focusing on teacher and student behavior in school rather than overarching policies and grand organizational schemes (which, over the centuries, have assured the status quo!). During the question and answer period following my talk, one member of the university faculty made the following observation:

I think there are two reasons why education never changes. First, in medicine there is more money to be earned if one is up to date in his treatment of patients. Second, there is more immediacy in treating sickness and injury. There is less room for error. A patient could die if the doctor didn't know exactly what to do.

I thought it amusing that this would come from a faculty member in Communist China who didn't know Capitalism but did understand logic. She had grasped with ease something America's educators just can't seem to get!

There is a prevailing feeling across the earth that the margin of error in the education of children is so broad, and the sense of immediacy is so weak, that there is no reason to be concerned; that, as one teacher I interviewed put it, “They (meaning students) will finally get it somewhere along the way.” The problem, of course, is that too many don't “finally get it”; hence, the mess we are in, in education.

I was also asked by a faculty member about “systematic methods of instruction for preschool children.” He noted, “Surely there must be systematic methods of instruction that are based in science, and are known to work!” In all of my hundreds of school, classroom, and teacher/principal visits, I have never, ever, been asked by an American educator about “systematic methods of instruction” for children at any level. During further discussions with this same faculty member, he was equally

interested in “systematic methods of instruction” for older students, “even into college.” I told him I would send him information about precision teaching, direct instruction, mastery learning, and Keller’s Personalized System of Instruction. As I spoke of these methods to the faculty member and others gathered about me, they were in awe that such systems of instruction actually existed and assumed that they must be in widespread use in America, in fact in universal use. When I told them that the educational establishment of America, generally, had rejected these scientifically sound, data-based approaches to instruction, in favor of intuitive, individualistic, “artsy” methods, they were dumbfounded. One faculty member said to me, “Where can I learn about this wonderful science of human behavior?” (Arrangements are presently being made to bring this faculty member to America to learn about the science of human behavior and how to apply that science to a broad range of educational problems. It appears as though she, and a faculty member from the West China University for Medical Sciences, will be living with Louise and me while they go to school in America to learn about this “wonderful science.”)

Everywhere we went in China, whenever it became known that my field of scholarship was the study and treatment of human behavior, great interest became immediately generated. The guides that had been arranged to escort Louise and me would ask questions, specific questions, about their children’s behavior. I see China as a nation ready for the science of human behavior. It has such huge needs, and those needs are immediately demanding attention. I would hope that something could be done to arouse the American community of behaviorists and behaviorologists to an interest in getting the science of behavior into that mammoth population of people. I believe it would be well received and I believe that evidences of impact would be felt early on.

Although China is a totalitarian nation that is governed by powerful centralized leadership—a system I don’t agree with—there are advantages that could come from it. For example, television is state controlled, as are other forms of media. If video-taped training and awareness programs could be developed that were acceptable by the government for presentation to the masses, it would be possible to get the message of behaviorology into millions and millions of homes rapidly and thoroughly. Such “media campaigns” (Biglan, 1995, p. 486) are already in place relative to health care and other topics of broad concern. Extending such campaigns to include aspects of “behavioral hygiene” (Ledoux, 1997a) such as parenting skills would not be unreasonable. When we were in China, there was interest generated by officials at the West China University for Medical Sciences to do that very thing. I believe it is worth looking into. We behaviorologists might do for the society of

China what W. Edwards Deming did for Japanese business. I don’t believe that is a farfetched notion.

I’m not prepared at this moment to make many specific recommendations. But I am looking into the matter carefully and intend to have several specific recommendations in the not too distant future. [The founding of TIBI was related to these.—Ed.]

Regardless of what those next steps might be, this much I know: they will have to be taken at some expense to the Americans involved in working with the Chinese. The Chinese are in a position to help cover local expenses like food and lodging, and some forms of ground transportation, but extensive travel arrangements, consulting fees, and expensive technology will have to be borne by the Americans who take the initiative in getting this ball rolling. China is a terribly, terribly poor nation. Although some things are cheap for the Chinese, like food and lodging, their wages, nevertheless, barely allow them to make ends meet. For example, the average worker’s salary in China is \$25 a month. The president of West China University for Medical Sciences earns \$100 a month as president of the university, and an additional \$100 a month for his work as a surgeon. He is a fairly well known surgeon in China, and is active in his profession, even though as president of a university he has heavy administrative responsibilities.

The university is also poor. When visiting with the president and members of his administration, we were told of how they struggle to keep their buildings heated in the winter, and how they can barely afford to make major repairs to keep their facilities functional. But in the long run, I still believe that we in America who have this great science should make every effort we can to get it into China. A relatively inexpensive way of doing that would be to host Chinese scholars in America. They would be able to get to America at their own expense, and their universities would continue to pay their wages which would be anywhere from \$50 to \$100 a month. But if they were hosted by American faculty members, that is, invited to live in our homes and eat at our tables as our extended guests, they could do quite well, acquire the skills and knowledge they need, and take those skills back to China where they would get the word out amongst their colleagues and the people generally.

One of the nice things about China is that there isn’t a philosophical disposition which has biased or prejudiced the academic community against the behavioral approach. Though many Chinese scholars, educators, and university leaders were educated in Russia, and are aware of the psychodynamic approach to treating behavior problems, psychodynamicism is not a compelling force in China. Also, there is nothing about communist ideology that would stand in the way. Communism is virtually meaningless to the masses in China. They could care less.

Communism is a stepping stone to moving up in the system. For example, one could never be a university president or a college dean without being a member of the communist party. But beyond that, communism has little or no meaning to the people, and would certainly not be a deterrent to the work I am proposing.

In a word, the Chinese aren't already committed to the "isms" that are plaguing America. That is certainly a big plus. Their cup is relatively empty and waiting to be filled. I think we should start filling it.

To some American scholars and academes, the thought of sharing their knowledge and expertise with a government that would order the massacre of untold numbers of students is offensive—even repulsive. I have a friend who is on the faculty of a large Midwestern university. For years he was active in providing services and training to university personnel in China. He was in China on the night of the Tiananmen Square massacre—in fact, he watched it happen and vowed never again to lift a finger on behalf of such a government. That is understandable. One must deal with his/her own conscience on such matters. As for me, I have concluded that things will never get better for the Chinese if there are no healthy influences from the outside.

I believe strongly that we need to get bright, young as well as seasoned, assertive Chinese scholars to America, where they can be educated and trained, and who can then go back to China and be our contacts for additional work there related to promoting the science. I believe that if we could get a network of behaviorists/behaviorologists located throughout China, that network could become a dynamic force in building the science in that country, and in making it available to the people as a tool in the solution of compelling educational and parenting problems. That is certainly what my wife and I are committed to doing. Within the next few months, we expect to have two of those scholars living with us in our home, taking classes at Utah State University, being mentored by selected faculty members, and given a broad base of hands-on experience so that they will know how to apply this science to the problems facing their country. It is an enriching experience. For what it is worth, my wife and I have already hosted a visiting scholar from China in our home. He was with us for about six months and was a wonderful house guest, a delight to be with, and the fruits of that are already being realized by the influence he is having in China.

For additional insights into this matter, I suggest you read "Behaviorology in China: A Status Report" by Dr. Stephen F. Ledoux. His article (Ledoux, 1997b) was written after Professor Ledoux had spent a year teaching in China. (Also see Case & Ledoux, 1997, for a chronicle of the experiences of Ledoux and his family during that year; it will help you be prepared to appreciate your own

visit to China—or provide you with an adventurous, informative, and culturally expanding visit to China from the comfort of your own home.) ✻

Endnotes

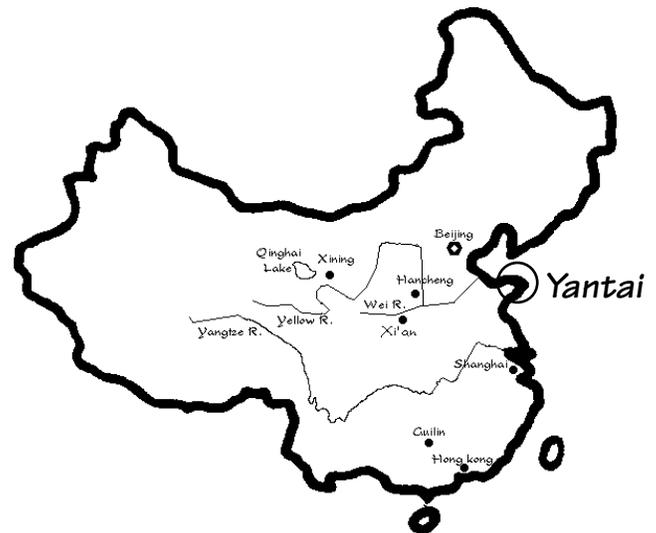
Hoping that it might enlist the informed assistance of its readers in the worthy endeavor of developing behaviorology in China, the author initially prepared this work as a report of his experience in that country. The paper received minor revisions for inclusion in *Origins and Components of Behaviorology* (Ledoux, 1997c).

The author thanks his Chinese hosts both for their efforts to make his visit to China possible and for their efforts to increase the availability of the independent natural science of behavior in their country.

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Introducing a Visiting Scholar

Ma Wen

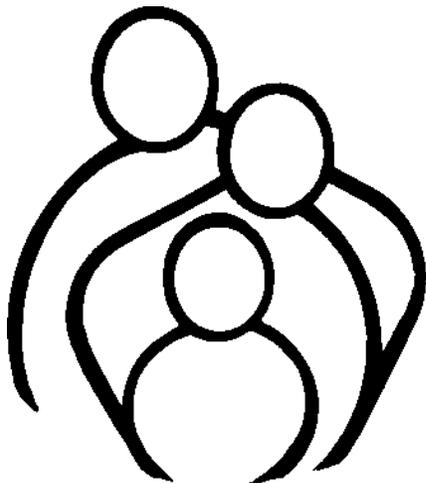
SUNY-Canton

It seems I am the first “eastern states” visiting scholar from China to study behaviorology through the programs of TIBI. I was able to afford my travel to and from the USA, but I would have been unable to afford room and board, or the usual tuition. With the Institute helping with these expenses, I am able to be here to study.

As an associate professor of English at Yantai University in Shandong Province, I am interested in factors that relate to language, especially language teaching and translation. Along with many of my colleagues, I find—even after more than ten years of English teaching—that the knowledge and skills we acquired in the past from psycholinguistic theories are not easily applicable in the classroom. As an alternative I have come to study behaviorology because I believe that Skinner’s verbal behavior analysis may be able to help in these areas.

As a parent, I am also interested in factors that relate to successful child rearing. Due to the extent of the “little emperor” syndrome in China, much can be done with the help of behaviorological science. Again, this provides good reason to come and study behaviorology.

If behaviorological science does contribute solutions to problems in education and child rearing, then there indeed exists a big potential for research and application in the Chinese context. I want to learn more about this discipline to help make contributions, and to help discover the extent of its contributions, in China. And I deeply appreciate the opportunity to do so. ☺



Supporting Both Our Science and the Other Components of Our Discipline

Stephen F. Ledoux

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Along with many others, Ernie Vargas and I share a fondness for the poetry of Robert Frost. I had occasion to write this offshoot while answering some local folks who wanted to insist that our discipline was a myth (and punish my involvement):

*I took the road less travelled by,
Allowing me—
Though perhaps at prices steep—
To make a difference.*

Curiously, it seems appropriate at the moment [1997] as well.

Discovering appropriate directions for our efforts to build the science, discipline, community, and organizations of behaviorologists is no easy task. We could focus just on experimental science, but I think that would ultimately be a disservice not only to ourselves but also to those our science would benefit.

Yet I must confess to wanting to be involved in a scientific society—involved as a contributor doing science. I want all behaviorologists to be involved this way. But I do not see that all behaviorologists can be involved this way, nor am I convinced that this is the way all should be involved. Behaviorologists have more to do than just conduct and report experiments, as vital as that is, if behaviorology is to make a contribution beyond our own enjoyment of experimental discovery.

Behaviorology, after all, is a comprehensive discipline that not only includes an experimental component but also philosophical, conceptual, analytical, and technological components (see Ledoux, 2002). In one or more ways, the community of behaviorologists must assure development of all of the discipline's components. As a community we need to provide support for all behaviorologists, including those whose histories prepare them to make their best contributions in these other areas, areas other than that of performing scientific experiments. In addition, a certain interdependence obtains among these areas. Those working in each of these areas need the contributions of those working in the other areas if together they are to move the discipline forward in a balanced manner. After all, where would physics be if the theoreticians were not around to tell experimenters what to look for, and if experimenters were not around to tell theoreticians

when they were losing contact with reality? And both groups not only have fun but make contributions to their discipline and the culture.

Perhaps our current (1997) organization (The International Behaviorology Association [TIBA]) should focus rather exclusively on experimental science. But if that is the full extent of our efforts, we may not be able to maintain them for very long due to other variables, current and historical, affecting our existence (for details, see Fraley & Ledoux, 2002). We must arrange now, even as we organize a basic science-focused society, to maintain some sort of organized involvement in our other disciplinary components.

In addition, I remain unconvinced that a handful—even a handful as large as 150 [a proposed membership cap] plus students—of behaviorologists, all doing basic experimental science and not much else, are going to succeed in having the kind of impact on the wider culture needed even for their own survival as behaviorologists, let alone the kind of impact that the comprehensive discipline of behaviorology can have, and should have, on that culture in so many currently needed ways. And are we also to ignore other radical behaviorists, that is, other behaviorological scientists and practitioners, who share this natural science though not the behaviorology label? I believe that it behooves us and our survival—in the sense of an obligation—to maintain some sort of organizational acknowledgment of their existence, and the reality of their work and contributions, and some sort of organizational effort to coordinate these for mutual benefit and the benefit of the wider culture. This kind of effort may even engender a growing acknowledgment, and perhaps adoption, of the behaviorology label and independence, a development I think we should welcome and encourage for the part it could play both in the survival of behaviorology and in the timely delivery of behaviorological solutions to cultural problems.

We do not need to try to become big, certainly not for reasons of political clout (as we probably derive adequate political clout from our concurrent memberships in the Association for Behavior Analysis [ABA]); besides, political influence is not necessarily proportional to size. But we do need to be open to becoming big, if that is the result of our other disciplinary efforts. If we do get bigger than our organizational preferences, we will deal with that situation. While circumstances differ today, with a lot more actual and potential scientists and several ways to meet (e.g., electronically), we can still take a lesson from early scientific societies. They tried to include all scientists in a particular geographic area who could attend the meetings, which in some cases were monthly. If we get “too big” we can organize on multiple levels that meet at different frequencies. A large national-level organization can meet once every couple of years, while state or regional organizations might meet annually, and small

(perhaps up to 150 members) local organizations may meet every couple of months, if not monthly.

So, in some organized way, we as a community of behaviorologists must protect and extend all of our disciplinary components, not just our experimental science component. We must respect and support our independent disciplinary status. We need not do this through our current organization, although that was in essence the original purpose of our current organization (see the history of TIBA, and its statement of purpose, in Fraley & Ledoux, 2002). If we do change the focus of our current organization, we must concurrently address these other concerns organizationally. (One suggestion I heard at our recent convention concerned forming a group in ABA to serve the more general concerns of our other disciplinary components. Other solutions are also possible. Several might be tried at the same time—variation and selection. Some might even beneficially coexist.)

Meanwhile, although I am inclined against changing the focus of our current organization, I could live with doing so, especially if organizational solutions are found for the concerns of our other disciplinary components as well. And if the focus is changed, I believe the adoption of a different name should be part of the change, so as to reflect honestly the new focus. (Such changes—see Vargas, 1997—have been completed; TIBA's name is now the International Society for Behaviorology [ISB].)

In summary, the natural science of behavior needs to be completely organized, formally and independently, if it is to emerge fully to take its place at the natural science roundtable and meet the urgent demands of its cultural mission (see Fraley & Ledoux, 2002). Behaviorological professionals around the world need organizational structures that support *all* the components of their formal independent discipline. These structures could carry out programs of support for the world's increasingly numerous behaviorological scientists and practitioners. Organizational support is needed to consolidate the independent, natural science status of their discipline and thus to promote vigorously their professional activities (also, see Appendix 5 of Ledoux, 2002).✻

First of Three Related Quotes

...Skinner and his followers never had a chance of making over psychology by demonstrating that practices informed by their natural science were more effective. ...Should accumulating evidence force a traditional psychologist to the brink of either abandoning mysticism or discounting valid and reliable evidence, the typical traditional psychologist treats the dilemma as a Hobson's choice—there is no real option. Any science that contradicts the fundamental mystical assumptions is abandoned. People who got into science in the first place in order to shed some scholarly light on the details of their

deepest philosophical assumptions... are not going to abandon those foundations if that science starts causing trouble. Instead, they abandon the science, which at that point is merely an intellectual tool that initially looked helpful, but has proven to cause more difficulties than it is worth. (L.E. Fraley. From Ch. 5, p. 128, of Fraley & Ledoux, 2002.)

Second of Three Related Quotes

...Cultural survival appeared to be at stake during the emergence of modern biological science and on other occasions in human history. And so again today. However, the technologies capable of destruction that characterize the present era (whether actively, as with nuclear weapons, or passively, as with unchecked population or pollution) are qualitatively greater than those of previous times. This puts not just cultural survival but the survival of life in general on this planet at risk (e.g., from a nuclear winter). The early behaviorologists believed... that that was what was at stake, and so they incurred the costs of organizing the behaviorology movement and discipline. (From Appendix 2, Ch. 7 section, p. 313, of Ledoux, 2002.)

Third of Three Related Quotes

...Future readers, should their lives have unfolded within the context of a culture pervaded by behaviorology, might have difficulty appreciating a past era of antithesis to behaviorological science. That people would not have readily invested in a repertoire that effective—one that obvious and well demonstrated in its validity and implications, one that elegant in its parsimonious reduction of false complexities—could tax the comprehension of those who live in such a future... (From Ch. 7, p. 158, of Fraley & Ledoux, 2002.)

Endnotes

This paper first appeared in the TIBA/ISB newsletter, *Selections* (1997, volume 9, number 1 & 2, pp. 11-13). It was reprinted with permission.

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Advancing an Independent Discipline on All Fronts

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The promotion of a natural science of behavior requires a multifaceted organizational response. We already have in place a massive, and perhaps well failed, organizational effort to persuade fundamentally mystical people to adopt the natural philosophy and science of the behavioral phenomena on which they dwell ...people who themselves are already organized in their own way to validate scientifically the implications of their mystical assumptions. On another front, we also have a newer organized effort that pursues, in an uncompromised way, the expansion of the natural science frontier. We now turn to the *training* mission, and we begin to address the problem of how best to train new members of the natural science community that concerns itself with behavior-environment functional relations.

We undertake this venture during unstable times. Most current training opportunities in the natural science of human behavior are fragmented and severely denatured by an uncritical and thorough integration with fundamentally incompatible elements of antithetical paradigms ...the legacy of more than half a century of trying to co-opt the discipline of another community instead of bearing the substantial short term costs of establishing our own independent discipline.

