The Historical Roots
of Organizational Behavior Management
in the Private Sector:
The 1950s-1980s

Alyce M. Dickinson

ABSTRACT. Applications of behavior analysis in the private sector became visible in the late 1960s and early 1970s. By the 1980s, the field of Organizational Behavior Management (OBM) was a well established discipline. This article chronicles the people, events and publications that contributed to the formation of the field, beginning with the precursors in the 1950s and ending in the early 1980s. The contributions of individuals who have been honored by the OBM Network are detailed and emphasized. Although some historical accounts attribute the development of OBM to influences from traditional management fields, the present account, through documentation of the formative events, argues that the field developed in relative isolation from such influences, emanating primarily from Skinner's development of programmed instruction and the advent of behavioral applications in other settings. While

Alyce M. Dickinson is affiliated with Western Michigan University.

Address correspondence to Alyce M. Dickinson, PhD, Department of Psychology, Western Michigan University, Kalamazoo, MI 49008-5052 (E-mail: alyce.dickinson @ wmich.edu).

9

application of psychology to the work place predated behavioral involvement, the primary force for the development and growth of OBM came from within the field of behavior analysis. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-342-9678. E-mail address: <getinfo@haworthpressinc.com> Website: <http://www.HaworthPress. com>]*

KEYWORDS. Organizational Behavior Management, OBM, history of OBM, OBM and behavior analysis, OBM and applied behavior analysis, OBM in the private sector

Applications of behavior analysis in business and industry became visible in the late 1960s and early 1970s (Andrasik, 1979; Daniels, 1989; Frederiksen & Johnson, 1981; Hopkins & Sears, 1982; Komaki, Coombs, & Schepman, 1991; O'Brien & Dickinson, 1982). Since that time the field of Organizational Behavior Management (OBM) has flourished. Interventions have occurred in a wide variety of organizational settings and targeted an array of organizationally significant work behaviors and performances (Balcazar, Shupert, Daniels, Mawhinney, & Hopkins, 1989; Hopkins & Sears, 1982; Komaki et al., 1991; Merwin, Thomason, & Sanford, 1989; Nolan, Jarema, & Austin, 1999). Early reviews of the success of behavioral interventions were encouraging (Andrasik, 1979; Frederiksen & Johnson, 1981; Frederiksen & Lovett, 1980; Hopkins & Sears, 1982; O'Hara, Johnson, & Beehr, 1985); later reviews have been positive (Komaki et al., 1991; Merwin et al., 1989; Stajkovic & Luthans, 1997). For example, in 1982, Hopkins and Sears calculated the extent to which performance improved in 26 applications in business and human service settings and reported that many of the interventions resulted in significant improvements. Nine years later, Komaki et al. (1991) reviewed 51 well-controlled studies and concluded that 47, or 92.2%, resulted in "substantial improvements in performance" (p. 38). Finally, in a statistical meta-analysis of selected articles from 1975-1995, Stajkovic and Luthans (1997) reported an average performance improvement of 17%.

Not only have success rates been commendable, but Merwin et al. (1989) noted that both the breadth and methodological rigor of OBM applications have improved over the years. Of course, there is still room for improvement: Social validity, cost/benefit analyses, and employee satisfaction/resistance measures are still lacking in many ar-

ticles (Balcazar et al., 1989; Merwin et al., 1989; Nolan et al., 1999). Moreover, although authors are increasingly including follow-up data in articles, long-term follow-up data remain scarce (Merwin et al., 1989; Nolan et al., 1999). Balcazar et al. also note the lack of "large-scale interventions in which behavior principles are employed to change the 'cultural foundations' of an organization" (p. 36). In an attempt to fill this gap, Hopkins, in 1995, assumed editorship of a series on large-scale data-based behavioral programs for the *Journal of Organizational Behavior Management (JOBM)* (Hopkins, 1995, 1996, 1997; Mawhinney, 1995). Since that time, as part of that series, articles addressing organizational-wide interventions have been published (Fleming, Oliver, & Bolton, 1996; Gikalov, Baer, & Hannah, 1997; Methot, Williams, Cummings, & Bradshaw, 1996; Wolf, Kirigin, Fixsen, Blase, & Braukmann, 1995) and more are planned. Interestingly, only one of the interventions was conducted in the private sector (Gikalov et al., 1997). Certainly there is more work to be done, nonetheless, the news about OBM is good news, indeed, very good.

In this 20th volume of *JOBM,* our flagship journal, it is appropriate to trace the history of our field and acknowledge our pioneers. Many of those pioneers have been formally recognized by the OBM Network, a special interest group affiliated with the Association for Behavior Analysis (ABA). Table 1 names individuals who have received Lifetime Achievement Awards and Outstanding Contribution Awards from the OBM Network. In 1999, the OBM Network and *JOBM* established an official relationship (Hayes, 1999; Mawhinney,1999), making the timing of an historical account even more apt. In this article, I chronicle the people, articles and events that shaped our field, beginning with precursors in the 1950s and ending with events in the early 1980s, at which point OBM was a well-established discipline. Tables 2, 3 and 4 list the formative contributions during the 1950s, the 1960s and the 1970s and early 1980s, respectively.

In developing this history, I conducted in-depth interviews with the OBM Network award honorees, read the typically brief historical accounts that served as introductions to the early review articles and books (Andrasik, 1979; Frederiksen, 1982a; Frederiksen & Johnson, 1981; Frederiksen & Lovett, 1980; O'Brien & Dickinson, 1982), electronically searched relevant data bases, and manually searched the bibliographies of review articles and early books (Andrasik, 1979; Brown & Presbie, 1976; Frederiksen, 1982a, 1982b; Frederiksen &

TABLE 1. OBM Network Award Honorees

Year	Individual	Award
1988	Aubrey C. Daniels	Lifetime Achievement Award
1989	Thomas F. Gilbert	Lifetime Achievement Award
1990	Edward J. Feeney	Lifetime Achievement Award
1991	Beth Sulzer-Azaroff	Lifetime Achievement Award
1992	Thomas C. Mawhinney	Outstanding Contributions Award
1993	Dale M. Brethower	Outstanding Contributions Award
1994	William K. Redmon	Outstanding Contributions Award
1995	Alyce M. Dickinson	Outstanding Contributions Award
1998*	Paul L. Brown	Lifetime Achievement Award
1999	Geary A. Rummler	Lifetime Achievement Award

*No awards were given in 1996 and 1997.

TABLE 2. Articles, Books, and Events in the 1950s that Were Precursors to the Field of OBM

Type of Contribution	Date	Contribution
Articles	1954	Skinner, B.F. The science of learning and the art of teaching. *Harvard Educational Review, 24,* 86-97.
	1958	Skinner, B. F. Teaching machines. *Science,* 128, 969-977.
	1959	Ayllon, T. & Michael, J. The psychiatric nurse as a behavioral engineer. *Journal of the Experimental Analysis of Behavior, 2,* 323-334.
Books	1953	Skinner, B. F. *Science and human behavior* (Chapter XXV, Economic Control). New York: Free Press.
Events	1950s	Skinner's programmed instruction work at Harvard.

Johnson, 1981; Frederiksen & Lovett, 1980; Hopkins & Sears, 1982; Komaki et al., 1991; Luthans & Kreitner, 1975; Miller, 1978a; Stajkovic & Luthans, 1997; O'Brien, Dickinson, & Rosow, 1982; O'Hara, Johnson, & Beehr, 1985). I also solicited input from those who attended my talk at ABA in 1995, where I originally presented some of this material (Dickinson, 1995) and asked individuals to review and modify relevant sections (D. Brethower, personal communication, August, 1999; P. Brown, personal communication, October, 1999; A. Daniels, personal communication, September, 1999; G. Rummler, personal communication, August, 1999; B. Sulzer-Azaroff, personal

TABLE 3. Articles, Books and Events in the 1960s when OBM Began

Type of Contribution	Date	Contribution
Articles	1961	Aldis, O. Of pigeons and men. *Harvard Business Review, 39*, 297–300.
	1965	Nathan, P. E., & Wallace, W. H. An operant measure of TV commercial effectiveness. *Journal of Advertising Research, 5*, 13–20.
	1966	Brethower, D. M. & Rummler, G. A. (1966). For improved work performance: Accentuate the positive. *Personnel 43*, 40-49.
	1969	Nord, W. R. Beyond the teaching machine: The neglected area of operant conditioning in the theory and practice of management. *Organizational Behavior and Human Performance*, *4*, 375-401.
Books	1961	Holland, J. G., & Skinner, B. F. *The analysis of behavior.* New York: McGraw-Hill.
	1966	Ulrich, R., Stachnik, T., & Mabry, J. (Eds.). *Control of human behavior* (Chapter 9: Modification of behavior in industry and advertising, 3 articles). Glenview, IL: Scott, Foresman.
Events	1961-1969	University of Michigan Programmed Learning, Applied Learning Theory, and Training Systems Workshops. Brethower and Rummler began their collaboration here.
	1962	National Society for Programmed Instruction formed.
	1966-1967	Edward J. Feeney attends the University of Michigan workshops and begins his behavioral work at Emery Air Freight.
	1967 or 1969	Thomas F. Gilbert and Geary Rummler form Praxis, a Manhattan-based consulting firm.

communication, September, 1999; W. S. Wood, May, 1995). I am grateful to all of these individuals. In that vein, I would be remiss if I did not also acknowledge the assistance I received from Bill Hopkins when I was constructing this chronology (B. Hopkins, personal communication, April, 1995) and when he reviewed the present manuscript (B. Hopkins, personal communication, February, 2000). My best efforts notwithstanding, I am sure that I have omitted or failed to give due credit to some important contributors. To those individuals, I

TABLE 4. Articles, Books, and Events During the 1970s and Early 1980s when OBM Took Root

Type of Contribution	Date	Contribution
Articles	1970	Nord, W. R. Improving attendance through rewards. *Personnel Administration*, *33*, 37-41.
	1970	Winters, L. C. & Wallace, W. H. On operant conditioning techniques. *Journal of Advertising Research*, *10*, 39-45.
	1971	Adam, E. E., Jr. & Scott, W. E. The application of behavioral conditioning techniques to the problems of quality control. *Academy of Management Journal*, *14,* 175-193.
	1971	Gupton, T., & LeBow, M. Behavior management in a large industrial firm. *Behavior Therapy*, *2*, 78-82.
	1971	Laird, D. Why everything is all loused up, really (and what to do about it). *Training in Business and Industry, March*, 52-55. (Emery Air Freight)
	1971	Luthans, F. & White, D. Behavior modification: Application to manpower management. *Personnel Administration, 34,* 41-47.
	1971	New Tool: ''Reinforcement'' for good work. *Business Week, Dec. 18*, 76-77. (Emery Air Freight)
	1971	Schmitt, D. R. Effects of intermittent reinforcing consequences on task choice. *Psychological Reports, 28,* 771-776.
	1971	Sorcher, M. A. A behavior modification approach to supervisor training. *Professional Psychology, 2*, 401-402.
	1972	Jablonsky, S. F., & DeVries, D. L. Operant conditioning principles extrapolated to the theory of management. *Organizational Behavior and Human Performance, 7,* 340-358.
	1972	Murphy, J. Is it Skinner or nothing? *Training and Development Journal, 26,* 2-8.
	1972	Performance audit, feedback, and positive reinforcement. *Training and Development Journal, 26,* 8-13. (Emery Air Freight)
	1972	Where Skinner's theories work. *Business Week, Dec. 2,* 64-65. (Emery Air Freight)
Articles	1972	Whyte, W. F. Skinnerian theory in organizations. *Psychology Today, April,* pp. 67-68, 96, 98, 100.
	1972	Yukl, G. A., Wexley, K. N., & Seymore, J. D. Effectiveness of pay incentives under variable ratio and continuous reinforcement schedules. *Journal of Applied Psychology, 56*, 19-23.
	1973	At Emery Air Freight: Positive reinforcement boosts performance. *Organizational Dynamics, 1*, 41-50.
	1973	Conversation with B. F. Skinner. *Organizational Dynamics*, *1*, 31-40.
	1973	Goldstein, A. P., & Sorcher, M. A. Changing managerial behavior by applied learning techniques. *Training and Development Journal, 27*, 36-39.

Type of Contribution	Date	Contribution
	1973	Hermann, J. A., de Montes, A. I., Dominguez, B., Montes, F., & Hopkins, B. L. Effects of bonuses for punctuality on the tardiness of industrial workers. *Journal of Applied Behavior Analysis, 6*, 563-570.
	1973	Luthans, F. The contingency theory of management. *Business Horizons, 16*, 67-72.
	1973	Luthans, F., & Kreitner R. The role of punishment in organizational behavior modification (O.B.Mod). *Public Personnel Management, 2*, 156-161.
	1973	Luthans, F. & Lyman, D. Training supervisors to use organizational behavior modification. *Personnel, 50,* 38-44.
	1973	Luthans, F., & Ottemann, R. Motivation vs. learning approaches to organizational behavior. *Business Horizons, 16*, 55-62.
	1973	Mawhinney, T. C., & Behling, O. C. Differences in prediction of work behavior from expectancy and operant models of individual motivation. *Academy of Management Proceedings*, 383-398.
	1973	Senger, J. A challenge from behavioral science: Can you eliminate the negative? *Supervisory Management, 18*, 15-20.
Articles	1974	Hamner, W. C. Reinforcement theory and contingency management in organizational settings. In H. L. Tosi & C. W. Hamner (Eds.), *Organizational behavior and management: A contingency approach*. Chicago: St. Clair Press.
	1974	Luthans, F., & Kreitner, R. The management of behavioral contingencies. *Personnel, 51*, 7-16.
	1974	Orphen, C. The effect of reward contingencies on the job satisfaction-task performance relationship: An industrial experiment. *Psychology*, 9-14.
	1974	Parsons, H. M. What happened at Hawthorne? *Science, 183*, 922-932.
	1974	Pedalino, E. & Gamboa, V. U. Behavior modification and absenteeism: Intervention in one industrial setting. *Journal of Applied Psychology, 59*, 694-698.
	1975	Adam, E. E., Jr. Behavior modification in quality control. *Academy of Management Journal, 18*, 662-679.
	1975	Bobele, H. K. & Buchanan, P. Behavior modification: A tool for getting things done. *The Business Quarterly, 40,* 37-41.
	1975	Kreitner, R. PM–A new method of behavior change. *Business Horizons, 18,* 79-86.
	1975	Lazer, R. I. Behavior modification as a managerial technique. *Conference Board Record, 16,* 67-72.
	1975	Mawhinney, T. C. Operant terms and concepts in the description of individual work behavior: Some problems of interpretation, application and evaluation. *Journal of Applied Psychology, 60*, 704-712.
	1975	McAdam, J. Behavior modification: A human resource management technology. *Management Review, 64*, 24-30.

