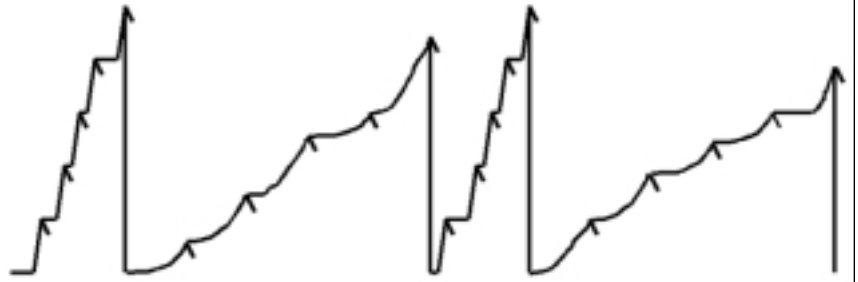


DIVISION 25 RECORDER



BEHAVIOR ANALYSIS

Volume 37, Number 1

Summer, 2004

WHAT HAPPENED TO BEHAVIORISM?

HENRY L. ROEDIGER, III
James S. McDonnell Distinguished University
Professor and Chair
Washington University in St Louis
President, American Psychological Society

Note: This article originally appeared as a Presidential Column in the *APS Observer* (March 2004, vol. 17, no. 3). It is reprinted here with permission.

The year 2004 marks the centenary of B. F. Skinner's birth. I doubt that most members of the American Psychological Society (and even a smaller proportion of all psychologists) will pay much attention. After all, hasn't behaviorism passed from the scene? Don't we live in the age of the cognitive revolution, which still roars along and dominates most subfields within psychology? Doesn't the field of animal learning psychology, the spawning ground of behaviorism, belong to the 1950s, the same era as black and white television, three TV channels, and antennas on the house? Many readers in APS would probably answer *yes* to all three questions. If this is the right answer — and as you'll see, I don't necessarily think it is — then we can ask what happened.

Let's go back a hundred years when psychology was a new field. The first labs

date from 1879 or thereabouts (let's not revisit this controversy), and in 1904, Skinner's birth year, the field was struggling to emerge as a science. However, the methods were varied, and the papers in journals were often long on observation and speculation. Careful experimentation was in short supply if not absent altogether. Some papers bordered on murky nonsense. In St. Louis, from where I write, there was a famous World's Fair in 1904 and an assemblage of many of the greatest scholars of the day, including psychologists, gathered with the aim of providing a state-of-the-art set of lectures on their fields and, of course, to show the field off to its best advantage. Examination of their talks, reports of which were preserved for posterity, permits a capsule summary of the state of the art 100 years ago. I'll examine these contributions in an upcoming column.

In 1913, nine years after Skinner was born, John B. Watson published his famous paper "Psychology as the Behaviorist Views it" in *Psychological Review*. It was brief but powerful. Watson said that psychology should rid itself of introspective studies of mental events that were not directly observable — imagery, memory, consciousness, et al. — and study behavior. Watson endorsed the statement of Walter Pillsbury that "psychology is the science of behavior" and went on to say that "I believe we can write a psychology, define it as Pillsbury [did], and never go back on our definition: never use the terms consciousness, mental states, mind, content, introspectively verifiable, imagery and the like" (1913, p.116). Heady stuff! To study only behavior! Older psychologists probably judged Watson as somewhat off his rocker, but younger psychologists flocked to him, and his position continued to attract strong adherents over the years. If psychology was to be the science of behavior, then its goals would be (as Skinner said years later) the prediction and control of behavior. Behavior control! How exciting!

Behaviorism was intended to make psychology a natural science. During the years when behaviorist ideas were being developed, they were in harmony with the philosophical position of logical positivism being championed in physics and elsewhere. Concepts should be defined by the operations used to measure them, to keep science tightly grounded to observable data and to remove flights of speculative fancy.

WHAT HAPPENED... (continued on page 6)

In This Issue...

