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psychology today

The World of Behavior Shapers

Skinner on Controlling the Controllers

Shaping Child Behavior

TV Must Brainwash Children

Shamans on the Potomac

by Amitai Etzioni

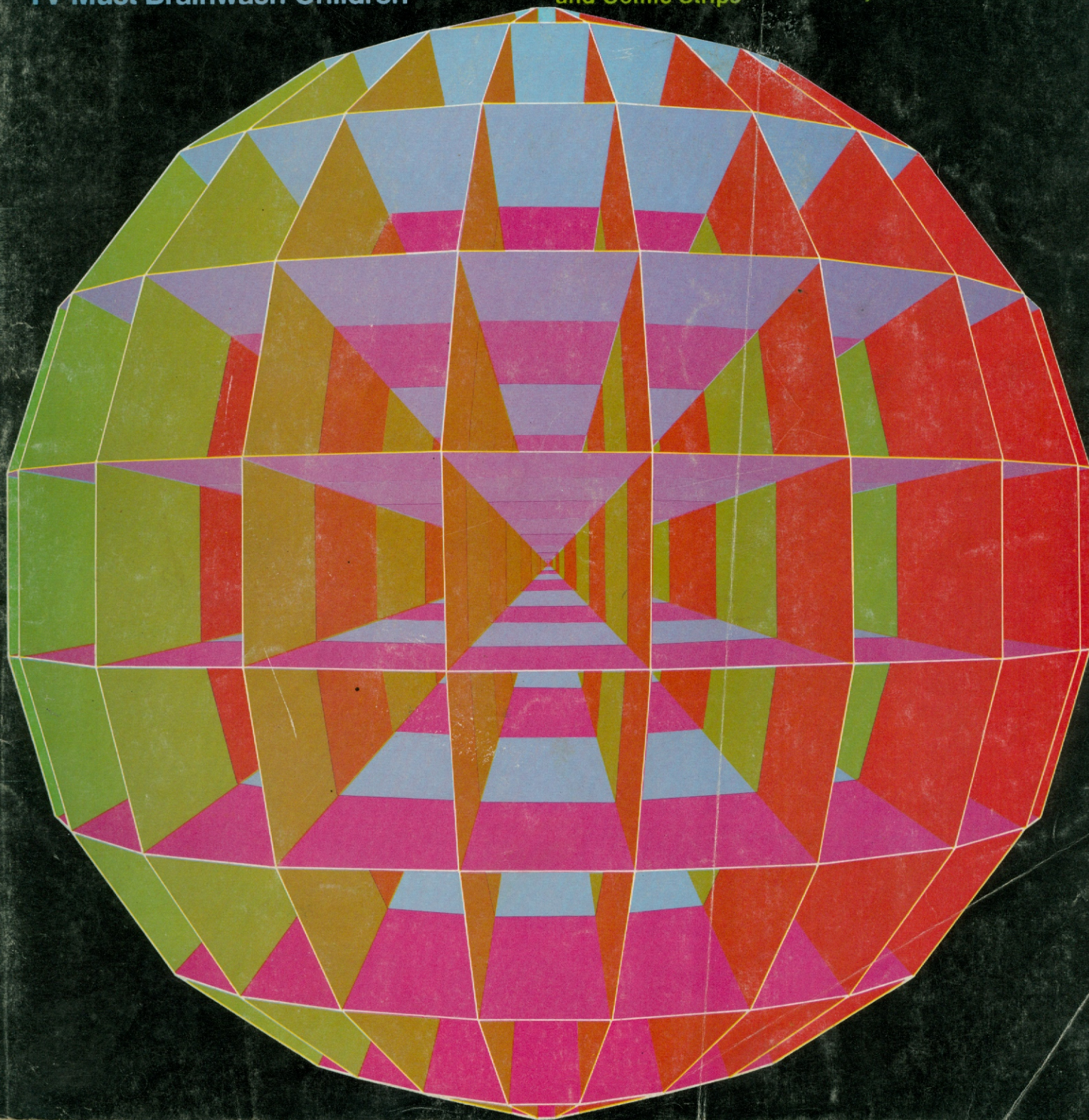
Politics of Welfare

**Authoritarians
and Comic Strips**

Death's Dignity

**Who Sank the Yellow
Submarine? (It Went
Down in Lake Erie)**

by Warren Bennis



Shapers at Work

by Kenneth Goodall

They take Skinnerian principles out of the pigeon cage and put them into practice out where people live and work and play and suffer and learn. A wide-ranging report on the fast-spreading, impressively effective use of Skinnerian psychology to change behavior in classrooms, kitchens, mental hospitals, rehabilitation wards, prisons, churches, reform schools, nursing homes, day-care centers, factories, movie theaters, national parks, community mental-health centers, stores, recreation centers and in the house next door.

THE MOTHER OF A CHILD who attends a big-city school rarely gets a phone call from the principal. When she does, she can expect the worst: very likely, her child is being suspended or expelled for tardiness or truancy or rowdiness.

A call from Ronald E. Brown, principal of Bryant elementary school in Kansas City, Kansas, almost always is a pleasant surprise. "I'm glad to see that Larry made it to school on time again today," Brown might say. Or "Larry hasn't skipped a class all week and he's doing much better on his tests."

When I visited Bryant school on a recent cross-country tour of large-scale projects in Skinnerian human-behavior control, Brown's associates told me that he always had preferred to pat parents and children on the back—it just came more naturally to him than chewing them out or punishing them in other ways. Now, with guidance from R. Vance Hall, a pioneer developer of behavior-shaping technology for use in public schools, Brown was patting people systematically throughout Bryant school—teachers as well as students and parents.

Brown is a young and enthusiastic administrator whose smile and openness convey a playful feeling of joy in his work. He doesn't fit the fantasy of a faceless and threatening behavior controller conjured up by the antibehaviorists' persistent question, "But who will do the controlling?" Nor did Vance Hall when I talked with him in his storefront office in Kansas City's black ghetto and over a lunch of cornbread, ham, and black-eyed peas in a tiny lunchroom nearby. Nonetheless, both Brown and Hall are in the vanguard of a rapidly expanding movement that aims to make Skinnerians of us all.

Aversion. I started studying the movement a year ago after editing B.F. Skinner's book, *Beyond Freedom and Dignity*, for *Psychology Today*, which published the major part of the book in the August 1971 issue. In one way the editing job was a distasteful assignment because of my long-standing aversion toward behaviorism. But it also was rewarding because I quickly realized that I was working with a rare masterpiece in the literature of psychology. Above all, it was frustrating, for Skinner stayed on a philosophical plane with his argument for the development of a technology of human behavior; only occasionally did he allude to the ways this technology might work.

"A technology of operant behavior is already well advanced and it may prove to be commensurate with our

"In civilized society, personal merit will not serve you so much as money will. Sir, you may make the experiment. Go into the street, and give one man a lecture on morality, and another a shilling, and see which will respect you most."

—Samuel Johnson (In Boswell's *Life of Johnson*)

problems," he wrote. It isn't ready yet to solve all of them, but it "continues to develop and is in fact much more advanced than its critics usually realize." Behavioral technologists still cannot design "a successful culture as a whole"—Skinner's *summum bonum*—"but we can design better practices, piecemeal."