TABLE 4 (continued)

Type of Contribution	Date	Contribution
	1975	Yukl, G.A., & Latham, G. P. Consequences of reinforcement schedules and incentive magnitudes for employee performance: Problems encountered in a field setting. *Journal of Applied Psychology, 60*, 294-298.
Articles	1976	Brown, P. L. Behavior modification: A significant new tool for managers and supervisors. *Executive Housekeeper*.
	1976	Hamner, W. C., & Hamner, E. P. Behavior modification on the bottom line. *Organizational Dynamics*, 3, 3-21.
	1976	Kim, J. S., & Hamner, W. C. Effect of performance feedback and goal setting on productivity and satisfaction in an organizational setting. *Journal of Applied Psychology, 61*, 48-57.
	1976	Luthans, F., & Martinko, M. An organizational behavior modification analysis of absenteeism. *Human Resource Management, 15*, 11-18.
	1976	Marholin, D., & Gray, D. Effects of group response-cost procedure on cash shortages in a small business. *Journal of Applied Behavior Analysis, 9*, 25-30.
	1976	Nichols, G. A model for supervisors' use of behavior modification techniques. *Occupational Hazards, 38*, 86-88.
	1976	Nord, W. R. Behavior modification perspective for humanizing organizations. In H. Meltzer & F. D. Wickert (Eds.) *Humanizing organizational behavior*. Springfield, IL: Charles C. Thomas.
	1976	Rotondi, T., Jr. Behavior modification on the job. *Supervisory Management, 18*, 15-20.
	1976	Yukl, G. A., Latham, G. P., & Pursell, E. D. Effectiveness of pay incentives under variable ratio and continuous reinforcement schedules. *Personnel Psychology, 29*, 221-231.
	1977	*JOBM* started. End of listing of articles with the exception of the Sulzer-Azaroff article below.
	1978	Sulzer-Azaroff, B. Behavioral ecology and accident prevention. *Journal of Organizational Behavior Management*, *2* (1), 11-44.
Books	1970	Mager, R. F., & Pipe, P. *Analyzing performance problems or 'You really oughta wanna'*. Belmont, CA: Fearon.
	1972	Brethower, D. M. *Behavioral analysis in business and industry: A total performance system*. Kalamazoo, MI: Behaviordelia.
Books	1974	Maley, R., & Harshbarger, D. *Behavior analysis and systems analysis: An integrated approach to mental health*. Kalamazoo, MI: Behaviordelia.
	1975	Luthans, F., & Kreitner, R. *Organizational behavior modification*. Glenview, IL: Scott, Foresman.
	1976	Brown, P. L., & Presbie, R. J. *Behavior Modification in business, industry and government*. New Paltz, NY: Behavior Improvement Associates.
	1978	Connellan, T. K. *How to improve human performance: Behaviorism in business and industry*. New York: Harper & Row.

Type of Contribution	Date	Contribution
	1978	Gilbert, T. F. *Human competence: Engineering worthy performance.* New York: McGraw-Hill.
	1978	Miller, L. M. *Behavior Management.* New York: John Wiley.
	1982	Brown, P. L. *Managing behavior on the job.* New York: John Wiley.
	1982	Daniels, A. C., & Rosen, T. *Performance Management.* Tucker, GA: Performance Management Publications.
	1982	Frederiksen, L. W. (Ed.).*Handbook of Organizational Behavior Management.* New York: John Wiley.
	1982	O'Brien, R. M., Dickinson, A. M., & Rosow, M. P. (Eds.). *Industrial Behavior Modification.* New York: Pergamon Press.
Events	early 1970s	Richard Malott champions and teaches systems analysis at Western Michigan University.
	1971	Paul Brown forms Instructional Design Associates.
	1971	Aubrey C. Daniels and Fran Tarkenton form Behavioral Systems Inc. Daniels was President.
	1973	Edward J. Feeney forms Edward J. Feeney & Associates.
	1975	First MABA conference, with three OBM/Systems analysis presentations.
	circa 1976	West Virginia University initiates its Community/Systems graduate training program.
	1977	*JOBM* initiated and published by Behavioral Systems Inc. Aubrey C. Daniels was Editor, Larry Miller was Managing Editor. The journal gave the name to the field of OBM.
	1977	Phillip K. Duncan joins the faculty at Drake University, establishing OBM courses and practica. He establishes and directs the Behavioral Systems Administration program.
	1978	Aubrey C. Daniels forms Aubrey Daniels & Associates.
	1978	Dale M. Brethower accepts a faculty position at Western Michigan University to behavioralize the Industrial-Organizational Psychology program.
	1979	Phillip K. Duncan organizes the first national OBM conference, held at Drake University.
	1979	MABA becomes ABA, with a special program track for Organizational Behavior Management/Behavioral Systems Analysis at its conference.
	1982	The "Organizational Behavior" Network was officially listed as a special interest group in the ABA conference program booklet.

sincerely apologize. I should also note that I have restricted my account to behavioral applications in business and industry, excluding staff management interventions in human service settings. While that exclusion is certainly arguable given the many early notable articles (e.g., Iwata, Bailey, Brown, Foshee, & Alpern, 1976; Kreitner, Reif, & Morris, 1977; Montegar, Reid, Madsen, & Ewell, 1977; Panyan,

Boozer, & Morris, 1970; Pomerleau, Bobrove, & Smith, 1973; Quilitch, 1975; Welsch, Ludwig, Radiker, & Krapfl, 1973), I needed to limit the scope of this paper, both because of length and because I do not have the personal knowledge or background to provide an accurate history of that area. The history of OBM interventions and their recent contributions to services for individuals with disabilities can be found in a recent special ssue of *JOBM,* edited by Dennis Reid (1998). It is an excellent work and I highly recommend it.

THE PRECURSORS: THE 1950s

OBM is a specialization within behavior analysis, and as such, any historical account of its development must begin with B. F. Skinner. Not only did Skinner provide us with the theoretical and empirical foundations of behavior analysis (e.g., Ferster & Skinner, 1957; Skinner, 1938, 1957, 1969, 1971, 1972, 1974), but in his highly influential book, *Science and Human Behavior,* he also provided an astute analysis of work behavior and economics (Skinner, 1953). The following selected subtitles from Chapter 25, Economic Control, speak to the comprehensiveness of this analysis: Reinforcing behavior with money, Wage schedules, Differential reinforcement of quality of work, Extra-economic factors, The economic value of labor, The economic value of goods, and "Economics" (economic theory). Students of OBM would be well-served to read this original account. Also, during the 1950s, Skinner turned his attention to education, publishing two widely read articles about programmed instruction (Skinner, 1954, 1958), and, in 1961, along with Holland, the first programmed text, *The Analysis of Behavior* (Holland & Skinner, 1961). Describing the events that led to Skinner's interest in education, Bjork (1993) states: "Armed with his behavioral science, he had a revelation that there had to be a better way to teach . . . " (p. 170) and soon thereafter referred to his work as a "revolution in American education" (p. 170).

The aforementioned publications, along with Skinner's related work at Harvard University, spawned the programmed instruction movement. Skinner pieced together grant funds and assembled a group of professionals and students to work with him, among them Jim Holland, Lloyd Homme, and Susan Meyer (Markle) (Bjork, 1993; Skinner, 1983; Vargas & Vargas, 1992), all of whom became legends in behavior analysis and instructional design. In addition, Tom Gilbert

spent a year at Harvard in 1958 as a fellow. Gilbert read *The Behavior of Organisms* (Skinner, 1938) around 1955 while he was an assistant professor at the University of Georgia, and, in an unpublished autobiography, stated ''I've never been the same since'' (Gilbert, 1994).

Vargas and Vargas (1992) capture the zeitgeist of the time in their article of the history of programmed instruction: ''An extraordinary excitement permeated the beginning of programmed instruction (PI) and its corollary tool, the teaching machine'' (p. 33). Many quickly saw the merits of programmed instruction not only for education but also for training, and programmed instruction soon became the first organized application of behavioral principles in the work place. Firms emerged to meet the training demands of both the military and business: Among the early entrepreneurs were Lloyd Homme, Francis Mechner and David Padwa (Vargas & Vargas, 1992). At approximately the same time, centers for programmed instruction were formed at Harvard, Columbia, and the University of Michigan (Vargas & Vargas, 1992). The Center at the University of Michigan became particularly important to the development and expansion of OBM (Connellan, 1978), and I will return to it shortly. For a more complete treatment of programmed instruction and its enduring effect on training and education, as well as a more detailed treatment of this remarkable period at Harvard, readers are encouraged to read Vargas and Vargas' (1992) historical account, Bjork's (1993) biography of Skinner and the third volume of Skinner's autobiography (1983).

Aside from programmed instruction, applications of behavioral technology in clinical, human service, and school settings predated applications in business and industry (Frederiksen & Johnson, 1981; O'Brien & Dickinson, 1982). Thus, another precursor to OBM was the advent of behavior modification, or applied behavior analysis as it is now called. Applied behavior analysis was heralded in 1959 by publication of what many consider to be the first applied article in the field of behavior analysis: ''The psychiatric nurse as a behavioral engineer,'' authored by Ted Ayllon and Jack Michael (B. Hopkins, personal communication, April, 1995). This article was significant for a number of reasons. First, it demonstrated to those within the field that the science of behavior could be successfully applied outside of the laboratory; that is, in the absence of laboratory recording and programming apparatus that insured precision and reliability (Michael, 2000). Prior to this time, many laboratory scientists strongly discour-

aged, or at the very least criticized, such applications. They believed that the development of our new science required a degree of experimental rigor that was not possible in the "real world" and hence, that applied work was not only fruitless but dangerous as it would compromise the *science of behavior.* Ayllon and Michael's methodology could well be criticized, but their work occurred prior to the development of our applied research methodology, and no doubt served as an impetus for it. Those flaws notwithstanding, Ayllon and Michael authored the first widely-read article that validated the extensions of behavioral principles to human behavior that Skinner (1953) conceptualized in *Science and Human Behavior.*

The "Psychiatric Nurse" article was also significant because Ayllon and Michael extended the principles not just to arbitrary and easy-to-observe behaviors, as their predecessors had done, but to socially important behaviors (B. Hopkins, personal communication, February, 2000; Michael, 2000). Moreover, they targeted enough different kinds of behaviors that their work held out promise that perhaps all human behaviors could indeed be significantly altered by application of the principles of behavior. Hopkins stated, "The first contribution alone would have been a good one. The two together were imperative for applied behavior analysis" (B. Hopkins, personal communication, February, 2000).

According to Michael (Michael, 2000), Ayllon's work at Saskatchewan Hospital in Weyburn, Saskatchewan, which culminated in this joint publication, was important for two other reasons as well. It showed that the behavioral principles governing the activities of the psychotic patient were the same as those governing the activities of "normal" individuals, and also strongly suggested that many abnormal behaviors were developed and controlled by positive reinforcement rather than by aversive control contingencies, which was the prevailing conceptual analysis of such behaviors at the time (Michael, 2000). Ayllon continued this work, publishing many similar subsequent articles (e.g., Ayllon, 1963; Ayllon & Azrin, 1965; Ayllon & Haughton, 1962, 1964; Ayllon, Haughton, & Hughes, 1965; Ayllon, Haughton, & Osmond, 1964; Holtz, Azrin, & Ayllon, 1963). Thus, not only did Ayllon's initial work set the stage for applied behavior analysis in general, it specifically extended applications of behavior analysis to the "mentally ill."

While others around the country were conducting "behavior modi-

fication'' projects and studies in response to the publication of *Science and Human Behavior* (Skinner, 1953), Ayllon and Michael's article is representative of the groundbreaking work done by Michael's students at the University of Houston. In addition to Ted Ayllon, these students included Pat Cork, John Mabry, Sam Tombs, and Mont and Sandy Wolfe, all of whom became distinguished applied behavior analysts. Because of Michael's influence on these and other students and their influence on others, Hopkins has referred to Michael as ''the father of behavior modification,'' and hence ''the grandfather of OBM'' (B. Hopkins, personal communication, April, 1995).

OBM GETS STARTED: THE 1960s

Articles

Performance management articles appeared during the 1960s. Aldis (1961) wrote about the potential use of reinforcement schedules in industry in his article ''Of Pigeons and Men,'' which was published in the *Harvard Business Review.* Many view this article as the first actual OBM article. Ulrich, Stachnik and Mabry (1966), in their book *Control of Human Behavior,* included the article along with two others (Hughes & McNamara, 1966; Lindsley, 1966), in their chapter, ''Modification of Behavior in Industry and Advertising.'' Given the popularity of this early book within the behavioral community, that chapter no doubt served as a catalyst for subsequent applications. Significantly, that same year, Brethower and Rummler (1966) published the first article that provided actual case studies. Of the early articles, Nord's (1969) theoretical article, ''Beyond the teaching machine: The neglected area of operant conditioning in the theory and practice of management,'' appears to have had the greatest general impact, as indicated by a survey of OBM professionals in 1980 (Frederiksen & Lovett, 1980). It is interesting to note, that with the exception of the articles in *Control of Human Behavior* (Ulrich, Stachnik, & Mabry, 1966), these early articles were published in business, rather than psychology, media.

Events

Influential events during this time included (a) the formation of the National Society for Programmed Instruction, (b) work at the Univer-

sity of Michigan, most notably the work begun in Language Lab and the Institute for Behavioral Research and Programmed Instruction and continued in the Center for Programmed Learning for Business and the Center for Research on Learning and Teaching, (c) Ed Feeney's initial work at Emery Air Freight, and (d) Tom Gilbert's creative work in instructional design and performance engineering.