What Happened to Behaviorism.....	1
For The Record.....	2
Classifieds.....	3

2002 Division 25 Award Recipients	3
American Psychological Association, Division 25 Convention Program	4
Application for Membership.....	8

FOR THE RECORD

CHRISTINE E. HUGHES, RAYMOND C. PITTS, Editors, *Division 25 Recorder*

We are pleased to present the Summer 2004 version of *The Recorder*. We apologize for cutting it so close to the start of the conference. For those going to Hawaii, we hope it arrives before you depart. We are especially pleased to be able to reprint Roddy Roediger's paper "What Happened to Behaviorism," which originally appeared as his Presidential Column in the March 2004 issue of the *APS Observer*. We are extremely grateful to Dr. Roediger, and to the American Psychological Society, for allowing us to reprint it here. It is reassuring that there are scholars outside our discipline, particularly of Dr. Roediger's distinction, who understand and appreciate the contributions of behavior analysis to psychology. It is also reassuring to know that behavior analysts aren't the only ones who believe our field is alive and well. We think this piece should be required reading of all psychology students. Also included in this issue is the Division 25 program for the upcoming APA conference to be held in Honolulu, HI, July 28-August 1. We would like to thank all of the presenters for contributing to the program, to congratulate all of our award winners, and encourage all presenters to submit versions of their papers for publication in *The Recorder*. We also encourage Division 25 members to submit items or ideas for publication, and we welcome any suggestions for increasing submissions. **BA**

DIVISION 25 EXECUTIVE COMMITTEE

PRESIDENT:

Steven I. Dworkin
University of North Carolina at Wilmington

PRESIDENT-ELECT:

Timothy D. Hackenberg
University of Florida

PAST PRESIDENT:

Carol A. Pilgrim
University of North Carolina at Wilmington

MEMBERS-AT-LARGE:

Mark Galizio
University of North Carolina at Wilmington
Kathryn Saunders
University of Kansas - Parsons Research Center
Greg Madden
University of Wisconsin - Eau Claire

SECRETARY/TREASURER:

Larry A. Alferink
Illinois State University

COUNCIL REPRESENTATIVE:

Eileen D. Gambrill
University of California - Berkeley

THE DIVISION 25 RECORDER

The *Division 25 Recorder* is the official publication of the American Psychological Association's Division 25 for Behavior Analysis. Historically, it has been published three times a year (Spring, Summer, and Winter) and received by the Division 25 membership, Division affiliates, student affiliates, and individual and institutional subscribers. The newsletter also is sent to the presidents and newsletter editors of the other APA divisions, officers of APA, the American Psychological Society, the Association for Behavior Analysis, and the Association for the Advancement of Behavior Therapy.

The *Division 25 Recorder* informs readers about the Division and APA governance and membership activities. It publishes letters to the editor, open letters to the Division's Executive Committee, news and notes about experimental, applied, and conceptual analyses of behavior. The newsletter is not an archival publication for scientific manuscripts,

but will occasionally publish unsolicited comments and queries.

Submissions should be sent to Dr. Christine E. Hughes (Co-Editor) or Dr. Raymond C. Pitts (Co-Editor), The Division 25 Recorder, Department of Psychology, University of North Carolina at Wilmington, 601 S. College Road, Wilmington, NC, USA 28403-5612 (tel 910-962-7795 or -7293; email: hughesc@uncw.edu or pittsr@uncw.edu). Subscriptions and changes of address for regular affiliate, student affiliate, individual, and institutional subscriptions should be sent to Larry A. Alferink, Secretary Division 25, Department of Psychology, Illinois State University, Campus Box 4620, Normal, IL, USA, 61790-4620. Changes of address for APA members of the Division should be sent directly to APA.

Deadline for submissions for the next issue is

OCTOBER 1.

Classifieds

Post-doctoral Fellow in the Behavioral Economics of Substance Abuse.

Post-doctoral fellow or research associate sought to conduct studies on the behavioral economics of substance abuse. Current projects include the development of marijuana use and abuse among college students, natural- and treatment-assisted recovery from alcohol abuse, and treatment for cocaine dependence. Responsibilities will include all aspects of human research, e.g., preparing protocols, integrating current literature, designing and executing studies, analyzing data, writing manuscripts. Opportunities are available to contribute to other research projects and to collaborate with other clinical and preclinical substance abuse researchers in a lively academic setting. Candidates should have a PhD in psychology. Minorities are encouraged to apply. Send cv and letter of interest to Rudy E. Vuchinich, Department of Psychology, CH 415, 1530 3rd AVE S, University of Alabama at Birmingham, Birmingham, AL 35294-1170, or rvuchini@uab.edu.

Post-doctoral Research Fellowship in Substance Abuse.