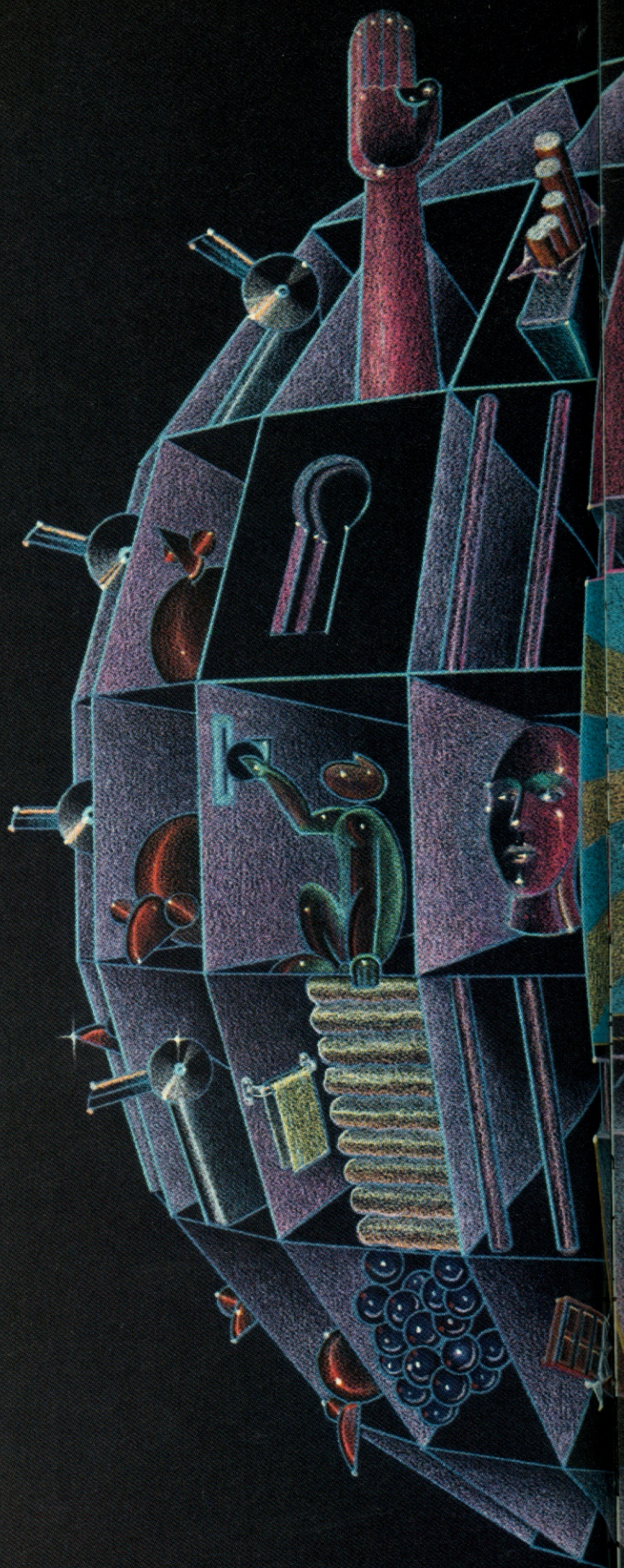
Advance. These and other tantalizing allusions to the human applications of behavioral technology needed probing, I felt. If Skinnerism with its reinforcements and its contingencies really were advancing at such a rapid rate, I didn't want to be taken by surprise along with the general run of Skinner's critics.

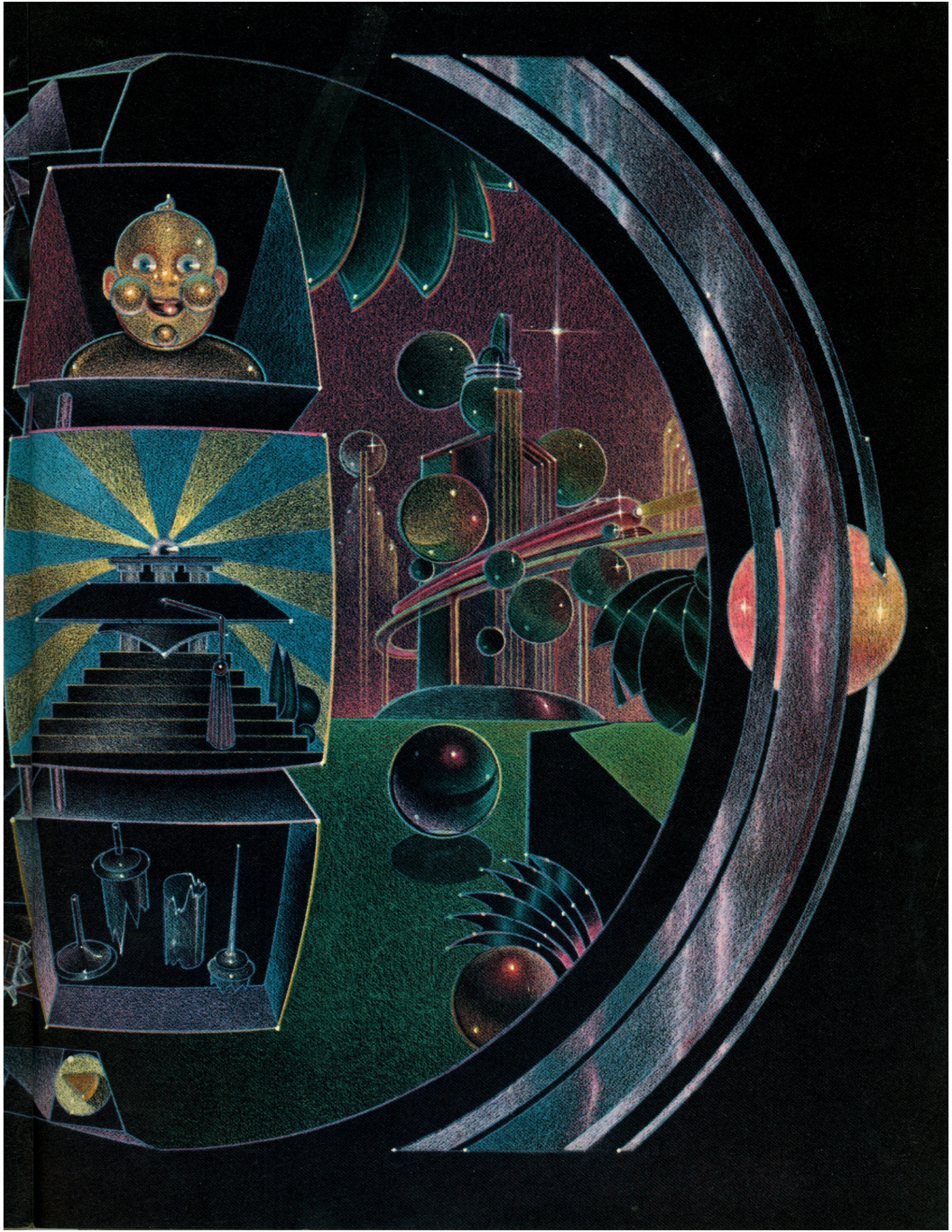
I passed the next several months reading, observing, and listening to the behaviorists who are systematically applying Skinner's operant psychology in all kinds of places with all kinds of people to change all kinds of behaviors. The experience helped me to flesh out Skinner's allusions and put faces on his followers, a new breed that I think of as the post-Skinnerians. Both facts and faces argued against the fantasies of Skinner's critics.

Today's band of human-behavior controllers, I found, still marches to the sound of many pigeons pecking. It is a distant sound, however. Behavioral experimentation began a slow move out of the traditional campus psychology laboratory some 20 years ago, and few of the post-Skinnerians spend much time there anymore. In fact, they can be found almost anywhere *but* there—in classrooms, kitchens, mental hospitals, rehabilitation wards, prisons, nursing homes, day-care centers, factories, movie theaters, national parks, community mental-health centers, stores, recreation centers, and right next door. Nevertheless, the basic principles that guide them in their work with human beings are the ones B.F. Skinner and a few associates formulated by observing pigeons and rats in Skinner boxes.