The National Society for Programmed Instruction

In 1962, the National Society for Programmed Instruction (NSPI), now the International Society for Performance Improvement (ISPI), was initiated by behavior analysts and instructional designers who valued a behavioral approach or whose approach was consistent with it. Founded 12 years before the Midwestern Association for Behavior Analysis (later ABA), NSPI can be considered the first professional organization devoted to the advancement of behavioral applications. Early members included Dale Brethower, Don Bullock, Bill Deterline, Tom Gilbert, Jim Holland, Robert Mager, Susan Meyer-Markle, Geary Rummler, Gabe Ofiesh, Charlie Slack and Don Tosti. While most "NSPIers" wrote instructional programs in other areas (e.g., education, rehabilitation), some did concentrate their efforts in business and industry. Over the years, the focus of the organization expanded to include the design of instructional systems, performance management and systems analysis. This expansion gelled into a comprehensive, cohesive approach to performance improvement called Human Performance Technology. Many "OBMers" remain affiliated with this organization, whose membership now numbers over 10,000 worldwide. Dale Brethower, the 1999 President of ISPI, Richard Battaglia, Executive Director of ISPI, and Maria Malott, Executive Director of ABA, are currently leading efforts to form a strategic alliance between ISPI and ABA, an alliance that could only benefit both organizations (Brethower, 1998).

University of Michigan, Dale M. Brethower, and Geary A. Rummler

The field of OBM was greatly influenced by work that occurred at the University of Michigan between 1961 and 1969. There, programmed instruction led to "performance-based training." Perfor-

mance-based instruction, in turn, led to instructional systems design and behavioral systems analysis which included the concept of organizations as adaptive systems (D. Brethower, personal communication, August, 1999; G. Rummler, personal communication, August, 1999). Moreover, not only did the University of Michigan faculty and students make substantial contributions to the field, but many who attended the workshops they conducted did as well.

The history at Michigan is complex, and involves relationships and overlapping personnel in three university units (Department of Romance Languages which housed the Language Lab and Center for Research on Learning and Teaching, the School of Education which housed the Reading Service, and the School of Business which housed the Center for Programmed Learning for Business) and a private institute funded by Chester Electronics (the Institute for Behavioral Research and Programmed Instruction) (G. Rummler, personal communication, August 1999). The Michigan faculty and staff responsible for championing the work at Michigan included Rand Morton (a Harvard Ph.D. in the Department of Romance Languages), Don Smith (Head of the Reading Service in the School of Education), and George Odiorne (School of Business).

Morton joined Michigan as head of the Language Lab in 1959. In 1960, he received funds from the Office of Education to develop "audio-lingual programming" in several languages. Harlan Lane, also a recent Harvard Ph.D. graduate, accepted a position in the Department of Psychology the same year, and recommended that Dale Brethower be invited to join the Language Lab staff. Brethower, who, as an undergraduate was first exposed to behavior analysis by Jack Michael at the University of Kansas, had recently received his MA at Harvard. Brethower accepted the invitation and continued his graduate training at Michigan. Rummler, a student at Michigan and a personnel assistant in the Office of Research Administration, was asked to audit the funds at the Language Lab. Rummler met Morton and Brethower during these inquiries. In 1961, Morton created the Institute for Behavioral Research and Programmed Instruction (IBRPI) and, shortly thereafter, moved the government contract work as well as the personnel from the Language Lab to IBRPI. Rummler, who by then had completed an MBA, became the business manager of IBRPI and arranged for Odiorne to become a member of its advisory board. Odiorne soon recognized the potential of programmed instruction for

business. Odiorne and Rummler began offering a seminar entitled ''Teaching Machines for Business and Industry'' through the School of Business. Based on the success of that seminar, Odiorne and Rummler began offering similar workshops through IBRPI. Brethower wrote the instructional materials used in these workshops.

In June of 1962, Michigan's Office of Research Administration moved the government language programming contracts back to Michigan facilities (Brethower continued to work on those projects as well as working at IBRPI). Meanwhile, Chester Electronics withdrew funding from IBRPI and, to quote Rummler, ''Everybody out of work!'' (G. Rummler, personal communication, August, 1999). Odiorne negotiated with Chester, purchasing certain workshop assets and, together with Rummler, formed the Center for Programmed Learning for Business (CPLB) in the School of Business. The Programmed Learning workshops were conducted every month for the next 20 years. Other workshops were added, including Applied Learning Theory and Training Systems, which were designed by Brethower, Rummler and Don Smith. Brethower's ''Total Performance System'' (Brethower, 1972, 1982) formed the conceptual framework for the Training Systems workshop. Moreover, the workshop material represented the first application of Rummler's (Rummler & Brache, 1990) ''Three Levels of Performance'' (the organizational level, the process level, and the job level) (G. Rummler, personal communication, August, 1999). Over the years, the CPBL workshop staff included Karen Brethower, George Geis, David Markle, Carl Semmelroth and Don Smith, all of whom were key players in this formative period. In addition, Tom Connellan, who wrote one of the early books in OBM, *How to Improve Human Performance: Behaviorism in Business and Industry* (1978), was one of Rummler's graduate assistants.

Geis, who served as a CPBL ''guest lecturer'' for years, joined the Michigan Department of Psychology about 1963, the same year that Morton left. He was also affiliated with the Center for Research on Learning and Teaching (CRLT) and ran instructional design workshops for Michigan faculty. Brethower and Rummler, along with others, served as workshop leaders for these seminars as well as for those offered through CPBL. In the early 60s, Brethower also joined the Reading Service in the School of Education and became its Head during the mid 60s. Thus, while at Michigan, Brethower was a ''ring leader'' in all of the major units: the Language Lab and CRLT in the

Department of Romance Languages, the privately funded IBRPI, the CPBL in the School of Business and the Reading Service in the School of Education.

Dick Malott, Western Michigan University, began collaborating with Brethower and others at Michigan in the mid to late 60s. Malott's early interest in systems analysis was very consistent with the approach developed and advocated by the Michigan group. Moreover, his association with Brethower led to the publication of Brethower's (1972) *Behavioral Analysis in Business and Industry: A Total Performance System.* This first text in behavioral systems was published by Behavaiordelia, Kalamazoo, MI. Malott was a driving force behind this firm, a firm that published many early texts in behavior analysis (e.g., Maley & Harshbarger, 1974; Malott, 1972, 1973; Malott, General, & Snapper, 1973).

In 1967, Rummler and the CPBL staff organized the first Business and Industry track at the annual NSPI conference (G. Rummler, personal communication, August, 1999). The presenters were graduates of the CPBL workshops. Prior to this, the majority of presentations at NSPI focused on educational, military and health applications. Rummler was elected president of NSPI in 1968.

Workshops continued to be offered through Michigan's CPBL until 1969 when Rummler left to form Praxis Corporation, a consulting firm, with Tom Gilbert. Odiorne left Michigan a year earlier, in 1968 to become Dean of the School of Business at the University of Utah and when Rummler left, the School of Business closed down CPBL. However, the Business School continued to sponsor the Programmed Learning workshops. Brethower also left Michigan in 1969, accepting a faculty position at Cleveland State University.

Rummler reflected that the IBRPI "was just the start, the thing that brought us all together and got us started" while the "core of the work was driven by the workshops we were developing and running at CPLB" (G. Rummler, personal communication, August, 1999). When Brethower talked about his early years at Michigan, he indicated that the "fun" was not creating programmed instructional materials per se, but rather using behavioral principles to develop complex repertoires and teaching others to do so (D. Brethower, personal communication, April, 1995). At the time, critics of behavior analysis claimed that while behavioral principles could be used to train a rat to press a lever, they were too simplistic to teach or account for complex human reper-

toires. Performance-based programs for second languages, business writing, listening, trouble-shooting complex production machines, basic concepts in mechanical engineering, basics of supervision, and other topics involving complex repertoires were developed by the Michigan group and workshop attendees. In addition, of course, it was at Michigan that Brethower extended his analysis to organizational systems and developed his Total Performance System. It was to be many years before behavior analysts recognized its importance and the importance of systems analysis in general.

While it is certainly the case that many individuals contributed to the work at Michigan, the alliance between Brethower and Rummler formed the solid core. Brethower credits Rummler for what he knows about business, and Rummler credits Brethower with what he knows about behavior (D. Brethower, personal communication, April, 1995; G. Rummler, personal communication, August, 1999). Each has made important individual contributions, nonetheless, the similarity of their work is not coincidental.

Edward J. Feeney

Ed Feeney, who was at the time a Sales Manager for Emery Air Freight, attended one of the University of Michigan workshops in the mid 60s. He designed a programmed instruction sales training package for Emery which led to substantial improvements in sales. Based on this success, Feeney was promoted to Vice President of Systems Performance. Feeney returned to Michigan's CPBL and attended the Management of Behavior Change workshop. Following this workshop, Feeney installed behavioral systems throughout Emery that produced a two million dollar increase in annual profits (O'Brien, Dickinson, & Rosow, 1982, p. 459). Feeney widely publicized his successes (At Emery Air Freight Positive Reinforcement Boosts Performance, 1973; Business, Behaviorism and the Bottom Line, 1973; Conversation with B. F. Skinner, 1973; Laird, 1971; New Tool: "Reinforcement for good work, 1971; Performance Audit, Feedback, and Positive Reinforcement, 1972; Where Skinner's Theories Work, 1972) and captured the attention of the business community (O'Brien & Dickinson, 1982). According to Frederiksen and Johnson (1981): "Although certainly not the first systematic application of operant principles in

business, it probably remains the most widely publicized. As such, it has opened the door for the widespread application of OBM'' (p. 72).

In 1973, Feeney founded Edward J. Feeney & Associates, a business consulting firm. This firm was one of the first major behavioral consulting firms, and advanced the field of OBM by disseminating behavioral technology to hundreds of businesses and corporations. Moreover, at a time when detailed descriptions of behavioral applications were rare, Feeney and his consultants contributed a number of articles (Abernathy, Duffy, & O'Brien, 1982; Brand, Staelin, O'Brien, & Dickinson, 1982; Bushhouse, Feeney, Dickinson, & O'Brien, 1982; Crawley, Adler, O'Brien, & Duffy, 1982; Feeney, Staelin, O'Brien, & Dickinson, 1982) to *Industrial Behavior Modification* (O'Brien, Dickinson & Rosow, 1982), one of the first OBM handbooks. The articles also serve as excellent examples of the stellar work of Feeney and his colleagues.

Thomas F. Gilbert

Tom Gilbert was one of the early entrepreneurs in instructional design. In 1959, after his year at Harvard with Skinner, Gilbert established his first business, Educational Design of Alabama. He developed a method for designing instructional systems which he named "mathetics," and, in 1962, initiated the *Journal of Mathetics.* Although only two volumes were published, the principles Gilbert advanced in that and subsequent publications revolutionized the design of training. Dean (1996) states:

> If you met Tom Gilbert, you were likely never to forget him. He was brilliant, blunt, and charming. His ways were those of one who had his own ideas and wanted to share them. He pioneered a path where there was none and thus left a trail for the rest of us. Hundreds of thousands of people use his ideas regardless of whether they know it. Ron Zemke once said, "If you're in the training business, even if you've never heard of Tom Gilbert, his ideas affect the way you work." (p. 9)

Gilbert met Rummler in the late 60s, conducted a workshop for the Michigan CPLB staff and made several "cameo" appearances there over the next two years (G. Rummler, personal communication, August, 1999). Shortly thereafter (in 1967 according to Gilbert, in 1969

according to Rummler), Gilbert and Rummler founded Praxis Corporation, a Manhattan-based consulting firm, devoted not only to training but to performance management, or what Gilbert referred to as performance engineering. In 1978, Gilbert published *Human Competence: Engineering Worthy Performance,* and "created the field and form of performance technology" (Lindsley, 1996, p. 15). His concepts and terms have permeated our field and become standard tools and terminology: performance engineering, accomplishment vs. behavior, the behavior engineering model, PIPs (potential for improving performance), and the ACORN troubleshooting test, to name a few. Because of his innovations, Gilbert was among the first group of ten individuals, along with Skinner, to be recognized by ISPI as Honorary Life Members. In 1996, a year after Gilbert died, ISPI published a tribute edition of *Human Competence.* The edition included tributes to Gilbert from over 40 individuals, among them many giants themselves: Dale Brethower, Don Cook, William Deterline, George Geis, Joe Harless, Roger Kaufman, Ogden Lindsley, Bob Mager, Stuart Margulies, and Sivasailam Thiagarajan. Only by reading these tributes can you truly appreciate Gilbert's legacy. O'Brien (1996) best summarizes the impact that Gilbert had on OBM: "There might have been a field of organizational behavior management without Tom Gilbert, but it would not be very good, and doing it would not be nearly as much fun" (p. 31).

OBM TAKES ROOT: THE 1970s

Articles

Articles appeared with increasing frequency during the 1970s, reflecting the increased interest and activity in OBM. Whereas fewer than 10 or so articles were published in the 1960s, more than 45 had been published by 1977, the year that *JOBM* was initiated. I stopped listing published articles after *JOBM* in Table 2 because they became too numerous to cite. Many of the individual articles are meritorious and together they demonstrated that our science could be applied effectively in complex organizations.

In addition to publications of Feeney's work at Emery Air Freight, the works of Clay Hamner, Fred Luthans, Robert Kreitner, and Tom

Mawhinney were particularly influential in extending the audience for operant intervention (e.g., Hamner, 1974; Hamner & Hamner, 1976; Kim & Hamner, 1976; Kreitner, 1975; Luthans, 1973; Luthans & Kreitner, 1973, 1974; Luthans & Lyman, 1973; Luthans & Martinko, 1976; Luthans & Ottemann, 1973; Luthans & White, 1971; Mawhinney, 1975; Mawhinney & Behling, 1973). All of these individuals translated management problems and theories into the terminology and perspective of applied behavior analysis, primarily targeting business people and the academic business community. Applied experimental articles appeared as well in both business and psychology journals (e.g., Adam, 1975; Gupton & LeBow, 1971; Kim & Hamner, 1976; Marholin & Gray, 1976; Orphen, 1974; Pedalino & Gamboa, 1974). Notably, the first private sector OBM article to be included in the *Journal of Applied Behavior Analysis* was published in 1973, authored by Hermann, deMontes, Dominguez, Montes, and Hopkins. In 1974, Parsons published his reanalysis of the Hawthorne studies in *Science,* an article that has great historical significance. The Hawthorne studies were and still are widely regarded ''to be the greatest single episode in the formation of industrial psychology'' (Muchinsky, 2000, p. 15). Parsons exquisitely argues that the behavior changes at Hawthorne resulted from operant reinforcement contingencies, specifically feedback and financial incentives, dispelling prior misconceptions that the changes were due to, among other things, worker attitudes, sympathetic supervisors, attention from management, group morale, and/or small group processes (Landy, 1989; Mayo, 1933; Muchinsky, 2000; Organ & Bateman, 1986; Roethlisberger & Dickson, 1939). The Parsons article is a ''must read'' not only for students of OBM, but for all behavior analysts and serious students of modern management as textbooks still quite routinely describe the Hawthorne studies incorrectly.