Research fellowship position (2-3yrs) is available in a stimulating and productive clinic. Participate in the development, conduct, and publication of studies on behavioral treatments for cigarette smoking among pregnant women and for cocaine dependence. Applicants must have completed doctoral training in psychology and have research experience. Individuals from disadvantaged groups are encouraged to apply. Competitive stipends. Send letter of interest, vita, and letters of reference to Stephen T. Higgins, Ph.D., University of Vermont, Dept. of Psychiatry, 38 Fletcher Place, Burlington, VT 05401-1419. **BA**

2004 DIVISION 25 AWARD RECIPIENTS

B.F. Skinner New Researcher Award:

David Richman
University of Maryland-Baltimore County

Don Hake Basic/Applied Research Award:

John A. Nevin
University of New Hampshire

Fred S. Keller Behavioral Education Award:

Carl Binder
Binder Riha Associates

Outstanding Applied Research Award:

Timothy Vollmer
University of Florida

Outstanding Basic Research Award:

Alan Baron
University of Wisconsin-Milwaukee

Outstanding Dissertation Award:

Chandra Mintz
University of Nevada-Reno
Sarah-Jeanne Salvv
University of Alberta/University of Québec

DIVISION 25 STANDING COMMITTEES AND CHAIRS

ARCHIVES:

James T. Todd
Eastern Michigan University

AWARDS COMMITTEE:

Cathleen C. Piazza
*Marcus Institute and
Johns Hopkins University School of Medicine*

FELLOWS:

Mark Galizio
University of North Carolina at Wilmington

MEMBERSHIP:

Eric A. Jacobs
Southern Illinois University

NEWSLETTER EDITORS:

Christine E. Hughes
Raymond C. Pitts
University of North Carolina at Wilmington

NOMINATIONS AND ELECTIONS:

Bruce Thyer
University of Georgia

POLITICAL ACTION:

Steven I. Dworkin (President)
University of North Carolina at Wilmington

Timothy D. Hackenberg (President-Elect)
University of Florida

Carol A. Pilgrim (Past-President)
University of North Carolina at Wilmington

PROGRAM:

Christine E. Hughes (Co-chair)
University of North Carolina at Wilmington

Sherry Serdikoff (Co-chair)
James Madison University

WEBSITE AND LISTSERV:

M. Christopher Newland
Auburn University

American Psychological Association
Honolulu, Hawai'i

DIVISION 25, BEHAVIOR ANALYSIS CONVENTION PROGRAM

July 28 – August 1, 2004

WEDNESDAY, JULY 28, 2004

8:00-9:50 AM, Hawai'i Convention Center, Kamehameha Exhibit Hall

POSTER SESSION

Ruth M. Anan & Jamie E. McGillivray (William Beaumont Hospital)—Hands-On Parent Education for Families of Preschoolers with Autism

Pierre Baillargeon, Aimée Leduc, & Robert Côté (Université du Québec à Trois-Rivières)—Dynamics of the Therapeutic Alliance: Behavioral Analyses

Elizabeth A. Manning, T. David Schofield, & Cindi L. Perry (National Aquarium in Baltimore)—Operant Conditioning with Stranded and Captive Marine Mammals

Christina Birkin, Rebecca Godfrey, & Dennis W. Moore (University of Auckland)—Differential Factors Influencing Stereotypic Behavior in Children with Autism

Debra A. Rausch-Harris, Sarah A. Dufek & Laura Schreibman (University of California-San Diego)—Development of Verbal Operants During Pivotal Response Training

Nathan E. Kosiba & Lonnie R. Yandell (Belmont University)—Personal Control and Superstitious Behavior in Athletes and Nonathletes

Susan M. Wilczynski (University of Nebraska Medical Center)—Systematically Increasing Response Effort in Order to Reduce Self-Injurious Behavior

Michelle R. DePolo, Vanessa K. Jensen, Aletta Sinoff, & Leslie V. Sinclair, (Cleveland Clinic Center for Autism)—Adaptive Behavior Gains in Preschool Children With Autism: Six-Month Outcome

Vivian J. Bush, **Edel J. Blake**, & Chrystyna Vent (Cape Henlopen School District)—Building Error-Free Sequences in a Female With Autism and Compulsive Behaviors

Lisa Tully, Joseph McCleery, L. Rob Slevc, & Laura Schreibman (University of California-San Diego)—Speech Sound Development Patterns of Children with Developmental Disabilities

Vivian J. Bush, Vanessa R. Cooper, Amanda R. Archambault, & Colleen Deskis (Cape Henlopen School District)—Promoting Conversational Skills of Young Children with Autism

Kris O. Battaglini, Vivian J. Bush, Vanessa R. Cooper, & Steven M. Nieblas (Cape Henlopen School District)—Building the Behavioral Bridge Between Environments for One Child with Autism