Students from around the world, whose local training missions do not offer even a fragmented approximation of the natural science of behavior, seek training opportunities in the United States. However, along with American students, they discover that, to access fragments of relevant training, a substantial fraction of their precious resources must be consumed by the required purchase of training in irrelevant pseudo-sciences. At the same time, we find ourselves in the midst of an unprecedented world-wide communal revolution sustained by the new electronic media, one hopeful implication of which is that training options will no longer be dictated by geography.

A balanced disciplinary advance is important. The International Society for Behaviorology has focused on an essential and sometimes neglected facet of the total disciplinary mission, namely, the experimental generation of new science. It is appropriate that that aspect of the emerging discipline has received early and somewhat intense organizational

attention, but like many, I do not believe that the necessary mission-balance can develop exclusively through operations conducted by that kind of organization.

A mature scientific discipline is organized around three main missions: (a) the generation of new science and philosophy, (b) education (the training of new members of that scientific community), and (c) the redesign of cultural practices in ways that involve the products of that discipline. In the long run, I would hope for a consolidation into a single large disciplinary organization featuring those three major mission-related divisions. Each division would have at least one journal, and be maintained by a membership representing the requisite expertise.

The Association for Behavior Analysis will not contribute effectively until it shifts its real focus to disciplinary development and stops using hollow pretensions of commitment to that mission to mooch the resources of the host discipline from whose house it has refused to move like a well lodged but unwelcome relative. The International Society for Behaviorology, pursuing its deliberately insular policy, is making its valuable and focused contribution, which manifests in the nature, quality, and integrity of our science. For the time being, I think that a new group can begin profitably to work (independently for now) on the development of the other two pieces of the organizational tapestry.

I believe that the matter of how best to impact the culture at large deserves careful re-examination. We seem best postured at the moment to emphasize the education mission, and few would argue against the importance of education. I have thought about the practical problem of how a worthwhile and substantive curriculum of studies could be endorsed, or even offered, by our new kind of organization (i.e., The International Behaviorology Institute). The failure, over the years, of the behavior analytic movement to organize, or even endorse, a separate discipline has left behavioral training fragmented, with the pieces scattered among the training programs of other disciplines (most of which are fundamentally antithetical to behaviorology). The single exception (in 1998) seems to be at the University of North Texas, where a behavior analytic department operates apart from that institution's psychology department.

But more typically, while any single behavioral professor may be prepared to offer from one to three or four courses, or while, in the far more rare instance, a small and isolated cluster of behavioral faculty members may be able to offer a limited track of behavior studies, to get a respectable full fledged degree program, a trainee would usually have to pick up a course here and a couple of courses there, until a program of studies had been completed. That could be made to work if a central program-coordinating unit exercised the oversight to insure that the training (obtained in pieces from a variety of sources) had the necessary thematic and programmatic integrity.

One advantage for such a traveling student, aside from getting to see a lot of the country, would be personal contact with trainers selected because they were prepared to offer excellent examples of their respective pieces of the training puzzle. And the electronic revolution will mean, probably sooner than most suspect, that students may not actually have to travel to accomplish the same thing.

Perhaps it will be possible to secure funded projects to bring foreign scholars to the United States to study the natural science of human behavior. Perhaps the student's program could be put together by our organization, and the student would simply go to where the best courses were being offered. The project would cover travel, lodging, and tuition. The program of study could be given an interdisciplinary twist by including a variety of related electives, perhaps in fields such as evolutionary biology, ecology, human factors engineering (ergonomics), behavioral education, and economics. The subject matter of many behavior-related fields can be reinterpreted behaviorologically to great advantage. Much of economics, for example, amounts to the study of how economic realities control human behavior, a subject matter that we approach through our consideration of various contingencies of reinforcement.

Eventually, perhaps, our organization could supervise final products (e.g., theses and dissertations), provide unified program transcripts, and award the degrees. In any case, some organizational groundwork would now seem to be in order. ☺

Separate Discipline Status Corroborated Again

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Although I am a TIBIA member normally residing in China, I have spent the 1999-2000 school year in a graduate linguistics program at a university in Singapore. As the last ten weeks of the program began, my class was being introduced to behaviorism. I had recently received a copy of Ma Wen's translation into Chinese of an article by Professor Stephen F. Ledoux titled "Behaviorology in China: A status report" (Ledoux, 1997a). Shortly after it arrived, an incident occurred that yet again corroborated the independent status of the behaviorology discipline as described by Ledoux in that article.

The incident began by my being praised—and later put down—by my psycholinguistics professor in class. A

Hong Kong lady in her fifties, she told us she got her Ph.D. in psychology from Harvard. That day, when she introduced us to behaviorism and structuralism in class, she found that I was the only one (among 35 of us) who could answer almost all the questions quickly and satisfactorily. So she asked me curiously how come I was so familiar with behaviorism. I told her that I had taken two courses in behaviorology, "Verbal Behavior" and "Behaviorology for Teachers," in China. (They were part of my MA program at the Xi'an Foreign Languages University [XFLU] where I have been on the faculty since graduation; they were taught by Professor Ledoux when he was at XFLU teaching in 1990-91 as part of a faculty exchange.)

Then I also told her that I was interested in this discipline and would like to do research and applications in this area in the future. After that she said, "Well, it is good for a young man to be ambitious, but you need to be aware of the limited scope there; behaviorism is mainly applicable to animal behavior and it is rather outdated ..." I told her that behaviorology is different from behaviorism and I also mentioned Professor Ledoux and TIBI to her. Unexpectedly she said, "Well, there are always people who like to use new terms to impress others." I didn't say anything more.

When I got back to my apartment, I took out Dr. Ledoux's book (Ledoux, 1997b) and our TIBI newsletters. Thumbing through a book of over 300 pages plus a six-page bibliography about behaviorology, I further assured myself that she must be completely ignorant of behaviorology. Later on, some of my classmates asked me what behaviorology is about. I told them it is the natural science that studies human behavior. It is an independent discipline different from behaviorism and it is applicable to many situations including foreign language teaching and learning. I also showed them Professor Ledoux's book and the translated article, plus the TIBI newsletters, and I recommended the related web sites to them.

This experience shows that "resistance from outmoded opinion" (Ledoux, 1997a, pp. 194-195) not only exists in China but also in Singapore. My psycholinguistics professor is an example. TIBI's training programs are needed even more than we may have thought. ✻

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A Summary of Progress in Disciplinary Development

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[The author substantially expanded and improved this paper by rearranging its contents as part of the *Afterword* in Ledoux, 2002a. That rearrangement, with missing parts restored, is included here. However, this report still only covers progress up to mid-1998 (although *the most recent versions of the references are also cited*) as other reports cover later progress (e.g., Ledoux, 2001a).—Ed.]

Significant academic and administrative activities of behaviorological scientists have continued to develop in the behaviorology movement and discipline. These have ranged from the expansion of the behavior analysis program at the University of North Texas (UNT), through the founding and undertakings of The International Behaviorology Institute (TIBI), to the ongoing publication of books and articles elaborating a consistent behaviorological perspective on topics of social and disciplinary relevance. Each of these areas of progress will receive attention along with some comments about the future.

The founding and undertakings of TIBI derive from a combination of circumstances. These are fully described in the first issue of TIBI's newsletter/magazine, *TIBI News Time* (TNT; see TIBI, 1998 [Starting in 2002, the title changed to *Behaviorology Today*.—Ed.]). The two papers on behaviorology and China (Ledoux, 2002b, and Latham, 2002) provide part of the background, and three other papers provide the rest. These three are "Possible geographically based behaviorology associations" (Ledoux, 1998a), "Advancing an independent discipline on all fronts" (Fraley, 1998a), and "Supporting both our science and the other components of our discipline" (Ledoux, 1997). [Most of these papers are included in the first issue of *Behaviorology Today* (Volume 5, Number 1).—Ed.] TIBI's two-fold purpose involves (a) providing training in behaviorology, certificates for completed training, and support during training, especially for those such as scholars from other countries (e.g., China) who cannot afford either tuition or living costs while studying behaviorology in the USA, and (b) providing a disciplinary association (the TIBI Association [TIBIA]) in which behaviorological scientists and practitioners worldwide can organize themselves for activities that advance all components of their separate and independent natural science discipline.

Beyond the founding of TIBI, the offering of behaviorology courses and certificates, the dissemination of new publications, and the hosting and training of visiting scholars, progress is evident (a) in new courses and curricula offerings at other institutions of higher learning, (b) in initial TIBIA membership patterns, (c) in the recognition of disciplinary status for behaviorology in non-Western countries, (d) in the continuing concern with the status of the name "behavior analysis," (e) in the publication of a continuing stream of books and articles covering aspects of the natural science of behavior/environment relations, and (f) in other organizational efforts. Each of these will receive coverage in turn.

The actual number and locations of courses and curricula covering behaviorological content is difficult to track. Local additions, however, are another story. Thus, prevailing contingencies in 1998 enabled the initiation of behaviorology courses at the State University of New York in Canton. The first course, available in both the spring and fall terms of that year, was "Behaviorology 101: Introduction to Behaviorology I" (Ledoux, 2002c). While clearly proposed and accepted as a behaviorology course, a course introducing the independent natural science of behavior/environment relations, the course officially appeared under the title "Introduction to the Science and Technology of Behavior" with, for administrative convenience, a social science prefix and number.

Another significant development is the behavior analysis program at the University of North Texas (UNT). Given the demands of employers for graduates with behaviorological knowledge and skills, that program has expanded to departmental status (and still has difficulty keeping up with demand). That expansion has occurred *independent* of UNT's psychology department. This is a major breakthrough in efforts to secure the future of behaviorological science. UNT, its Behavior Analysis Department, and all the faculty, administrators, staff, and students involved need and deserve—as do those involved in any other programmatic breakthroughs—the fullest, most open, and continuous support of all behavior analysts and behaviorologists (i.e., behaviorological scientists and practitioners) worldwide. Of major significance is the fact that in the programs of UNT's Department of Behavior Analysis (whose programs, and thus department, were named prior to the current usage of the term behaviorology), students study the natural science of behavior for its own sake and learn to *disallow*—with all other natural sciences—the inclusion of non-natural events in scientific explanatory accounts; in contrast, in UNT's Psychology Department, students are necessarily taught to *allow* non-natural events in explanatory accounts of behavior (see Fraley, 1997, 1998b).

Perhaps in the initial pattern of TIBIA memberships one can also sense the directions that prevailing contin-

gencies favor. After the four founders, the next four members to join TIBIA, at any membership level, included three professionals from China (two temporarily residing in the USA and one in Xi'an, China), and one professional from Canada. After these, others joined, including professionals from the USA.

What other impact might the rest of the world have on the future of natural science regarding behavior? The answer reflects the outcome of some extensive discussions with the Institute's visiting-scholar students on possible behavior-science implications of some differences between the culture-related philosophical views in Western and non-Western countries. Consider that over the next century (or two?) Western physiological psychologists who prefer the natural science approach of physiology may finally purge their discipline (or their part of the psychology discipline) of the unnecessary and unhelpful acceptance of non-natural entities/events from psychological explanatory accounts. (However, doing so will require their separation from psychology unless new contingencies promote the most fundamental change in the psychology discipline's mystical foundation itself—see pp. 128–129 of Fraley & Ledoux, 2002.) Those professionals and behaviorological professionals may *then* desire—and be able to achieve—a useful combination of their two natural science disciplines, the former emphasizing mechanical causality and the latter emphasizing selection causality. Part of the impetus for these events may come from the non-Western world. This is because the dichotomy between the mystical discipline of behavior (psychology—allowing non-natural events in explanatory accounts) and the natural science discipline of behavior (behaviorology—disallowing non-natural events in explanatory accounts) may prove to have been a mainly Western (USA and Europe) phenomenon. Other countries (e.g., China) that lack the West's thorough cultural grounding in dualism may more readily combine, in their behavior science discipline, both the natural science, mechanical-causality-emphasizing facts, research, and applications of physiological “psychology” and the natural science, selection-causality-emphasizing facts, research, and applications of behaviorology. If successful in both research and applications, such inclusiveness in the behavior science disciplines of non-Western countries could serve as a substantial prompt to a Western recombination purged of mysticism. (Given that each component is a comprehensive discipline, any such combination may seldom manifest in the repertoire of any individual professional because most individuals cannot afford the costs of acquiring more than one disciplinary repertoire.) In any event, these possibilities are probably several professional lifetimes away.

Resolution of the status of the “behavior analysis” label also progresses, though slowly. The directions that

prevailing contingencies favor is unclear. I personally would welcome a day when that label stands free and clear of any claims or connotations other than as a potential name for the independent natural science of behavior informed by the philosophy of radical behaviorism. However, with psychology also claiming this label, due to a shared history (see Ledoux, 2002d), I must admit to doubts that this could happen. Still, should it happen, behaviorological science professionals could then select whichever label works best; at that point I could be comfortable with either behavior analysis or behaviorology. In either case, much of the historical foundation that will have brought behaviorological professionals to such a decision point has been documented (see Ledoux, 2002a). And that foundation may even lead us to use both labels (e.g., “behaviorology” for the basic science component and “behavior analysis” for the applied science component). While any movement toward clarification of this issue is progress, its resolution is also several professional lifetimes away.

Progress also continues to appear through the publication of more books and articles covering aspects of the natural science of behavior/environment relations. Various samplings cover a wide range of topics:

A list of recent and relevant books includes *General Behaviorology* (Fraley, 2002), *First Course in Applied Behavior Analysis* (Chance, 1998) which acknowledges the appropriateness of the behaviorology label (see p. 36), and a revised edition of Murray Sidman's *Coercion and Its Fallout* (Sidman, 2001). It also includes *Behavioral Intervention for Young Children with Autism* (Maurice, 1996), *The Power of Positive Parenting* (Latham, 1994), *Keys to Classroom Management* (Latham, 1998), and a unique and non-technical novel that covers our natural science and its place in society: *The Millennium Man* (Wyatt, 1997; also, see Ledoux, 1998b, for a review). Also, Maurice (1994) has provided a non-technical analysis of autism and its behavioral interventions, Engelmann (1992) has comprehensively analyzed academic child abuse, and Watkins (1997) has examined the fallout from the way the education establishment has ignored Project Follow Through data (and resisted implementing the recommendations implied by the Project's results; see Ledoux, 2001b). In addition to books like these, more and more behaviorology study guides (i.e., books of study questions) for use with several basic textbooks are becoming available. (For example, see Kopp, 2001, and Ledoux, 1999, 2000, 2001c, and 2002e. Also see the “Supplementary Bibliography” at the end of this paper for more books of particular value for parents and teachers.)

A list of recent articles from just one behaviorology author covers wide-ranging topics including the challenges to determinism in modern science (Fraley, 1994a), some issues in verbal behavior analysis (Fraley, 1996), and an analysis of correctional systems (Fraley, 1994b, 1994c).

Such a list would also include a four-part analysis of thanatology (Fraleley, 1998c, 1998d, 1998e, and manuscript) as well as some concerns in disciplinary development, including reflection on the adverse implications of economically driven policies for university teaching (Fraleley, 1998f), reflection on an appropriate academic home for our natural science discipline (Fraleley, 1992, 1997), and reflection on philosophical differences (Fraleley, 1998g).

Articles by behaviorologists are also available dealing with experimental issues (e.g., Ledoux, 2002f), applied concerns (e.g., Feeney, 2002; Vargas, 1996), and conceptual considerations (e.g., Ledoux, 2002g). And so much more continually becomes available, not only in and through the disciplinary efforts and publications of TIBI (www.behaviorology.org), but also through the International Society for Behaviorology, the Cambridge Center for Behavioral Studies (www.behavior.org), and the Association for Behavior Analysis. With the kinds of momentum indicated by the developments described here, the future indeed looks bright.✻

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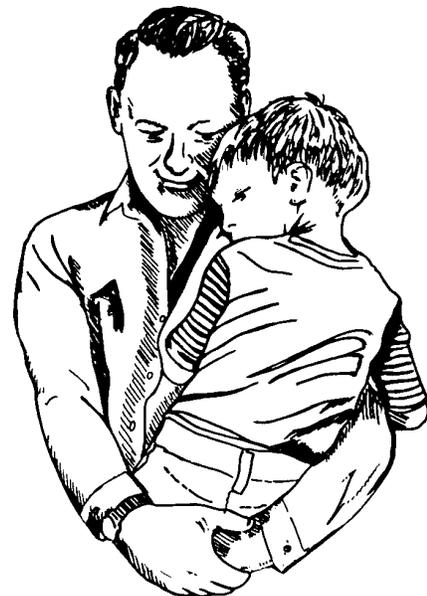
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- Latham, G.I. (audio program: 1 cassette; recording of a presentation at an international conference for parents). *Behind the Schoolhouse Door: Eight Skills Every Teacher Should Have*. Garden City, NY: Eyedears A/V. [Call 516-739-8864 for tape # 20-ASAT-12]
- And these books are for those with some theological persuasions:*
- Latham, G.I. (1997). *What’s a Parent to Do?* Salt Lake City, UT: Deseret Book Co.—incorporating LDS (Mormon) theology.
- Latham, G.I. (1999). *Christlike Parenting*. Seattle, WA: Gold Leaf Press—incorporating Christian theology.
- Note:** Dr. Latham is not the only author of quality materials on these topics. However, they are included here because his peers have judged his work to be the very best available. (For example, see “About the Book” on p. vii in Ledoux [2001c] *Study Questions for Glenn Latham’s The Power of Positive Parenting*.)
- Also note:** As a public service, TIBI points out that most of these items can be obtained directly from *Parents & Teachers ink* at either 435-752-5749 or toll free (for credit-card orders only) at 1-888-750-4814. ☺

Supplementary Bibliography

In addition to Latham, 1994 and 1998, and the study question books for these two (Ledoux, 2000, 2001c), all four of which are listed in the “References” section of this paper, here are some recent behaviorological works that are also particularly helpful for parents and teachers:

- Latham, G.I. (1997). *Behind the Schoolhouse Door: Eight Skills Every Teacher Should Have*. Logan, UT: Parents & Teachers ink.



The Discipline of Behaviorology

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The courses offered by TIBI afford students a substantial opportunity to explore the discipline of behaviorology. Like physics, chemistry, and biology, behaviorology is one of the basic natural science disciplines.

A Natural Science Discipline

A natural science has no explanatory reliance on mystical, metaphysical, or supernatural variables. Thus, behaviorology is a discipline of behavior/environment functional relations in which superstition has no place. Behaving organisms are regarded as natural products of evolutionary biological processes. Within the behaviorology paradigm, the behaviors that organisms exhibit are not assumed to be driven by a fundamentally supernatural and autonomous mystical self-agent operating from a hypothetical construct called a mind. Instead, behaviors occur naturally and are environment driven. From the perspective of this natural science discipline, a behavior is construed to occur inevitably as the dependent variable in functional relations between that behavior and properties of the environment. That is, the environment controls behavior in a natural and functional way, and a behavior is not a product of some mysterious spirit-like force that is presumed to inhabit a body.

