



TIBI News Time

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CONTENTS

<i>TNT-6 News: Editorial</i>	1
<i>If Telling Were Teaching...</i>	
JOHN W. ESHLEMAN	2
<i>About Behaviorology</i>	
LAWRENCE E. FRALEY	4
<i>Defining Natural Sciences</i>	
STEPHEN F. LEDOUX	6
<i>Behaviorology in China: A Status Report</i>	
A Chinese Translation by MA WEN	9
<i>Minutes of the 2000 Meeting of the TIBI Board of Directors</i>	17
<i>Always More at behaviorology.org</i>	17
<i>TNT Subscriptions and Back Issues</i>	18
<i>TIBIA Membership Benefits</i>	18
<i>TIBIA Membership Criteria and Costs</i>	18
<i>Membership Application Form</i>	19
<i>TIBI / TIBIA Purposes</i>	20
<i>TIBI / TNT Information</i>	20

TNT-6 News: Editorial

Briefly, this issue features some articles on the development of our discipline and the use of its applications. These are the three articles by Eshleman, Ledoux, and Fraley, and the translation by Ma Wen into Chinese (for our Chinese members) of an article on behaviorology in China. These articles address issues whose consideration and resolution are major parts of the ongoing progress of the emergence of the natural science of behavior.

The featured articles are followed by the minutes of the annual Board of Directors meeting. These minutes include a Treasurer's report, and are followed by the regular newsletter contents, which now include information on how to subscribe without membership and on how to obtain back issues.☺



If Telling Were Teaching...

John W. Eshleman

ELS, Inc.

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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. However, 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 assignments 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 pre-

sumption 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 this 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, there 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 fur- tively 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 10 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 10 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 ex-

ams, 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, persons 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 con-

temporary 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 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 peoples' nervous systems. In the psychological view, many of the important character-

istics 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 what at first blush seem to be similar topics. 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, 1997). 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 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 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 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 under

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, 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 question of whether or not they deal with people issues 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, 1997, Fraley discusses the improbability of psychology changing from this position. Also, see Fraley, 1992, 1998a.) 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 environmental 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” in Ledoux, 1997a).

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 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 natural sciences we know today (physics, chemistry, biology, geology, astronomy, etc.).

Quite some time has past since a subgroup of a non-natural science discipline took the step of excluding non-natural events from their considerations. But it 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 their subject matter. In the twentieth century, a subgroup of the professionals operating within psychology took precisely that step (see Fraley & Ledoux, 1997 for the historical details). They followed the centuries-old lead of other natural sciences and excluded non-natural events from their considerations. By doing so, they 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, 1997). 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, 1998b, 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 ma-

ior areas of human concern. For some details on those advances and applications, see the bibliography in Ledoux, 1997b. Meanwhile, no one should be surprised that behaviorologists’ concern with scientifically solving *human* problems has led some 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).✧

Endnotes

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

This translation is included here (as approved by the TIBI Board of Directors—see page 17 in this issue for the minutes of their meeting) to support TIBI’s mission to help fill behaviorology training needs everywhere. The translation was made from the English version of this article on pages

187–198 of *Origins and Components of Behaviorology* (S.F. Ledoux, 1997, Canton, NY: ABCs). A related article about China was printed in the first issue of this newsletter. It is “China Through the Eyes of a Behaviorologist” by Glenn I. Latham (*TIBI News Time*, 1 [1], 4–7).—Ed.

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Minutes of the 2000 Meeting of the TIBI Board of Directors

Within the parameters of the organization's by-laws, the official 2000 annual meeting of the TIBI Board of Directors was held on 28 May 2000. The venue was Washington, DC where the board members were also attending the ABA convention.

Present: Three of four active board members—John Eshleman, Lawrence Fraley, and Stephen Ledoux—were physically present. The remaining member, David Feeney, was present through availability for consultation by telephone. (As is Institute policy, all costs associated with meeting were born by the participants themselves, not by TIBI.) By the end of the meeting, and after later consultation with the member available by phone, many topics had been discussed and some actions had been taken. All actions were achieved through consensus and are considered unanimous.

The topics discussed covered a wide range. Some of them concerned (a) the development of course offerings for the Institute web site, (b) the possibility of grants to support our course offerings, (c) contacts with other natural sciences, and (d) topics for BARB (*Behaviorology and Radical Behaviorism*) monographs to be distributed at little or no charge at appropriate conventions.

The actions taken at the meeting concerned (a) copyrights, (b) TNT contents, and (c) the Treasurer's report. Each action will be described in turn.

Copyrights. While the authors of TNT articles retain the copyrights of their articles, the Board recognized that TIBI actually holds the copyrights to the newsletter itself. This is to be documented on the cover of future issues.

TNT contents. Knowing that an unpublished Chinese translation of a relevant article existed, some TIBIA members from China suggested to the TNT editor, who was also the author of the article, that the translation be included in an issue to support the international part of TIBI's mission. As the inclusion of this translation would take up about one half of a large issue, the editor asked the Board for permission. The Board granted permission.

Treasurer's report. The Board accepted the Treasurer's report. These were TIBI's finances from 1 January 2000 through 31 May 2000 (as no transactions were possible between the time of the meeting and the end of the month of May):

BALANCE (as of 2000 January 1): US\$1549.94

INCOME:

US\$ 240.00	DUES
US\$ 9.25	INTEREST (on fee-free interest bearing checking account)
US\$ 249.25	TOTAL

EXPENSES:

US\$ 71.60	NEWSLETTER PRINTING
US\$ 18.00	POSTAGE
US\$ 498.95	WWW.BEHAVIOROLOGY.ORG COSTS
US\$ 588.55	TOTAL

ACCT. BAL. ON 31 MAY 2000: \$1210.64

Standard procedure for minutes of meetings of the Board of Directors. The chair drafts the minutes and provides them to the other Board members who verify them, indicating additions and corrections. The chair then incorporates the changes and publishes the minutes in the corporate records and newsletter. These procedures have been followed with the current minutes. (*Added at the end of the corporate-records copy are the signature of the chair and the date of 2000 June 1.*)

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 newsletter 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 TNT Articles" folder, you will find a selection of useful newsletter articles. If you click on the "Course Information" button and then on the "TNT Archives" folder, you will find the complete newsletter 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 you site-visit experience. Your input is needed and welcome.

TNT Subscriptions and Back Issues

During a phone meeting in late June 2000, the Board of Directors unanimously authorized alternative ways to receive copies of this newsletter. People can subscribe without membership (US\$10 for an individual, and US\$20 for a library or other institution), and people can obtain back issues for US\$5 each. Contact TIBI for details. ☺

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 have not 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. 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 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 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)
then send it with your check
(made payable to TIBIA) to:

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

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: _____

*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 *TIBI News Time* newsletter 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 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.☺

TIBI / TNT Information

TIBI News Time (TNT), the newsletter of The International Behaviorology Institute, a non-profit educational corporation, is published in the spring and fall each year.

TIBI can be contacted at:

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 Electronically: www.behaviorology.org

The TNT newsletter editor is Stephen F. Ledoux.

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 5.0, with a hard copy, to the editor at:
 SUNY-CTC • Arts and Sciences • Cornell Drive
 Canton NY 13617-1096 • USA
 Phone • Fax: (315) 386-7423 • 386-7961
 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 quoted 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.—Editor