Bit. The most basic of these principles is that behavior is affected by its consequences. If a tasty bit of food falls into a Skinner box after a pigeon pecks a button or a rat presses a bar, the pigeon or the rat is likely to peck or press again. In Skinner's psychology, the food is a natural or *primary reinforcer*, the act of eating it is an *unconditioned response*, the pecking or pressing is a learned or *conditioned response*, the environmental conditions that determine the response are *contingencies*, and the whole process is *operant conditioning*.

Beginning. In 1949, more than a decade after Skinner published his first book, *The Behavior of Organisms*, a graduate student at Indiana University (where Skinner headed the psychology department before he moved on to Harvard) showed that the human organism is just as apt as the avian when it comes to operant learning. Paul R. Fuller taught an institutionalized "vegetative idiot" to earn food by raising his right arm to a vertical





"It is not the youngster who has failed, but it is the public-school system and the ecology that maintains that school system that has failed; it is not the youngster who is mentally bankrupt, but it is the public-school system that is bankrupt."

—Harold L. Cohen (in a paper, "Educational Therapy")

position. Fuller used a *shaping* technique, first reinforcing random upward movements of the arm and then reinforcing movements that brought the arm closer and closer to the vertical position. After only a few experimental sessions the youth, who according to his doctors hadn't learned anything in his 18 years of life, was raising his arm and swallowing his reinforcer (a warm sugar-milk solution) as fast as he could.

Fuller's report on this experiment ended prophetically: "While of normal human parentage, this organism was, behaviorally speaking, considerably lower in the scale than the majority of infrahuman organisms used in conditioning experiments . . . Perhaps by beginning at the bottom of the human scale the transfer from rat to man can be effected."

Bound. Two of Skinner's graduate students at Harvard, Ogden R. Lindsley and Nathan H. Azrin, helped effect the transfer. Lindsley, working closely with Skinner at Boston's Metropolitan State Hospital in the mid-'50s, set up experiments with psychotic patients that closely resembled earlier animal experiments. He found that he could control human operant responses (in this case, pulling a lever to obtain reinforcements of candy or cigarettes) by varying the reinforcement schedule. (*Continuous reinforcement* speeds up the learning of a task. But once the task is learned, human beings, like animals, will work harder and longer when the prize comes at an intermittent schedule than when it comes with every pull of the lever.)

Though Lindsley was working with a group of psychotics, his primary interest at the time was in gathering data on operant conditioning of human beings, not in modifying their sometimes bizarre behavior. It was Azrin who took a giant step into *behavior modification* in the early '60s after he became director of behavioral research at Anna State Hospital in southern Illinois. To help him he brought in a *Wunderkind*: Teodoro Ayllon, who had a brand-new Ph.D. from the University of Houston.

Bananas. Ayllon first did some ingenious experiments with individual psychotic patients. To treat a woman who had a nine-year history of towel hoarding, he had nurses deliver towels to her room by the dozens until, satiated by what she had once found reinforcing and exhausted by her customary folding-and-stacking routine, the woman carried 625 towels out of her room, never to hoard again. Ayllon then undertook the behavioral management of an entire ward of 40-odd severely disturbed patients.

Over the next few years, Ayllon and Azrin moved the experimental analysis of human behavior forward on two fronts. They demonstrated the efficacy of a *token-economy system* of reinforcement, and they devised an operant model that enabled clinical psychologists to

"Our enthusiasm was not derived from reading persuasive reports or theories. It is rather based on the pleasurable experiences which follow from our efforts to help families. The fact that these experiences are so readily translated into data is an additional source of reinforcement."

—Gerald Patterson (unpublished paper)

work with large groups of persons who suffered from various behavioral disturbances as well as with single cases or small groups. [See "Mimosa Cottage: Experiment in Hope" by James R. Lent, PT, June 1968.]

The token economy, like most techniques used by the human-behavior controllers, had its origins in animal experiments. Chimpanzees started it all in the late '30s by showing that they could learn to 1) place a poker chip in a slot to obtain grapes, 2) press a bar to obtain a chip, and 3) save up a specified number of chips to exchange for grapes after a specified time interval. The chimpanzees also learned an unrelated task—weightlifting—to obtain only chips, which meant that the chips had become *secondary reinforcers*. In other words, a chimpanzee would work for a chip that wasn't worth a grape. It was a delightful development for the Skinnerians, since chips have distinct advantages over grapes: they are less perishable, less satiating (for the chimpanzees) and less limited in their appeal once the chimpanzees learn they can use them to buy bananas as well as grapes.

Cookies. More than 20 years later, when Ayllon set up the token system with patients at Anna State Hospital and Arthur W. Staats and Montrose M. Wolf experimented at Arizona State University with a similar system for children, they used these advantages to good effect. Just as chimpanzees tire of grapes, children tire of M&M candy. But, as Staats and Wolf found, even children with little love for reading will do a lot of it if their reward is a bunch of tokens that they can trade in later for cookies, pieces of cake, toys—or M&Ms. That such a system amounted to bribing a child for doing something he ought to get into the habit of doing was once a common charge. It usually came from authoritarian types who were blind to their own double standard. Behavior-therapist Israel Goldiamond once made this comeback: "If they stopped paying me for coming to work, this nice ingrained habit I have might quickly vanish." The charge is heard less often these days.

Chores. Ayllon and Azrin's application of the token system is commonly regarded as one of the most significant achievements to date in human-behavior control. Like Ayllon, other researchers had used experimental techniques to modify specific behaviors of individual psychotics like the woman who hoarded towels. "But," as Ayllon and Azrin recall, "none of us had yet attempted to design a total environment that would deal with all of the behavioral problems in a mental hospital."

This engineering feat showed that long-hospitalized and idle psychotics, when they were properly reinforced, could learn how to care for themselves, do housekeeping chores, and even hold down jobs around the hospital. The trick was to learn which reinforcers worked with

"Indeed, behavioral education may create the very kind of people needed to cope with the extremes of technical advancement and social crisis characteristic of the 20th century."

—Roger Ulrich, Stephen E. Louisell, Marshall Wolfe (in *Educational Technology*)

which persons—one patient might spend tokens to sit in a favorite chair, another to attend religious services—and to find an efficient way to deliver the rewards. Hospital staff members had to look at each patient's individual behaviors and overcome the stereotyped images that went with "schizophrenic," "mental defective," and other labels the patients had acquired. Staff members also had to keep records of how each patient spent the day and had to hand out reinforcements systematically.

The token system proved to be so effective that Ayllon and Azrin predicted that it "will probably find great applicability in many different disciplines concerned with human behavior." They were right. Their example inspired many similar programs in the United States and abroad—with retarded children, slow learners and juvenile delinquents as well as with adult psychotics in mental hospitals.

Chaos. The most notable program was created by Harold L. Cohen, an artist and designer who, as head of the design department at Southern Illinois University, had been greatly impressed by the behavioral approaches of Israel Goldiamond, who was also at Southern Illinois University, and of Ayllon and Azrin at nearby Anna State Hospital. Cohen later succeeded Goldiamond as executive director of the Institute for Behavioral Research (IBR), a private company in Silver Spring, Maryland. IBR's CASE Project at the National Training School for Boys (then located in Washington, D.C.) successfully extended the token system to a new age group (adolescent boys), new behavior problems (juvenile delinquency and failure in school) and a new setting (prison). In general, the youths they worked with made academic gains three times greater than the standard gains that are expected of public-school children. *A New Learning Environment*, the book Cohen wrote with his colleague James C. Filipeczak, tells how they did it.

Ayllon's name has become almost synonymous with the token system, especially since the publication in 1968 of Ayllon and Azrin's *The Token Economy*. His reputation led me to suspect, before I visited him last December, that his current work with children in the Atlanta schools (he moved to Georgia State University in 1968) probably involved the wholesale use of token systems. I was surprised to learn from one of Ayllon's graduate students, William Skuban, that in working with a highly disruptive seventh-grade class they had set up a token system only as a last resort after more traditional methods had failed to end the chaos. When I asked why, he replied, "Why use tokens if something else will work?"