Although I stopped listing articles in Table 2 after the initiation of *JOBM,* I did include one article that appeared after that: Beth Sulzer-Azaroff's first safety article, published in *JOBM* in 1978. Sulzer-Azaroff has had an incredibly productive and distinguished career, publishing over 100 articles and book chapters and over 10 texts and monographs (e.g., Alavosius & Sulzer-Azaroff, 1990; Chase, Sulzer-Azaroff, & Well, 1983; Fellner & Sulzer-Azaroff, 1984a; Fleming & Sulzer-Azaroff, 1992; Gillat & Sulzer-Azaroff, 1994; Johnson & Sulzer-Azaroff, 1975; Sulzer & Mayer, 1972; Sulzer-Azaroff & Mayer,

1977, 1983, 1991; Sulzer-Azaroff, Mayer, & Cody, 1968; Sulzer-Azaroff & Reese, 1982; Zane, Sulzer-Azaroff, Handen, & Fox, 1982). Most impressively, she has published in prestigious journals not only within behavior analysis but in many other disciplines as well, disseminating behavioral technology to a wide array of professional user groups. Her impact on the general field of behavior analysis, education, the human services and OBM runs both deep and wide. I did not mention her as an early OBM pioneer only because I end the present chronology with the 70s and most of her work in OBM began circa the early 80s (B. Sulzer-Azaroff, personal communication, April 1995). Nonetheless, her early work in safety and her continued dedication to that work as well as to OBM in general has certainly shaped our current field.

Sulzer-Azaroff studied OBM while on sabbatical leave from her faculty position at the University of Massachusetts in the early 80s and also attended workshops offered by the consulting firm of Aubrey Daniels & Associates. The relationship was mutually beneficial as she was hired as a technical advisor to critique the workshops. In turn, she attributes her business acumen to Aubrey Daniels (B. Sulzer-Azaroff, personal communication, April 1995). In short order thereafter, Sulzer-Azaroff was teaching courses in OBM, conducting research, consulting, and, of course, writing articles. Her work in safety predated her general interest in OBM. She cites Bill Hopkins as an early influence (B. Sulzer-Azaroff, personal communication, April 1995). In the late 60s, they conducted workshops for teachers together and he interested her in the OBM work that he was doing at the time. In the mid-seventies when Ed Feeney called Hopkins requesting his help with experimental design issues, Hopkins referred him to Sulzer-Azaroff, who lived closer to Feeney than did Hopkins. As a result of working with Feeney, Sulzer-Azaroff learned more about business. As indicated earlier, Sulzer-Azaroff's first safety article appeared in *JOBM* in 1978. Many have followed; too many for complete citation. I will, therefore, reference some (only some) of her early articles as an indication of her influence, although I cannot help mentioning one of my recent favorites, Sulzer-Azaroff's 1998 book, *Who Killed My Daddy: A Behavioral Safety Fable* (e.g., Alavosius & Sulzer-Azaroff, 1985, 1986; Fellner & Sulzer-Azaroff, 1984b, 1985; Fox & Sulzer-Azaroff, 1987; Sulzer-Azaroff, 1982, 1987, 1992; Sulzer-Azaroff & deSantamaria, 1980; Sulzer-Azaroff & Fellner, 1984; Sulzer-Azaroff,

Loafman, Merante, & Hlavacek, 1990). There is no doubt that Sulzer-Azaroff set the standard for behavioral safety programs in her work and writings. Moreover, she is the undisputed leader in the promotion and advancement of behavioral safety in both the academic and general business community.

Books

Along with the flurry of articles came books. Mager and Pipe's *Analyzing Performance Problems or 'You Really Oughta Wanna'* was printed in 1970. Emphasizing that training was not always the solution to performance problems, they provided a diagnostic flow chart to determine the cause of problems so that the appropriate "remedy" could be implemented. While the book was targeted to a general audience, many of their examples were from business. The first behavioral systems text, Brethower's (1972) *Behavioral Analysis in Business and Industry: A Total Performance System,* followed shortly thereafter. A second behavioral systems book, authored by Roger Maley and Dwight Harshbarger, was published in 1974, *Behavior Analysis and Systems Analysis: An Integrated Approach to Mental Health.* Although targeted to the human services, this text introduced many students of behavior analysis to a systems approach. In 1975, as part of their management application series, Scott, Foresman and Company published Luthans and Kreitner's *Organizational Behavior Modification.* The authors state: "This book is the first to comprehensively integrate operant learning theory and the principles of behavior modification with the management field of organizational behavior" (p. 186). Brown and Presbie's *Behavior Modification in Business, Industry and Government* was printed in 1976. Brown and Presbie, both professors at the State University of New York at New Paltz, wrote this resource guide in response to increasingly strong interest among their students (some of them supervisors and managers) to use behavior modification in the work place. The guide included an extensive reference list of articles and books, related not only to business and government but to other areas as well (school, human service settings, institutional settings, social work, nursing and medicine, and speech therapy). This guide served as a precursor to Brown's (1982) later book, *Managing Behavior on the Job,* which was also targeted to supervisors and managers.

Rounding out the books in the 1970s were Tom Connellan's *How to*

Improve Human Performance, Tom Gilbert's *Human Competence,* and Larry Miller's *Behavior Management,* all published in 1978. I have previously addressed the importance of *Human Competence* and thus will not repeat myself here. The author of *Behavior Management* (1978a), Larry Miller, along with Aubrey Daniels and Fran Tarkenton, was a principal in Behavioral Systems, Inc., a behavioral consulting firm formed in 1971. His book was a rich source of case studies addressing a variety of organizational performances including quality, attendance, safety, labor efficiency, sales and sales forecasting.

Although I am not extending other aspects of this chronology into the 1980s, I do want to mention three books that were published in 1982, in addition to Brown's *Managing Behavior on the Job,* which I noted earlier. Similar to Brown's book, Daniels and Rosen's text, *Performance Management,* was written for managers and supervisors. The book, now solely authored by Daniels (1989), is in its third edition and a new one is forthcoming. Although written for a business audience, it has been adopted in many university classrooms over the years as well. Two handbooks, one edited by Frederiksen and the other by O'Brien, Dickinson and Rosow, were also published in 1982. Both texts are comprehensive, containing conceptual and theoretical articles as well as many exemplary applied articles. Perhaps it was that combination that accounted for their wide success and distribution, as they appealed to academics and practitioners alike. I consider many of the articles to be gems, and regret that both are now out-of-print, making the articles largely inaccessible.

Events

Many formative events occurred simultaneously during the 1970s. I have chosen to start with a description of the early work of Aubrey Daniels and Paul Brown because of the enduring influence both have had on the field of OBM.

Aubrey C. Daniels

Daniels began his interventions in business and industry in the early 70s, establishing one of the largest and most successful behavioral consulting firms. He was, therefore, responsible for disseminating behavioral technology to hundreds of business organizations when

OBM was still in its infancy. Daniels received his Ph.D. in clinical psychology from the University of Florida (in 1965) and joined the Georgia Mental Health Institute (GMHI), a mental health training facility in Atlanta, as a staff psychologist. He and his students began to use behavioral treatment methods with psychiatric in-patients. The Clinical Director at GMHI was promoted to Superintendent of the Georgia Regional Hospital (GRHA), Atlanta, and, in 1968, asked Daniels to become the Director of Psychology. While at GRHA, Daniels developed a computerized token economy program for 500 clients. Every patient had an individualized treatment program which was updated weekly on the computer. Weekly spending and earning patterns were monitored by individual and treatment unit. This was highly innovative at the time not only because of its behavioral merits but also because it predated the "computer technology revolution." In 1966, Daniels, along with colleague Dan Brown, secured funds from the National Institutes of Mental Health to organize one of the first behavioral clinical conferences. Among those presenting were Ted Ayllon, Jay Birnbrauer, Og Lindsley, Ivar Lovaas, and Halmuth Schaefer. In 1968, while still employed at GRHA, Daniels began the work that led him to business. He co-directed a grant, funded by the Georgia Department of Vocational Rehabilitation, to keep troubled youth, the so-called "behavior disordered," in school. He and his associates designed a token economy program that included contingencies to improve academic skills. While searching for materials to use, he located a firm called Learning Foundation, an organization that offered a comprehensive academic training program using teaching machines and programmed instructional materials. Fran Tarkenton (a former star quarterback for the Minnesota Vikings) owned Learning Foundation. Seeing Daniels' success with the Vocational Rehabilitation program, Tarkenton asked Daniels to help with some problems that another one of his companies, Industrial Education Development Corp. (IED), was experiencing. The firm specialized in finding jobs for the "hard-core unemployed." IED had secured several contracts with the National Alliance of Businessmen that administered a US Government funded program called "JOBS 70s." The goal of the program was to get industry to hire the hard-core unemployed. Most of the clients were minorities who had poor work histories and needed special assistance and support to be employable (medical treatment, child care, skill training and training in personal work habits). Because

the government paid all the costs of recruiting and training the new employees, the program was quite attractive to companies, particularly those that were having difficulty hiring and retaining workers. For example, in the textile industry, turnover rates of over 200% were common, and several plants readily participated in the JOBS 70s program. IED was very successful in finding and training clients, but when they were placed in organizations, a very large percentage were promptly fired by the supervisors. IED was paid for the length of time people were employed and Daniels was asked to develop a way to increase attendance and reduce turnover. According to Daniels (personal communication, September, 1999), the model was simple: Supervisors were trained to graph individual and group performance and to increase positive reinforcement for performance improvement. Not only did Daniels and his colleagues train supervisors, but they also trained employees to reinforce appropriate supervisory behavior. Within 90 days, turnover rates were reduced by more than half. Moreover, the turnover rates of IED's clients and regular hires were indistinguishable. Attendance and productivity increased significantly as well. As lamented by O'Brien (1990), few OBM practitioners have worked with employees or unions with the specific goal of altering the behavior of supervisors and managers. Daniels was one of the first to do so.

Armed with the success of the JOBS 70s program and wanting to continue that work without having to rely on government funding, Daniels and Tarkenton founded the consulting firm of Behavioral Systems, Inc. (BSI). Because absenteeism and turnover levels were unacceptable in most southern textile plants, BSI was soon working with most of the major companies. Approximately three years after BSI was created, Larry Miller, author of the book *Behavior Management* (1978a), joined the staff. The firm grew quickly, and employed over 50 consultants. In 1977, BSI published the first volume of *JOBM,* not only giving name to the journal but to our field. Daniels was the first editor and Miller was the managing editor. The initiation of *JOBM* was indeed a landmark event: *JOBM* quickly became the main outlet for behavioral interventions in organizations and it remains so today.

In 1978 Daniels left BSI and founded Aubrey Daniels & Associates (ADA). As indicated earlier, he and Rosen wrote the supervisory text, *Performance Management* in 1989. To illustrate Daniels' impact on

the business world, ADA's client list, which spans the world, includes 3M, Eastman Chemical, Xerox, AT&T, PECo Energy Co., Rubbermaid and Honeywell. Four ADA clients have received the prestigious Malcolm Baldridge Award and two have received the US Senate Productivity and Quality Award. His newest book is *Bringing Out the Best in People* (1994). Without a doubt, Aubrey Daniels was and is a "tour de force" in OBM.

Paul Brown

Similar to Daniels, Paul Brown began his interventions in business and industry in the early 70s, forming the consulting firm of Instructional Design Associates, Inc. in 1971. He remains president of that firm. Brown started his distinguished career as an experimental psychologist. He received his BA from Dartmouth where he worked with Rogers Elliot and Tom Tighe (Brown & Elliot, 1965; Tighe, Brown, & Young, 1965) and his Ph.D. from McMaster University where he studied with Herb Jenkins and Leo Kamin. The article he authored with Jenkins on autoshaping (Brown & Jenkins, 1968) remains a classic in experimental psychology and is still widely cited and discussed in learning texts (e.g., Catania, 1992; Chance, 1999; Domjan, 1993; Mazur, 1994). After obtaining his Ph.D., Brown went to Columbia University as a post-doctoral fellow where he continued his experimental work with Herb Terrace, primarily in the area of errorless learning and discrimination. During this time, he was also highly influenced by Charles Catania and Og Lindsley (P. Brown, personal communication, April, 1995). It was in the late 60s, while at Columbia, that Brown began his applied work, introducing teachers to behavior analysis. He joined the State University of New York (SUNY) at New Paltz as a faculty member in 1969, and started his productive association with Robert Presbie. Not only did he and Presbie conduct workshops for over 10,000 teachers in the state of NY, but they were prolific authors (Brown, 1974; Brown & Presbie, 1974; Buckalter, Presbie, & Brown, 1974; Presbie & Brown, 1973, 1974, 1976, 1977). Brown was an innovator in the classroom as well. In 1974, he received SUNY's Chancellor's Award for Excellence in Teaching and, well before "distance education" became popular, developed one of the first college-level television courses that students could complete in their own homes for college credit.

It was Brown's teaching that led him to business and industry. At

the start of the decade, IBM employees enrolled in his graduate level behavior modification course and sought his help in applying this technology at work. During this time, Brown also arranged for students to complete programmed instructional materials using computers located at IBM's Poughkeepsie office. IBM invited him to participate in their management development program and he was soon offering workshops to over 1,000 IBM employees each year. Other clients followed. Brown and Presbie (1976) wrote *Behavior Modification in Business, Industry, and Government* to use in their classrooms and workshops. As mentioned earlier, this resource guide served as the basis for Brown's (1982) later book, *Managing Behavior on the Job,* and subsequently for *People Management* (Brown, 1988) which was published and distributed by the major consulting firm of Kepner-Tregoe. Both Brown and Presbie served on the original Board of Editors for *JOBM* and continue that membership today.

Brown left his full-time university position in 1982 to devote more time to his consulting activities, however, he remained an adjunct faculty member at SUNY, New Paltz. His recent efforts have centered around a suite of workshops entitled ''Coaching for Team Effectiveness'' (Brown, 1992). In addition to IBM, his clients have included American Express, Procter, General Electric, Bell Atlantic, Kroger, 3M, Dow Chemical, LEGO, LensCrafters and Philips. In addition to serving as President of Instructional Design Associates, Inc., he is also Vice-President of The Continuous Learning Group, a behavioral consulting firm that is part of Century Business Services. His continued influence on the development and dissemination of OBM cannot be overstated.