Robert F. Putnam, James K. Luiselli, & Marcie H. Handler (May Institute)—Evaluations of a Schoolwide Behavior Support Interventions in Public Schools

Scott B. Goldman & Richard M. O'Brien (Hofstra University)—Radical CBT: Inducing Competence Imagery in AMT for Snake Phobia

9:00 – 10:50 AM, Hawai'i Convention Center, Room 321B

AWARD PRESENTATIONS

Chair: Cathleen C. Piazza (Marcus Institute)

Don Hake Basic and Applied Research Award

John A. Nevin (University of New Hampshire)—The Momentum of Terrorism

Med Associates Basic Behavior Analysis Award

Alan Baron (University of Wisconsin—Milwaukee)—Unable to attend

Distinguished Contribution to Applied Behavior Analysis Award

Timothy Vollmer (University of Florida)—In Search of Social Reinforcement Contingencies in Parent—Child Interactions

11:00 AM - 12:50 PM, Hawai'i Convention Center, Room 323C

SYMPOSIUM

Celebrating B.F. Skinner's 100th Birthday—Conditioned Reinforcement

Chair: Raymond C. Pitts (University of North Carolina at Wilmington)

Timothy Hackenberg & Christopher Bullock (University of Florida)—Several Roles of Stimuli in Token Reinforcement Schedules

Timothy A. Shahan, Christopher A. Podlesnik, & Corina Jimenez-Gomez (Utah State University)—Observing, Attending, Behavioral Momentum, and the Matching Law

Amy L. Odum, Timothy A. Shahan, K. Anne Burke (Utah State University), & John A. Nevin (University of New Hampshire)—Resistance to Change of Forgetting Functions

Edmund Fantino & Matthew O'Daly (University of California-San Diego)—Conditioned Reinforcement: The Role of Temporal Context

1:00 - 1:50 PM, Hawai'i Convention Center, Room 316A

SYMPOSIUM

Autism Treatment: Science, Market, and Policy in Ohio

Chair: Michelle R. DePolo, Cleveland Clinic Center for Autism

Vanessa K. Jensen & Leslie V. Sinclair (Cleveland Clinic Center for Autism)—Access to Effective ABA Treatment in Ohio: Northern Region

Christine Averill & Jacquie Wynn (Columbus Children's Hospital IBI Clinic)—Access to Effective ABA Treatment in Ohio: Central Region

Rena Sorensen-Burnworth (Cincinnati Children's Hospital Medical)—Access to Effective ABA Treatment in Ohio: Southern Region

THURSDAY, JULY 29, 2004

9:00 - 9:50 AM, Hawai'i Convention Center, Room 304A

INVITED ADDRESS

Arthur Staats (University of Hawai'i at Manoa)—We Have Let Behaviorism Die (Despite Our Thriving Applied Branch)

Chair: Christine E. Hughes (University of North Carolina at Wilmington)

10:00 – 11:50 AM, Hawai'i Convention Center, Room 323C

SYMPOSIUM

Celebrating B.F. Skinner's 100th Birthday: Selection by Consequences

Chair: Christine E. Hughes (University of North Carolina at Wilmington)

Marc N. Branch (University of Florida)—Selection of Behavior by Its Consequences: What Gets Selected?

John W. Donahoe (University of Massachusetts)—Relation of the Experimental Analysis of Behavior to Other Disciplines—e.g., Psychology

J.J. McDowell (Emory University)—Computational Model of Selection by Consequences

Discussant: M. Jackson Marr (Georgia Institute of Technology)

2:00 – 3:50 PM, Hilton Hawaiian Village Beach Resort and Spa, Sea Pearl Suite VI

DIVISION 25 EXECUTIVE COMMITTEE MEETING

Chair: Steven I. Dworkin (University of North Carolina at Wilmington)

FRIDAY, JULY 30, 2004

9:00 – 9:50 AM, Hawai'i Convention Center, Room 319B

INVITED ADDRESS

Robert J. Blanchard (University of Hawai'i at Manoa)—Naturalistic Models of Fear and Anxiety

Chair: Steven I. Dworkin (University of North Carolina at Wilmington)

12:00 – 1:50 PM, Hawai'i Convention Center, Room 302A

SYMPOSIUM (Co-Sponsors Div. 6 and 25)

Creating New Behavior: Variability, Reinforcement, and Behavioral Emergents

Chair: Edward Wasserman (University of Iowa)