That seemed heretical until I realized that Ayllon was less interested in promoting "his" method than in

"Whatever the merit of the doctrine of tender loving care, human sympathy and concern may obviously be directed toward better ends than creating and maintaining many of the very behaviors which lead to continued incarceration in a mental institution."

—Roger Ulrich, Thomas Stachnik and John Mabry (In *Control of Human Behavior*)

spreading the benefits of any successful behavioral technique. At one point in our conversation about his work and its shift in focus from psychotics in mental hospitals to ordinary children in ordinary classrooms, Ayllon referred to *Walden Two*, Skinner's fictionalized account of a community that was run on behavioral principles. "Walden Two is visionary," he told me. "It's going to come."

Ayllon's shift in focus is no accident. In the last five years behavior controllers increasingly have moved away from the laboratorylike settings of mental hospitals, correctional institutions and special classrooms and have set up programs—sometimes large-scale ones—in public schools, halfway houses, private homes and community-mental-health centers. In Kansas, they have helped vitalize a large urban ghetto housing project; in Maryland, they even talk confidently of a plan to convert the governmental, educational and law-enforcement systems of a huge suburban county to the use of behavior modification.

Dealing. "Behavior modification," however, is a catch-all term that is fast losing whatever meaning it once had. In popular usage, it generally refers to psychotherapeutic methods that sprang from experimentation and theory in the two main branches of scientific behaviorism: Pavlovian *classical conditioning* and Skinnerian *operant conditioning*. But Leonard Krasner, a leading behaviorist, uses "behavior modification" to cover what he calls evocative psychotherapies, including psychoanalysis, as well as the behavioral therapies. Albert Bandura, another major behaviorist, contends that "all forms of psychotherapy, regardless of their self-conferred honorific titles and noble aims, effect behavioral changes through either deliberate or unwitting manipulation of controlling variables." (To complicate matters further, Bandura himself has contributed a distinct therapeutic technique, *modeling*, to the behavior-modification armory.) To me, it seems simpler to discard "behavior modification" and to think instead in terms of two major movements that attempt to deal with human problems from a behaviorist orientation: *behavior therapy* and *applied behavior analysis*.

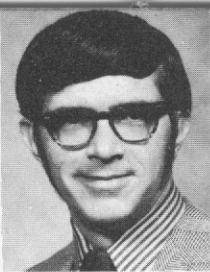
Design. Behavior therapy, a mid-century outgrowth of classical-conditioning experimentation and the learning theories of psychologist Clark Hull, retains many of the trappings of older psychotherapies: a predominantly one-to-one, therapist-client relationship; scheduled sessions in the therapist's office or clinic; fees paid by clients. Its techniques—systematic desensitization, assertive training, covert sensitization and other, mainly aversive, conditioning methods—differ considerably from those used in psychoanalysis, but both therapies have the same limitations: their practice usually requires ex-



TEODORO AYLLON

Professor of Psychology and Special Education, Georgia State U.
b. April 25, 1929
M.A. 1955, U. of Kansas; Ph.D. 1959, U. of Houston

Joined Georgia State faculty in 1968 after six years as clinical research director at Anna State Hospital and professorships at Southern Illinois U. and U. of Pennsylvania. Pioneered use of behavioral techniques, including token economy, with severely disturbed mental-hospital patients. Author, with Michael, of article that sparked applied behavior movement ("The Psychiatric Nurse as a Behavioral Engineer," 1959) and coauthor, with Azrin, of *The Token Economy*. Current work is mainly with children in Atlanta public schools.



NATHAN H. AZRIN

Professor at Rehabilitation Institute, Southern Illinois U., and Director of Behavior Research Laboratory, Anna State Hospital, Anna, Illinois
b. November 26, 1930
M.A. 1953, Boston U.; Ph.D. 1955, Harvard

Moved to Southern Illinois in 1957 after conducting research at Harvard on childhood psychosis and, with Skinner, on automated teaching methods. Azrin and Ayllon set up first large-scale token-economy system. His other coresearchers have included Lindsley, Goldiamond, Ulrich and Sulzer-Azaroff. Developed technology for treating many behavioral problems, including cigarette smoking, posture, stuttering, self-medication and incontinence [see "Pain and Aggression," PT, May 1967]. Coauthor, with Ayllon, of *The Token Economy* (Appleton-Century-Crofts, 1968).



DONALD M. BAER

Professor of Human Development, U. of Kansas
b. October 25, 1931
Ph.D. 1957, U. of Chicago

Joined Kansas faculty in 1965 after teaching and conducting research for eight years at U. of Washington. Trained in developmental psychology, not in operant conditioning. With Bijou he pioneered use of applied behavior analysis with severely disturbed children. Principal author, with Wolf and Risley, of paper that defined the field—"Some Current Dimensions of Applied Behavior Analysis," reprinted in Ulrich, Stachnik and Mabry's *Control of Human Behavior*. [See "Let's Take Another Look at Punishment," PT, October 1971.]



ALBERT BANDURA

Professor of Psychology, Stanford
b. December 4, 1925
M.A. 1951, Ph.D. 1952, U. of Iowa

Joined Stanford faculty in 1953. Has spent entire career there, teaching and conducting research on social-learning theory and applications. Outstanding contribution has been in modeling (or imitative-learning) techniques. Behavior therapists use them to modify phobias, and applied behavior analysts use them as shortcuts in the shaping process. Bandura did important studies on TV and aggression, more recently on self-control mechanisms and individual and collective aggression. Author of *Principles of Behavior Modification* (Holt, 1969). President-elect of American Psychological Association.



WESLEY C. BECKER

Professor of Education, U. of Oregon
b. March 17, 1928
M.A. 1953, Ph.D. 1955, Stanford

Joined Oregon faculty in 1970 after 15 years at U. of Illinois, where he and Siegfried Engelmann developed Engelmann-Becker model curriculum for compensatory-education classes. Former consultant to U.S. Office of Education's Follow-Through program and now codirector of Follow-Through planned-variation project using E-B model. Did research with O'Leary and Madsen. Author of *The Empirical Basis for Change in Education* (Science Research Associates, 1971).



MARTHA E. BERNAL

Associate Professor of Psychology, U. of Denver
b. April 13, 1931
M.A. 1957, Syracuse U.; Ph.D. 1962, Indiana U.

Joined Denver faculty in 1971 after teaching and conducting research at Indiana, U. of Arizona and UCLA's Neuropsychiatric Institute. Major work has been in modification of "brat" behaviors and training parents to modify their children's behaviors. Studied autistic children and psychosomatic problems. Coauthor of "Behavior Modification and the Brat Syndrome," reprinted in Ulrich, Stachnik and Mabry's *Control of Human Behavior*.



SIDNEY W. BIJOU

Professor of Psychology and Director of Child Behavior Laboratory, U. of Illinois
b. November 12, 1908
M.A. 1937, Columbia; Ph.D. 1941, U. of Iowa

Joined Illinois faculty in 1965 after two years at Indiana U. and 17 years at U. of Washington, where he was instrumental in building the university's reputation as a top-flight center for application of behavioral techniques to problems of children. Conducted and directed numerous studies that led the field [see "The Mentally Retarded Child," PT, June 1968]. Former editor of *Journal of Experimental Child Psychology* and coeditor, with Baer, of three-volume *Child Development* (Appleton-Century-Crofts, 1961, 1964 and 1967).

tensive training; they can reach only a small fraction of the people who are in need of them, and they are designed to alleviate problems, not to prevent problems.