Academic Training Programs

Although there were no formal training programs in OBM until the late 1970s, individual faculty members at several universities were offering courses that were devoted or partially devoted to OBM. Many were also conducting research and directing projects in business settings. These faculty had considerable influence on students and hence the OBM field as we know it today. I am sure I am going to miss a few individuals, but among them were Chris Anderson and Charles Crowell at Notre Dame, Frank Andrasik at SUNY, Albany, Milton Blood and Judi Komaki at Georgia Institute of Technology (Komaki later at Purdue), Dale Brethower at Cleveland State, Paul Brown and Robert

Presbie at SUNY, New Paltz, Lee Frederiksen at Virginia Polytechnic Institute and State University, Bill Hopkins at University of Kansas, Robert Kreitner at Arizona State University, Gary Latham at University of Washington, Fred Luthans at the University of Nebraska, Bill Scott and Tom Mawhinney at Indiana University (Mawhinney, later at Butler University), and Beth Sulzer-Azaroff at the University of Massachusetts.

In addition to these individual efforts, there were two early behavioral training programs that emphasized systems analysis, one at Western Michigan University and the other at West Virginia University. Several of the faculty and graduates of these programs specialized in OBM or did so eventually. At Western Michigan, Dick Malott initiated and championed systems analysis training in both the undergraduate program and the applied behavior analysis graduate program. Later, in 1978, Dale Brethower joined Western Michigan to behavioralize the already-existing master's program in industrial/organizational psychology and contribute to doctoral training in OBM. Today, these programs (the Applied Behavior Analysis and the Industrial/Organizational psychology) are among the very few to offer private sector OBM training from a completely behavioral orientation.

West Virginia initiated a graduate program in Community/Systems about 1976 (Hawkins, Chase, & Scotti, 1993). While the program focused on applications in mental health settings, the faculty were very instrumental in promoting behavioral systems in the private sector as well (e.g., Krapfl, 1981/1982; Krapfl & Gasparotto, 1982; Maley & Harshbarger, 1974). Moreover, several of the faculty, Dwight Harshbarger, Jon Krapfl, and Jim Noah, expanded their work to the private sector, eventually leaving the university to do private consulting. The Community/Systems program was terminated around 1980, but many students and faculty retained their interest in behavioral systems analysis (Hawkins, Chase, & Scotti, 1993). The behavioral consulting firm, Continuous Learning Group (CLG), grew out of this continued interest. Hawkins, Chase and Scotti (1993) detail these events. Phil Chase and Bill Redmon, who were both interested in systems analysis, joined the West Virginia faculty in 1981. Chase contacted Jack Byrd, the Chair of Industrial Engineering, who had established the Center for Entrepreneurial Studies and Development (CESD), a university-affiliated consulting firm. An undergraduate

practicum was arranged for Julie Smith. Smith continued to work at CESD while completing her Ph.D., and then joined the staff as Deputy Director. Smith influenced the hiring of Leslie Wilk, who completed her Ph.D. at Western Michigan University. Wilk's advisor at Western was Bill Redmon, who had left West Virginia to join Western's faculty in 1986. Subsequently, Smith and Wilk along with a business partner, founded their own consulting firm, CLG. The firm was originally based in Morgantown, WV, and is now based in both Morgantown and Pittsburgh, PA. CLG has continued to grow, and currently employs over 90 full-time consultants and alliance partners throughout the United States. Their clients represent a variety of industries and range from small businesses to Fortune 500 companies. As from their start, they provide practica and internships for students as well as consulting opportunities for behavior analysts.

An academic accounting would not be complete without mention of Phillip K. Duncan (e.g., Bruwelheide & Duncan, 1985; Duncan & Bruwelheide, 1985/1986; Duncan & Lloyd, 1982; Johston, Duncan, Monroe, Stephenson, & Stoerzinger, 1978; Silva, Duncan, & Doudna, 1981), who has not only mentored OBM students throughout his career, but who has been one of OBM's most staunch supporters and dedicated shapers. In the late 1970s, Duncan joined Drake University's stellar master's program in behavior analysis to establish OBM courses and internships. There, he directed a program called Behavioral Systems Administration. Also, while at Drake, Duncan organized the first national OBM conference, which occurred as the 2nd Drake Conference on Professional Issues in Behavior Analysis in 1979 (P. Duncan, personal communication, April, 1999; W. S. Wood, personal communication, April, 1995). Presenters included Dale Brethower, Lee Frederiksen, Tom Gilbert, Judi Komaki, Fred Luthans, Jon Krapfl, Larry Miller and Robert Kreitner. Conference papers were later published in a special issue of *JOBM* that Duncan edited (Duncan, 1981/1982). Duncan left Drake in 1983 as it began to lose its behavioral focus, and is now at West Chester University in West Chester, PA, where he continues to teach OBM, direct OBM projects and mentor students within an eclectic program. His influence has always been strongly felt, both because of his constant promotion of OBM and the quality of his students.

Journal of Organizational Behavior Management

As indicated earlier, the birth of the *Journal of Organizational Behavior Management (JOBM)* was a landmark event in the field. In 1977, the consulting firm of BSI published the first volume of *JOBM,* with Aubrey Daniels serving as editor and Larry Miller serving as managing editor. Twenty-five individuals, who comprise a ''who's who'' list of OBM innovators, served on the first Board of Editors. Among them were Ted Ayllon, Milton Blood, Paul Brown, R. Vance Hall, Clay Hamner, Bill Hopkins, Robert Kempen, Judi Komaki, Robert Kreitner, Gary Latham, Fred Luthans, Dick Malott, Tom Mawhinney (the current editor of *JOBM*), Walter Nord, William Notz, Bob Presbie, Todd Risley, and Ron Zemke.

In 1978, Daniels left BSI to form Aubrey Daniels & Associates, and BSI dissolved. Larry Miller and Brandon Hall joined the phoenix firm, Tarkenton & Company (BSI was founded by Daniels and Tarkenton), and Hall assumed the editorship of the *Journal,* beginning with the third issue of Volume 1. Miller remained managing editor. Tarkenton & Company continued to publish the journal until 1980, when Hall (1980), in his editorial, welcomed Haworth Press as the new publisher. Haworth still publishes *JOBM.* Also in 1980, Miller resigned as managing editor. Hall retained editorship of *JOBM* when he moved to Wilson Learning Company in 1981, ending the *Journal's* direct ties with Tarkenton & Company. Shortly thereafter, in 1982 (with Volume 4, Issue 3/4) Lee Frederiksen, who was affiliated with the Department of Psychology, Virginia Polytechnic Institute and State University, took over as editor.

Hall, as editor from 1978 to 1982, guided *JOBM* through a somewhat chaotic period of time, championing its existence. There were production problems. Those of us who were early subscribers often waited for issues that arrived late or not at all. Indeed, the fall issue of Volume 1 (which was to have been the second issue) was abandoned due to ''the lack of articles that are both of adequate quality and relevant to the stated purpose and area of investigation of this journal'' (Miller, 1978b, np). Nonetheless, the production problems pale in comparison to the fact that BSI and Tarkenton & Company began and nursed the journal, accepting the financial and professional responsibility for it.

Frederiksen served as editor from 1982 until 1985. When Frederik-

sen became editor, he expressed concerned that much of the published work in OBM had dealt with relatively narrow aspects of the organization, that is, "on increasing the performance of a single, routine task or compliance to specific procedures or rules" (Frederiksen, 1982c, p. 2). While noting that such interventions had been tremendously successful, "they have generally not demonstrably impacted the organization as a whole. . . In short, OBM has been seen as a technique for solving isolated problems rather than as an approach to managing the human resources of the entire organization" (Frederiksen, 1982c, p. 2). In an attempt to increase the scope and therefore the impact of OBM, Frederiksen solicited discussion and conceptual articles that addressed "an ever widening range of organizational concerns," stating that under his editorship, discussion and conceptual articles would supplement, but not replace empirical investigations and case studies (Frederiksen, 1982c). The content of *JOBM* over the next three years reflected his leadership: The number of journal pages, the number of both research and discussion/review articles, and the percentage of theory-oriented versus applied articles increased (Nolan et al., 1999).

Tom Mawhinney assumed the editorship of *JOBM* in 1985, with Volume 7, and remains editor today. Mawhinney brought stability and direction to the *Journal;* his impact on the *Journal,* and hence the field, over the past 15 years cannot be overstated. Simply put, his contribution has been extremely critical to the development and maturation of OBM. In recognition of his work with the *Journal,* the OBM Network honored him with its "Outstanding Contributions" award in 1992.

When Mawhinney became editor of *JOBM,* he inherited lingering production and quality problems. Mawhinney decreased the number of issues from four to two in order to improve the quality and timing of the *Journal.* He succeeded in both respects. Mawhinney also encouraged and solicited more "academic articles" along with application articles, hoping to achieve a better balance. He believed that this new direction would enhance the reputation of the *Journal,* and thus the status and influence of OBM. His goal was to position the *Journal* among the best in organizational behavior and performance management. In the first year of his editorship, Mawhinney (1985-86, p. 3) wrote:

> The journal will be very nearly on time when this issue is printed. And the quality of submissions from researchers and writers

within our field is rising. Thus, I expect our subscribers can look forward to improving content quality in each issue and greater reliability in journal issue delivery dates. Although readers may detect a more academic slant within this issue, practitioners will learn in time that we continue to be concerned with "bottom line" issues such as productivity. However, quality academic work can, and we expect that it will, have effects upon bottom line issues in the future. Our tradition has included the important function of bridging the academic-practitioner/consultant gap. I hope we can continue that tradition with higher academic efforts and more and more effective field interventions. I believe we are already moving in these directions and need only remain committed to these goals.

Mawhinney has left his "footprint" on the *Journal.* Although the mix of research and discussion/review articles has fluctuated over the past 15 years, the balance does appear to be greater than in earlier years (Nolan et al., 1999). Additionally, in keeping with Mawhinney's goals, the percentage of theory-oriented versus applied articles has increased markedly, and the types of independent variables examined in research studies has increased (Nolan et al., 1999). Clearly, an editor of a journal does not have complete control over such data, nonetheless, his/her policy statements and actions do impact them. To encourage the submission of articles describing data-based large-scale and systems applications, in 1995, Mawhinney appointed Bill Hopkins to edit a such a series; to encourage international submissions, he asked Maria Malott to serve as an associate editor for international submissions; to cement the relationship between OBM and staff management, he invited Denny Reid to serve as an associate editor. To broaden the scope of our focus and provide consolidated sources for reference, Mawhinney initiated several special issues: Organizational Behavior Management and Statistical Process Control (Mawhinney, 1987), Promoting Excellence Through Performance Management (Redmon & Dickinson, 1990), Pay for Performance (Hopkins & Mawhinney, 1992), Organizational Culture, Rule-Governed Behavior and Organizational Behavior Management (Mawhinney, 1992), Organizational Behavior Management and Developmental Disabilities Services (Reid, 1998), and Tatics of Organizational Behavior Management Research (Ma-

whinney, 1999a). These volumes have also been published and distributed as books by Haworth Press.

In 1998, to meet submission demands, Mawhinney increased the number of issues from two to four. To enable the on-going evaluation of the manuscript submission, review and publication process, he worked with me to develop a management system that monitors the flow of manuscripts. He implemented that system earlier this year. Moreover, this past year, working closely with Haworth Press and Linda Hayes, the Director of the OBM Network, he forged the very important alliance between *JOBM* and the OBM Network (Hayes, 1999; Mawhinney, 1999).

While these formal accomplishments are impressive, there is yet another one that should be mentioned. Throughout his tenure, Mawhinney has actively encouraged students and young professionals to submit articles to the *Journal.* At times, he has vigorously solicited articles based on presentations and posters at professional conferences; at times he has served as a ''silent'' author and mentor; at times he has invited students and young professionals to co-author articles with him. Going well beyond the ''call of duty,'' he has used his position as editor to welcome and nurture our talented young professionals.

In the first issue of *JOBM's* 20th Volume, Mawhinney (2000) announced that he had invited John Austin to co-edit the *Journal* with him, and Austin had accepted. I look forward to the partnership. Mawhinney has worked tirelessly for the good of the *Journal* and the field of OBM. We owe him a debt of gratitude.

ABA and the OBM Network

To prepare this section, I reviewed the conference program booklets for the Midwestern Association for Behavior Analysis (MABA) and the Association for Behavior Analysis (ABA) (MABA became ABA in 1979). While I had program booklets for all of the conferences, I did not have program addenda which listed additions and deletions. Thus, there are, no doubt, a few inaccuracies in the following account.

MABA held its first annual conference in 1975 at the Blackstone Hotel in Chicago. There were three OBM and systems analysis presentations: (a) Fred Luthans (Leuthans [sic], 1975) chaired a symposium with Robert Otteman, Peter Van Ness and Robert Kreitner as participants; (b) Karen Brethower and Frank Petrock (1975) con-

ducted a workshop; and (c) the West Virginia University faculty (Harshbarger, Krapfl, Maley, Noah) presented a symposium on behavioral systems analysis (Maley, 1975). In 1976, four OBM symposia were presented at the conference (Anger, 1976; Komaki, 1976; Malott, 1976; Shook, 1976). Participant names are familiar, among them, Milton Blood, Aubrey Daniels, Ed Feeney, R. Vance Hall, Bill Hopkins, Robert Kempen (misspelled Kempton in the program booklet), Judi Komaki, Robert Mirman and Ed Pedalino. Two groups showed particular presence that year: the consulting firm of BSI, headed by Daniels, and the University of Kansas faculty. Commendably, the Kansas faculty and students were working with a number of companies and co-authored presentations with individuals from those organizations. Hall, Mirman, and Ritschl presented with (a) Kempen from Western Electric, (b) Sigler from Thompson-Howard Chemical Co., and (c) C. Orser and K. Orser from Shawnee Welding (Kempton [sic], Hall, & MacDonald, 1976; Kempton [sic], Mirman, Hall, Orser, & Orser, 1976; Mirman, Ritschl, Hall, & Sigler, 1976). Hopkins co-authored a paper with David Fox of Utah International, Inc. (Fox & Hopkins, 1976), work that was continued and later published in 1987 (Fox, Hopkins, & Anger, 1987). These presentations indicate that OBM was fomenting, if not thriving, at Kansas at that time. As further evidence, Hall, Hopkins, Kempen and Mirman all served on the Board of Editors of *JOBM* early on, and were early contributors to the OBM literature (e.g., Hermann et al., 1973; Hopkins & Sears, 1982; Kempen, 1982; Kempen & Hall, 1977; Mirman, 1982a, 1982b; Ritschl & Hall, 1980).