Behavior *per se* consists not only of the familiar mechanical movements of body parts, but also includes all emotional reactions, and all verbal behaviors (“verbal behavior” being a large class that incorporates speaking, thinking, consciousness, awareness, visualizations, knowing about, and similar phenomena). With all of these recognized as kinds of behaviors, each occurring in accordance with basic principles of nature, behavioral outcomes—including the behaviors of affect and intellect—are brought within reach of an appropriate behavioral technology for any applied field. As a basic discipline of human behavior, behaviorology provides scientific support for the behavioral engineer addressing behavior-related challenges in any applied area.

Behaviorology is a comprehensive discipline featuring an experimentally based natural science which also usually goes by the name behaviorology. The discipline also includes the philosophy of that science, which is sometimes now called “selectionism” (others have suggested “behavioral materialism”), although the traditional name

has been “radical behaviorism.” (Radical means fundamental or root, in the algebraic sense.) In addition to its philosophy and science, the broadly construed comprehensive discipline of behaviorology also includes various applied behavioral technologies under different names taken from the fields in which they are practiced (e.g., educational behaviorology).

Subject Matter

When we say that behaviorology is the natural life science of the functional relations between environments and behaviors, we mean that changes in the behavior-controlling environment produce changes in the behavior of individuals. Because behaviorology focuses on the behavior-controlling relations between behavior and the environment in which it occurs, it emphasizes behavior change as a function of the events that occur during the life of the individual ...events that can be of either a socio-cultural or non-cultural nature. But behaviorology also takes into account determinants of behavior that stem from the selection of organisms for survival in the biological history of the species. The current effects of such evolutionary factors appear in the form of genetically determined body structures. The nature of the body that behaves obviously contributes to the nature of the behavior in question.

While studying the behavior of all organisms, many behaviorologists have focused heavily on human behavior. Scientific answers have been provided for such ancient questions as: What is behavior? What can cause it? How can analyzing the processes by which behavior occurs help us behave effectively in all facets of life? What is knowing? What does it mean to say that something is important? Behaviorology encompasses what psychologists call “learning” (although behaviorologists construe it differently). Behaviorology includes the study of various processes by which behavior is changed. Under the rubric of this discipline, behavioral events are described, probed and studied, predicted, and subsequently controlled.

Gaining control of behavior is always the point. Very few people are paid merely to understand behavior, and not many make their living by passively describing it. For example, educators (and most other kinds of professionals) are paid only for changing it. From the behaviorological perspective, behavior of any kind (motor, verbal, and emotional), whether produced through operant or respondent processes, is viewed as a producible product. Behaviorologists do not try to cajole or persuade mystical inner selves to direct their host bodies to behave in certain ways. Instead, behaviorologists produce those behavioral effects through direct applications of their scientific principles, and that production is the professional responsibility of the parent, teacher, lawyer, social worker, human factors engineer, politician, nurse, or...whatever.

That is why, from the behaviorological perspective, all these people are behavior engineers.

Behaviorology is a basic discipline supporting any field in which human behavior is important. It provides the science with which to study such phenomena as how a nurse comes to care, how parents produce new forms of behavior in their children, how a leader comes to have followers, how an artist appeals to an audience, how a friendship is strengthened, or how a sense of duty is instilled. Behaviorology is the science that affords us the capacity to produce a feeling of freedom, a new kind of “wanting,” a sense of guilt, sin, or shame, or a feeling of pride or of love. It is not only the discipline for the study of values and ethics, but of how to produce them. None of these outcomes are of mysterious origin. They occur naturally. They can and do occur by accident. But with a science of behaviorology, these kinds of effects or outcomes can all be prescribed as objectives, and they can be produced to specification. Practitioners in any field, whose work includes the challenge to produce behavioral effects of any kind, if properly and adequately trained in behaviorology as the basis of their operations, can be held accountable for producing those results. Behaviorologically trained people are engineers whose products are behaviors and behavioral effects. ☺

If Telling Were Teaching...

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“If telling were teaching, we’d all be so smart we could hardly stand it.” So wrote Robert Mager in 1968.

Today, many people seem to have the notion that teaching *is* telling; that all you need to do is tell someone some information. Furthermore, people may consider the teaching accomplished upon the telling. That seems to be the basis for the lecture system. In lecture, a person designated as an instructor stands before a group of people and talks to them. The lecture may additionally include the instructor writing text and drawing images on a blackboard, on an overhead projector transparency, on a flip chart, or with computer animation and video. How-

ever, talking to a class forms the core of all lecturing. The task of instruction is presumably discharged with the presentation. Teaching becomes, then, largely a matter of presenting information. Once you have presented the information, your job as teacher is done—or so things may seem.

To me, the notion of teaching as primarily a task of presenting information seems particularly ignorant. Why? Well, because abiding by that method one may ignore what the student does, or is able to do, following the instruction. Furthermore, any actual learning that comes about usually becomes the student’s responsibility under such a system. The good student quickly learns various survival skills in the lecture system. The good student learns to take notes during the lecture. After the lecture, the good student learns to read his or her lecture notes, especially before any test. The good student likewise may learn other study skills, such as recopying notes, highlighting notes, reading the chapters in an assigned textbook or other book, making flashcards, quizzing him— or herself, quizzing a fellow student, and other skills. The *real learning* takes place, of course, during these episodes where the student actively responds with respect to the study materials. Those episodes mark situations where the learner directly acts upon the subject matter; or, to put it another way, *operates* upon some small portion of his or her environment. Meanwhile, very little of the learning takes place during the lecture itself. The lecture simply represents a vehicle for transmitting the information. The student then must *work with* the transmitted information and teach himself or herself.

A real instructional system would not remain ignorant of its effects. To be sure, in formal educational arrangements, such as university courses, there are a few indicators of the lecture system’s effects. These indicators include the various mid-term and final exams and any other quizzes, tests, and assessments. However, these form crude indicators only. Moreover, if a student does not do well on these indicators, the instructor may presume that it is the student’s fault. Perhaps, as the reasoning would go, the student did not study enough. Maybe he or she did not study the right material. Maybe he or she lacked the prerequisite skills. The excuses compile. Remember, under such a lecture system, teaching is supposedly discharged with the information presentation. Anything beyond the information presentation becomes the student’s responsibility.

In the university world one finds crude indicators of learning, such as those mid-term and final exams. In the corporate and industrial domains, however, there may be various reasons why trainers cannot test learners. Employees may balk at being tested. If unionized, their union may object to tests. I have seen that happen. Consequently, any training developed may become totally devoid of any direct feedback loop about its effects. The training may simply become lecturing without assign-

ments and without tests. Such an arrangement does not place even a minimal contingency upon the learner to actually learn the information presented. That might explain, in turn, why so much corporate training seems so bad, or why employees may develop a cynical attitude about training.

Even though a direct feedback loop may not exist in lecture-based corporate and industrial training, an indirect, long-term feedback loop will always exist. The main reason to train people is so that they will be able to do a job, and to do it well. Training should result in increased productivity. The basic idea behind training is to ensure that people will have the knowledge and skills to do a job. The presumption is that before training occurs people lack the necessary knowledge and skills. The further presumption is that not having the knowledge and skills costs the company money. For instance, if employees do not know how to do a job correctly, they may manufacture defective products. They may pass along defective products, which if they had the skills to spot the defects, they would have not permitted to go down the line. In the end, the consumer who purchases defective products, inferior services, and so on, will eventually seek out another provider. Or the consumer will advise other consumers to do that. Bad knowledge and skills will eventually translate into lost revenue. This lost revenue may become the indirect, delayed feedback loop. However, the consequences are so delayed, and are not immediately apparent, that the connection may be difficult to make.

The solution to lost revenue, or to other indicators that suggest some intervention, may include training, or more training. Employees may be subjected to more of the same. Their company sends them off for a day, a half day, an hour, or whatever, for more training. If the training is lecture without assessment, the training may be ineffective. The learners come back to the job after such training, with differential results. Some may, indeed, do the job better. Others may not. In fact, if the training required more than a couple of points of information, more than likely the learners will come back with only a few new responses. Back on the job, they may prove as ineffective as they were before the training. Eventually, they will be trained again, and probably develop a cynical attitude about corporate training. Meanwhile, it costs the company both time and money to send employees off for training, and costs the company decreased revenues to the extent that training makes little or no difference.

I have seen that happen. Let's say you take a computer-illiterate person and send him or her off to a couple days of training to learn how to use Windows98 and Word for Windows. In the classes I have attended, the instructor presents a veritable flood of information to the learners. Students may feel overwhelmed, and will say so, too (usually in a safe place; not in the presence of their supervisors). In a span of a couple of days, hundreds of facts

get presented. The learners may sit at a computer terminal and have the "opportunity" to try an example here and there as the instructor moves the course along. Meanwhile, they get very little practice, and are given no fluency goals to reach. The instructional system, moreover, provides no feedback to the instructor about how well each learner is learning, nor imposes any contingency on the learner to actually learn anything. Very little actual learning may result. Back at the office the learners will still ask for help about that which they were just "taught." Or, if they really do need to learn the information for their job, they will be like those college kids and learn it on their own, either on their own time, or furtively on company time.

As a student I experienced the downside of "teaching as telling" when I studied karate. I would go into class, and stand near the back of the assembled group (as required, for students lined up according to belt rank). The instructor would demonstrate a sequence of movements. The movements might form a "kata," a complex sequence of blocks, strikes, steps, and stances. Then the instructor would tell the class to perform the movement sequence. Well, on those occasions, I tried. I certainly tried. But I found the experience very frustrating. I could see the more advanced students at the front ranks perform the movements reasonably well. Back in the rear of the class, I performed the sequence of movements haphazardly. Some of the components of the sequence I did correctly. Some I did incorrectly. Still other components I missed altogether. At the end of class we were told to practice at home what we had learned. "Great." At home I would practice the movements as I learned them in class, often incorrectly. The only salvation came when I showed up for "individual" tutoring on Friday nights. There, the instructor worked with me alone for ten minutes. I would perform the kata, but this time receive immediate feedback as well as individualized instruction at the point in time when I needed it. Finally, I would do the sequence correctly for the first time. Later, I would "undo" what I had learnt incorrectly, and practice the correct movement sequence at home. The clear message to me, however, was that the group instruction proved largely worthless *as* instruction. Its sole value came from practicing what one had already learnt. The real instruction came mainly in those ten minutes of individualized instruction each week.

The basic problem with such teaching as lecturing to groups comes in its simple assumption that telling is teaching. Lecturing may be fine if all you need to teach are a few facts. A good public address system can qualify as an instructional system for that purpose. However, if you need to teach dozens of facts, relationships, definitions, or procedures having dozens of steps, and so on, teaching as telling quickly proves ineffective and pointless. The learners are not sponges soaking up information as it is given to them. They are not passive beings

who, upon listening to hundreds of facts, will absorb all of the facts and have them ready for later recall. No. Real human learning does not happen that way.

Real teaching means changing behavior. More exactly, teaching involves arranging circumstances so that an instructor notices the change to learner behavior as a result of the learner's interaction with the instructional system. Such "noticing" makes the resulting instructional system cybernetic (Vargas & Fraley, 1976). "Noticing" here alludes to effective stimulus control of the behavior of the instructor with respect to the behavior change produced. While such "noticing" may suggest tests and exams, it is not limited to those. One may design an instructional system where learners frequently and directly act upon some instructional materials, receive direct, differential, and immediate feedback after each action, and receive instruction at the point of time when they need to make a response. A system having such features would bring the learning back into the classroom, and thus bring back the teaching as well. The measurement of learning would become direct and continuous. Tests, *per se*, would become irrelevant. More to the point, those responsible for teaching would have a direct and continuous measure of their effects. If a particular instructional technique worked, the instructors would keep it as part of the system. If a particular technique did not work, the instructors would drop it or modify it. As a result the system would evolve. The outcome would be learners who actually learn the knowledge and skills they need. A company that adopted this "direct measurement" approach would get some bang for its training buck, and it would gain that all-important competitive advantage. ✻

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About Behaviorology

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Like biology, chemistry, or physics, behaviorology is a comprehensive basic *natural* science of much complexity. Furthermore, as is true of these other natural sciences, per-

sons new to behaviorology find that it contradicts some conventional wisdom and perhaps some of their previous assumptions—in this case, about behavior, including ideas that are commonly taught or implied in grade schools, homes, religious institutions, and university courses.

Compatibility with Other Teachings and Assumptions

Behaviorology, being a natural science, is a separate and independently organized scientific discipline. In contemporary culture one encounters behaviorology along with other disciplines such as psychology operating concurrently, sometimes in a parallel manner. Behaviorology and psychology respectively offer different ways of thinking about the subject matters upon which those disciplines are focused. For example, behaviorologists and psychologists often study the *same* behavior-related phenomena and attempt to solve the same problems—problems that both kinds of thinkers encounter in a given behavior-related field—problems that may pertain to administration, to a personal or professional activity, or to clinical practice. But behaviorology is a disciplinary alternative to psychology.

The behaviorological way of thinking about behavior differs from the way of thinking about behavior that predominates in psychology. Behaviorology is not a kind of psychology and cannot logically be a part or aspect of psychology. Having been organized within the past 15 years (starting in 1987) with independent disciplinary integrity, the discipline of behaviorology is represented in most institutions of higher education by individuals who are currently housed in various social science departments where behaviorology offers an epistemological alternative to traditional psychology and its related cognitive sciences. Contemporary universities typically have no independent academic department for a *natural* science of behavior, and faculty members who represent such a natural philosophy and science of behavior are dispersed among units in which its fundamentally superstitious alternatives prevail.

Behaviorology, as a natural science foundation, can inform the work of professionals in *any* behavior-related field. Behaviorology is comprehensive and its applicability correspondingly broad. This means that behaviorologists do not turn away from their discipline to study, in some other way, any aspect of behavior-related events. Behaviorologists may specialize in any applied field (education, advertising, history, journalism, nursing, law, entertainment, public relations, ergonomics, public policy, etc.). They believe that behaviorology offers the most effective analytical approach to *any* kind of behavior-related activity within such fields.

Behaviorology is based in part on different fundamental assumptions about the nature of behavior than

those supporting much of traditional psychology. And importantly, behaviorology focuses on a different aspect of the subject matter. Behaviorology is the study of *behavior/environment functional relations*.

In contrast, psychology has traditionally maintained a focus on events thought to occur within the body, many of which are cast as the operations of metaphorical constructs such as *minds* and *information processors*. Such constructs are posited as models of psychological events presumed to occur within people's nervous systems. In the psychological view, many of the important characteristics of behavior originate internally, often in what appears to be spontaneous ways. Interpretations of environmental events are rendered by a mystical pro-active mind. The views of many traditional psychologists allow for the possibility that behavior can also originate through interventions from external but mystical sources, an allowance that accommodates common religious perspectives on behavior.

On the other hand, in behaviorology behavior is cast as a function of measurable physical events in the behavior-controlling environment. In the behaviorological view, the body serves only mediating functions in the production of behavior insofar as body structure enables behavior to occur and imposes limits on the forms and ranges of possible behaviors. But, within those body-determined limitations on the behavior that can be exhibited, *the selection of specific behaviors is left to the environment*. As a natural science, behaviorology also eschews all metaphysical explanations for behavior including reliance on spirits, psyches, and concepts of mind that feature interfaces between the physical world and a hypothesized metaphysical world.

As a result of such large differences in basic assumptions and general approach, the *scientific principles* respected by behaviorologists and psychologists can differ substantially. Not surprisingly, these two kinds of scholars will frequently reach different conclusions. No one should expect otherwise. As students in higher education become aware of these differences, they should remember that they are in a higher education institution. While they are there to contact the *products* of prevalent thinking on a number of frontiers important to their culture, they are also there to study different *ways of thinking*. There is no guarantee that any one of those schools of thought will be compatible with any others.

One thing is relatively certain: If a student leaves the university as a professional in some behavior-related field, that person is going to have to produce results in the form of substantial and important changes in how people behave—including how they think and feel, which are also kinds of behavior. Rhetorical obfuscation aside, that is what they will be paid to do—and *expected* to do. Unless the basic behavioral discipline that informs

their work is capable of supporting an effective and efficient technology of behavior by which they can accomplish such behavior change (and with respect to *all* classes of behavior), they will fail in their professional mission.

In programs for professional training in this culture, the predominant scientific foundations have long been drawn from what is connoted by the phrase “cognitive, mentalistic, and developmental psychology.” The essence of that disciplinary tradition has existed for the past century as a set of formal disciplinary concepts and precepts, and since antiquity as culturally imparted assumptions.

In contrast, from the behaviorological perspective, within normal ranges, what occurs inside of a human body while that organism behaves (including the internal workings of the brain and other parts of the nervous system) is *not* relevant to the kind of behavior technology through which professional practitioners can conduct effective behavior-related operations. Remember, unless you are training to be a surgeon or a person who can alter the body with synthetic improvements or with drugs, you are not going to be in a position to work with independent physiological variables. True, a person needs a body that works well internally, and physiological technicians are working on synthetic enhancements that will give us better working bodies including more effective and efficient nervous systems. However, a practitioner in a behavior-related field probably will not be intervening professionally among variables within bodies. That's just not in the nature of the business. Furthermore, regardless of the presence or absence of any rights of a behavior-related practitioner to intervene internally within a person's body, the behavior is still only mediated by that body and occurs only in response to environmental stimuli. A foundation of behaviorology supports a comprehensive behavior technology that specifically identifies and analyzes the points of intervention that *are* available to various practitioners who deal with behavior problems.

Professional Organizations of Behaviorology

The principle professional organizations of the discipline of behaviorology are *The International Behaviorology Institute* and its Association (TIBI and TIBIA) and the *International Society for Behaviorology* (ISB). TIBI concerns itself with the establishment of training opportunities and the coordination of professional activities at the interface with the rest of the culture, while the ISB concentrates on the integrity of the scientific community. The members of both organizations are variously focused on (a) basic and applied research on behavioral phenomena, (b) the effectiveness of the philosophy and science of behaviorology, (c) the philosophical and scientific integrity of the discipline, and (d) cultural redevelopment based on effective practices informed by the naturalistic philosophy and science of behavior. ☺

Defining Natural Sciences

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As Lawrence Fraley describes in his “About Behaviorology” article (Fraley, 2000a [In this issue.—Ed.]), today one encounters behaviorology and other disciplines, such as psychology, dealing with topics that at first blush seem to be similar. This leads some to assume that these topics are treated in similar ways. But behaviorologists define the topics differently, and treat them in ways that are radically different from the treatments of other disciplines. The concern here is to differentiate behaviorology from other disciplines like psychology, and the definition of natural science is crucial to this distinction.

Among disciplines, one particular difference will be emphasized here, because it would seem to have more impact for society than any others (see Fraley & Ledoux, 2002). This difference, a difference critical to the definition of natural science, pertains to whether or not a discipline invokes non-natural events in its explanations.

How are natural sciences defined? Fundamentally, *natural sciences are defined as disciplines that deal only with natural events* (i.e., independent and dependent variables in nature) *using scientific methods*. These disciplines always exclude non-natural events from their considerations. Other definitions are extant. However, none of them—compared with this definition—so accurately reflects the observed line of fracture dividing natural science disciplines from other disciplines. Since so much confusion stems from the distinction between natural and social sciences, that distinction will receive the attention in this discussion.