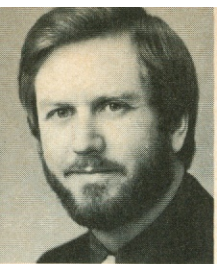
Applied behavior analysis is a direct descendant of Skinnerian operant-conditioning experimentation. It has retained many of the scientific trappings (such as close observation and precise recording of behaviors) and most of the jargon of the rat-and-pigeon days. It also has added some trappings of its own, such as interval recording and new observation procedures and research designs. Though many of its practitioners are therapists, and many have done work in one-to-one and small-group situations, its milieu more closely resembles an educational setting than a doctor's office. Unlike psychoanalysts, who use a battery of techniques but seldom refer to them as a technology, applied behavior analysts spend a great deal of time developing, packaging, disseminating and talking about behavioral technology. They have not given up experimentation, but their laboratory is the real world; they still treat individual problems, but they attempt to do it on an increasingly massive scale; and their technology, usable to a large extent by just about anybody, permits them to emphasize prevention rather than cure. In short, they are becoming behavioral engineers.

Deviance. Freed from built-in restraints of most psychotherapies, applied behavior analysis is an aggressive and radical reform movement that already has stepped into a vacuum of failures left by traditional methods of teaching and healing. And, like the potential victor

Who's Who and Where in Behavior

Applied behavior analysts have moved through a tight network of 16 major centers, mainly in the Midwest and far West. Over the years, 17 of the 42 leading behavior shapers have taught and conducted research at the University of Washington in Seattle. The University of Kansas in Lawrence and Kansas City has been home base for 11, Indiana University in Bloomington and Indianapolis for nine, and Harvard University and Southern Illinois University in Carbondale for six each.

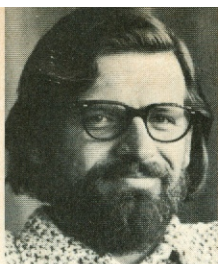
The University of Kansas and Western Michigan University in Kalamazoo now lead the field. At Kansas, the two main currents of the movement have converged: that of operant-conditioner-turned-behavioral-engineer (Ogden Lindsley) and that of child-development-researcher-turned-behavior-analyst (Donald Baer). Lindsley came from B.F. Skinner's animal laboratory at Harvard, while Baer was associated with Sidney Bijou's child-development clinic at the University of Washington.



ROBERT L. BURGESS
Associate Professor of
Sociology, U. of
Washington

b. June 24, 1938
M.A. 1964, Ph.D. 1969,
Washington U., St. Louis

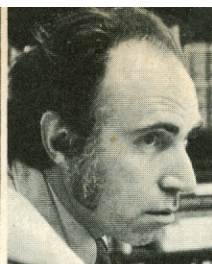
Joined Washington faculty in 1963. He and Bushnell (also a St. Louis product) are a rare breed: operant sociologists. They coedited *Behavioral Sociology: The Experimental Analysis of Social Process* (Columbia U. Press, 1969). With Roger N. Clark and John C. Hendee, Burgess pioneered open-setting studies to control littering behavior. Book in progress: *Environmental Pollution: An Experimental Model for Its Analysis and Treatment*.



DONALD G. BUSHNELL Jr.
Associate Professor of
Human Development, U.
of Kansas

b. June 22, 1934
M.A. 1958, Kent State U.;
Ph.D. 1964, Washington
U., St. Louis

Joined Kansas faculty in 1967 after teaching sociology and conducting research at Washington U. and Webster College in St. Louis, U. of Washington in Seattle. Directed projects in design of instructional systems at Central Midwestern Regional Educational Laboratory and use of contingencies in college classrooms at U. of North Carolina. At Kansas he was codirector of Juniper Gardens preschool and now heads Follow-Through and Head-Start projects using his own behavior-analysis model. Author of *Classroom Behavior: A Little Book for Teachers* (Prentice-Hall, in press) and coeditor with Burgess, of *Behavioral Sociology*. (Columbia U. Press, 1969).

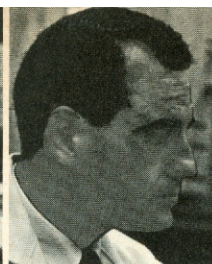


HAROLD L. COHEN

Executive Director of Institute for Behavioral Research, Silver Spring, Maryland

b. May 24, 1925
B.A. 1949, Illinois Institute of Technology

Joined staff of Institute for Behavioral Research in 1964 and succeeded Goldiamond as its executive director in 1968. Spent nine years as chairman of Southern Illinois U.'s department of design. With James A. Filipczak, he set up a token-economy environment for inmates at National Training School for Boys. Current projects include PICA to shape interpersonal and academic behaviors of students in trouble, two preventive delinquency programs called BPLAY and TARR, and a whole-system use of behavioral techniques in public schools. Coauthor, with Filipczak, of *A New Learning Environment* (Jossey-Bass, 1971).



CHARLES B. FERSTER

Professor of Psychology, American U.
b. November 1, 1922
M.A. 1948, Ph.D. 1950, Columbia

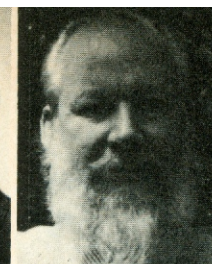
Joined American faculty in 1969 after teaching and conducting research at Harvard, the Yerkes primate laboratories, Indiana U., Arizona State U. and Southern Illinois U. Preceded Goldiamond and Cohen as executive director of Institute for Behavioral Research. Coauthor, with Skinner, of operant-conditioning classic, *Schedules of Reinforcement* (Appleton-Century-Crofts, 1957). Did influential early work with autistic children and behavioral control of overeating, more recently with language teaching, college instruction, self-control and Skinnerian analysis of the psychoanalytic process [see "The Autistic Child," PT, November 1968].



WILBERT E. FORDYCE

Professor of Clinical Psychology, U. of Washington School of Medicine
b. January 3, 1923
M.S. 1951, Ph.D. 1953, U. of Washington

Joined Washington faculty in 1959 after five years as clinical psychologist at VA Hospital, Seattle. Reported successful use of behavioral techniques in physical rehabilitation of patients. Most impressive work has been in reduction or elimination of long-standing chronic pain through operant-conditioning. Author of excellent overview in *Rehabilitation Psychology* (American Psychological Association, 1971).



PAUL R. FULLER

Professor of Psychology, Western Michigan U.
b. January 16, 1923
M.A. 1949, Ph.D. 1952, Indiana U.

Joined Western Michigan faculty in 1970 after several years as psychologist in industry, where he supervised work in America's manned space-flight programs. As graduate student at Indiana U., he conducted pioneer experiment in human operant conditioning. Taught at Indiana and Florida State U. A behavioral engineer for nearly 20 years, he focused on the integration of applied behavior analysis into total-systems analysis. Author of "Parameters of Man-in-Space—The Psychophysiology of Manned Space Flight," a Martin Company technical report.



ISRAEL GOLDIAMOND

Professor of Psychiatry and Psychology, U. of Chicago

b. November 1, 1919
Ph.D. 1955, U. of Chicago

Joined Chicago faculty in 1968 after teaching and conducting research at Southern Illinois U., Arizona State U. and Johns Hopkins U. Executive director, Institute for Behavioral Research, 1963-1968. Important early work on stuttering (with Azrin) and the control of other verbal behaviors. Pioneered use of self-control procedures to solve personal behavior problems [see "Moral Behavior: A Functional Analysis," PT, September 1968].

Shaping

Washington lost Bijou, Baer and several other top-flight applied behavior analysts in the mid-'60s, but it remains an active center. Also highly active are the State University of New York at Stony Brook, the University of Oregon in Eugene, and the University of Hawaii in Honolulu.