The number of OBM presentations at the conference remained relatively low until MABA was transformed into ABA. ABA held its first conference in 1979 and, that year, for the first time, presentations were listed by specialty areas and program coordinators were appointed to solicit presentations. Also, for the first time, an entire poster session was devoted to OBM. Although the OBM Network was not listed as an ABA special interest group, Lee Frederiksen chaired a meeting for those interested in OBM, which was the first such meeting held at the conference. Meetings were held thereafter, chaired by Frederiksen in 1980, Brethower and Duncan in 1981 and 1982, and Brethower in 1983, 1984 and 1985. The "Organizational Behavior" (OB) Network was formally listed as an ABA special interest group in 1982, and although Brethower and Duncan chaired the meeting at ABA, Norm

Peterson was listed as the chair of the group. Although the OB Network was listed as an ABA special interest group from 1982-1985, it was not listed as a special interest group in 1986. Nonetheless, Tom Mawhinney and I chaired an "*OBM*" special interest group meeting to discuss *JOBM* that year. The OBM Network emerged in its present form in 1987, with Bill Redmon serving as the first director. Although Mawhinney (1999b) was in error when he stated that I was elected as the OBM Network Director in 1984, he was quite correct when he said there were only a "handful" of us at the early meetings. That was certainly true in 1987. (Mawhinney's confusion is quite understandable as I was the OB program coordinator in 1984, and, as such, responsible for soliciting and scheduling presentations for the ABA conference. However, I was not the chair of the Network. I served as director of the Network later, in 1992 and 1993.) At that 1987 meeting, the OBM Network Lifetime Achievement Award was established and plans were laid for the first joint conference of the Florida Association for Behavior Analysis (FABA) and the OBM Network. I proposed that the OBM Lifetime Achievement Award be established. Bill Redmon, Tom Mawhinney and Rich O'Brien enthusiastically supported an alternate year conference, preferably some place warm (specifically, Florida) so that we could entice speakers without funding, as the Network had no money to pay speakers. Jon Bailey graciously offered to host the conference and sponsor it through FABA, an arrangement that continues today. The first FABA/OBM Network conference was held in January, 1988, at St. Petersburg, FL, and the first OBM Lifetime Achievement Award was given to Aubrey Daniels at the 1988 ABA Conference. I need not mention that the FABA/OBM Network conference has become very popular with OBMers and remains a significant event in our field.

As the field has grown, so too has our presence at ABA's annual conference. In 1999, 13 specialty areas were represented at the ABA conference. The number of presentations in each of the areas ranged from 7 to 30, the total session hours for each area ranged from 8.5 to 36.7, and the percentage of the total program accounted for by each specialty area ranged from 3% to 12% (Malott & Diener, 1999). There were 23 OBM presentations, accounting for 30 session hours and 9% of ABA's total program (Malott & Diener, 1999). It should be noted that applications in human service settings are included in the OBM figures. OBM presentations ranked sixth out of the 13 specialty areas

with respect to all three measures (number of presentations, total session hours and percentage of the total program). In addition to the oral presentations, 32 OBM posters were presented (Malott & Diener, 1999). While this number represents only 5% of the total posters, the number of OBM posters, once again, ranked sixth out of the 13 program areas. Thus, OBM is well represented at ABA, reflecting its strong presence in the field of behavior analysis.

THE BEHAVIOR ANALYTIC ROOTS OF OBM

Some historical accounts of the field of OBM have included the development of traditional management fields such as industrial-organizational psychology, organizational behavior and management science (e.g., Frederiksen & Johnson, 1981). For example, Frederiksen and Johnson (1981) cite the influence of Frederick Taylor and his principles of scientific management, Munsterberg's application of psychology to industrial settings, Fayol's and Barnard's contribution to administrative science, the Hawthorne studies, and Maslow's theory of motivation which formed the basis for Herzberg's two-factor theory of motivation and satisfaction and McGregor's Theory X and Theory Y. I have not included these influences as precursors in this account. While these events are *chronological* precursors, they are not *causal* precursors. Rather, the field of OBM developed in relative isolation from these more traditional influences, emanating primarily from Skinner's development of programmed instruction and the advent of behavioral applications in other settings. To elucidate, Brethower's work in behavioral systems analysis grew from his interest in programmed instruction and instructional systems design. Daniels began his behavioral work in a clinical setting, subsequently applying the same principles to the work setting. Brown started his career in the experimental analysis of behavior, shifted to educational and instructional applications, and then transitioned to business and industry. Similarly, Sulzer-Azaroff began her work as a behavioral specialist in education. Hopkins, whose influence has permeated the OBM field, can best be regarded as a ''generalist'' in behavior analysis: He has made major contributions not only to OBM but also to the general field of behavior analysis, creatively tackling experimental investigations, conceptual and methodological analyses, and applied work, wherever the opportunity has arisen. The main point here, however, is

that his work in OBM was and is an extension of his commitment to behavior analysis.

Certainly, scholars, such as Judi Komaki, Robert Kreitner, Fred Luthans, Tom Mawhinney, and Bill Scott, who have been schooled in traditional management and industrial/organizational psychological theory as well as in behavior analysis have impacted OBM. Not only did they expand our audience to traditional management, industrial-organizational psychology, and business, but they have also enriched and advanced our field by encouraging us to examine "traditional" management topics (i.e., job satisfaction, leadership, decision-making, business ethics, statistical process control and organizational culture and design). Nevertheless, evidence of these influences appear after the initial pioneering work. Thus, while it is certainly the case that the application of psychology to the work place predated behavioral involvement and traditional theory has expanded the scope of our study, the primary force for the development and growth of OBM did not come from the traditional fields of management and psychology; rather it came from within the field of behavior analysis.

AFTERWORD

I chose to end my chronology in the early 1980s, mentioning more recent events only to provide continuity and document enduring contributions. Many individuals that I have not mentioned have emerged as leaders during the ensuing years, and publications and events, too numerous to mention, have continued to shape and influence the field. Our field is vital and we owe that vitality to the past. With the publication of the 20th volume of *JOBM,* it is certainly time to look back and pay homage.

REFERENCES*

Abernathy, W. B., Duffy, E. M., & O'Brien, R. M. (1982). Multi-branch, multi-systems programs in banking: An organization-wide intervention. In R. M. O'Brien, A. M. Dickinson, & M. P. Rosow (Eds.), *Industrial Behavior Modification* (pp. 370-382). New York: Pergamon Press.

*Adam, E. E., Jr. (1975). Behavior modification in quality control. *Academy of Management Journal, 18,* 662-679.

*Adam, E. E., Jr. & Scott, W. E. (1971). The application of behavioral conditioning

techniques to the problems of quality control. *Academy of Management Journal, 14, 175-193.*

Alavosius, M. P., & Sulzer-Azaroff, B. (1985). An on-the-job method to evaluate patient lifting technique. *Applied Ergonomics, 16* (4), 307-311.

Alavosius, M. P., & Sulzer-Azaroff, B. (1986). The effects of performance feedback on the safety of client lifting and transfer. *Journal of Applied Behavior Analysis, 19*, 261-267.

Alavosius, M. P., & Sulzer-Azaroff, B. (1990). The acquisition and maintenance of health care routines as a function of schedules of feedback. *Journal of Applied Behavior Analysis, 23*, 151-162.

*Aldis, O. (1961). Of pigeons and men. *Harvard Business Review, 39*, 297-300.

Andrasik, F. (1979). Organizational Behavior Modification in business settings: A methodological and content review. *Journal of Organizational Behavior Management, 2*, 85-102.

Anger, K. (Chair). (1976, May). *Applied behavior analyses of industrial problems*. Symposium conducted at the conference of the Midwestern Association for Behavior Analysis, Chicago, IL.

*At Emery Air Freight: Positive reinforcement boosts performance. (1973). *Organizational Dynamics, 1*, 41-50.

Ayllon, T. (1963). Intensive treatment of psychotic behavior by stimulus satiation and food reinforcement. *Behavior Research Therapy, 1*, 53-61.

Ayllon, T., & Azrin, N. H. (1965). The measurement and reinforcement of behavior of psychotics. *Journal of the Experimental Analysis of Behavior, 8*, 357-383.

Ayllon, T., & Haughton, E. (1962). Control of the behavior of schizophrenic patients by food. *Journal of the Experimental Analysis of Behavior, 5*, 343-352.

Ayllon, T., & Haughton, E. (1964). Modification of symptomatic verbal behavior of mental patients. *Behavior Research Therapy, 2*, 87-97.

Ayllon, T., Haughton, E., & Hughes, H. B. (1965). Interpretation of symptoms: Fact or fiction? *Behavior Research Therapy, 3*, 1-7.

Ayllon, T., Haughton, E., & Osmond, H. O. (1964). Chronic anorexia: A behaviour problem. *Canadian Psychiatric Association Journal, 9*, 147-152.

*Ayllon,T., & Michael, J. (1959). The psychiatric nurse as a behavioral engineer. *Journal of the Experimental Analysis of Behavior, 2*, 323-334.

Balcazar, F. E., Shupert, M. K., Daniels, A. C., Mawhinney, T. C., & Hopkins, B. L., (1989). An objective review and analysis of ten years of publication in the *Journal of Organizational Behavior Management, 2*, 7-37.

Bjork, D. W. (1993). *B. F. Skinner: A life*. New York: Basic Books.

*Bobele, H. K. & Buchanan, P. (1975). Behavior modification: A tool for getting things done. *The Business Quarterly, 40*, 37-41.

Brand, D. D., Staelin, J. R., O'Brien, R. M., & Dickinson, A. M. (1982). Improving white collar productivity at HUD. In R. M. O'Brien, A. M. Dickinson, & M. P. Rosow (Eds.), *Industrial Behavior Modification* (pp. 307-334). New York: Pergamon Press.

*Brethower, D. M. (1972). *Behavioral analysis in business and industry: A total performance system*. Kalamazoo, MI: Behaviordelia.

Brethower, D. M. (1982). The Total Performance System. In R. M. O'Brien, A. M.

Dickinson, & M. P. Rosow (Eds.), *Industrial Behavior Modification* (pp. 350-369). New York: Pergamon Press.

Brethower, D. (Chair). (1998, May). *Toward a strategic alliance–ABA & ISPI.* Panel discussion at the meeting of the Association for Behavior Analysis, Orlando, FL.

*Brethower, D. M., & Rummler, G. A. (1966). For improved work performance: Accentuate the positive. *Personnel, 43*, 40-49.

Brethower, K., & Petrock, F. (1975, May). *Management training in Applied Behavior Analysis.* Workshop presented at the conference of the Midwestern Association for Behavior Analysis, Chicago, IL.

Brown, P. L. (1974). *Introduction to psychology: A view of behavior.* Cambridge: Research Media.

*Brown, P. L. (1976, July). Behavior modification: A significant new tool for managers and supervisors. *Executive Housekeeper.*

*Brown, P. L. (1982). *Managing behavior on the job.* New York: John Wiley.

Brown, P. L. (1988). *People management.* Princeton: Kepner-Tregoe.

Brown, P. L. (1992). *Coaching for team effectiveness.* New Paltz, NY: Instructional Design Associates.

Brown, P. L., & Elliott, R. (1965). Control of aggression in a nursery school class. *Journal of Experimental Child Psychology, 2*, 103-107.

Brown, P. L., & Jenkins, H. M. (1968). Auto-shaping of the pigeon's key peck. *Journal of the Experimental Analysis of Behavior, 11*, 1-8.

Brown, P. L., & Presbie, R. J. (1974). *Behavior modification skills.* Cambridge: Research Media.

*Brown, P. L., & Presbie, R. J. (1976). *Behavior Modification in business, industry and government.* New Paltz, NY: Behavior Improvement Associates.

Bruwelheide, L. R., & Duncan, P. K. (1985). A method for evaluating corporation training seminars. *Journal of Organizational Behavior Management, 7*, 65-94.

Buckalter, G., Presbie, R. J., & Brown, P L. (1974). *Behavior improvement program.* Chicago: Science Research Associates.

Bushhouse, F. E., Jr., Feeney, E. J., Dickinson, A. M., & O'Brien, R. M. (1982). Increased productivity in man-paced and machine-paced performance. In R. M. O'Brien, A. M. Dickinson, & M. P. Rosow (Eds.), *Industrial Behavior Modification* (pp. 65-76). New York: Pergamon Press.

Business, Behaviorism and the Bottom Line. (1973). CRM Educational films.

Catania, A. C. (1992). *Learning* (3rd ed.). Englewood Cliffs: Prentice Hall.

Chance, P. (1999). *Learning and behavior* (4th ed.). Pacific Grove: Brooks/Cole.

Chase, P. N., Sulzer-Azaroff, B., & Well, A. (1983). Designing an introductory course for transfer students: A behavioral systems approach. *Teaching of Psychology, 10*, 7-11.

*Connellan, T. K. (1978). *How to improve human performance: Behaviorism in business and industry.* New York: Harper & Row.

*Conversation with B. F. Skinner. (1973). *Organizational Dynamics, 1*, 31-40.

Crawley, W. J., Adler, B. S., O'Brien, R. M., & Duffy, E. M. (1982). Making salesmen: Behavioral assessment and intervention. In R. M. O'Brien, A. M. Dickinson, & M. P. Rosow (Eds.), *Industrial Behavior Modification* (pp. 184-199). New York: Pergamon Press.

Daniels, A. C. (1989). *Performance Management* (3rd ed.). Tucker, GA: Performance Management Publications.

Daniels, A. C. (1994). *Bringing out the best in people: How to apply the astonishing power of positive reinforcement*. New York: McGraw-Hill.

*Daniels, A. C., & Rosen, T. (1982). *Performance Management*. Tucker, GA: Performance Management Publications.

Dean, P. (1996). Foreward. In T. F. Gilbert (Au.), *Human competence: Engineering worthy performance* (tribute edition) (tribute pp. 9). Washington, DC: International Society for Performance Improvement.

Dickinson, A. M. (1995, May). *Coming of Age in OBM: A celebration of celebrities.* Paper presented at the meeting of the Association for Behavior Analysis, Washington, DC.

Domjan, M. (1993). *Domjan and Burkhard's the principles of learning and behavior* (3rd ed.). Pacific Grove: Brooks/Cole.