One common misconception involves the use of scientific methods. Status as a natural or social science is not determined solely by a discipline’s use of scientific methods. All natural science and social science disciplines use scientific methods. However only some of these disciplines invoke the exclusion of non-natural events from their considerations; those that do so have historically (and contemporarily) earned the title “natural science.” Even “creation science” may make use of scientific methods, but it does so while making non-natural events—the will of a mystical, faith-based being whom creation scientists consider supreme—the centerpiece of its considerations; thus it is not, and cannot be, a natural science.

Historically, the natural sciences arose out of mystical origins. In western civilization the practice of early natural science involved studies undertaken mainly to unravel the mysteries of the creative powers of the investigators’

God. Those early investigators focused on various facets of “nature” and, in doing so, developed what came to be known as scientific methods. The phrase *natural science* initially referred to the various subject matters to which such attentions were being directed. Of particular significance here is that most of these subject matters were aspects of the extrinsic environment in which the social activity of humanity was conducted; they were not aspects of how that environment controlled behavioral reactions to it, a topic which inheres in the subject matter of behaviorology.

As the natural scientists continued to pursue their work, however, the phrase natural science came to connote their emerging philosophy of naturalism—the consideration, with scientific methods, of *only* natural events (i.e., only independent and dependent variables *in nature*). Thus the phrase natural science became divorced from the original body of subject matters upon which its early investigations were focused. It came to represent an integral philosophy, naturalism (see Fraley, 1999).

Today, the connotation of the phrase natural science transcends subject matter limitations; that phrase no longer implies *what* is studied. Any subject matter can be approached in different ways, including mystically or naturalistically. A subject matter may be approached in the way that *allows* non-natural events in its considerations, which would be a “non-naturalistic,” or mystical, approach. Or it may be approached in the way that *disallows* non-natural events in its consideration, which would be a “naturalistic” approach. In both cases *different* terms are used to name the resulting disciplines. But only those disciplines maintaining the naturalistic approach (and using scientific methods, though this need not always be mentioned) would be considered natural sciences. For example, the most common mystically based search for water is called dowsing while the naturalistically based search for water is called hydrology. The subject matters may appear similar yet, of the two, only hydrology is a natural science.

Adhering to a naturalistic perspective confers the status of a natural science on a discipline while adhering to a non-naturalistic perspective does not. The phrase natural science applies to any subject matter based on the philosophy of naturalism; it applies to any subject matter that studies only natural events (independent and dependent variables in nature) using scientific methods. Behaviorology, for example, is a strictly natural science because it applies scientific methods to study only the natural events of behavior and its independent variables.

Thus, status as a natural or social science is also not determined by the subject matter that is under investigation. One traditional notion is that “social science” refers to disciplines dealing with people issues. This is a serviceable definition that is not in conflict with the description of natural sciences as disciplines that exclude non-natural events. Accordingly, some disciplines may qualify un-

der both of these definitions. They might then be considered both a natural science and a social science. For example, the sub area of biology (an historically acknowledged natural science) called epidemiology deals extensively with people issues, and often is considered to be a social science; yet it never sacrifices its exclusion of non-natural events and so remains a natural science. Meanwhile, another sub area of biology, medicine, also deals extensively with people issues. Yet medicine is seldom considered to be a social science; while not nearly as exact as the biology and chemistry from which it comes, it does not maintain explanatory reliance on non-natural events and so is considered to be among the natural sciences.

Status as a natural or social science is also not determined by membership in any organizational or institutional arrangement of disciplines. One example is the differing arrangements of disciplines listed in college catalogs. These placements of disciplines typically reflect the common understanding of what makes a discipline a natural or a social science. Institutions differ in their views both on which disciplines have ended explanatory reliance on non-natural events (“the natural sciences” such as physics, epidemiology, geology, etc.), and on where to put disciplines that deal with people issues (“the social sciences” such as anthropology, epidemiology, sociology, etc.). Confusion occurs because some natural sciences are also social sciences, because they deal in people issues, and so could be listed with the social sciences as well. Behaviorology is an example. More confusion occurs because some social sciences are also natural sciences, because they maintain the exclusion of non-natural events while using scientific methods, and so could be listed with the natural sciences as well. (As an additional source of confusion, some disciplines receive the “social science” label mainly *because they allow* non-natural events in their considerations—with the questions of whether or not they deal with people issues, or use scientific methods, being secondary.)

All those considerations apply to the original concern of differentiating behaviorology and psychology. At the most fundamental level, behaviorology—as a discipline—disallows the inclusion of non-natural events in its considerations and, by that approach to its subject matter, joins the ranks of the natural sciences. However, *as a discipline*, psychology *allows* non-natural events in its considerations (although individual psychologists may refuse to do so). This approach to its subject matter constrains psychology to remain outside the ranks of the natural sciences. (On pages 128–129 of Fraley & Ledoux, 2002, Fraley discusses the improbability of psychology changing from this position. Also, see Fraley, 1992, 1998b.) So one basis for differentiating behaviorology and psychology is that they do not share a common approach to their subject matters, with only behaviorology qualifying as a natural science (see Fraley, 2000b).

In addition to the differences in *how* they approach the study of a subject matter, psychologists and behaviorologists do not define their subject matter in the same way, even though both engage in studies of behavior. So they can be differentiated on that basis as well. The subject matter of behaviorology, which it approaches naturalistically, is the functional relations between behavior and independent variables. The most helpful and productive of these variables are in the external environment and are subject to interventions that bring about beneficial behavior changes (with common yet sophisticated examples being the behavior-engineering skills used at home and in school; see Latham, 1994, 1998). However, the subject matter of psychology, which it approaches non-naturalistically, is the hypothesized relations between behavior and a range of variables, including the psyche, mind, self, and other non-natural, magical, mystical internal agents that are put forward as causes of behavior. But the causal status of those variables cannot adequately be assessed because they are non-natural and cannot be scientifically tested in spite of attempts to rely on scientific methods to do so. As a result, psychology cannot directly change these non-natural variables and must instead rely on intuitive approaches regarding what might be done with real variables to produce helpful behavior change (see the appendix on “Adventitious Control,” Ledoux, 2002a).

Calling behaviorology a natural science, however, causes discomfort for some people, because classifying behaviorology as a natural science is not in keeping with common though misplaced perceptions of what constitutes natural sciences (see Fraley, 2000c). The most common misperception, previously mentioned with respect to college catalogs, is that “natural science” is defined by traditional membership in a certain group of disciplines (the group comprised of physics, chemistry, etc.) when instead *the membership of a discipline in that group is itself defined by the excluding of non-natural events from the considerations of the discipline*. It is *that exclusion* that (a) defines a discipline as a natural science and so (b) automatically places it among the group of disciplines known as natural sciences. Any discipline that fails to exclude non-natural events from its considerations is not to be found in that group, while every discipline that relies exclusively on real variables is in that group, *regardless of how long ago or how recently that distinction was invoked*. (Of course, higher education administrators sometimes locate natural science disciplines in other administrative units for reasons that are little related to those disciplines’ membership in the natural science group. Such action, however, does not alter the validity of those disciplines’ membership in that group.)

More significantly, while every discipline that excludes non-natural events from its considerations, and uses scientific methods, is in the natural science group, not all

such disciplines became part of this group at the same time—and *that* is yet a further source of confusion. There was a time when no disciplines were natural sciences. Then, starting several hundred years ago, there was a period in which subgroups of members of several different disciplines did begin excluding non-natural events, at least from their inquiries if not from their motives. Eventually that path, for the groups that took it, converted their disciplines into natural sciences. And thus appeared (though the details are beyond the scope of this article) many of the usual natural sciences we know today (physics, chemistry, biology, geology, astronomy, etc.).

Quite some time has passed since a subgroup of a non-natural science discipline took the step of excluding non-natural events from its considerations. But this can still be done. From among the professionals in *any* discipline that maintains a *non*-naturalistic perspective, a subgroup can take that step and, in so doing, create a new natural science of its subject matter. In the twentieth century, a subgroup of the professionals operating within psychology took precisely that step (see Fraley & Ledoux, 2002, for the historical details). This subgroup followed the centuries-old lead of other natural sciences and excluded non-natural events from its considerations. By doing so, and thus creating a critical discontinuity between themselves and those remaining behind in the original non-naturalistic discipline, these professionals created a new natural science of their subject matter. This natural science came to be called behaviorology.

While those professionals initially called their natural science “behavior analysis,” a political rift arose among them that resulted in the organizing of those calling themselves behaviorologists (see Fraley & Ledoux, 2002). Today, while *behaviorology* is the *independently* organized natural science of behavior–environment functional relations, *behavior analysis* has become largely a political movement for natural scientists of behavior who are devoted to (a) developing new scholars and scientists (of naturalistic behavior–environment relations) through attempts to convert to naturalism the members of another discipline, psychology, that is committed to the non-naturalistic perspective, while (b) keeping the behavior analytic proponents in contact with the copious resources of those on whom they exert their conversion efforts. Within the behavior analysis movement, the relative strength of these two motives varies from person to person. However, the behaviorologists, in general, entertain neither of those motives, regarding the former as impractical and the latter as a stretch of ethics (see Fraley, 1998c and 1997, for elaboration).

Substantial progress in knowledge and applications attended the long ago creation of the traditional *natural* sciences. That same kind of progress has attended the more recent emergence of the natural science of behavior

now called behaviorology. This progress is reflected in the advances in principles and practices applied in many major areas of human concern. For some details on those advances and applications, see the bibliography in Ledoux, 2002b. Meanwhile, no one should be surprised that behaviorologists’ concern with scientifically solving *human* problems has led some people to wish to categorize it *both* as a natural science (using the definition of natural sciences as disciplines that exclude non-natural events) *and* as a social science (using the definition of social sciences as disciplines concerned with people issues).

Endnote: The author thanks Lawrence Fraley for providing helpful comments on an early draft of this material.✽

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Behaviorology in China: A Status Report **A Chinese translation by Ma Wen and Li Laishou**

*T*his translation is included here to support TIBI's mission to help fill behaviorology training needs everywhere. The translation was made from the English version of this article now on pages 187-198 of *Origins and Components of Behaviorology—Second edition* (S.F. Ledoux, 2002, Canton, NY: ABCs). Mr. Li Fangjun provided invaluable assistance

in preparing the translation for publication in this issue. [A related article about China was printed in the first issue of this newsletter. That article is "China Through the Eyes of a Behaviorologist" by Glenn I. Latham (*TIBI News Time*, 1 [1], 4-7) and it is reprinted in this issue of *Behaviorology Today* (on pages 17-20).—Ed.]✻

[THIS ARTICLE WAS LAID OUT MANUALLY FOR PRINTING AND SO CANNOT APPEAR HERE;
SEE THE SEPARATE PDF OF THIS ARTICLE IN CHINESE]

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Two Listservs as Online Magazines

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[While this article is the type to be included in the next issue, it is included here instead due to timeliness considerations.—Ed.]

I invite behaviorologists and friends to use my two listservs, provided courtesy of Temple University. (“Listserv” is a trademark of L-Soft International whose software we use.) Each listserv allows the public to view all posts, so you do not need to join, subscribe, or use a password to get access to all Listserv posts.

Behavior2000: Behavior and Digital Technology List:
<http://listserv.temple.edu/archives/behavior2000.html>

Behavior2000 approaches a natural science of behavior from the context of digital technology. You may view all posts from the website above, so you do not need to join the list to read more than 1000 posts. Or, you may join the list via the website, to post your own comments.

Fox eNews: A public listserv regarding digital education: <http://listserv.temple.edu/archives/blackboard.html>

Fox eNews is a listserv for issues surrounding the implementation of elearning systems (Blackboard 5.5 currently) in the Fox School of Business and Management. Like Behavior2000, the Fox eNews list lets you view posts, so you do not need to join the list to read more than 800 posts.

Think of my two listservs as free online magazines filled with thousands of articles, weblinks, and more. Whether you join a list or just read the posts without joining, these two listservs welcome you. ☺

The Discipline of Behaviorology and the Postulate of Determinism

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Introduction to the Issue

Behaviorology is the name of an organized natural science discipline that is committed to the study of functional relations between behavior and the environment in which that behavior occurs. Determinism is a philosophical doctrine of natural science. It is based upon the postulate that all real events are determined by a functional history that leads inevitably to the manifestation of those events. The scientific study of any event is largely devoted to accounting for the particulars of the natural history that has led to that event—and on that basis, to predict similar events that are yet to occur. These scientific foundations then support the development of the technology by which such events are brought under control. Typical objectives include producing such events, preventing such events, or customizing such events.

Problems arise when the human capacity to trace such a natural history proves inadequate, and a satisfying account cannot be completed. Scholars debate whether, at that point, we should say that the event is wholly or partly indeterminate, or whether we should say that it has a natural history that we are, as yet, unable satisfactorily to trace. At issue is whether nature is inherently unknowable, or whether, in some cases, the human intellect is simply incommensurate with the task of sorting out what are the orderly and theoretically predictable complexities of nature.

Historical Influences on Skinner’s Approach

This debate about the nature of nature occasionally arises when people consider the behaviorological scheme of analysis for operant behavior, instances of which are often described in terms of probability. The inherent multiplicity in the antecedent stimulus controls on an operant behavior renders impractical a complete accounting of all of the concurrently effective functional relations between environmental stimuli and an operant behavioral event. That leaves probability statements as the best available way to describe the potential appearance of an operant response. Doing so represents a shift to a different level of analysis at which validity is maintained at the expense of precision. B.F. Skinner led the analyti-

cal way by speaking of the shifting *probability* of an operant response under changing environmental conditions.

It seems to me that Skinner's way of describing operant behavior was heavily influenced by the context in which Skinner struggled to clarify the difference between operant conditioning and the traditional psychological stimulus-response notions that today fit more closely with our contemporary concepts of respondent behavior. In conceptually prying operant behavior apart from that tradition, Skinner had to emphasize what then was the important new role of the consequating stimuli, and in doing so, he seemed to find it necessary to de-emphasize the functional role of the antecedent stimuli (which, in the traditional psychological view, long held center stage as far as function and importance were concerned).

Like most behaviorologists who review Skinner's attempts to present and explain operant behavior and its conditioning to the traditional psychology community, I do not believe that Skinner's de-emphasis of the antecedent stimulus represented any departure from his commitment to determinism. After all, the concept of *functional antecedent* has served as the foundation upon which natural scientists have based their abandonment of mystical causation. It seems to me that when Skinner pointed out that operant conditioning may be described without mentioning any stimulus that acts before the response occurs, he was not thereby implying that the response in question was a spontaneous event that had no functional history leading up to it. That is, Skinner, for strategic reasons pursuant to his departure from traditional psychology, needed to show how operant conditioning could be described by starting with the appearance of a response.

A given response, while it could serve as the starting point for a Skinnerian account of an instance of operant conditioning, did not thereby become divorced from its own functional history. That is, the fact that Skinner began his account of an operant behavior with a single response did not remove that initial response from nature. That response still had its functional history, even though that history was playing no role in Skinner's account of the further operant conditioning of the behavior represented by that response.

Skinner suggested that, given a response, we take note of precisely how it is consequated (perhaps by arranging that consequation), and that we then wait for the subsequent appearances of that behavior, again describing precisely how they too are consequated. We can then point to how those recurring responses are changing in frequency across that sequence of consequations, and, in the case of the variation called shaping, how the recurring responses are also evolving in form—all without having to identify the functional antecedents that share in evoking those responses. Given the traditional stimulus-re-

sponse formulation with which Skinner's main audience was familiar, Skinner's pointed lack of reliance on precisely identified antecedent events exposed most starkly the operant-respondent distinction to which Skinner hoped to sensitize his audience.

However, in proffering such accounts of the operant conditioning process, Skinner was not rejecting antecedent control as the driving force behind operant behavior (if, by *driving force* we mean the functional evocation of a response by an antecedent stimulus). While Skinner's way of accounting for an operant effect was rendered without explanatory reliance on the identity or nature of the functional antecedents, his doing so was not a denial of the necessary existence and evocative function of proximally antecedent events. I would say that any operant behavior is *driven* by its functional antecedents, but in a manner that has been *determined* by the prior consequences of that behavior. I presume that even the most inconsequential little behavioral manifestation has to have its functional antecedents, because I do not believe that any real event, however trivial and small, happens spontaneously (i.e., without a functional history). It is one thing to ignore that history and another to deny it.

In cases where finding those antecedents and exploring their functions goes undone because it is not practical, or is not important, we are left unable to predict accurately the time and characteristics of whatever response those unknown antecedents may evoke. However, based on the entire history of the natural sciences, plus our own personal histories with natural science, we tend to avoid saying that, because we cannot accurately predict an event, its appearance, when it does occur, is mystical, spontaneous, or intrinsically indeterminate.

Instead, we presume that the event *has* functional antecedents and say that we are *ignorant* of them. We would hardly be justified in insisting, on the basis of our personal ignorance of the functional antecedents, that there are none and that an observed behavioral event has instead occurred spontaneously. That would be taking our mere ignorance of the history of that event to mean that the functional order of the universe does not apply to that event. Nor would it seem justified to go mystical when we are merely ignoring the functional history of some event, and doing so because, given the contingencies under which we are operating, no compelling reason exists to bother tracing and describing that history.

Skinner himself noted that if all of the events leading up to an operant response could be taken into analytical account, we could then predict that operant response at least with the accuracy that we now predict an instance of respondent behavior from an occurrence of its eliciting stimulus (see *Science and Human Behavior*, p. 112). It seems to me that Skinner, like all natural scientists who seek out functional relations,

believed that those relations exist to be discovered. Otherwise, why bother with science?

Reinterpreting Our Explanatory Reliance on Probability and Chaos Theory

It has often been noted that a particular stimulus can evoke a number of different operant responses and that a given operant response can be evoked by any of a number of different stimuli. However, two points are relevant to statements of that kind:

First, a typical response occurs as a function of a *set* of stimuli—stimuli that, in some way, share in contributing to the evocative capacity of the environment to produce that response. When we talk about the control exerted by a particular stimulus in which we have an interest, and speak of it as if it were acting alone, we are really inquiring about its contribution to a behavioral effect that is a naturally concerted production. The stimulus of interest is not really acting alone, but shares the evocative function with other events, which, in many cases, we are not taking into analytical account, thus allowing their contributions to be exerted in ways that are going unmeasured. Our usual assumption is that the variable upon which we *are* focusing accounts for most of the functional control even though its exclusivity is problematic.

Second, we must also remain aware that both the environment and the behavior–mediating organism are dynamic systems, and that both of them are always in a state of flux. Any enduring function between environment and behavior upon which we direct our analytical focus thus necessarily manifests as a differential across time. The manifestation of a behavioral response defines a moment of capture by function—a sample pair consisting of the momentary state of the behavior–controlling environment and the corresponding momentary state of the dynamic body. Their functional relation has been established by a particular conditioning history. On the basis of what remains from that conditioning history, the functional relation between them is a deterministic function at that moment. The behavior is theoretically predictable, but to predict it accurately, we would have to be tracing both the flux of the environment and the flux of the body so that we could say that, given the environment as it exists at this instant, and the body as it exists at the same instant, this functional environment,¹ in its

entirety, will evoke precisely this response from this body at this moment.