Peter Balsam (Barnard College and Columbia University)—Origins of New Behavior

J. Bruce Overmier (University of Minnesota)—Differential Outcomes

Carol A. Pilgrim (University of North Carolina at Wilmington)—Stimulus Equivalence and Class-Specific Reinforcement

Discussant: Duane Rumbaugh (Language Research Center of Georgia State University and the Iowa Primate Learning Sanctuary)

SATURDAY, JULY 31, 2004

9:00 – 9:50 AM, Hawai'i Convention Center, Room 322B

AWARD PRESENTATIONS

Chair: Cathleen C. Piazza (Marcus Institute)

B.F. Skinner New Researcher Award

David Richman (University of Maryland Baltimore County)—Stereotypic and Self-Injurious Behaviors in Young Children with Developmental Disabilities: Emergence to Early Intervention

Fred S. Keller Behavioral Education Award

Carl V. Binder (Binder Riha Associates)—Teachers, Students, and Behavioral Fluency

10:00 – 10:50 AM, Hawai'i Convention Center, Room 323C

PLENARY SESSION – INVITED ADDRESS

M. Jackson Marr (Georgia Institute of Technology)—A Man of Consequence: The Legacy of B. F. Skinner

12:00 – 1:50 PM, Hawai'i Convention Center, Room 324

SYMPOSIUM (Co-Sponsors Div. 25 and 28)

Delay Discounting: Exploring Its Association with Drug Dependence

Chairs: Warren K. Bickel, Matthew W. Johnson (University of Vermont)

Brady A. Reynolds (The University of Chicago)—Measuring State Changes in Delay Discounting: The Experiential Discounting Task

Matthew W. Johnson & Warren K. Bickel (University of Vermont)—Delay Discounting: A Reanalysis and Critique of Models and Assessment

Marilyn E. Carroll, Jennifer L. Perry, Erin, B. Larson, Andrew D. Morgan (University of Minnesota), Andrew D. Morgan, & Gregory J. Madden (University of Wisconsin-Eau Claire)—Delay Discounting (Impulsivity) as a Predictor of Drug Self-Administration

Suzanne H. Mitchell (Oregon Health & Science University)—Delay Discounting as a Predictor of Behavioral Sensitization to Ethanol

Discussant: Warren K. Bickel (University of Vermont)

2:00 – 2:50 PM, Hilton Hawaiian Village Beach Resort and Spa, Rainbow Suite II

PRESIDENTIAL ADDRESS

Steven I. Dworkin (University of North Carolina at Wilmington)—Behavioral Factors Involved in the Reinforcing Effects of Nicotine and Caffeine

Chair: Carol A. Pilgrim (University of North Carolina at Wilmington)

3:00 – 3:50 PM, Hilton Hawaiian Village Beach Resort and Spa, Rainbow Suite II

DIVISION 25 BUSINESS MEETING

Chair: Steven I. Dworkin (University of North Carolina at Wilmington)

Dissertation Award Winners

Basic: **Sarah-Jeanne Salvy** (University of Alberta & University of Québec, Montréal)—The role of physical activity in conditioned taste aversion

Applied: **Charna Mintz** (University of Nevada-Reno)—A behavior analytic evaluation of the overjustification effect as it relates to education

SUNDAY, AUGUST 1, 2004

10:00 – 11:50 AM, Hawai'i Convention Center, Room 309

SYMPOSIUM

Autism: University Behavior Analysis Training and Treatment Programs

Chair: Anthony J. Cuvo (Southern Illinois University-Carbondale)

Linda A. LeBlanc, James E. Carr, & Richard Malott (Western Michigan University)—Behavioral Services for Children With Autism at Western Michigan University

Patrick M. Ghezzi (University of Nevada, Reno)—University of Nevada, Reno: Early Childhood Autism Program

Anthony J. Cuvo (Southern Illinois University-Carbondale)—Southern Illinois University Center for Autism Spectrum Disorders

Discussant: James E. Bordieri (Southern Illinois University-Carbondale)

The decades that followed revealed behaviorism in ascendancy, and the animal learning laboratory was the hotbed of study, the white rat and the pigeon the organisms of choice (with an assumption that all organisms and all behaviors obey similar laws).

Edward Chace Tolman championed the methodology of behaviorism and contributed important work. Some of his concepts (latent learning, cognitive maps) still appear today, even in the cognitive literature. Pavlov's books were translated in the 1920s, and Clark Hull began publishing his important series of *Psychological Review* papers in the late 20s and early 30s. Hull's most famous student, Kenneth Spence, also began his important work in the 1930s. Edwin Guthrie published his ideas on the role of contiguity in learning and the notion of one-trial learning. In 1938, B. F. Skinner published *The Behavior of Organisms* and launched his operant approach, which became the most famous behaviorist position and today, among many, seems to represent behaviorism. One of my favorite courses as an undergraduate was *The Psychology of Learning*, taught by my undergraduate mentor, David G. Elmes, using a book by James Deese and Stuart Hulse of John Hopkins University with that title.