Duncan, P. K. (Ed.). (1981/1982). Current topics in Organizational Behavior Management [Special issue]. *Journal of Organizational Behavior Management, 3* (3).

Duncan, P. K., & Bruwelheide, L. R. (1985/1986). Feedback: Use and possible behavioral functions. *Journal of Organizational Behavior Management, 7* (3/4), 91-114.

Duncan, P. K., & Lloyd, K. E. (1982). Training format in Industrial Behavior Modification. In R. M. O'Brien, A. M. Dickinson, & M. P. Rosow (Eds.), *Industrial Behavior Modification* (pp. 387-404). New York: Pergamon Press.

Feeney, E. J., Staelin, J. R., O'Brien, R. M., & Dickinson, A. M. (1982). Increasing sales performance among airline reservation personnel. In R. M. O'Brien, A. M. Dickinson, & M. P. Rosow (Eds.), *Industrial Behavior Modification* (pp. 141-158). New York: Pergamon Press.

Fellner, D. J., & Sulzer-Azaroff, B. (1984a). A behavioral analysis of goal setting. *Journal of Organizational Behavior Management, 6,* 33-51.

Fellner, D. J., & Sulzer-Azaroff, B. (1984b). Increasing industrial safety practices and conditions through posted feedback. *Journal of Safety Research, 15,* 17-21.

Fellner, D. J., & Sulzer-Azaroff, B. (1985). Occupational safety: Assessing the impact of adding assigned or participative goal setting. *Journal of Organizational Behavior Management, 7,* 3-24.

Ferster, C. B., & Skinner, B. F. (1957). *Schedules of reinforcement.* Englewood Cliffs, NJ: Prentice-Hall.

Fleming, R. K., Oliver, J. R., & Bolton, D. M. (1996). Training supervisors to train staff: A case study in a human service organization. *Journal of Organizational Behavior Management, 16,* 3-25.

Fleming, R., & Sulzer-Azaroff, B. (1992). Reciprocal peer management. Improving staff instruction in a vocational training program. *Journal of Applied Behavior Analysis, 25,* 611-620.

Fox, C. J., & Sulzer-Azaroff, B. (1987). *Increasing the completion of accident reports. Journal of Safety Research, 18,* 65-71.

Fox, D. K., & Hopkins, B. L. (1976, May). Effects of an incentive program on several safety measures in open pit mining. In K. Anger (Chair), *Applied behavior analy-*

ses of industrial problems. Symposium conducted at the conference of the Midwestern Association for Behavior Analysis, Chicago, IL.

Fox, D. K., Hopkins, B. L., & Anger, W. K. (1987). The long-term effects of a token economy on safety performance in open-pit mining. *Journal of Applied Behavior Analysis, 20,* 215-224.

Frederiksen, L. W. (1982a). Organizational Behavior Management: An overview. In L. W. Frederiksen (Ed.), *Handbook of Organizational Behavior Management* (pp. 3-20). New York: John Wiley.

*Frederiksen, L. W. (Ed.). (1982b). *Handbook of Organizational Behavior Management.* New York: Wiley.

Frederiksen, L. W. (1982c). Editorial: Meeting the challenge. *Journal of Organizational Behavior Management, 4,* 1-4.

Frederiksen, L. W., & Johnson, R. P. (1981). Organizational Behavior Management. *Progress in Behavior Modification, 12,* 67-118.

Frederiksen, L. W., & Lovett, S. B. (1980). Inside Organizational Behavior Management: Perspectives on an emerging field. *Journal of Organizational Behavior Management, 2,* 193-203.

Gikalov, A. A., Baer, D. M., & Hannah, G. T. (1997). The effects of work task manipulation and scheduling on patient load, revenue, eyewear turnover, and utilization of staff and doctor time. *Journal of Organizational Behavior Management, 17,* 3-35.

*Gilbert, T. F. (1978). *Human competence: Engineering worthy performance.* New York: McGraw-Hill.

Gilbert, T. F. (1994). *Human Incompetence: Confessions of a psychologist.* Unpublished manuscript.

Gilbert, T. F. (1996). *Human competence: Engineering worthy performance (*tribute edition). Washington, DC: International Society for Performance Improvement.

Gillat, A., & Sulzer-Azaroff, B. (1994). Promoting principals managerial involvement in institutional improvement. *Journal of Applied Behavior Analysis, 27,* 115-129.

*Goldstein, A. P., & Sorcher, M. A. (1973). Changing managerial behavior by applied learning techniques. *Training and Development Journal, 27,* 36-39.

*Gupton, T., & LeBow, M. (1971). Behavior management in a large industrial firm. *Behavior Therapy, 2,* 78-82.

Hall, B. L. (1980). Editorial. *Journal of Organizational Behavior Management, 2,* 145-150.

*Hamner, W. C. (1974). Reinforcement theory and contingency management in organizational settings. In H. L. Tosi & C. W. Hamner (Eds.), *Organizational behavior and management: A contingency approach.* Chicago: St. Clair Press.

*Hamner, W. C., & Hamner, E. P. (1976). Behavior modification on the bottom line. *Organizational Dynamics, 3,* 3-21.

Hawkins, R. P., Chase, P. N., & Scotti, J. R. (1993). Applied Behavior Analysis at West Virginia University: A brief history. *Journal of Applied Behavior Analysis, 26,* 573-582.

Hayes, L. J. (1999). Message from the OBM Network Director. *Journal of Organizational Behavior Management, 19,* 5.

*Hermann, J. A., de Montes, A. I., Dominguez, B., Montes, F., & Hopkins, B. L. (1973). Effects of bonuses for punctuality on the tardiness of industrial workers. *Journal of Applied Behavior Analysis, 6,* 563-570.

*Holland, J. G., & Skinner, B. F. (1961). *The analysis of behavior.* New York: McGraw-Hill.

Holtz, W. C., Azrin, N. H., & Ayllon, T. (1963). Elimination of behavior of mental patients by response-produced extinction. *Journal of the Experimental Analysis of Behavior, 6,* 407-412.

Hopkins, B. L. (1995). An introduction to developing, maintaining, and improving large-scale, data-based programs. *Journal of Organizational Behavior Management, 15,* 7-10.

Hopkins, B. L. (1996). A continuation of the series on developing, maintaining, and improving large-scale, data-based programs. *Journal of Organizational Behavior Management, 16,* 1-2.

Hopkins, B. L. (1997). Examples of problems in conducting large-scale research. *Journal of Organizational Behavior Management, 17,* 1-2.

Hopkins, B. L., & Mawhinney, T. C. (Eds.). Pay for performance: History, controversy, and evidence [Special issue]. *Journal of Organizational Behavior Management, 12* (1).

Hopkins, B. L., & Sears, J. (1982). Managing behavior for productivity. In L. W. Frederiksen (Ed.), *Handbook of Organizational Behavior Management* (pp. 393-425). New York: John Wiley.

Hughes, J. L., & McNamara, W. J. (1966). A comparative study of programmed and conventional instruction in industry. In R. Ulrich, T. Stachnik, & J. Mabry, (Eds.), *Control of human behavior* (pp. 221-227). Glenview, IL: Scott, Foresman.

Iwata, B. A., Bailey, J. S., Brown, K. M., Foshee, T. J., & Alpern, M. A. (1976). A performance-based lottery to improve residential care and training by institutional staff. *Journal of Applied Behavior Analysis, 9,* 417-431.

*Jablonsky, S. F., & DeVries, D. L. (1972). Operant conditioning principles extrapolated to the theory of management. *Organizational Behavior and Human Performance, 7,* 340-358.

Johnson, K. R., & Sulzer-Azaroff, B. (1975). PSI for first time users: Pleasures and pitfalls. *Educational Technology, 15,* 9-17.

Johnston, J. J., Duncan, P. K., Monroe, C., Stephenson, H., & Stoerzinger, A. (1978). Tatics and benefits of behavioral measurement in business. *Journal of Organizational Behavior Management, 1,* 164-178.

Kempen, R. W. (1982). Absenteeism and tardiness. In L. W. Frederiksen (Ed.), *Handbook of Organizational Behavior Management* (pp. 365-391). New York: John Wiley.

Kempen, R. W., & Hall, R. V. (1977). Reduction of industrial absenteeism: Results of a behavioral approach. *Journal of Organizational Behavior Management, 1,* 1-21.

Kempton (sic), R., Hall, R. V., & MacDonald, M. C. (1976, May). Attendance management: A technology for the systematic reduction of absenteeism. In K. Anger. (Chair), *Applied behavior analyses of industrial problems.* Symposium conducted at the conference of the Midwestern Association for Behavior Analysis, Chicago, IL.

Kempton (sic), R., Mirman, R., Hall, R. V., Orser, C., & Orser, K. (1976, May). Generating feedback through feedback to improve job accountability. In K. Anger (Chair), *Applied behavior analyses of industrial problems.* Symposium conducted at the conference of the Midwestern Association for Behavior Analysis, Chicago, IL.

*Kim, J. S., & Hamner, W. C. (1976). Effect of performance feedback and goal setting on productivity and satisfaction in an organizational setting. *Journal of Applied Psychology, 61,* 48-57.

Komaki, J. (Chair). (1976, May). *Behavior analysis and working adults: Applications in actual work settings.* Symposium conducted at the conference of the Midwestern Association for Behavior Analysis, Chicago, IL.

Komaki, J. L., Coombs, T., & Schepman, S. (1991). Motivational implications of reinforcement theory. In R. M. Steers & L. W. Porter (Eds.), *Motivation and work behavior* (5th ed., pp. 34-52).

Krapfl, J. (1981/1982). Behavior management in state mental health systems. *Journal of Organizational Behavior Management, 3,* 91-105.

Krapfl, J. E., & Gasparotto, G. (1982). Behavioral systems analysis. In L. Frederiksen (Ed.), *Handbook of Organizational Behavior Management* (pp. 21-38). New York: John Wiley.

*Kreitner, R. (1975). PM—A new method of behavior change. *Business Horizons, 18,* 79-86.

Kreitner, R., Reif, W. E., & Morris, M. (1977). Measuring the impact of feedback on the performance of mental health technicians. *Journal of Organizational Behavior Management, 1,* 105-109.

*Laird, D. (1971, March). Why everything is all loused up, really (and what to do about it). *Training in Business and Industry,* pp. 52-55.

Landy, F. J. (1989). *Psychology of work behavior* (4th ed.). Pacific Grove, CA: Brooks/Cole.

*Lazer, R. I. (1975). Behavior modification as a managerial technique. *Conference Board Record, 16,* 67-72.

Leuthans (sic), F. (Chair.). (1975, May). *Applied behavior analysis in business and industry.* Symposium conducted at the conference of the Midwestern Association for Behavior Analysis, Chicago, IL.

Lindsley, O. R. (1966). A behavioral measure of television viewing. In R. Ulrich, T. Stachnik, & J. Mabry, (Eds.), *Control of human behavior* (pp. 227-237). Glenview, IL: Scott, Foresman.

Lindsley, O. (1996). Tributes. In T. F. Gilbert (Au.), *Human competence: Engineering worthy performance (*tribute edition) (tribute pp. 15). Washington, DC: International Society for Performance Improvement.

*Luthans, F. (1973). The contingency theory of management. *Business Horizons, 16,* 67-72.

*Luthans, F., & Kreitner R. (1973). The role of punishment in organizational behavior modification (O.B.Mod). *Public Personnel Management, 2,* 156-161.

*Luthans, F., & Kreitner, R. (1974). The management of behavioral contingencies. *Personnel, 51,* 7-16.

*Luthans, F., & Kreitner, R. (1975). *Organizational behavior modification.* Glenview, IL: Scott, Foresman.

*Luthans, F. & Lyman, D. (1973). Training supervisors to use organizational behavior modification. *Personnel, 50,* 38-44.

*Luthans, F., & Martinko, M. (1976). An organizational behavior modification analysis of absenteeism. *Human Resource Management, 15,* 11-18.

*Luthans, F., & Ottemann, R. (1973). Motivation vs. learning approaches to organizational behavior. *Business Horizons, 16,* 55-62.

*Luthans, F. & White, D. (1971). Behavior modification: Application to manpower management. *Personnel Administration, 34,* 41-47.

*Mager, R. F., & Pipe, P. (1970). *Analyzing performance problems or 'You really oughta wanna'.* Belmont, CA: Fearon.

Maley, R. (Chair). (1975, May). *A behavioral approach to modify a state mental hospital: An integration of behavior and systems analysis.* Symposium conducted at the conference of the Midwestern Association for Behavior Analysis, Chicago, IL.

*Maley, R., & Harshbarger, D. (1974). *Behavior analysis and systems analysis: An integrated approach to mental health.* Kalamazoo, MI: Behaviordelia.

Malott, M. E., & Diener, L. (1999). Generating the ABA convention program: What does it take? *Call for papers for the 26th annual conference of the Association for Behavior Analysis,* pps. 2-5. Available from the Association for Behavior Analysis, Western Michigan University, Kalamazoo, MI.

Malott, R. W. (1972). *Contingency management in education and other equally exciting places.* Kalamazoo, MI: Behaviordelia.

Malott, R. W. (1973). *Humanistic behaviorism and social psychology.* Kalamazoo, MI: Behaviordelia.

Malott, R. W. (Chair). (1976, May). *The state of the art and the potential of the behavioral interventions in businesses and industries.* Symposium conducted at the conference of the Midwestern Association for Behavior Analysis, Chicago, IL.

Malott, R. W., General, D. A., & Snapper, V. B. (1973). *Issues in the analysis of behavior.* Kalamazoo, MI: Behaviordelia.

*Marholin, D., & Gray, D. (1976). Effects of group response-cost procedure on cash shortages in a small business. *Journal of Applied Behavior Analysis, 9,* 25-30.

*Mawhinney, T. C. (1975). Operant terms and concepts in the description of individual work behavior: Some problems of interpretation, application and evaluation. *Journal of Applied Psychology, 60,* 704-712.

Mawhinney, T. C. (1985-86). Editorial. *Journal of Organizational Behavior Management, 7* (3/4), 1-3.

Mawhinney, T. C. (Ed.). (1987). Organizational Behavior Management and statistical process control: Theory, technology, and research [Special issue]. *Journal of Organizational Behavior Management, 9* (1).

Mawhinney, T. C. (Ed.). (1992). Organizational culture, rule-governed behavior and Organizational Behavior Management: Theoretical foundations and implications for research and practice [Special issue]. *Journal of Organizational Behavior Management, 12* (2).