That kind of predictability is precluded, not because nature is arbitrary (although natural states can change rapidly), but because we lack the capacity to keep pace with those changes. The fluxing mix consists of too many variables that are changing in too many ways, and our measurement technology is not equal to such a challenge. We deal with that problem by jumping to a different level of analysis where we rely on probability theory and chaos theory.

When we talk in terms of probability theory, chaos theory, and other such conceptual devices, those are merely intellectual schemes by which we manage our ignorance of antecedent events in special ways that allow us to tease out the most that validly can be said in spite of that ignorance. However, while those conceptual devices allow us to do that, we would be going too far in our analysis of a kind of behavioral event were we to permit an occasion of recourse to the principles of probability to become an excuse to doubt the *existence* of the functional antecedents that determine that event. That is, what amounts to a neat way of dealing with our ignorance of the functions that account for a behavioral event is not the occasion to start denying the existence of those functions.

The manifestation of that behavioral event can just as rationally be taken as the evidence *for* such functional causation. Recourse to probability theory is just a conceptual way by which we get along without knowing, or having to know, about some antecedent functions that are too costly or too difficult to analyze. In addition to the troublesome complexity of the complete set of evocative antecedents, by the time we undertake our analysis of some behavioral event, the evidence of its functional antecedents may have faded into history beyond the reach of what limited powers of recovery we might have been able to muster. That our residual ignorance compels our explanatory appeal to the concept of probability does not challenge the existence of the functions that define the deterministic kind of reality. Rather, our explanatory reliance on the concept of probability affords us the best kind of answers that are possible without our having to engage in measurement practices that are beyond our capacity, or that we cannot afford to undertake, or that are not worth the effort.

¹ *Environment* can be defined in different ways. It consists of all stimuli that control behavior. Thus, *environment* can be defined in general for all behavior ever exhibited by each member of a population, or by any subset thereof—current, historical, or both. *Environment* can also be defined narrowly in terms of the stimuli that

share in the control of (a) one individual's single response, (b) one individual's single behavior, or (c) the entire behavioral repertoire of an individual. (A response is a single instance of a behavior. Throwing a stone is a response. The throwing of stones is a behavior.)

A Contemporary Casting of the Issue

I have done my teaching in a different era than Skinner did his teaching, and I have ranked the importance of the teaching problems differently because, over time, the problems facing a behaviorology teacher have changed in relative importance. Today it seems less necessary than was true in Skinner's time to go to extremes to try to convince people that respondent conditioning is not the only kind available. Thanks to Skinner's work, the operant–respondent distinction is now seldom doubted even by people who do not fully understand the details of either variety.

During my teaching career, I have found that most students arrive on my doorstep hopelessly superstitious. That would have been true in Skinner's time too. However, it is that corruption of the students' intellect that has posed the greatest teaching challenge to me. In helping my students to overcome their superstitious tendencies, it has been useful for me to stress the functional precursors of *everything*. For that reason, I have found it helpful to emphasize the role and place of the functional antecedents in *any* account of operant behavior, especially their role in the conditioning process.

In that way I deviate from the presentation strategy that Skinner sometimes favored. Whereas Skinner's main problem was how to make his newly delineated operant behavior seem as different as possible from the traditional respondent–like behavior familiar to most of his psychology colleagues and students, my main problem has been to teach the philosophy of naturalism to superstitious people. I have had to find ways to teach the science of behavior–environment relations and its supporting philosophy of naturalism to students who are all too anxious to go mystical given the slightest excuse, especially with respect to human behavior. In the context in which I have worked, I believe that it is best to start an analysis of a behavioral event with its set of functionally evocative antecedents, whether the elements of that set have been identified or not. See Figure 1.

In such a three–term contingency, the set of functional antecedents may be reduced to a single stimulus event that alone contributes enough of the functional

effect to yield a satisfying account if all others are ignored. Alternatively, the set of functional antecedents may consist of multiple events that must combine to generate a net evocative capacity that is minimally sufficient to yield the behavioral effect.

Alternatively, the antecedent set may be a *sequence* of interacting events, the net effect of which comprises the evocative capacity. In such cases, the antecedent circumstances may make little sense unless all of the important elements in a functional sequence are considered. An example is the effect of a function–altering stimulus on an otherwise neutral stimulus. If a stimulus is only evocative in the presence of another stimulus, a satisfying account of the function of the antecedent conditions is possible only if both stimuli and their interactions are incorporated into the analysis.

In any case, as Skinner made clear, the identity of the set of functional antecedents need not be specified to demonstrate an operant effect. We have only to wait for the response and, upon its occurrence, follow it closely with a consequating stimulus, and then repeat that procedure as necessary. Changes, over time, in either the frequency, or the relative frequency, of the behavior then demonstrate the fact of operant conditioning and reveal its kind. However, I think it important that we remain confident that the functional antecedents are extant whether they have been identified or not. As a practical matter, if the wait for an instance of the behavior of interest lasts too long, we have only to evoke the desired behavior by arranging the organism's contact with the appropriate evocative antecedents (assuming that we have bothered to identify them).

With respect to the importance of the consequences of an operant response, I prefer to emphasize the functional role of the consequence *on the relation between the first and second terms*—that is, on the relation between the evocative antecedent stimuli and the behavior in question. For example, a reinforcing consequence has the functional effect of *strengthening that relation*, while an aversive consequence has the functional effect of *weakening that relation*—kinds of changes that are revealed during subsequent iterations of the evocative function. See Figure 2.

set of functional antecedents → response → consequating stimulus

Figure 1

set of functional antecedents → response → consequating stimulus



(functional effect on subsequent reiterations)

Figure 2

This approach keeps the students focused on a kind of functional causation that involves potentially discoverable real-world (i.e., measurable) antecedent events, a kind of causation that they are all too prepared to compromise to preserve their personal investments in superstition. While a demonstration of the operant effect does not *require* the identification of the set of antecedent stimuli, and we often leave a question mark written in that position, at least the question mark reminds people that some real stimulating events occurred there that are yet to be identified should it become important to do so.

In fact, some potentially important behavior engineering procedures depend upon identifying those antecedents, so that those functional antecedents can be manipulated on future occasions. An example of a practical behavior technology that requires the somewhat precise identification of those functional antecedents is a preclusion or prevention procedure in which a behavior is prevented by intervening to insure that the organism does not contact the stimuli that would evoke that behavior.

In any case, it seems to me that Skinner's way of resorting to the concept of probability to describe the operant conditioning process does not threaten the basic deterministic postulate of the natural sciences. My conclusion is that behaviorology remains as deterministic in its philosophical foundations as any natural science and for the same reasons.

The Nature of the Postulate of Determinism

The deterministic notion that underlies the natural sciences is, of course, a grand inference. The evidence supporting that inference consists of the frequent discovery of function when people have looked for it, coupled with the absence of credibly demonstrated exceptions. Instances of apparent spontaneity seldom withstand unrelenting searches for the measurable kind of functional antecedents that we describe as "real."

The concept of *function* itself is a kind of inference based on observations of certain conditions at one time being reliably followed by certain conditions at a later time. That is, we do not see the function that relates two events; we see the before-and-after conditions. We then infer the function from the reliability of that change.

Yet, without these kinds of deterministic inferences in place, why would we bother trying to analyze events, behavioral or any other kinds. It seems to me that we do so precisely because of our respective histories with the implications of the deterministic view. The assumption is that all events have a natural (i.e., functional) history. That history, when finally understood, affords a valid and reliable accounting for those events of a kind that leads to prediction and ultimately to control. When we have behaved as if such assumptions are true, that kind of behavior has paid off handsomely.

Comparative Philosophy

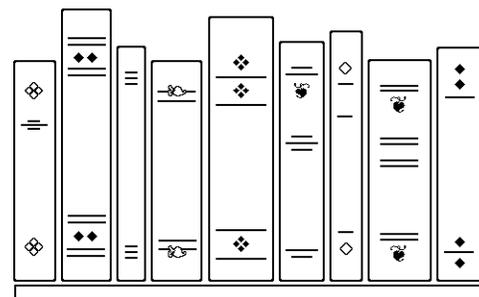
Once, during a classroom discussion of these issues, an astute and deeply religious graduate student critically noted that a kind of faith underlies the naturalistic philosophy of the natural science community, just as a kind of faith underlies the activities of persons in his devoutly religious community. True, the two communities feature respective faith in different sets of postulates, but, he asked rhetorically, were those differing postulates not both but assumptions that represent extrapolations beyond the hard evidence? He wanted his point to carry to the implication that our respective disciplines, both based on assumptions, were therefore equally worthwhile.

However, the fundamental postulate of naturalism, which can be classified as an assumption, *is inferred from a lifetime of contacts with relations among measurable variables*, whereas the fundamental postulate underlying that student's view of the world comes in the form of prescribed content plus instructions to act as if it were valid.

If the qualitative aspects inhering in the origins of the respective postulates are insufficient to evoke one's commitment to naturalism, then the implications of the kinds of behavior that those incompatible assumptions respectively control should suffice. While the past several centuries have revealed the vagaries associated with both intellectual approaches, the net effects seem to present a clear resolution of the contest. Overall, the human condition is more improved when people act on the implications of naturalism than when they act on the implications of its non-natural alternatives. (Also, see Fraley, 1994, for an elaboration of these issues.) ❖

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Developing Opportunities to Disseminate the Natural Science of Behavior

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This article serves to update behaviorological scientists and practitioners regarding the growing number of behaviorology courses available through both TIBI and regular university course offerings. Articles in past issues of TIBI's newsletter also addressed this topic (see Ledoux, 1998 [In this issue.—Ed.]; 1999). While some details have changed since those articles appeared, the general trend they report continues. This article will describe the successes to date (i.e., fall 2001) in developing courses to disseminate behaviorology through the author's university campus—the State University of New York at Canton (SUNY-Canton)—as well as through www.behaviorology.org which is TIBI's web site.

Behaviorologists at other institutions of higher education should also provide descriptions of their successes disseminating this independent discipline for publication in future issues of the TIBI magazine/newsletter. This independent discipline is the natural science of behavior known as behaviorology (though originally known as behavior analysis—see Fraley & Ledoux, 2002, for a discussion of the name change). That is, behaviorology is the independent discipline of strictly *naturalistic* explanations of behavior and so it should not be confused with the discipline of fundamentally *mystical* explanations of behavior known as psychology. (In practice psychology, as a discipline, requires even its dissenting members to accept and allow the mysticism inherent in granting causal status—through an inner agency of behavior origins—to minds, psyches, selves, etc. For elaboration, see Fraley, 2000a, 2000b, 2001; also, see Ledoux, 2000 [All in this issue.—Ed.])

This article will also consider some early factors relevant to successfully developing courses to disseminate behaviorology. Some of these factors are available to behaviorological scientists and practitioners at other institutions of higher education. Perhaps the presence of such factors will prompt similar successes on the part of others, thereby substantially moving forward the natural science of behavior and the contributions it makes to the human community.

Successes Through Fall 2001

Before the end of 2004, TIBI is committed to having ten behaviorology courses available online. To the extent possible, TIBI wants these courses to be offered at three levels:

(a) The first level is to offer the courses for free. This level is for those who simply want to expand their repertoires—by downloading a course syllabus from TIBI's web site, purchasing the course materials from a book seller, and working through the course solely on their own—but who do not want or need any sort of credit toward TIBI certificates or regular academic degrees.

(b) The second level involves paying TIBI tuition and being assigned a TIBI faculty member to help cover course content (while working through the course after downloading the course syllabus from TIBI's web site and purchasing course materials from a book seller). This level is for those who want to earn TIBI credit toward one or another of TIBI's certificates but who do not want or need regular academic credit.

(c) The third level is for those who want or need regular academic credit, perhaps toward an official degree from an institution of higher education. (While TIBI's non-profit, 501-c-3 incorporation required the consent of the New York State Education Department, TIBI is not accredited to offer "degrees.") At this level each course TIBI offers on its web site includes a list of any regular academic courses, offered by institutions of higher education, that TIBI considers equivalent. Students can then contact the institution of their choice about taking the course, paying that institution's tuition, and getting that institution's credit. (Students who take such equivalent courses also automatically accumulate TIBI credits toward TIBI's certificates. See TIBI, 1999, particularly pp. 12-14 and pp. 15-16, for details on TIBI's certificates and courses [An updated version will appear in the next issue.—Ed.]; by design, the TIBI Board of Directors modeled these courses and certificates on those in Ledoux, 2002a.)

The value of successes with regular academic courses resides in that third level. Currently SUNY-Canton has seven behaviorology courses. All of them were proposed and approved explicitly as "behaviorology" and "natural science of behavior" courses. The first five were also proposed and approved with a "BEHG"—behaviorology—designator for the course number (e.g., BEHG-135). The designator was changed to "SSCI"—the designator for social science—by the Curriculum Committee at the suggestion of the Deans who were concerned to insure that students would be able to transfer these courses to other colleges. (The last two of the seven courses were proposed and approved after the decision to use the SSCI designator.) Also, the behaviorologist designing and proposing these courses was a professor in the Department of Social Sciences. In this context the concept of "social science"

inheres more in the concerns of the various “social science” disciplines for people issues than in any competition with, or alternative to, the natural sciences. (Since, ultimately, behaviorology courses should be academically housed with the natural sciences, a review of some origins and definitions of natural science is relevant to this discussion. Such a review is available in Ledoux, 2000 [Also in this issue.—Ed.])

Here are brief descriptions of all seven courses:

❖ **SSCI 135: *Parenting Knowledge and Skills*** (equivalent to TIBI’s BEHG 201: The Behaviorology of Child Care Practices): This course provides students of any age and interest (i.e., parenting or child care) with the scientific contributions of behaviorology that can instill or enhance the knowledge and skills for caring for children in effective, pro-active, non-coercive, positive, and loving ways.

❖ **SSCI 245: *Introduction to the Science and Technology of Behavior*** (equivalent to TIBI’s BEHG 101: Introduction to Behaviorology I): This course, the first of a two-course sequence and the prerequisite of all higher courses, provides students with a solid grounding in the various components of the behaviorology discipline. The areas covered include fundamental principles, basic experimental research methods, elementary techniques of behavior/environment engineering, historical and philosophical perspectives, and trends.

❖ **SSCI 345: *Applied Science and Technology of Behavior*** (equivalent to TIBI’s BEHG 102: Introduction to Behaviorology II): This course, the second of a two-course sequence, provides students with general applications of the principles of behaviorology by focusing on a range of problem prevention and intervention techniques and considerations (e.g., ethics) in a range of settings.

❖ **SSCI 365: *Behavior Engineering—Rehabilitation*** (equivalent to TIBI’s BEHG 400: The Behaviorology of Rehabilitation): This course provides students with the application of behaviorological considerations to help improve human interactions and success rates in institutional rehabilitation settings such as hospitals and prisons. The course emphasizes the use of the more effective, science-based practices to replace the unscientific emphasis on coercive practices in these settings. Both adult and youth clients and offenders receive consideration.

❖ **SSCI 375: *Behavior Engineering—Autism Analysis and Recovery Methods*** (equivalent to TIBI’s BEHG 415: The Behaviorology of Autism Analysis and Recovery Methods): This course provides students with the behavior engineering practices and skills valued in the recovery of children from autism. Topics include (a) the different roles of professionals, paraprofessionals, and school systems, (b) training curricula and programs, (c) home- and center-based programs, and (d) the organizational and legal supports available to autistic children and their families.

❖ **SSCI 455: *Behavior Engineering—Preventing Workplace Violence*** (equivalent to TIBI’s BEHG 420: The Behaviorol-

ogy of Performance Management and Preventing Workplace Violence): This course provides students with three levels of application of behaviorological considerations appropriate to preventing workplace violence. The most general level examines the role punishment and coercion play in prompting violence of all types throughout society. The middle level focuses on the use of effective behaviorological practices for performance management in the full range of workplace settings to replace the unscientific emphasis on coercive management practices thereby *preventing* the violence such practices may themselves induce. The most specific level focuses on the various recommended policies and procedures for *detering* the actual occurrence of workplace violence.

❖ **SSCI 465: *Behavior Engineering—Preventing School Violence*** (equivalent to TIBI’s BEHG 425: The Behaviorology of Non-Coercive Classroom Management and Preventing School Violence): This course provides students with three levels of application of behaviorological considerations appropriate to preventing school violence. The most general level examines the role punishment and coercion play in prompting violence of all types throughout society, from interpersonal and family relations, through educational and workplace situations, to international and cultural relations. The middle, and most significant, level focuses on the use of effective behaviorological practices for classroom management. These replace the unscientific emphasis on coercive classroom “discipline” practices thereby *preventing* the violence such practices may themselves induce. The most specific level focuses on the various recommended policies and procedures for *detering* the actual occurrence of school violence in situations where violence has become likely.

Each of those seven courses would be offered both as TIBI courses by TIBI online, and by SUNY-Canton online and face-to-face. By fall 2001, four of the seven were already being offered online at TIBI and were ready to be offered online at SUNY-Canton. Using SUNY-Canton’s numbers, these four were 135 (the child care course), 245 (the basic discipline course), 345 (the initial applied behaviorology course), and 465 (the classroom management prevents school violence course). Together, the first three of these courses (i.e., 135, 245, and 345) fulfill the requirements for TIBI’s basic *Behavior Literacy Certificate*.

Of course, the progress of seven approved courses did not occur in a vacuum. Several factors came together to enable such success. Some of these are generally available to other behaviorologists, or can be arranged. Others are unique to SUNY-Canton. Most of these factors are discussed next.

Factors Relevant to Success

The personal story begins about fourteen years ago (1987), the same year as the founding of TIBA (The International Behaviorology Association, which later changed

its name to the International Society for Behaviorology—ISB) which was about ten years before the current successes began. I arrived at SUNY-Canton in 1982, and five years later (1987), I proposed a typical “psychology” behavior modification course. The department approved the proposal (though not unanimously as psychology instructors were department members and some opposed the proposal). However, the Dean at the time, who has since retired, was disinclined to move the course forward, and stalled it permanently. Little happened at SUNY-Canton over the next ten very long years.

However, during those intervening years, a variety of events accumulated which prepared a foundation for the possible success of renewed efforts. For instance, as my TIBA presidential address (Ledoux, 2002a), I developed a set of consensus-based behaviorology curricula to begin answering the questions, “What [would] we want to do with behaviorology training time when we behaviorologists are responsible for *all* of it? How should behaviorologists be trained?” (p. 174). The publication of that paper in a book on the broad components of the behaviorology discipline (Ledoux, 2002b) caught my administrators’ attention when they received a complimentary copy.

Also, when I returned from an academic year teaching in China (1990–1991), I reported the speed with which my three invited behaviorology course proposals (two graduate courses—one on verbal behavior and one on educational behaviorology—and one undergraduate course, also on the latter) were approved and scheduled: The whole process took less than three weeks! This too grabbed some administrative attention.