Now, returning to behaviorism, let's consider the cartoon view of the history of psychology that many cognitive psychologists (which is to say, most of the field these days) seem to believe. In this caricature, the History of Psychology is something like the History of Western Civilization and goes as follows: Early psychologists like William James had great ideas and speculations, and psychologists studied, as best they could, cognitive phenomena like imagery. (James et al. correspond to the ancient Athenians — Socrates, Plato and Aristotle, perhaps). However, later, due to Watson, Skinner and their ilk, the Dark Ages descended — the religious orthodoxy of Behaviorism blanketed the land and smothered creative thought about cognitive phenomena and other topics. Finally, the Renaissance occurred beginning in the 1950s when the experimental work of George Miller, Donald Broadbent, Wendell Garner and others, as well as the writings of Noam Chomsky, led psychology from the dark ages and into the light of the cognitive revolution. The movement picked up steam in the 1960s and Ulric Neisser's great book, *Cognitive Psychology*, both named the new field and ably summarized its content in 1967. Behaviorism was still lively during the 1960s and early 1970s, so this story goes, but as viewed today

this was only as a rear guard intellectual movement that was in its last gasp of popularity. By the 1990s the domination of cognitive approaches across almost all areas of psychology (even animal learning!) was nearly complete. Look at the ads in the *APS Observer* as one measure — how often does one see *cognitive or cognitive neuroscience* in an ad relative to *behaviorist or animal learning*?

So, back to my original question, what happened to behaviorism? Here are some possible answers. I'll let people wiser than I grade them and decide if the answer should be some combination of these alternatives, or none of the above.

One possibility is that the decline of behaviorism represents an intellectual revolution, and young scientists (like youth in all times) like the heady fervor of a revolution. So, with behaviorism having been in ascendancy in psychology, especially (and mainly) American psychology, for so long, the time for a new intellectual revolution was ripe. The analyses of the early cognitive psychologists (Broadbent, Miller, Garner, et al.) were rigorous, provocative, and opened new intellectual vistas. Many problems that were somewhat outside the purview of behavioristic analyses — perceiving, attending, remembering, imagining, thinking — were approached in a radically new way. In this telling, nothing really "happened" to behaviorism; it was not really shown to be "wrong" in any real sense. Rather, the cognitive approach simply generated adherents at the expense of the established order, opened new techniques and methods of study, and created excitement that attracted graduate students away from animal laboratories. (Some types of cognitive analyses that seemed so great in the 1960s seem to be growing long in the tooth now. For example, metaphorical models and box and arrow diagrams, so popular at one time, seem quaint compared to cognitive neuroscience approaches to mapping brain networks underlying cognitive performance). In brief, cognitive analyses swept the day as being more exciting and interesting in opening new arenas of study.

A second possible reason is that behavioristic analyses were becoming too microscopic in the 1970s. As in most fields as they develop, researchers began studying more and more about less and less. Rather than focus on the central, critical problems, behavioristic researchers begin looking at ever more refined (that is to say, picayune) problems, with experimental analyses increasing in complexity all out of proportion to the gains in knowledge that they enabled. (It is remarkable how many of the fundamentally great discoveries in most fields are often direct, simple, straightforward, so that after the fact others can won-

der, "why didn't I think of that?"). The number of parameters and epicycles in the Hull-Spence approach ballooned. Examine Ferster and Skinner's ponderous *Schedules of Reinforcement* (1959) relative to the more direct writing of Skinner in *The Behavior of Organisms* (1938). In this version of history, there was something wrong with behaviorism in the 1970s and 1980s — it became too focused on specific problems and lost the big picture.

Another way in which behaviorism lost is that many psychologists (especially cognitive psychologists) do not focus on the learning history of the organism. As John Wixted wrote to me in commenting on this column, "researchers have forgotten to explain why we behave as we do. Much of what we do is a function of the prior consequences of our actions. And we learn from those consequences. Cognitive models are often a surrogate of that learning history (they refer to a magic computer in the head without considering what is responsible for its computational abilities ...). So, to the extent that cognitive psychology and cognitive neuroscience don't care about the learning history of their subjects (and, for the most part, they don't), behaviorism lost."