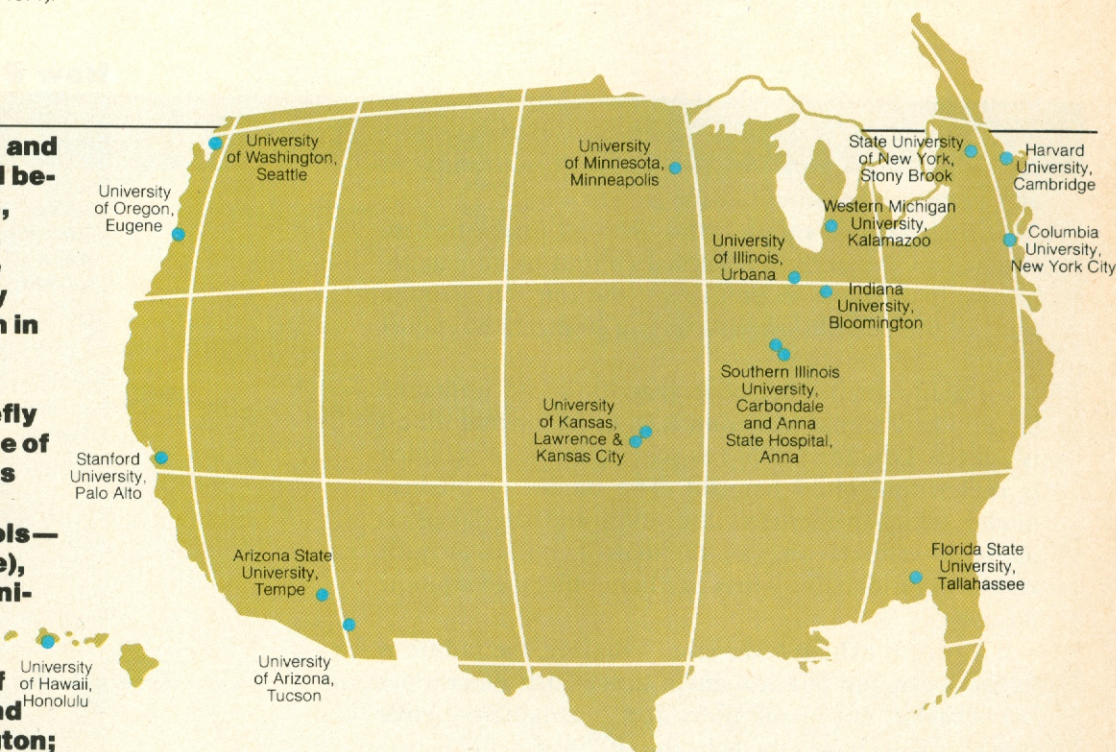
Some centers have been chiefly doctorate-producers. Forty-one of the 42 leading behavior shapers hold doctorates, half of which (21) came from just five schools—Washington (six), Harvard (five), Indiana (four) and Columbia University and the University of Minnesota (three each). These figures reflect the influence of Skinner at Harvard, Indiana and Minnesota; of Bijou at Washington; and of Fred S. Keller at Columbia.

Other centers owe their present status to the work of one or two outstanding individuals—Bijou at the University of Illinois in Champaign; Nathan Azrin at Southern Illinois; Albert Bandura at Stanford; Ralph Wetzell at the University of Arizona; Charles Madsen at Florida State. A few once-busy

centers have grown quiescent, including Arizona State University, which was known in the early '60s as "Fort Skinner in the desert."

The next few years will see the flowering of new centers. Best bets are Drake University in Des Moines, where Jon E. Krapfl, W. Scott Wood and others are devel-

oping behavior-modification and educational-engineering training programs; and the University of Utah in Salt Lake City, where Howard Sloane, Gabriel Della-Piana and others have a wide range of programs under way, including one that uses behavioral techniques to train poets and sculptors.



**R. VANCE HALL**

Associate Professor of Human Development, U. of Kansas

b. December 4, 1928
M.Ed. 1960, Ph.D. 1966,
U. of Washington

Joined Kansas faculty in 1965 after several years as elementary-school teacher and principal. Now director of Juniper Gardens Children's Project in Kansas City ghetto. Studied use of behavioral techniques in classrooms. Through seminars and packaged responsive-teaching model, he and his graduate students have spread techniques across U.S. Author of *Managing Behavior* (H & H Enterprises, 1971).

NORRIS G. HARING

Professor of Education and Director of Experimental Education Unit, U. of Washington

b. July 25, 1923
M.A. 1950, U. of Nebraska; Ed.D. 1956, Syracuse U.

Joined Washington faculty in 1965 after five years at U. of Kansas Medical Center. Specialist in education of exceptional children and associate editor of journal *Exceptional Children*. Worked on new curriculum designs and precision-teaching model for training teachers in contingency management. Author of preface to H. P. Kunzelman's *Precision Teaching: An Initial Training Sequence* (Special Child Publications, Seattle, 1970) and coauthor of *Analysis and Modification of Classroom Behavior* (Prentice-Hall, 1972).

ROBERT P. HAWKINS

Associate Professor of Psychology, Western Michigan U.

b. February 10, 1931
M.S. 1963, Ph.D. 1965,
U. of Pittsburgh

Joined Western Michigan faculty in 1966 after a year's research at U. of Kansas under supervision of Baer. Spent a year working with Bijou at U. of Washington's Child Development Clinic and did pioneer study in training parents to modify their children's behavior. At Western Michigan he directed research program for emotionally disturbed children sponsored by Kalamazoo public schools. Advocates "universal parent-hood training" in behavioral techniques to prevent mental-health problems [see "Stimulus/Response," page 28]. Founding editor of journal for teachers called *School Applications of Learning Theory* (SALT).

LLOYD E. HOMME

Self-employed
b. December 5, 1917
M.A. 1948, Southern Methodist U.; Ph.D. 1953, Indiana U.

Formerly head of behavioral-systems research for several organizations, including Teaching Machines, Inc., Westinghouse Learning Corporation, and most recently, Individual Learning Systems in San Rafael, California. Taught at Indiana U., U. of Pittsburgh and U. of New Mexico and conducted research in programmed instruction with Skinner at Harvard. Pioneered use of Premack Principle in schools; helped develop "reinforcing-event menu" and contingency contracting. Author of *How to Use Contingency Contracting* (Research Press, 1969). Now writing book on humanistic behaviorism.

FRED S. KELLER

Adjunct Professor of Psychology, Western Michigan U.

b. January 2, 1989
M.A. 1928, Ph.D. 1931,
Harvard U.

Joined Western Michigan faculty in 1968 after 26 years at Columbia, three years at Arizona State U. and a year at the Institute for Behavioral Research. In many ways, Keller has had even more influence on the development of behavioral engineering than has Skinner, his long-time friend. His experimental and applied research in human learning and communications training inspired classroom-instruction techniques that are used in many behavioral programs, and his operant psychology program at Columbia turned out many Skinnerians.

LEONARD KRASNER

Professor of Psychology, State U. of New York at Stony Brook

b. December 17, 1924
M.A. 1947, Ph.D. 1950,
Columbia

Joined Stony Brook faculty in 1965 after eight years as a professor at Stanford and coordinator of training and special research projects at VA Hospital in Palo Alto. Taught at U. of Washington. Pioneered use of reinforcement in psychotherapy, and published many important articles in theory and practice of behavior therapy and human operant conditioning. Introduced token-economy systems at mental hospitals in California and New York. Coeditor, with Ullmann, of *Research in Behavior Modification and Case Studies in Behavior Modification* (both Holt, 1965).