Mawhinney, T. C. (1995). Editorial. *Journal of Organizational Behavior Management, 15,* 1-3.

Mawhinney, T. C. (Ed.). (1999a). Tatics of Organizational Behavior Management research: Evaluating experimental and quasi-experimental field data [Special issue]. *Journal of Organizational Behavior Management, 18* (4).

Mawhinney, T. C. (1999b). An abbreviated history of OBM in ABA. *Journal of Organizational Behavior Management, 19,* 7-12.

Mawhinney, T. C. (2000). Editorial. *Journal of Organizational Behavior Management, 20,* 1-3.

*Mawhinney, T. C., & Behling, O. C. (1973). Differences in prediction of work behavior from expectancy and operant models of individual motivation. *Academy of Management Proceedings,* 383-398.

Mayo, E. (1933). *The human problems of industrial civilization.* Boston: Harvard University Press.

Mazur, J. E. (1994). *Learning and behavior* (3rd ed.). Englewood Cliffs: Prentice Hall.

*McAdam, J. (1975). Behavior modification: A human resource management technology. *Management Review, 64,* 24-30.

Merwin, G. A., Jr., Thomason, J. A., & Sanford, E. E. (1989). A methodology and content review of Organizational Behavior Management in the private sector: 1978-1986. *Journal of Organizational Behavior Management, 2,* 39-57.

Methot, L. L., Williams, W. L., Cummings, A., & Bradshaw, B. (1996). Measuring the effects of a manager-supervisor training program through generalized performance of managers, supervisors, front-line staff and clients in a human service setting. *Journal of Organizational Behavior Management, 16,* 3-34.

Michael, J. (2000, February). *Strokes of genius: Conceptual and practical breakthroughs in behavior analysis.* Paper presented at the annual conference of the California Association for Behavior Analysis, San Francisco, CA.

*Miller, L. M. (1978a). *Behavior Management.* New York: John Wiley.

Miller, L. M. (1978b). Letter to subscribers. *Journal of Organizational Behavior Management, 1 (2),* np.

Mirman, R. (1982a). Performance management in sales organizations. In L. W. Frederiksen (Ed.), *Handbook of Organizational Behavior Management* (pp. 427-475). New York: John Wiley.

Mirman, R. (1982b). Sales management: An effective performance system. In R. M. O'Brien, A. M. Dickinson, & M. P. Rosow (Eds.), *Industrial Behavior Modification* (pp. 7-34). New York: Pergamon Press.

Mirman, R., Ritschl, R., Hall, R. V., & Sigler, J. (1976, May). Protective poker: Behavioral procedures to reduce industrial accidents. In K. Anger (Chair), *Applied behavior analyses of industrial problems.* Symposium conducted at the conference of the Midwestern Association for Behavior Analysis, Chicago, IL.

Montegar, C. A., Reid, D. H., Madsen, C. H., & Ewell, M. D. (1977). *Behavior Therapy, 8,* 533-540.

Muchinsky, P. M. (2000). *Psychology applied to work* (6th ed.). Belmont, CA: Wadsworth.

*Murphy, J. (1972). Is it Skinner or nothing? *Training and Development Journal, 26,* 2-8.

*Nathan, P. E., & Wallace, W. H. (1965). An operant measure of TV commercial effectiveness. *Journal of Advertising Research, 5,* 13-20.

*New Tool: ''Reinforcement'' for good work, (1971, Dec. 18). *Business Week,* pp. 76-77.

*Nichols, G. (1976). A model for supervisors' use of behavior modification techniques. *Occupational Hazards, 38,* 86-88.

Nolan, T. V., Jarema, K. A., & Austin, J. (1999). An objective review of the *Journal of Organizational Behavior Management: 1987-1997. Journal of Organizational Behavior Management, 19,* 83-114.

*Nord, W. R. (1969). Beyond the teaching machine: The neglected area of operant conditioning in the theory and practice of management. *Organizational Behavior and Human Performance, 4,* 375-401.

*Nord, W. R. (1970). Improving attendance through rewards. *Personnel Administration, 33,* 37-41.

*Nord, W. R. (1976). Behavior modification perspective for humanizing organizations. In H. Meltzer & F. D. Wickert (Eds.), *Humanizing organizational behavior.* Springfield, IL: Charles C. Thomas.

O'Brien, R. (1996). Tributes. In T. F. Gilbert (Au.), *Human competence: Engineering worthy performance (*tribute edition) (tribute pp. 31). Washington, DC: International Society for Performance Improvement.

O'Brien, R. M. (1990). Working the other side of the street: Can Organizational Behavior Management help unions to change management? *Journal of Organizational Behavior Management, 11,* 193-205.

O'Brien, R. M., & Dickinson, A. M. (1982). Introduction to Industrial Behavior Modification. In R. M. O'Brien, A. M. Dickinson, & M. P. Rosow (Eds.), *Industrial Behavior Modification* (pp. 7-34). New York: Pergamon Press.

*O'Brien, R. M., Dickinson, A. M., & Rosow, M. P. (Eds.). (1982). *Industrial Behavior Modification.* New York: Pergamon Press.

O'Hara, K., Johnson, C. M., & Beehr, T. A. (1985). Organizational Behavior Management in the private sector: A review of empirical research and recommendations for further investigation. *Academy of Management Review, 10,* 848-864.

Organ, D. W., & Bateman, T. (1986). *Organizational behavior: An applied psychological approach* (3rd ed.). Plano, TX: Business Publications.

*Orphen, C. (1974). The effect of reward contingencies on the job satisfaction-task performance relationship: An industrial experiment. *Psychology,* 9-14.

Panyan, M., Boozer, H., & Morris, N. (1970). Feedback to attendants as a reinforcer for applying operant techniques. *Journal of Applied Behavior Analysis, 3,* 1-4.

*Parsons, H. M. (1974). What happened at Hawthorne? *Science, 183,* 922-932.

*Pedalino, E. & Gamboa, V. U. (1974). Behavior modification and absenteeism: Intervention in one industrial setting. *Journal of Applied Psychology, 59,* 694-698.

*Performance audit, feedback, and positive reinforcement. (1972). *Training and Development Journal, 26 ,* 8-13.

Pomerleau, O. F., Bobrove, P. H., & Smith, R. H. (1973). Rewarding psychiatric

aides for the behavioral improvement of assigned patients. *Journal of Applied Behavior Analysis, 6,* 383-390.

Presbie, R. J., & Brown, P. L. (1973). *Behavior improvement: A behavior modification resource guide.* New Paltz, NY: Behavior Improvement Associates.

Presbie, R. J., & Brown, P. L. (1974, Spring). An approach–Behavior improvement for all children. *Chanel,* 14-16. (Mid-Hudson School Study Council, State University College, New Paltz, NY).

Presbie, R. J., & Brown, P. L. (1976). *Behavior modification: Positive teaching procedures.* Washington, DC: National Education Association.

Presbie, R. J., & Brown, P. L. (1977). *Physical education: The behavior modification approach.* Washington, DC: National Education Association.

Redmon, W. K., & Dickinson, A. M. (Eds.). (1990). Promoting excellence through Performance Management [Special issue]. *Journal of Organizational Behavior Management, 11* (1).

Reid, D. H. (Ed.). (1998). Organizational Behavior Management and developmental disabilities services: Accomplishments and future directions [Special issue]. *Journal of Organizational Behavior Management, 18* (2/3).

Roethlisberger, F. J., & Dickson, W. J. (1939). *Management and the worker.* Cambridge, MA: Harvard University Press.

Quilitch, H. R. (1975). A comparison of three staff management procedures. *Journal of Applied Behavior Analysis, 8,* 59-66.

Ritschl, E. R., & Hall, R. V. (1980). Improving MBO: An Applied Behavior Analyst's point of view. *Journal of Organizational Behavior Management, 2,* 269-277.

*Rotondi, T., Jr. (1976). Behavior modification on the job. *Supervisory Management, 18,* 15-20.

Rummler, G. A., & Brache, A. P. (1990). *Improving performance.* San Francisco: Jossey-Bass.

*Schmitt, D. R. (1971). Effects of intermittent reinforcing consequences on task choice. *Psychological Reports, 28,* 771-776.

*Senger, J. (1973). A challenge from behavioral science: Can you eliminate the negative? *Supervisory Management, 18,* 15-20.

Shook, G. (Chair). (1976, May). *On-going behavioral projects in large industrial corporations initiated through a behaviorally oriented consulting firm.* Symposium conducted at the conference of the Midwestern Association for Behavior Analysis, Chicago, IL.

Skinner, B. F. (1938). *The behavior of organisms.* Englewood Cliffs, NJ: Prentice-Hall.

*Skinner, B. F. (1953). *Science and human behavior.* New York: Free Press.

*Skinner, B. F. (1954). The science of learning and the art of teaching. *Harvard Educational Review, 24,* 86-97.

Skinner, B. F. (1957). *Verbal behavior.* Englewood Cliffs, NJ: Prentice-Hall.

*Skinner, B. F. (1958). Teaching Machines. *Science, 128,* 969-977.

Skinner, B. F. (1969). *Contingencies of reinforcement.* Englewood Cliffs, NJ: Prentice-Hall.

Skinner, B. F. (1971). *Beyond freedom and dignity.* New York: Knopf.

Skinner, B. F. (1972). *Cumulative Record.* New York: Appleton-Century-Crofts.

Skinner, B. F. (1974). *About Behaviorism.* New York: Knopf.

Skinner, B. F. (1983). *A matter of consequences.* New York: Knopf.

*Sorcher, M. A. (1971). A behavior modification approach to supervisor training. *Professional Psychology, 2,* 401-402.

Stajkovic, A. D., & Luthans, F. (1997). A meta-analysis of the effects of Organizational Behavior Modification on task performance, 1975-95. *Academy of Management Review, 10,* 848-864.

Sulzer, B., & Mayer, G. R. (1972). *Behavior modification procedures for school personnel.* New York: Holt, Rinehart & Winston.

*Sulzer-Azaroff, B. (1978). Behavioral ecology and accident prevention. *Journal of Organizational Behavior Management, 2,* 11-44.

Sulzer-Azaroff, B. (1982). Behavioral approaches to occupational health and safety. In L. W. Frederiksen (Ed.), *Handbook of organizational behavior management* (pp. 505-538). New York: John Wiley & Sons.

Sulzer-Azaroff, B. (1987). The modification of occupational safety behavior. *Journal of Occupational Accidents, 9,* 177-197.

Sulzer-Azaroff, B. (1992). Making a difference in occupational safety with behavior management. *Journal of Applied Behavior Analysis, 25,* 653-654.

Sulzer-Azaroff, B. (1998). *Who killed my daddy? A behavioral safety fable.* Cambridge, MA: Cambridge Center for Behavioral Studies.

Sulzer-Azaroff, B., & deSantamaria, M. C. (1980). Industrial safety hazard reduction through performance feedback. *Journal of Applied Behavior Analysis, 13,* 287-295.

Sulzer-Azaroff, B., & Fellner, D. (1984). Searching for performance targets in the behavior analysis of occupational safety: An assessment strategy. *Journal of Organizational Behavior Management, 6,* 53-65.

Sulzer-Azaroff, B., Loafman, B., Merante, R. J., Hlavacek, A. C. (1990). Improving occupational safety in a large industrial plant. *Journal of Organizational Behavior Management, 11,* 99-120.

Sulzer-Azaroff, B., & Mayer, G. R. (1977). *Applying behavior analysis procedures with children and youth.* New York: Holt, Rinehart & Winston.

Sulzer-Azaroff, B., & Mayer, G. R. (1983). *Prosedimientos del analysis conductial aplicado con ninos y jovenes.* Mexico: Editorial Trillas.

Sulzer-Azaroff, B., & Mayer, G. R. (1991). *Behavior analysis for lasting change.* Fort Worth, TX: Harcourt Brace.

Sulzer-Azaroff, B., & Mayer, G. R., & Cody, J. (1968). Assisting teachers with managing classroom behavioral problems. *Elementary School Guidance and Counseling, 3,* 40-48.

Sulzer-Azaroff, B., & Reese, E. P. (1982). *Applying behavior analysis: A program for developing professional competence.* New York: Holt, Rhinehart & Winston.

Tighe, T., Brown, P., & Young, E. (1965). The effect of overtraining on the shift behavior of albino rats. *Psychonomic Science, 2,* 141-142.

*Ulrich, R., Stachnik, T., & Mabry, J. (Eds.). (1966). *Control of human behavior.* Glenview, IL: Scott, Foresman.

Vargas, E. A., & Vargas, J. S. (1992). Programmed instruction and teaching ma-

chines. In R. P. West and L. A. Hamerlynck (Eds.), *Designs for excellence in education: The legacy of B. F. Skinner* (pp. 33-69). Longmont, CO: Sopris West.

Welsch, W. V., Ludwig, C., Radiker, J. E., & Krapfl, J. E. (1973). Effects of feedback on daily completion of behavior modification projects. *Mental Retardation, 11,* 24-26.

*Where Skinner's theories work. (1972, Dec. 2). *Business Week,* pp. 64-65.

*Whyte, W. F. (1972, April). Skinnerian theory in organizations. *Psychology Today,* pp. 67, 68, 96, 98, 100.

*Winters, L. C. & Wallace, W. H. (1970). On operant conditioning techniques. *Journal of Advertising Research, 10,* 39-45.

Wolf, M. M., Kirigin, K. A., Fixsen, D. L., Blase, K. A., & Braukmann, C. J. (1995). The teaching-family model: A case study in data-based program development and refinement (and dragon wrestling). *Journal of Organizational Behavior Management, 16,* 11-68.

*Yukl, G. A., & Latham, G. P. (1975). Consequences of reinforcement schedules and incentive magnitudes for employee performance: Problems encountered in a field setting. *Journal of Applied Psychology, 60,* 294-298.

*Yukl, G. A., Latham, G. P., & Pursell, E. D. (1976). Effectiveness of pay incentives under variable ratio and continuous reinforcement schedules. *Personnel Psychology, 29,* 221-231.

*Yukl, G. A., Wexley, K. N., & Seymore, J. D. (1972). Effectiveness of pay incentives under variable ratio and continuous reinforcement schedules. *Journal of Applied Psychology, 56,* 19-23.

Zane, T., Sulzer-Azaroff, B., Handen, B., & Fox, C. J. (1982). Validation of a competency-based training program in developmental disabilities. *Journal of the Association for the Severely Handicapped, 8,* 21-31.