Three other factors lent credibility to development efforts. One was the already mentioned incorporation of TIBA with the consent of the New York State Education Department. Another was the separate existence of another behaviorology professional organization, ISB, and my circulating each organization’s newsletters as they arrived, along with demonstrating TIBA’s web site. The third was TIBA’s successful proposal to SUNY-Canton that the two co-sponsor a visiting scholar from China who was interested in coming here to study behaviorology. That first visiting scholar, Professor Ma Wen (see Ma, 1998, 1999; Ma & Li, 2000) of Yantai University, earned TIBA’s *Professional Studies in Behaviorology Certificate*. And our second interested-in-behaviorology visiting scholar from China, Professor Li Fangjun (see Li, 2000) of the Xi’an Foreign Languages University, arrived at the college in August 2001 for the 2001–2002 academic year.

In the same time frame, other factors occurred that also increased the chances of success for renewed development efforts. For instance, SUNY-Canton received approval to begin offering four-year “Bachelor of Technology” (BT) degrees. This approval instantly created the need for upper division courses to support such degree programs. (And,

in a cash-strapped college environment, development efforts are certainly not hurt by SUNY allocating more dollars to campuses for their upper division courses.) Also, local employers were weighing in with letters supporting behaviorology courses in terms of the number of behaviorology-knowledgeable students these employers would hire annually if they could. Such letters were received from the local ARC and from United Helpers. The local chapter of Families for Early Autism Treatment (FEAT) also provided support for behaviorology development efforts.

At the same time as renewed behaviorology-development efforts went forward, SUNY-Canton was also becoming increasingly interested in two related areas, both of which supported such efforts. One was in offering online courses in general. This is something for which most behaviorology courses are well-suited, since the discipline itself would be applied in teaching them (as it is the most effective informing science for education, using the Shaping Model of Education rather than the Presentation Model; see Vargas, 1996). And TIBA would be offering online behaviorology courses anyway. The other area of interest for SUNY-Canton was in offering online courses to China in particular. The college had received a grant to arrange such courses and I had substantial experience both with China and with one of the online course areas of probable interest to Chinese universities: applied behaviorology (Ledoux, 2002c).

This variety of factors seemed supportive of renewed development efforts. Hence I began developing behaviorology course proposals in late 1997.

Local Steps to Success

The first course I proposed was the basic introduction to behaviorology course (titled SSCI 245: Introduction to the Science and Technology of Behavior). It was a lower division course and, should it succeed (which it did), it would serve as the fundamental prerequisite course for more advanced behaviorology courses.

As the college became more involved in four-year degree programs, and the need for upper division courses increased, I developed four additional course proposals, only one of which was appropriately a lower division course without a prerequisite. (Actually I had developed five course proposals, but one was considered a bit thin and so did not pass the department. I reworked it and re-submitted it later successfully as one of two newer courses.) These four were (a) SSCI 135: Parenting Knowledge and Skills, (b) SSCI 345: Applied Science and Technology of Behavior, (c) SSCI 365: Rehabilitation, and (d) SSCI 465: Classroom Management and Preventing School Violence (a later-adopted name that reflects more accurately the connection between these two parts of the course’s content). To improve the chances of success, each course topic reflects a major, meaningful behaviorology application area. Most are not only potentially useful to

one or another of the college's initial four-year BT degrees, but they are also appropriate to some future BT in "Behavior Technology" or "Behavior Engineering."

Subsequently, in focusing on two further areas that served community needs, college needs, and/or BT-program needs, I developed two more upper division courses: SSCI 375: Autism Analysis and Recovery Methods, and SSCI 455: Preventing Workplace Violence. These brought the total number of behaviorology courses to seven.

When the Dean has scheduled any of these courses, I have taken steps to improve their chances of success. One step involved getting SSCI 135 and SSCI 245 approved as alternative, or general education, courses for students who usually get put into the intro psych course but who do not need that course as their curricula do not require it or any advanced psych course (for which intro psych is the prerequisite). This way, some of my regular behaviorology sections cover the students who would otherwise have been in psych sections that I would have had to teach. Another step involved producing and distributing flyers to assure that students and advisors were aware, during each pre-scheduling time for the following term, of the behaviorology courses being offered. (Distribution was not difficult. The Dean's office sent the flyers to the faculty advisors, and the Student Life office put them up in the dorms.)

With only one behaviorology professor, seven behaviorology courses is probably too many when all need to be taught, some every term, others at least occasionally, and all both face-to-face and online. Over the next couple of years, I hope to teach each course both ways, with an online version offered both by SUNY-Canton and by TIBI.

Meanwhile, I anticipate the opportunity to expand this collection of courses, adding to it and developing it into local certificates and degree programs. This may also be the only way to "get some help," that is, enable the hiring, in due time, of additional behaviorologists as faculty members. (Just think of all the job descriptions properly trained behaviorology students can fill, and how many more students could be taught by more than one professor...)

Another factor, one which I could *not* use to enhance success, involved being able to say that so-and-so college already offers *Behaviorology* courses (approved as such). At least now, behaviorologists at other campuses *can* say that!

Conclusion

In every institution of higher education, factors already exist that affect the likelihood of success for efforts to develop dissemination opportunities for behaviorology and its applications across human concerns. The only guarantee of failure it not to try. This article identified and addressed some supporting factors which, when added to the local mix, could tip the balance in favor of further success. As readers include such factors in their dissemination efforts, successes should continue to accrue. [Also, as

the fall 2001 term began, the author received a grant from the New York State Department of Education to develop four-course sequences for certificates in "Autism Recovery Training" for paraprofessionals, parents, and teachers. These may be described in a future issue.—Ed.]✻

Endnote

This material was prepared after Dr. Jerome Ulman, the President of ISB, called me early in 2001 about presenting such material at the ISB-13 convention in Chicago in March 2001. I accepted only to discover that my mother's ill health precluded my attendance. (She died during the convention.) So I prepared this article instead, and arranged for as many convention attendees as possible to receive a copy of the issues of the newsletter containing this article and the article on defining natural sciences (Ledoux, 2000) as that material would have been an intergal part of the convention presentation.

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Defining the Behaviorology Movement: Critical Distinctions from 1990

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[In this article, which was originally a long letter to many of the leaders of TIBA (The International Behaviorology Association), the author visits some of the disciplinary concerns affecting the direction of the behaviorology movement early in its organized history, for some of these concerns continue to affect our directions today. While I agreed then, and agree now, with the contents of this letter, during the 1990-1991 academic year, when the letter was circulated in the USA, I was teaching in China and preparing, as TIBA president, the foundation for many of our successes since then. As a result, I had not received this letter, so I was pleased when it was submitted for publication.—Ed.]

Introduction

The early years of the emerging behaviorology discipline were characterized by the halting and sometimes faltering extraction of behaviorology from the subcultural matrix in which its roots were deeply imbedded. As the decade of the 1990s opened, the definition of the behaviorology mission and the characteristics of the discipline—even its degree of organizational independence—were still in flux. The leaders of the movement struggled under a cloud of often conflicting ideas about how best to de-

fine both the movement and the essence of that which it was being organized to foster. It was a time in which strategic alternatives were much in debate. At issue were the kinds of actions that would insure the effective emergence and endurance of an independently organized natural science discipline of behavior-environment relations.

The Association for Behavior Analysis (ABA) had recently conducted a survey of its members. One item had instructed each ABA member to indicate a personal professional identity from a given list of choices. Among the disciplinary options was *behaviorology*. Most of the ABA members who had opted for the *behaviorology* label had had no previous formal affiliation or known contacts with the small emergent behaviorology movement and were apparently reacting only to the name. In 1990, the organized behaviorology movement was still encapsulated within a single small organizational entity under the name *The International Behaviorology Association* [TIBA]. Late in 1990 I obtained a list of the ABA members whose responses had implied that they preferred to be identified as behaviorologists. I was preparing a mailing to those individuals that would contain an announcement of the upcoming 1991 TIBA convention along with some factual information about the organized behaviorology movement, with which most of those people were unfamiliar.

This appeal to behavior analysts who preferred the name behaviorology provided an occasion for me to write a comprehensive analytical position statement to the other members of the small contingent that shared the leadership of the organized behaviorology movement. That essay dealt with several fundamental issues that, at the time, were much in contention—so much so that they produced rents in the leadership of the behaviorology movement that mend only with the passage of years. Today, some of those contentious issues are well settled, and most are much more clearly resolved under the unrelenting hammer of more than a decade of reality testing.

What follows is the text of that 1990 essay presented with some editing to assist the transition from what was originally a letter to what is now an article:

Contentious Issues in the Critical Year 1990

November 20, 1990

Dear [Fellow Leaders of the Behaviorology Movement],

Enclosed is the list of ABA members who specified *behaviorology* in response to the options offered in the ABA survey. Many were complete strangers to me. Some of the geographic clustering suggests that subsets of them share common sources of influence. I have spent the last two days working to get out a TIBA convention announce-

ment and information sheet to 124 of those people whom we can assume have not yet been reached with behaviorology convention information.

Some recent conversations have underscored that I differ with one or more highly ranked TIBA members on aspects of the fundamental mission of TIBA and on the basic purposes of the behaviorology movement. This has led me to engage in a lot of critical reconsideration of the nature of our movement and what it should mean. Let me share some of this thinking with you.

While the point of this movement is to preserve, protect, and nurture the constructive evolution of our particular science and philosophy, the behaviorology *movement*, manifesting in TIBA, is a movement to organize, in a particular way, this science in relation to the ambient culture. The science and philosophy already existed *before* the behaviorology movement began. This movement is about how to *organize* it, how to *deal* with it, how to *focus and direct* its effects on the culture, . . . that is, how to manage it (and coordinate the professional activities its advocates) for its greatest cultural impact.

Therefore, our movement is largely a political one, because those objectives fall in the class generally defined as political. I see our movement as one in the politics of science, and I think that that view is accurate. We entertain an important agenda of scientific objectives, but our movement is about the political, governmental, and organizational arrangements by which, ultimately, those objectives can best be realized.

We expect that, as a result of how we organize, manage, and operate this discipline, the science and philosophy that it features will not only prosper but will undergo constructive change. However, our movement is not focused narrowly just on that evolution of the science, but rather on the special organizational arrangements that are intended to better *support* and facilitate the progress of such change. Specifically, in addition to its special (perhaps novel) intrinsic constitutional features, we are organizing this discipline to be independent of all others. That is why, viewed in that context, I conclude that this movement is not adequately described merely as a *scientific* movement (although, construed thematically, that can be said), but rather as a political movement pursuant to certain long term objectives, namely (a) the attainment of a mature and well-evolved science, and (b) a maximized cultural impact by that science. We seem to share a belief, some more tentatively than others, that the radical behaviorist philosophy that informs our science can best be preserved to play its important quality-controlling role if the whole discipline (in which the philosophy, science, and spawned behavioral technologies are encapsulated) is organized independently.

This brings us to the threshold of issues about which there seems to be much contention. How shall our move-

ment be presented to the world, and especially to the broadly construed "behavioral" community? This is our version of an age-old marketing question. I think that an important and practical way to put it is this: "What is the term *behaviorology* to connote?" . . . Or, "what shall be our public image?" Shall the term behaviorology, when it arises among the members of the behavioral community at large, connote radical behaviorism (the philosophy of our science); shall it imply the experimental analysis of behavior, perhaps limited to the Skinnerian variety; shall it connote a strictly *natural* science of behavior (especially human behavior)? In my view, none of those connotations of the name "behaviorology" are sufficient, because none of them relate to the critical essence of the behaviorology movement, which is the *independent* organization of this discipline. The bottom line is that I believe that we should represent our behaviorology movement to the public (that is, we should *educate* the public) in such a way that, when the term subsequently arises among the people, it first of all means *independent discipline* . . . and only then, those other things as well.

We can explore the implications both with and without that independence connotation in place: To begin, we can each name several important behavioral people who believe that an independent discipline is a bad idea and who, instead, are working to change psychology into the same kind of science that we respect, informed by the philosophy of radical-behaviorism. The people in that group pursue a natural science that we would agree represents a kind of behavior analysis that is quality-controlled by Skinner's radical-behaviorist philosophy—in short, they share with us all or most of the other qualities of our behaviorology movement—except for the commitment to disciplinary independence. If the adjective "behaviorologist" does not connote the political quality of support for disciplinary independence and instead connotes *only* the scientific and philosophical qualities of the movement, then those people *are all behaviorologists too*. Our name will have been reduced to a synonym for "*radical-behavioristic behavioral scientist*." My own position has long been that those who are like us in all ways expect commitment to the independence of the discipline should keep their traditional designators—phrases such as *behavioral psychologist*, or the all-encompassing *behavior analyst*—and that *behaviorology* and its various grammatical forms be reserved for persons and events associated with disciplinary independence. Only organizational independence portends avoidance of the politically enforced compromises of our philosophical and scientific integrity that are inevitable when we operate as a minority within a community that favors other ways of thinking.

If behaviorology is *not* about independence, then what *is* it about that would justify the special effort that we have all made on behalf of it? Have we engaged in all

of this effort simply to provide a new name for the Skinner-inspired movement to change psychology? (The psychologists who are trying to change psychology into a natural science, including many "behavior analysts," *have* been looking for a new name lately, and my guess is that "behaviorology" would suit many of them.) One concept of TIBA (and the behaviorology "thing") has it cast as an enclave of final retreat for pressured radical behaviorists who seek philosophical and scientific asylum there, and from that haven make forays back into the *existing organizational arrangements* extant in the culture to wage battle. This does not have us developing a new discipline, but rather has us providing a kind of scientific rest, recreation, and refurbishing operation for those who are fighting to change other people's disciplines—the China Beach of the traditional behavioral movement. We cannot do both (they are not compatible missions), so which is it going to be?

A number of radical-behavioristic people see themselves in the role of what might be called a centrist. They support the general purposes of the grand behavioral movement as a whole and appreciate the kind of group-arranged contingencies that only a coalition of that overall size can arrange. They tend to be reinforced by big-group power and by the kinds of big effects that it can produce. For many such consolidators, the appeal is a matter of simple practicality: Only that level of activity can have an immediate impact on the culture, and it is with those kinds of immediate (and, at that level of analysis, important) interventions that they remain preoccupied. They see their personal role as holding together a far-flung movement whose factions are prone to drift away. Tactically, these persons operate by public expressions of respect for *all* such factions and for the respective principles important to those factions. They keep tabs on all or many of those *behavioral* subgroups. Typically they join some of them. Such centrists will usually focus on the good that a given faction can do for the general behavioral cause, and, if they are a part of that group, they will work sincerely to accomplish those things. If necessary to their acceptance within a given faction, centrists will display enthusiasm for acceptable faction causes, while working to undermine or diminish competitive aspects of the faction's relations with other facets of the overall "behavioral" community. Such people compromise philosophical and scientific integrity to create the powers of political consolidation.

But regardless of the personal support that a centrist can muster for the activities of a straying subgroup, the centrist's allegiance is not anchored to the causes of that subgroup, but is merely aligned with *some* of them. Above all, the centrist will work to keep the mission of that faction defined in accordance with the interests and course of *the larger coalition* and will not accept defini-

tions of the mission or the objectives of the faction that fail to respect those of the larger movement. In our case, that manifests in the form of demands that our faction respect the continuing efforts of some radical behaviorists to change psychology. At one level of consideration such respect is easy. They have committed their lives to one course of action, and we, ours to another. We and they can peer respectfully at one another across the widening gap without directing campaigns of personal denigration at one another. Time will tell who best spent their professional lives. But a more serious difficulty threatens us when centrist colleagues insist that we must respect those people through a careful avoidance of any member qualifications or organizational imperatives for our movement that would preclude those psychologists being construed, by themselves and by others, as "behaviorologists." *Such a compromise amounts to nothing less than the abandonment of our mission to attain disciplinary independence.*

It has taken me some time to understand the special strength with which certain colleagues have been critical of my activities on behalf of this discipline. The high energy with which they have targeted my style seems more related to their disturbance about the basic essence of the behaviorology movement. It is just that I have been more explicit than some others about the issue of disciplinary independence, including how people must behave in certain situations to insure its attainment. In doing so, I have become something of an easy target for those who are ambivalent about disciplinary independence or opposed to it—especially because my style has often been frank and thus created the occasions. Indeed, I may need, . . . perhaps benefit from, and possibly even appreciate the charm school lessons that those critics seem anxious to prescribe. However, increasingly, their motives are becoming more clear as their own political styles become more transparent.

At a more macro-level of analysis, in a retrospective view, we see that some who wanted to change psychology had to step outside of psychology in order to maximize their effect upon the psychology establishment. They adopted the affectations that characterize the quasi-independent Association for Behavior Analysis (ABA). Although they have never constituted all of the ABA membership, from their satellite ABA platform orbiting the psychology planet, their fundamental concern has remained about psychology, and they have focused the impact of their ABA-based activities upon the discipline of psychology. Today there may even be a subset of dissatisfied behavior analysts who seek a similar independent platform from which to maximize the effects of their change efforts upon ABA *per se* (and in some cases back through ABA to psychology). If they were to operate from within the behaviorology ranks, or in positions of leadership, they would steer the course of TIBA and the behaviorology movement, not according to its *own* proclaimed cultural mission objectives,

but according to its controlling effects on ABA and, indirectly, on organized psychology, in which they retain a substantial if covert nurturing interest. This goes to the fundamental issue of why we exist and to the matter of exploring the motives of our leaders before we choose them. Are we to be a peripheral ploy of some sort, or even an insulated archive of ideological purity that is really meant to have its ultimate effect merely on other disciplinary establishments, or are we dedicated to our constitutional purpose of an independent natural science discipline of behavior–environment relations for its own sake?

Right now [1990] the behaviorology movement, as a result of declaring a commitment to an independent discipline, remains unattractive to large numbers of important behavior analysts and behavioral psychologists. Many of them are doing high quality science. This creates the interesting spectacle of much of the best science of our discipline being done outside of what we have defined that discipline to be. The image–enhancing benefits of their scientific work continue to accrue mainly to organized psychology rather than to behaviorology. Can we live without those people, or must we have them? The price of wooing those people is to downplay the independence aspect of our mission. I think that at least some of them could become persuaded to talk the independence line, but few would mean it.

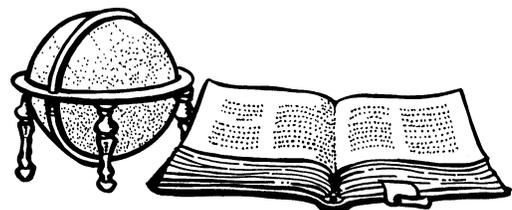
At the outset, I did not anticipate how fundamentally unpopular a *seriously* independent disciplinary movement would be (as opposed to the lip–service variety of independence that some ABA folks like to toss around). It now seems obvious that to attract the many behavioral psychologists, behavior analysts, and others who remain essentially focused on changing traditional disciplines, organizations, and operations, we would have to redefine TIBA and the behaviorology movement as merely the locus of a scientist–credentialing operation. We would have to ignore the fact that some people, whom we would be recognizing as eligible to call themselves behaviorologists, would be working *against* the interests of disciplinary independence. Under that approach, it would have to be acceptable to us that we certify that Dr. So–&–So is a bona fide *behaviorologist* even while Dr. So–&–So himself denounced the idea of disciplinary independence. Such certified *behaviorologists* would go back to their psychology departments and not only spend their lives futilely trying to influence their cognitive colleagues, but would take the explicit position that behaviorology *was* psychology (or what psychology should become) and would teach behaviorology *as psychology* in the same way that psychologists every place now teach behavior analysis *as psychology* (with all of the requisite curricular compromises). Because there are now far more individuals so inclined than those who favor disciplinary independence, if the behaviorology movement became attractive to all of those

people because it afforded them some sort of de facto license to behave as described above, their numbers (and collective voice) in TIBA could soon overwhelm any *serious* disciplinary independence drive within our movement.