A third answer is that there is, thank you, nothing wrong with behaviorism today. The premise of the analysis at the beginning of this column is simply wrong. Behaviorism is alive and well and nothing "has happened" to it. The *Journal of the Experimental Analysis of Behavior* is still a lively outlet (and edited now by my colleague, Len Green), as is the *Journal of Applied Behavior Analysis*. Both journals are published by the Society for the Experimental Analysis of Behavior, which has been going strong since 1957. The primary meeting of behaviorists is the Association for Behavior Analysis, or ABA, which has over 4,200 members in 2003, and at the 2002 meeting there were 3,200 registrants. Counting affiliate organizations around the world, there are some 12,000 members (Jack Marr, personal communication). ABA has grown tremendously over the years and still attracts around 250 new members a year just in the U.S. The Society for the Quantitative Analysis of Behavior meets before and during ABA, with its own mathematically sophisticated membership. Much of the work reported at these meetings is based on research with humans (and not just pigeons and rats, as in the stereotype).

Why the enthusiasm? Because behavioristic analyses work! We know how to alleviate or eliminate phobias through extinction-based therapies; we know the power of a token economy in regulating behavior on a mental ward; we can reduce problematic behaviors and increase the

probability of desired behaviors by judiciously providing and withholding reinforcements. Even for problems that cognitively oriented psychologists study, behavioristic therapies are the treatments of choice. For an autistic child, Lovaas's behavioristic techniques provide the greatest (indeed, so far the only) hope. (Theory of mind debates about autism are fine, but not if you want therapies and treatment — go to behaviorism). Similarly, for stuttering and aphasia, as interesting as their analysis by psycholinguists may be, the treatments come largely from the behaviorists' labs. In the field of neurobiology of learning, the central paradigm is classical conditioning and the main theoretical model is the Rescorla-Wagner model. And behavioristic analyses exist in self-management programs, in industry (Organizational Behavior Management), in sports, in parenting guides, and of course in animal training programs for pets and for zoos. Anywhere that prediction and control of overt behavior is critical, one finds behavioristic analyses at work. In sum, this answer maintains that, although most psychologists don't know it, behaviorism still is alive and thriving, albeit perhaps not as much in the mainstream of the field as it once was.

Another framing to the previous answer (owing to Endel Tulving) is that there are several valid sciences of psychology. He wrote to me in an e-mail comment on an earlier draft of this column that: "It is quite clear in 2004 that the term 'psychology' now designates *at least two* rather different sciences, one of behavior and the other of the mind. They both deal with living creatures, like a number of other behavioral sciences, but their overlap is slim, probably no greater than psychology or sociology used to be when the world was young. No one will ever put the two psychologies together again, because their subject matter is different, interests are different, and their understanding of the kind of science they deal with is different. Most telling is the fact that the two species have moved to occupy different territories, they do not talk to each other (any more), and the members do not interbreed. This is exactly as it should be."

Perhaps the most radical answer to the question I posed is that behaviorism is less discussed and debated today because it actually won the intellectual battle. In a very real sense, all psychologists today (at least those doing empirical research) are behaviorists. Even the most cognitively oriented experimentalists study behavior of some sort. They might study effects of variables of pushing buttons on computers, or filling out checklists, or making confidence ratings, or patterns of blood-

flow, or recalling words by writing them on sheets of paper, but they almost always study objectively verifiable behavior. (And even subjective experiences, such as confidence ratings, can be replicated across people and across conditions). This step of studying objectively verifiable behavior represents a huge change from the work of many psychologists in 1904. Today the fields of cognitive psychology and cognitive neuroscience are highly behavioral (if one includes neural measures of behavior). True, there is nothing necessarily inherently interesting about pushing buttons on computers, but on the other hand, the basic laws of behavior in the animal lab were worked out on rats pushing levers and navigating runways, or pigeons pecking keys — not exactly riveting behaviors in their own right. In all these cases, the scientist's hope is to discover fundamentally interesting principles from simple, elegant experimental analyses. The cognitive researcher goes further and seeks converging evidence from behavioral observations on internal workings of the mind/brain systems. But as experimentalists, both cognitive and behavioral researchers study behavior. Behaviorism won.