OGDEN R. LINDSLEY

Professor of Education, U. of Kansas
b. August 11, 1922
Sc.M. 1950, Brown U.;
Ph.D. 1957, Harvard

Joined Kansas faculty in 1965 after teaching and conducting research at Boston U. Medical School and Harvard Medical School. With Skinner, he did pioneer studies in human operant conditioning and coined term "behavior therapy." Devised simplified system for precise behavioral management ("pinpoint, record and consequate") and precision-teaching model. His Behavior Research Company in Kansas City has set up computerized Behavior Bank to store and retrieve data on how to change behaviors.

in an evolutionary struggle, it has several built-in advantages that make it a likely alternative in the present search for social programs that refuse to set limits on an individual's possibilities for growth.

Though Skinner's philosophy, with its unabashed insistence on the need for planned control of human behavior, is the bane of humanists, the implicit assumptions of the post-Skinnerians have a strangely humanistic ring.

For many applied-behavior analysts, as for humanist heroes like Thomas Szasz and R.D. Laing, mental illness is a myth. Labeling persons as schizophrenic or retarded is useless and often harmful. The illness, or medical model, which perpetuates the myth and the labels, is no longer valid. Neither are the tools—I.Q. tests, attitude scales, questionnaires—that facilitate the pigeonholing process.

If a person exhibits "deviant" behavior, the failure is in the social and physical environment that determines his behavior, not in the individual; changing the environment will change the behavior. If "treatment" is necessary, the best place to do it is in the home or school, not in some artificial or perhaps permanent place of confinement. And the best persons to provide the treatment are parents, teachers, friends—not medicine men. Therapy, even with large groups, must concentrate on the individual or it will not be effective; and its concern is with the here and now, not with some past trauma or some statistical prediction about future performance. But therapy itself should take a back seat to prevention,

How Behavior Shapers Move

HARVARD UNIVERSITY	INDIANA UNIVERSITY	COLUMBIA UNIVERSITY	UNIVERSITY OF MINNESOTA
1930			
*Azrin *Ferster *Homme *Keller *Lindsley *Skinner	Bijou Ferster *Fuller *Homme Malott *Sarason Skinner	Bijou *Ferster Keller *Krasner	*Patterson *Premack Skinner
1960			
Lindsley Skinner	*Bernal Ferster Ulrich	Keller *Malott	
1965			
Skinner			*Sulzer
1970			
Skinner			
TODAY			

*Shaper got Ph.D. at this institution.



O. IVAR LOVAAS
Professor of Psychology,
U. of California at Los Angeles
b. May 8, 1927

M.S. 1954, Ph.D. 1958,
U. of Washington

Joined UCLA faculty in 1961 after teaching and doing clinical and research work at U. of Washington. Leading authority in treatment of autistic children with a combination of behavioral techniques, including operant, imitative (modeling) and aversive (electric shock). Did research on tension, aggression, verbal behavior and self-destructive behavior, principally with children. Planning new study on childhood gender problems. Coeditor of *Readings in Behavior Modification with Deviant Children* (Prentice-Hall, in press).

CHARLES H. MADSEN Jr.
Associate Professor of Psychology, Florida State U.

b. March 28, 1933

M.A. 1964, Ph.D. 1965,
U. of Illinois

Joined Florida State faculty in 1967 after two years as research professor at Illinois and as staff psychologist of mental-health clinic in Champaign. Did extensive research with Becker, Ullmann and others, mainly in modification of child behavior. With Clifford K. Madsen, also at Florida State, he explored use of music and other innovations in behavioral technology. As consultant to schools and child-care centers in Illinois and Florida, he helped spread classroom use of behavioral techniques to more than 6,000 teachers.

RICHARD W. MALOTT
Associate Professor of Psychology, Western Michigan U.

b. October 3, 1936

Ph.D. 1963, Columbia

Joined Western Michigan faculty in 1966 after teaching and conducting research at Indiana U., Columbia and Denison U. Pioneered use of contingency management in introductory psychology course for college students. Coauthor, with D. L. Whaley, of programmed textbook, *Elementary Principles of Behavior* (Appleton-Century-Crofts, 1971). Now doing pilot research on behavior-oriented experimental college. His Behaviordelia firm produces pop-culture, multimedia works such as *Big New-Mother Mind-Boggling Behavior Expander* (1972) and *The First Fly-by-Night Underground Experimental College of Kalamazoo* (1971).

HUGH S. MCKENZIE
Associate Professor of Education, U. of Vermont
b. May 10, 1935

Ph.D. 1966, U. of Arizona

Joined Vermont faculty in 1967 after a year as research fellow at U. of Kansas Bureau of Child Research. Developed consulting-teacher model for training school psychologists and special-education teachers in behavioral techniques. Current research in Vermont public and parochial schools involves behavior-shaping techniques and natural reinforcers in learning language, arithmetic, self-care and social behaviors. Author of "Special Education and Consulting Teachers," in *Implementing Behavioral Programs in Education and Clinical Settings* (Research Press, 1972).

MERLE L. MEACHAM
Associate Professor of Educational Psychology, U. of Washington

b. February 22, 1920

M.A. 1956, U. of Washington; Ed.D. 1964,
Washington State U.

Joined Washington faculty in 1966 after several years as psychologist and guidance counselor in Washington secondary schools and colleges. Specialist in use of reinforcement techniques by school psychologists and counselors. Coauthor of *Changing Classroom Behavior: A Manual for Precision Teaching* (International Textbook Co., 1969).

JACK L. MICHAEL
Professor of Psychology, Western Michigan U.

b. January 16, 1926

M.A. 1952, Ph.D. 1955,
U. of California at Los Angeles

Joined Western Michigan faculty in 1967 after teaching at U. of Kansas, U. of Houston and, for seven years, at Arizona State U. With graduate student Ayllon he published seminal study, "The Psychiatric Nurse as a Behavioral Engineer," in 1959. Pioneered use of behavioral approach in rehabilitation, counseling and college instruction. Has been influential as teacher, consultant and lecturer at workshops and conferences across the country. Coeditor, with Charles Neuringer, of *Behavior Modification in Clinical Psychology* (Appleton-Century-Crofts, 1970).

K. DANIEL O'LEARY
Associate Professor of Psychology, State U. of New York at Stony Brook

b. October 3, 1940

M.A. 1965, Ph.D. 1967,
U. of Illinois

Joined Stony Brook faculty in 1967 after a year of teaching and research at Illinois. With Becker, Susan G. O'Leary and others, he did extensive research in use of token reinforcement and other behavioral techniques in public schools. Coordinator of the Child Clinic and director of the University Laboratory School at Stony Brook. Coauthor, with Ronald Drabman, of "Token Reinforcement Programs in the Classroom: A Review" (*Psychological Bulletin*, June 1971) and coeditor, with Susan O'Leary, of *Classroom Management* (Pergamon Press, 1972).