The notion, entertained by some leaders within our behaviorology movement, that a small right–thinking elite can indefinitely maintain control of a movement and thus prevent the drift away from commitment to ultimate independence is, I believe, a dangerously flawed concept that, to at least some extent, has already been put to a failed experimental test within ABA. There, the issue was radical behaviorist philosophy perhaps more than disciplinary independence, and as I see it, the original radical behaviorist leaders have not succeeded in holding ABA together as a bastion of radical behaviorism.

A distinction must be made between (a) a behaviorologist who (were we to tolerate it) would work within organized psychology, not as a behaviorologist, but as a behaviorological *psychologist* there to change psychology into a natural science discipline—and (b) a person who would work within organized psychology as a behaviorologist, not *for* the integrity of psychology, but for the emergence of an independent behaviorology. The former is, and remains, a psychologist; the latter is, and remains, a behaviorologist. The latter type uses the resources and opportunities afforded by that person's current entrapment in organized psychology to teach about the differences between psychology and behaviorology, to emphasize their basic incompatibility, and to press, not for change in psychology, but for conceptual conservatism within *psychology* coupled with the divorce and emergence of the very different *behaviorology*.

I support the latter role for behaviorologists within psychology. It is, of course, the role that *I* play there, because like many others in our movement, the accidents of history have left me employed in a psychology unit with psychologists. However, I do not give them cause to find that circumstance agreeable, nor, to the extent that I can prevent it, do I allow my work there to accrue to the benefit and image–enhancement of organized psychology. To the extent that I can prevent it, I do not allow myself to be used as a living demonstration that organized psychology can operate smoothly and effectively on the backs of such forced labor. This has nothing to do with personal style, ...with politeness, dignity, or propriety. The issue here is simply this: When a behaviorologist allows his or her net professional effect to accrue to the benefit of a



competitive discipline—*especially when it amounts to an invalid demonstration that behaviorology can be made to work well as a functional piece of psychology*—then that person's net effect is more damaging to the behaviorology movement than helpful to it. Colleagues who purport to be behaviorologists, and yet who do that sort of thing, offend me insofar as they are violating my professional discipline—related ethics, which are those of a natural science community.

I find that the continued muddling of the concepts of *applied field* and *basic discipline* (or analytical paradigm) is interfering with the analysis of these issues. Within our culture there are only a few distinctly different *major* approaches to analytical thought *about behavior*. Here is what I mean by that: When I am preparing myself to teach (which is *my* applied area), my culture offers me only a few major ways to think about the relevant behavioral events that I will encounter in the field of teaching. To name the obvious and familiar ones, I can think behaviorologically, essentially relating environmental variables to behavioral events; I can think psychologically, relating behavioral events to cognitive processes which may or may not include appeals to metaphysical influences; and I can think purely metaphysically by relating behavioral events to metaphysical variables in other-world domains. Because, in my field of education, students have long been required to study psychology in order to acquire their basic analytical approach, almost all educators are psychologists as far as their basic analytical philosophy—science paradigms are concerned. But then, so are almost all nurses, lawyers, advertisers, and practitioners in hundreds of other applied fields. The culture offers me hundreds, maybe thousands, of *fields* in which to apply my basic way of thinking about behavior. The basic science of behaviorology is not one of those applied fields; it is a basic science, which can be applied to the problems in *any* of those applied behavior-related fields. So is psychology.

Psychology is our most pervasive and direct competitor in the *way-of-thinking-about-behavior* market. We, of course, entertain the strategy of more accurately defining psychology, which clarifies its distinctions from our own discipline. Our competition with psychology is minimized when the two disciplines are construed to be different and hence not applicable to the same problems. We also encourage psychologists who seem to be doing likewise. For example, most of us in behaviorology probably encourage the trend in psychology toward brain science, because, reduced to physiology, psychology gets out of our way as we focus on behavior—environment relations. We discredit the metaphysical aspects of psychology as unworthy pseudo-science (see Ledoux, 2000, 2001 [In this issue.—Ed.]) in the hope that psychology will lose its undeserved standing among the respectable sciences

(and in our dreams, psychology is even expelled from the academies to be replaced by effective natural science).

Nevertheless, as of today, the psychologists who operate as faculty members in my department, are teaching new educators (a) that psychology provides a way of thinking about behavior that will permit them to solve the problems in teaching that they will encounter as educators, and (b) that psychology is an alternative to behaviorology (which educators need not study beyond the level of a superficial survey that the psychologists themselves will obligingly provide as a brief unit of study under the label of “behavioral psychology”). I compete directly with those psychologists for contact with every student whom I am permitted to teach. In turn, each behaviorology-informed graduate must compete for a job with psychology-informed graduates, usually regardless of the behavior-related field in which that job opening occurs. I see the behaviorology movement locked in direct competition with organized psychology in the cultural marketplace, and I do not foresee that that is likely to change for a very long time.

Implicit in what I've said here is the notion that we need two levels of consideration to deal most effectively with the issue of our relations with psychology. On the one hand, it is reasonable to suggest that we simply *ignore psychology* and go about the business of developing *our* science. Such an approach addresses the intrinsic natures of the two disciplines. According to this argument, we should attend to our own complex and interesting scientific activities and not be distracted from developing our own discipline by an on-going and sometimes emotional preoccupation with what the “other guys” are doing. What *we* are developing is practical ...useful. It directly supports a wide variety of behavioral technologies important in our culture. Let the psychologists continue to preoccupy themselves in ways that are not equally worthwhile. While psychology continues on its path to no place, we can busy ourselves making sure that behaviorology continues to gain strength and relevance.

However, while psychology does not provide the most effective support for behavioral technologies, it nevertheless completely dominates the cultural niche reserved for whichever basic behavioral discipline can do so. Given that reality, the behaviorology movement necessarily faces a long and competitive contest, largely with organized psychology. Here we address the struggle for stall space in the cultural marketplace. After a student takes my beginner's graduate class in education, that student can continue through a traditional psychology-based curriculum or through a different one organized behaviorologically by the small faction of behaviorologists within my academic department. This is a student who, entering the department, cannot even discriminate the separate disciplines, and the psychologists, for their

part (often including the student's advisor), generally deny the validity—even the reality—of the differences. Unless I can persuade that student that the differences are real, and that they are important, and make clear to that student the nature and especially the implications of those differences, that student is going to be led through the psychology-controlled curriculum, become a psychologically informed educator, and add his or her contribution to the continuing failure of American education.

When my behaviorology colleagues insist to me that we are *not* in competition with psychology, and do so in ways that confound these levels of consideration, I stand confused about what they mean. The matter of when, and in what contexts, we should ignore psychology, and when, and in what contexts, we must explicitly and directly compete remains, in my opinion, a critically important issue for our movement. For my part, I do not intend, if I can help it, ever to lose one of my students to psychology simply because, out of some misguided notion, I failed to sharpen that student's discriminations between his or her psychological and behaviorological training and career options.

It strikes me as bad enough to let philosophically misspent science pass unchallenged, but, as scientists, we sell out natural science in general when we go further and pretend that it is scientifically acceptable to flirt with the metaphysical. Historically, psychology had origins rooted in both natural philosophy and mystical superstition, but the emergent modern psychology is laced with assumptions of mind-body dualism and explanatory allowances for ethereal body-directing self-agents. I do not see how behaviorology can claim a place at the round table of the natural sciences if we allow ourselves to appear to be extending public recognition and visible scientific respect to a discipline devoted to the superstitious preservation of autonomous man—which we do when we treat psychology as worthwhile in public.

I would separate, conceptually, this basic issue from that of the *tactics* by which the often isolated members of the behaviorology movement conduct the mission-related activities of that movement. The style and skill with which behaviorologists conduct their respective disciplinary relations with the psychology community requires its own kind of tactical consideration. However, tactics are one thing; confusion about the issues is another. One important function of our collegial verbal community, organized under the rubric of *behaviorology*, is to afford mutual assistance, and engage in mutual shaping, to render those kinds of discipline-related activities optimally effective.

Best regards

Lawrence E. Fraley

Conclusion

The differences of opinion to which this essay pertained extracted a far greater toll from personal social relations than from the emerging behaviorology movement. In historical assessment, the behaviorology movement can be seen to have gained strength in the aftermath of the debates of 1990. Fortunately, the behaviorology movement has continued to avoid the compromises with superstition that have eroded the integrity of so many behaviorists. After 1990, the *International Society for Behaviorology* [ISB, the renamed TIBA.—Ed.] was formed to attend to the maturation of the science and to operate the effective and worthwhile annual behaviorology conventions. On another front, *The International Behaviorology Institute* [TIBI] was soon formed to concentrate on the development of the behaviorological training mission. Across the remainder of the 1990s, those two important operations within the behaviorology movement were preparing to bring an independently organized natural science discipline of behavior-environment relations to an ambient culture that we believe to be in desperate need of the potential contributions of our uncompromised natural science of human behavior.✻

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A Parable of Past Scribes and Present Possibilities

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[This article is a parable on the twenty-year, billion-dollar American education research effort called *Project Follow Through*, the outcomes of which the American education establishment continues to ignore, to the detriment of students, teachers, schools, and communities across the country and even around the world.—Ed.]

A parable is usually an orally told story, with lots of repetitious phrasing to enable easier remembering, that illustrates a moral lesson. While they are typically timeless, my own familiarity with parables originates with those set in another time and place—2000 years ago in the “middle” East. The present parable, however, is set much closer to the present. The “scribes” of the title refers to writings or to those who write. Another shorter story of mine sets the stage for this parable, along with a short reading from a leading educational behaviorologist, Glenn Latham. Here is the shorter story, titled *Jamie’s Lesson*:

Ask yourself:

Do you go to school?

Do you see other kids doing mean things?

And do you see others doing nice things?

Well, this is a story about Jamie, and about an early lesson she had on helping others learn to do nice things.

Jamie and her classmates were out on the playground. It was the middle of winter, with a cold sun in the bright blue sky, and a thin glaze of ice on the ground. However their teacher, Mr. Glenn, saw Jamie off to one side, sniffing. Going over to her, he asked, “Jamie? Are you okay?”

“I don’t like Freddy!” she replied. “He’s so mean. He said I was clumsy, just because I slipped on the ice...”

“I can understand why you are upset,” Mr. Glenn calmly said. “It’s hard when other people do things that hurt your feelings.”

“And everyone laughed, too,” Jamie added.

“It’s even harder when others give attention to bad things,” Mr. Glenn continued pleasantly. “We have talked in class about a better way to handle these things. What is that better way?”

With a little hesitation, Jamie replied, “We said it’s better to pay attention when people do good things.” Af-

ter a pause, she continued. “But Freddy doesn’t do any good things!”

“Well,” Mr. Glenn said, “at times like these, it is hard to see good things. But tell me just one thing Freddy has done recently that was good.”

“Well,” Jamie said, deep in thought. Then, beaming, she said, “yesterday I saw him go right over to a little kid who fell off the slide, to see if he was okay. And, this morning he helped pick up a box of spilled pencils—and he wasn’t even the one who spilled them. That was nice of him.”

“Wow!” said Mr. Glenn. “That’s great. That’s two things! Did you tell him you thought that was nice of him?”

“...Oops,” said Jamie.

“You can still tell him, if you want to,” said Mr. Glenn. “That can still help him do more good things, and become a better person.”

“That would be good,” Jamie replied. “I will!” And off she went to do so.

And you can do that too. Just once today, try to notice something good that someone does, and tell them it was nice. Do that every day, and you will surely make a better world.

Now, though, let us consider an even shorter story, this one by a leading educational behaviorologist, Dr. Glenn Latham. He was a professor of education at Utah State University in Logan. And as the Research Director of the Mountain Plains Regional Resource Center, he spent much of his career helping schools all over the Western half of the USA. In his book, *Behind the Schoolhouse Door: Eight Skills Every Teacher Should Have*, he reports some of that research. He begins with this story (which I quote in its entirety; see Latham, 1997):

A boy was seen searching frantically for a coin he had lost. It was dark. The boy was down on his hands and knees beneath the corner street light looking for his coin. He was very intent. A man happened by and asked the boy what he was looking for. It went like this:

Boy: “I dropped a coin and I’m trying to find it.”

Man: “Where did you drop the coin?”

Boy: “Oh, I dropped it over there,” as he pointed to a spot well beyond the area illuminated by the street light.

Man: “If you dropped the coin over there, why are you looking for it over here?”

Boy: “Because it’s lighter over here.”

[Prof. Latham continues:] Like that little boy, the education decision makers of America, over the centuries, have spent their time and energies—wasted their time and energies—looking in all the wrong places for the answers to education’s most compelling

and perplexing problems. Rather than looking for the answers where the problems are, that is, in the classroom where education takes place, they have been looking elsewhere. In fact, they have been looking almost *everywhere* else. With what effect? Nothing of substance has changed...

[In the next paragraph, Dr. Latham continues:] In 1993, Dr. David Britt, President of the Children's Television Workshop [well-known creators of the *Sesame Street* TV series], noted, "Schools today are one of the few workplaces in our society that our grandparents would easily recognize." (p. 1)

Now, after those stage-setting stories, here is the parable:

And it came to pass in those days that the rulers of the citizens were prompted to act. They were prompted to act because the citizens were worried about what went on in the rooms where the young spent their days. For in those rooms, the young were to be instructed. As was expected, and as had been expected, of and by their parents before them, the young were to be instructed in how to scribe. And they were also to be instructed in how to read what they had scribed, and in how to read what others had scribed before them. And in this way they were to be instructed, and so learn, how to care for each other and how to care for their world. And this was good, and it was seen to be good by the citizens.

Now in the rooms where the young spent their days, they were to practice scribing, and reading what they scribed, and what others scribed too. They were also to learn to test what was scribed, and to apply that which was scribed which was found by the tests to be effective. For as they grew older, they were to so test, and to so apply, in many areas, such that their world would be a better place in which to live. They were to so test, and to so apply, so that their world would be a more just and compassionate place. And this too was good, and it too was seen to be good by the citizens.

Yet the citizens were worried about what went on in the rooms where the young spent their days. They were worried because the young were not being taught so well, and were not learning so well, to scribe and to read. And they were worried because the young were thus also not being taught, or learning, to test for, and to apply, that which was effective to make their world, the world of young and old alike, into a better place. And this was *not* good, and it was seen to be *not* good by the citizens.

And *thus* it came to pass that the rulers of the citizens were prompted to act. They were prompted to act, as they had learned when they were young, to test, and to

apply, to benefit all. They were prompted to act to test what had been scribed about what should go on in the rooms where the young spent their days. And they were prompted to act to apply what was found by the test to be effective. For they wanted to so test, and to so apply, such that what went on in the rooms where the young spent their days would be effective. For they indeed wanted the young, and so also the old, and so also the world, to benefit from what the young were taught, and learned, in the rooms where they spent their days. They wanted all to benefit from the young learning to scribe, and learning to read what they and others had scribed, and learning to test and also to apply. And this was good, and it was seen to be good by the citizens.

And so it came to pass that the rulers of the citizens gathered their tax collectors, and sent them out. Out they sent them, to all corners of the land, to collect lots of taxes. And these taxes were to be spent on the grandest test of the widest range of what had been scribed about what *should* go on in the rooms where the young spent their days.

And a mighty sum it was that they collected to spend on this grand test. Some ten billion pieces—as they counted their money—did they collect for this grand test. They collected it to test to find out and to apply what was effective in the rooms where the young spent their days being taught, and trying to learn, to scribe, and to read, and so on, and so forth, etc., etc... (Well, I shouldn't *always* provide the parable pattern perfectly, or you will still be reading this next week!)

And thus it came to pass that the rulers of the citizens began to act. With so much of their mighty tax money in hand, they began to act. They acted by gathering together all those who had scribed the many major views of what should go on in the rooms where the young spent their days. They gathered them all, and there were ultimately nine who stayed. They gathered them all, and had them begin the grand test. They began the grand test by beginning to apply what they had scribed. And they applied what they had scribed in many districts, each with several large places, with each large place having many rooms where the young spent their days.

Each of the nine views of the grand test had its own separate districts. And the districts of the nine were spread all across the land of the citizens who paid the taxes to make the grand test possible. What each of the nine had scribed is what each applied, each in its own districts, for many, many years. And this may *not* have been good. But it was at least interesting. And it was seen to be interesting by the citizens, at least the citizens who knew about the existence of the grand test (which was not that many—but that is perhaps a story for yet another parable someday).

And so it came to pass that the rulers of the citizens had much relevant data collected in each of those districts, each with several places with rooms where the young spent their days. They collected data for those many years in which the nine major views were applied in the grand test, and the tax money lasted. And the outcomes of each of the nine views were compared. They were compared with the general outcomes from all the other districts of the land with places with rooms where the young spent their days where data were also collected. The outcomes of the nine views were compared *with the outcomes of all the other districts which partook not* of any particular one of the nine views. With all of these were the outcomes of the nine views compared. And this was reasonable. And it was seen to be reasonable by the citizens who knew about it.

And thus it came to pass that the results of the grand test became clear. And there was bad in the results of the grand test. And yet there was also good in the results of the grand test.

It came to pass that three of the nine major views were responsible for the young under their charge doing more poorly, *and sometimes much worse*, than the young across the land who were not under any of the nine. They did more poorly than these on most all of the measures that were maintained in the records, the records of the data of the grand test.

And it also came to pass that three others of the nine major views were responsible for the young under their charge doing *the same* as the young across the land who were not under any of the nine. They did the same—neither better nor worse—on most all of the measures that were maintained in the records, the records of the data of the grand test.

Yet it also came to pass that the outcomes were better for the remaining three of the nine major views. It came to pass that the three remaining views were responsible for the young under their charge doing better, *sometimes much better*, than the young across the land who were not under any of the nine. They did better than these on most all of the measures that were maintained in the records, the records of the data of the grand test.

Now, just knowing all these outcomes was good. And the citizens who knew of these outcomes, knew that knowing of them was good (even if not all the outcomes were good). But some, who actually held the credentials of educators, and who knew of these outcomes, refused to acknowledge this good. They were the powerful, supposed educators who were associated with the six views that were unable to demonstrate improvements benefiting the young. And *therein* rests a tale of woe that continues to plague the citizens of that land down unto this very day. Yet they still struggle to make the three beneficial views available to and for their young. And we should learn from their efforts.

What *should* have happened? And what happened instead? Listen, and understand, and take action!