I could go on with reasons or speculations, I suppose, but let's leave it at five. And let me explain why I left out a popular explanation that I have read in history textbooks. Didn't Noam Chomsky's review of Skinner's *Verbal Behavior* devastate behavioristic analysis and show that it was bankrupt as pertains to language? I have read the debate a couple of times and, although interesting, it always seemed to me that the protagonists were arguing at cross purposes, from fundamentally different paradigms. Chomsky was and is a rationalist; he had no uses for experimental analyses or data of any sort that pertained to language, and even experimental psycholinguistics was and is of little interest to him. My guess is that Chomsky's review deserves to be credited as a minor cause of the cognitive revolution. To most psychologists, empiricists at heart, it was the great new experiments that researchers were conducting on cognitive topics that created the cognitive revolution and not Chomsky's review of Skinner's book (rather effectively refuted in a commentary by Kenneth MacCorquodale, by the way).

I am a cognitive psychologist, true, but I have sympathy for several answers. Behaviorism is alive and most of us are behaviorists. That may be truer of me than many. My theorizing is often rather functional in nature. Some reviewers complain that I don't have "real theories" or that I am redescribing the data; some have argued that my ideas are too descriptive to be testable; yet others, undercutting the

previous point, have busily tested them and found them empirically wrong (hmm ... both sets of critics can't be right, methinks). It is true that I feel comfortable sticking closer to the data and engaging in fewer flights of theoretical fancy than many of my cognitive colleagues, having been partly raised in the functional intellectual tradition of John McGeoch, Arthur Melton, and Robert Crowder.

A few years back, Robert Solso edited a volume entitled *Mind and Brain Sciences in the 21st Century* (MIT Press) for which I wrote a chapter in which I made fearless predictions on the future of cognitive psychology. My eleventh and last prediction was that a strong form of behaviorism would make a comeback in mainstream psychology. That does mean I believe the movement went "away" in some sense, even if I think that the behaviorist revolution was largely successful and the central tenets have been incorporated into psychology. After all, even the most ardent behaviorist would agree that the great debates that swirled among and between behaviorists in the 1950s do not arise in the mainstream literature today. As John Wixted pointed out in the quote above, cognitive psychologists tend to ignore learning history in their theories. If we at least begin incorporating learning history back into our considerations, then behaviorism will be making a comeback. Still, at the same time, it is clear that many aspects of behaviorism never went anywhere at all. Rather, many psychologists simply ignored the good work researchers in the behaviorist tradition have been doing.

Let me suggest a way you can celebrate Skinner's centennial and learn the elegance and power of behavioristic analyses. Treat yourself and read Skinner's 50-year old book, *Science and Human Behavior*, which is still in print. The book was meant as an introduction to behaviorism and is powerfully and elegantly written. The *Journal of the Experimental Analysis of Behavior* has published five retrospective articles in the November, 2003 issue entitled "The Golden Anniversary of Skinner's *Science and Human Behavior*." Read the book and celebrate the power of behavioristic analyses yourself, even if (or especially if) you are one of those cognitive psychologists who believe that behaviorism is irrelevant, passé and/or dead. It isn't.

Author's Note: Len Green, Jack Marr, Jim Neely, Endel Tulving, Ben Williams, and John Wixted provided comments that greatly aided my conceptualization of these issues. I appreciate permission to quote from messages I received from Drs. Tulving and Wixted. BA

AMERICAN PSYCHOLOGICAL ASSOCIATION

Division 25 for Behavior Analysis MEMBERSHIP APPLICATION FORM

Name: _____

Affiliation: _____

Address: _____

Work Phone: _____ Home Phone: _____

e-mail: _____

I would like to join Division 25 of the American Psychological Association.

_____ Regular Member. Must be a Member or Fellow of APA and then approved by the Division 25 Executive Committee. Upon acceptance, your Division 25 assessment (\$22.00) will be added to your APA dues next year.

_____ Associate Member. Must be an Associate Member of APA and then approved by the Division 25 Executive Committee. Upon acceptance, your Division 25 assessment (\$22.00) will be added to your APA dues next year. (Non-voting membership)

_____ Student Member. Must be a student member (graduate or undergraduate) of APA. Send check for \$22.00. (Non-voting membership).

_____ Affiliate Member. Open to any individual with an interest in behavior analysis, regardless of APA membership status. Send check for \$22.00. (Non-voting membership)

*Membership applications should be sent to Eric A. Jacobs, Ph.D., Division 25 Membership Chairperson,
Department of Psychology, Southern Illinois University, Carbondale, IL 62901.*

Make checks payable to "APA-Division 25."

Division of Behavior Analysis A Division of the American Psychological Association

Department of Psychology
UNC-Wilmington
601 S. College Road
Wilmington, NC 28403-5612