And then, *it should have come to pass* that these results of the grand test should have been made known to all the citizens of the land. For knowing these results of the grand test could have brought great joy into the hearts of the citizens of the land. For now they had good reason to apply, emphasize, and support those three of the nine views that were effective in helping the young become better able to scribe and read and test and apply and so on. And they also had good reason to set aside the other six of the nine views, the six that either had little impact, or had a negative impact, on the outcomes of the efforts of the young and of those who work with the young.

Now, *that* is how it should have come to pass, so that the young could do better, could do well. And the world of the young and old alike *could* be a better place. But it did not come to so pass. This was not good.

It should have come to pass that the views that led to little outcome change were little recommended, and little supported, *and little taught* to those who teach in the rooms where the young spend their days. This would have been good. And the citizens would have seen this to be good, as well as to have been a good use of their taxes. And the world would have been better off. But alas, this did not come to pass, which was not good.

And it should have come to pass, even more surely, that the views that led to *poorer* outcomes were recommended against, and were no longer supported, *and were not taught* to those who teach in the rooms where the young spend their days—just as physicians do not continue to recommend or teach treatments that are shown to be ineffective. And this would have been good. And the citizens would have seen this to be good, as well as to have been a better use of their taxes. And the world would have been better off. But alas, this too did not come to pass. This too was not good.

And it should also have come to pass that the views that led to *effective, positive* outcomes *were* recommended, and *were* supported, *and were thoroughly and comprehensively taught* to those who teach in the rooms where the young spend their days. And this too would have been good. And the citizens would have seen this also to be good, as well as to have been the best use of their taxes. And the world would have been much better off. But alas, this also did not come to pass. This also, and more so, of all these, was not good.

Since these things did not come to pass, the citizens of the land have now seen a whole generation of their young sacrificed. They have been sacrificed to a scientifically and morally unsupportable preference for the views with the middling and negative outcomes. For those who scribed, espouse, and prefer these views (those that led to

the middling and negative outcomes) are the ones who maintain the programs to teach the teachers who teach the young in that land. But the teachers are not taught; they are victims also. They were kept in the dark about the results of the grand test. And so the positive–outcome views have been ignored, and the citizens who are aware of this mess have begun to speak of “Academic Child Abuse.” This indeed is not good!

So, just what did come to pass in the land of these citizens? What did lead to this great sacrifice of a generation of their young?

Here are some details:

Instead, it came to pass that those who scribed and espoused the three views that led to the young doing more poorly—and even many of those who scribed and espoused the three other views that had little effect—(these) were all also the darlings of those who were chiefly responsible for the training, throughout that land, of those who work with the young in the rooms where the young spend their days.

And it came to pass that they used their influence with the rulers to keep the rulers from applying the *substantive* results of the grand test. It came to pass that when the rulers finally acted on these results, the best they did was to continue to fund *all* nine views until the tax funds finally ran out after about twenty years after the grand test had begun. The funds finally ran out near the end of what the citizens called their twentieth century.

In that time the rulers continued to fund even those three of the nine views that had a demonstrably negative effect on the young. This was not good. Citizens could see it was neither good nor a good use of their tax dollars.

Needless to say, those among the citizens who were aware of these developments were, are, and continue to be outraged. And they also were, are, and continue to be active against what they see as an immoral contradiction of all and everything that the young were to be taught in the rooms where they spend their days...

And so, what will come to pass next? What will happen to the education of the children of that land? That remains to be seen. What happens next depends on the citizens of that land, and how well they are able to bring about restitution and application of the best results of the grand test. Thusly will they help bring about a more just and compassionate world for themselves and their young to live in.

The future depends on them, as indeed it depends on us, you and I, and how well we do those same things. For this has really been a parable about ourselves (i.e., about those in the USA).

Actually, I wish I could tell you that this parable was just that, a mere parable, a fable with moral lessons. I wish I could tell you that this parable had been merely made up to help us avoid some problem that had not yet occurred. But it is so much more than that. It is real, all too real. It really happened [and I provide some references at the end so you can delve more deeply into the depths of this reality].

The fact is, you and I and our parents (in the USA) all contributed our tax dollars to run a grand test like the one in the parable. That test is officially called “Project Follow Through.” It was the most extensive, expensive, federally supported educational research project in the history of this country, and perhaps in the world (and a fairly extensive literature is available on it, although few seem aware of it, not even teachers). Here are some brief details:

The names of the approaches to education that were evaluated by this project—and organized here by outcome from best to worst (and not always in the conveniently equal numbers as in the parable)—are these:

The *three* approaches that brought about *better* outcomes are:

- ✧ Direct Instruction (which showed the best outcomes of all);

- ✧ Parent Education; and

- ✧ Behavior Analysis.

(And these three approaches are among the best foundation stones for building what some call “Quality Education.”)

The *single* approach that evidenced little or no effect is:

- ✧ Southwest Lab (SEDL, a bi–lingual approach).

And the *five* approaches that caused the *poorer* outcomes are:

- ✧ Bank Street (College of Education);

- ✧ Responsive Education;

- ✧ Tuscon Early Education Model (TEEM, Arizona, a whole–language approach);

- ✧ Cognitive Curriculum; and

- ✧ Open Education.

For all nine approaches, measures of the produced outcomes were taken in the affective/self concept area, in the cognitive/conceptual area, and in the area of basics (including language, reading, math, and spelling).

Those are a sample of details about the grand test, a grand test on which we Americans *actually spent about one billion dollars*. And yet *now we ignore the results!* And that is to the detriment of our children, our teachers, our society, and ourselves. It remains so, unless and until we move to implement the better–outcome approaches.

Will others around the world avoid our mistake of ignoring the results? Will they implement the better–outcome approaches, and so benefit from them? Will we join them? I sincerely hope all this happens.

And consider this: *Project Follow Through* was really only on the instructional and pedagogy side of educa-

tional concerns. What about classroom behavior concerns, and the relation of these to school violence? The discipline of natural-science explanations of behavior, behaviorology, which informs the positive-outcome approaches of *Project Follow Through*, also informs successful practices in the classroom. (The discipline that informs the middling-outcome and negative-outcome approaches of *Project Follow Through*, and which has done so for decades, is the discipline of fundamentally mystical explanations of behavior.) The extension of behaviorological principles to education shows that the positive, pro-active, non-coercive practices and skills summed up by the phrase “management, not discipline” (Latham, 1999) provide the *best practices* for handling classroom behavior concerns and maintaining the sanctity of the learning environment (another foundation stone for building Quality Education). For example, it shows how half of instruction time is typically lost to non-instructional disruptions, and by returning even half of *that* time to instruction—by implementing classroom management, rather than discipline, procedures—we would be essentially extending the school year by 40 days, without actually adding any days (see Latham, 1998). Perhaps more importantly, these procedures are also a major means of helping to prevent all levels of violence in the schools by removing the very basis of school violence (Sidman, 2001).

Now, is that not the kind of practical, demonstrated solution we should be actively, morally, even insistently supporting and demanding, for the sake of our children, our teachers, our society, ourselves? I am compelled to think so. And I suspect that you agree. Then, we might also work with the many other related, and already tested and validated, solutions that are and have been available, but which have been similarly ignored, as the grand test results have been ignored. Let us work well with all of these effective practices.

If you and I, the citizens, think and act accordingly, then we *shall* soon see real improvements in what goes on in the rooms where the young spend their days. We *will* soon see more education in education.✻

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Year 2001 Treasurer's Report

At an email meeting of the TIBI Board of Directors, held after the treasurer's report was prepared, the Board accepted the Treasurer's report for 2001. These were TIBI's finances from 1 January 2001 through 31 December 2001:

BALANCE (as of 2001 January 1): US\$1704.19

INCOME:

US\$ 1,180.00	DUES
US\$ 800.00	TUITION PAYMENTS
US\$ 1,000.00	DONATIONS (to support a visiting scholar)
US\$ 35.25	INTEREST (on fee-free interest bearing checking account)
US\$ 3015.25	TOTAL

EXPENSES:

US\$ 125.08	MAGAZINE PRINTING
US\$ 73.29	POSTAGE
US\$ 33.15	SUPPLIES
US\$ 1,000.00	VISITING SCHOLAR SUPPORT COSTS
US\$ 400.00	FACULTY STIPENDS
US\$ 888.25	WWW.BEHAVIOROLOGY.ORG COSTS
US\$ 2519.77	TOTAL

ACCOUNT BALANCE ON 2001 DECEMBER 31: US\$2199.67

Standard procedure for minutes of meetings of the Board of Directors. Board members receive and verify/correct the

minutes which are then signed, and provided to members, and added to the corporate records. These procedures have been followed with the current minutes.☺

Minutes of the Fall 2001 Meetings of the TIBI Board of Directors

Within the parameters of the organization's by-laws, a meeting of the TIBI Board of Directors was held on 18-24 September 2001. All five board members were present.

The topics discussed (by phone), and actions taken, concerned (a) changes in the by-laws, (b) another TIBI certificate, and (c) a new TIBI Board Chair. Each action was taken by consensus and is considered unanimous, and each will be described in turn.

By-laws. The relevant parts of the by-laws stand amended regarding (a) the new name of the magazine/newsletter, and (b) the requirement that the By-laws and the Policies and Procedures be printed in *Behaviorology Today* only when they are changed. These changes will appear in the by-laws published in the fall 2002 issue of *Behaviorology Today*.

Certificate. Now included among TIBI's certificates is a *Certificate in Autism Recovery Training*. This certificate is earned by satisfactorily completing five of TIBI's courses: BEHG 201, BEHG 101, BEHG 102, BEHG 415, and BEHG 425.

Chair. With concern over the increased demands of editing *Behaviorology Today*, the current Chair, Stephen Ledoux, requested that someone else be elected Chair so that he could focus more on the editing process. Hence the Board elected John Eshleman as Chair for two years, starting 1 January 2002.

Also within the parameters of the organization's by-laws, a meeting of the TIBI Board of Directors was held partly on 12-14 November 2001 when four members of the board were present in Morgantown, WV (some for David Feeney's dissertation oral defense; he is now Dr. Feeney) and partly in early December 2001. Board members not physically present participated by phone.

Based on some suggestions of John Eshleman, the topics discussed, and actions taken, concerned (a) some phrasing improvements plus some increased information flow options in the by-laws, and (b) a thoroughly peer-reviewed, data-based section for *Behaviorology Today*. Each action was taken by consensus and is considered unanimous, and each will be described in turn.

By-laws. The board elected to improve the consistency of the phrasing among the four membership levels in the section on membership. Also, as part of the change from a newsletter (*TIBI News Time*) to a magazine (*Behaviorol-*

ogy Today), some organizational items (e.g., meeting minutes and treasurer's reports) will be provided to members either through the magazine or by letter or email. These changes will appear in the by-laws published in the fall 2002 issue of *Behaviorology Today*.

Support for data-based papers. The board authorized structures for the inclusion of a thoroughly peer-reviewed, data-based section in future issues of *Behaviorology Today* whenever submitted papers have completed the review cycle and been accepted for publication.

Standard procedure for minutes of meetings of the Board of Directors. Board members receive and verify/correct the minutes which are then signed, and provided to members, and added to the corporate records. These procedures have been followed with the current minutes.☺



Always More at behaviorology.org

Be sure to visit TIBI's ever-expanding web site regularly (www.behaviorology.org). Material is always being added and updated. After entering (as a visitor or as a member) you will be in the "Course Announcements" area, with several navigation buttons that are *always* to the left of the screen. Use these buttons to get where you want to go.

Several types of material from the magazine are available. If you click on the "Course Information" button and then on the "Current Institute Info Docs" folder, you will find the most up-to-date Institute information documents. If you click on the "Course Information" button and then on the "Selected ... Articles" folder, you will find a selection of useful newsletter/magazine articles. If you click on the "Course Information" button and then on the "... Archives" folder, you will find the complete periodical archives.

Two other information areas receive regular additions. If you click on the "Course Information" button and then on the "TIBI Certificate Programs and Courses" folder, you will find the Institute's educational offerings. If you click on the "External Links" button, you can access all the "Features" articles and links.

The other navigation buttons also lead to interesting materials. Be sure to try them as well. Also be sure to provide feedback on your site-visit experience. Your input is needed and welcome.☺

Subscriptions and Back Issues

People can receive copies of *Behaviorology Today* in ways other than as a member. People can subscribe without membership for US\$20, and people can obtain back issues for US\$10 each. Photocopy, fill out, and send in the “membership” form on the next page. As applicable, check the “subscription” box, and/or list which back issues you are ordering. *Contributions* are also welcome, and are tax-deductible as TIBI is non-profit (under 501-C-3). ☺

TIBIA Membership Benefits

Beyond the intrinsic value that TIBIA membership bestows by virtue of making the member a contributing part of an organization helping to extend and disseminate the findings and applications of the natural science of behavior for the benefit of humanity, and beyond the benefit of receiving the organization’s publications, TIBIA membership benefits include the following:

- ✦ Members will have opportunities to present papers, posters, and demonstrations, etc., at the organization’s meetings;
- ✦ Members who first join TIBIA in the last third of the calendar year will be considered as members through the end of the following calendar year;
- ✦ Members who first join TIBIA in the middle third of the calendar year will be allowed to pay one-half the regular dues for the following calendar year;
- ✦ A TIBIA member may request the Institute to evaluate his or her credentials to ascertain which TIBI certificate level most accurately reflects the work (and so, by implication, the repertoire) behind those credentials. The Institute will then grant that certificate to the member; as part of this evaluation, the Institute will also describe what work needs to be accomplished to reach the next certificate level. The normal processing fee for this service (US\$20) will be waived for members. For the processing fee of US\$20, a non-member may also request this evaluation and, should she or he ever join TIBIA, the US\$20 already paid will be applied to the initial membership dues owed. (Faculty teaching behaviorology courses can encourage their students to request this evaluation.)

TIBIA continuously considers additional membership benefits. Future iterations of this column will report all new benefits upon their approval. ☺

TIBIA Membership Criteria and Costs

TIBIA has four categories of membership, of which two are non-voting and two are voting. The two non-voting categories are Student and Affiliate. The two voting categories are Associate and Advocate. All new members are admitted provisionally to TIBIA at the appropriate membership level. Advocate members consider each provisional member and then vote on whether to elect each provisional member to the full status of her or his membership level or to accept the provisional member at a different membership level.

Admission to TIBIA in the Student membership category shall remain open to all persons who are undergraduate or graduate students who have not yet attained a doctoral level degree in behaviorology or in an acceptably appropriate area.

Admission to TIBIA in the Affiliate membership category shall remain open to all persons who wish to maintain contact with the organization, receive its publications, and go to its meetings, but who are not students and who may not have attained any graduate degree in behaviorology or in an acceptably appropriate area. On the basis of having earned TIBI Certificates, Affiliate members may nominate themselves, or may be invited by the TIBI Board of Directors or Faculty, to apply for an Associate membership.

Admission to TIBIA in the Associate membership category shall remain open to all persons who are not students, who document a behaviorological repertoire at or above the masters level or who have attained at least a masters level degree in behaviorology or in an acceptably appropriate area, and who maintain the good record—typical of “early-career” professionals—of professional accomplishments of a behaviorological nature that support the integrity of the organized, independent discipline of behaviorology including its organizational manifestations such as TIBI and TIBIA. On the basis either of documenting a behaviorological repertoire at the doctoral level or of completing a doctoral level degree in behaviorology or in an acceptably appropriate area, an Associate member may apply for membership as an Advocate.

Admission to TIBIA in the Advocate membership category shall remain open to all persons who are not students, who document a behaviorological repertoire at the doctoral level or who have attained a doctoral level degree in behaviorology or in an acceptably appropriate area, who maintain a good record of professional accomplishments of a behaviorological nature, and who demonstrate a significant history—typical of experienced professionals—of work supporting the integrity of the organized, independent discipline of behaviorology including its organizational manifestations such as TIBI and TIBIA.

For all membership levels, prospective members need to complete the membership application form and pay the appropriate dues.

Establishing the annual dues structure for the different membership categories takes partially into account, by means of percentages of annual income, the differences in income levels and currency values among the world's various countries. Thus, the annual dues for each membership (or "other") category are:

Other Category	Dues (in US dollars —\$20 minimum)
Board of Directors member	The lesser of 0.6% of annual income, or \$120.00
Faculty member	The lesser of 0.5% of annual income, or \$100.00

Membership Category	Dues (in US dollars —\$10 minimum)
Advocate member	The lesser of 0.4% of annual income, or \$80.00
Associate member	The lesser of 0.3% of annual income, or \$60.00
Affiliate member	The lesser of 0.2% of annual income, or \$40.00
Student member	The lesser of 0.1% of annual income, or \$20.00

TIBIA MEMBERSHIP APPLICATION FORM

(SEE THE NEXT PAGE FOR THE TIBI / TIBIA PURPOSES.)

Copy and complete this form (please type or print)—for membership or contributions or subscriptions or back issues—then send it with your check (made payable to TIBIA) to the TIBIA treasurer at this address:

Dr. Stephen Ledoux
TIBIA Treasurer
SUNY-CTC
Cornell Drive
Canton NY 13617 USA

Check if applies:

- Contribution:
- Subscription:*
- Back issues:*
- ✻ Vol. __, # __
- ✻ Vol. __, # __

Name: _____

Member Category: _____

Office Address: _____

Amount enclosed: us\$ _____

Home Address: _____

Office Phone #: _____

Home Phone #: _____

FAX #: _____

CHECK PREFERRED MAILING ADDRESS:

E-mail: _____

Office: Home:

Degree/Institution:** _____

Sign & Date: _____

*Subscriptions: us\$20/year; back issues: us\$10 each.

**For Student Membership:

I verify that the above person is enrolled as a student at: _____

Name & Signature of Advisor or Dept. Chair: _____

TIBI / TIBIA Purposes*

TIBI, 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 a professional organization also dedicated to expanding the behaviorological literature at least through the magazine/newsletter *Behaviorology Today* (originally called *TIBI News Time*) and the *Behaviorology and Radical Behaviorism* journal;** 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 their shared purposes. These activities include (a) encouraging and assisting members to host visiting scholars who are studying behaviorology; (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 separate, independent 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 are:

- A. to foster the philosophy of science known as radical behaviorism;
- 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.☺☻

Periodical Information

Behaviorology Today [known as *TIBI News Time* for the first 4 volumes / 8 issues], is the magazine/newsletter of The International Behaviorology Institute, a non-profit educational corporation, and is published in the spring and fall each year.

TIBI can be contacted through:

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 Phone • Fax: (315) 386-2684 • 386-7961
 Web Site: www.behaviorology.org

To submit items for publication, contact the editor. Send items on a 3.5 inch Mac-formatted disk, in a program that can be placed in PageMaker, along with a hard copy, to the editor:

Stephen F. Ledoux, Editor
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 E-mail: ledoux@canton.edu

Authors' views need not coincide with official positions of TIBI. (Authors retain copyrights.)

*This statement of the TIBI / TIBIA purposes has been adapted from the TIBI by-laws.

**This journal (BARB) is under development at this time and will appear only when its implementation can be fully and properly supported.—Ed.

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