SOUTHERN ILLINOIS UNIVERSITY	STANFORD UNIVERSITY	UNIVERSITY OF WASHINGTON	ARIZONA STATE	UNIVERSITY OF ARIZONA	UNIVERSITY OF ILLINOIS	FLORIDA STATE UNIVERSITY	UNIVERSITY OF KANSAS	WESTERN MICHIGAN UNIVERSITY	UNIVERSITY OF HAWAII	SUNY STONY BROOK	UNIVERSITY OF OREGON
Azrin Cohen Goldiamond Ulrich	Bandura *Becker *Ullmann	Baer Bijou *Fordyce *Hall *Lovaas Meacham Sarason *Wahler Wetzel	Staats		Becker Ulrich	Fuller *Turner	Ayllon Michael				Patterson
Ayllon Azrin Cohen Ulrich	Bandura Krasner Ullmann	Baer Bijou Fordyce Hall Krasner Lovaas *Risley Sarason Wahler *Wetzel Wolf	Goldiamond Keller Michael Staats *Wolf	Bernal *McKenzie Tharp Wetzel Wolf	Becker *Madsen *O'Leary Ullmann	Risley Turner	Haring				Patterson
Ayllon Azrin Sulzer	Bandura	Burgess Bushell Fordyce Haring Hawkins Meacham Sarason	Keller Michael	McKenzie Tharp Wetzel	Becker Bijou Madsen O'Leary Ullmann	Madsen	Baer Bushell Hall Hawkins Lindsley McKenzie Risley Wolf	Hawkins Keller Malott Michael Ulrich	Staats Tharp	Krasner O'Leary	Patterson
Azrin	Bandura	Burgess Fordyce Haring Meacham Sarason		Wetzel	Bijou	Madsen	Baer Bushell Hall Lindsley Risley Wolf	Fuller Hawkins Keller Malott Michael Ulrich	Staats Tharp Ullmann	Krasner O'Leary	Becker Patterson



GERALD R. PATTERSON
Research Professor of Education, U. of Oregon
b. July 24, 1926
M.A. 1951, U. of Oregon; Ph.D. 1956, U. of Minnesota

Joined Oregon faculty in 1957. He is also research associate at Oregon Research Institute and president of the Association for the Advancement of Behavior Therapy. Pioneer in teaching behavioral techniques to parents, teachers and student peers. Now developing engineering technology in work with juvenile delinquents. Developed intervention techniques for use in marital conflict. Author of *Families: Application of Social Learning to Family Life* (Research Press, 1971) and coauthor of *Living with Children: New Methods for Parents and Teachers* (Research Press, 1968).

DAVID PREMACK
Professor of Psychology, U. of California at Santa Barbara
b. October 26, 1925
M.A. 1951, Ph.D. 1955, U. of Minnesota

Joined Santa Barbara faculty after nine years at U. of Missouri. Taught and did research at the Yerkes primate laboratories in Orange Park, Florida, and at UCLA and Harvard. Primarily an animal experimentalist, he formulated the Premack Principle of operant reinforcement, which applied behavior analysts have found invaluable in contingency management ("Toward Empirical Behavioral Laws: I. Positive Reinforcement," reprinted in Ulrich, Stachnik and Mabry's *Control of Human Behavior*). It was Premack who taught Sarah, a chimpanzee, to "talk" [see "The Education of S*A*R*A*H," PT, September 1970].

TODD R. RISLEY
Associate Professor of Human Development, U. of Kansas
b. September 8, 1937
M.S. 1963, Ph.D. 1966, U. of Washington

Joined Kansas faculty in 1965 after a year at Florida State U. Director of preschool research at Juniper Gardens Children's Project. Director of living-environments projects for infant, preschool and day-care centers, an urban recreation center and a nursing home; develops packages telling how to design, select and organize facilities, equipment, materials and personnel for complete environments that will maintain appropriate behaviors for various populations [see "Learning and Lollipops," PT, January 1968]. Risley is editor of the *Journal of Applied Behavior Analysis*.

IRWIN G. SARASON
Professor of Psychology, U. of Washington
b. September 15, 1929
M.A. 1953, State U. of Iowa; Ph.D. 1955, Indiana U.

Joined Washington faculty in 1956. Has done research on personality and problems in clinical psychology, including test anxiety and verbal conditioning. Outstanding work was the introduction of modeling techniques in behavior modification of test-anxious students, juvenile offenders and parolees. Author of *Personality: An Objective Approach* (Wiley, 1966) and coauthor of *Reinforcing Productive Classroom Behavior* (Behavioral Publications, 1971).

B.F. SKINNER
Professor of Psychology, Harvard
b. March 20, 1904
M.A. 1930, Ph.D. 1931, Harvard

Joined Harvard faculty in 1948 after teaching and conducting research at U. of Minnesota and Indiana U. Formulated operant-conditioning paradigm in first book, *The Behavior of Organisms* (Appleton-Century-Crofts, 1938). Generally considered the father (through Azrin and Lindley) of applied behavior analysis, though some members of movement prefer to pay direct allegiance to Bijou and Baer. One of the few operant psychologists who has written books for general public—*Walden Two* (Macmillan, 1948), *Science and Human Behavior* (Macmillan, 1953), and *Beyond Freedom and Dignity* (Knopf, 1971) [see PT, August 1971].

ARTHUR W. STAATS
Professor of Psychology and Educational Psychology, U. of Hawaii
b. January 17, 1924
M.A. 1953, Ph.D. 1956, U. of California at Los Angeles

Joined Hawaii faculty in 1967 after 10 years at Arizona State U. and two years at U. of Wisconsin. Pioneered use of token-economy system in special education, behavioral techniques to correct reading disabilities. Did extensive research in human learning aimed at developing unified theory of social behaviorism. Author of *Learning, Language and Cognition* (Holt, Rinehart and Winston, 1968) and *Complex Human Behavior* (Holt, 1963).

BETH SULZER-AZAROFF
Training Consultant, Mansfield Training School, Mansfield Depot, Connecticut
b. September 6, 1929
M.A. 1953, City College of New York; Ph.D. 1966, U. of Minnesota

Joined Southern Illinois faculty in 1966 after several years as elementary-school teacher. Left in 1972 to take present position. Completed three-year study on use of token systems to raise academic-achievement level of public-school children. Directed in-service teacher-training workshops in behavior-modification procedures. Coauthor of *Behavior Modification Procedures for School Personnel* (Dryden Press, 1972).

which is far better and less expensive. Above all, the process of changing human lives must be evaluated continually; and it must be accountable to its consumers, the persons who are affected by it and the persons who pay for it.

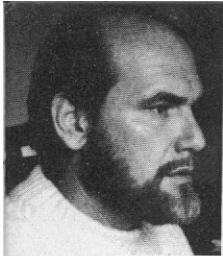
Essence. This is my own summary, distilled from talks with several applied behavior analysts and a great deal of reading between the lines of their scientific reports. The analysts themselves spend little time denouncing traditional clinical and teaching methods. But if my overview is accurate, the new breed of Skinnerians has a lot in common with many of the younger radical and humanist professionals who are challenging the traditionalists in psychiatry, psychology, education, counseling, social work, rehabilitation and correction. This conclusion, which practically forced itself upon me after I noted point after point of similarity, was the most personally surprising outcome of my trip beyond *Beyond Freedom and Dignity*. I suspect that if it weren't for their own curtains of mutually exclusive jargons and mutually reinforcing labels, the humanists and the behaviorists might be surprised at how near they are to being bedfellows.

Editors. The applied behavior analysts meanwhile keep themselves busy writing prescriptions for change and producing results that astonish almost all who behold. The program at Bryant school, for instance, is just one of the numerous ongoing projects that make Kansas probably the world center of applied behavior analysis. The state leaped into behaviorism in a big way in 1965,

(Continued on page 132.)

How Behavior Shaping Grows

		TARGET SUBJECTS
1935	Experimentation	animals
1960	Treatment	individuals
1965		small and large groups, families
1970	Prevention	whole schools, neighborhoods, whole counties, general public
2001		everyone



ROLAND G. THARP
Professor of Psychology
and Director of Clinical
Studies, U. of Hawaii
b. June 6, 1930
Ph.D. 1961, U. of Mich-
igan

Joined Hawaii faculty in 1968 after five years at U. of Arizona and two years as field selection officer for Peace Corps. Specialist in marriage problems, use of behavioral techniques by family therapists and probation officers. Author, with Wetzel, of *Behavior Modification in the Natural Environment* (Academic Press, 1969) and, with David Watson, of *Self-Directed Behavior* (Brooks/Cole, 1972). In earlier years he won several literary awards, including the *Atlantic Monthly's* Grand Prize.



A. JACK TURNER
Research Director,
Huntsville-Madison
County Mental Health
Center, Alabama
b. January 19, 1932
Ph.D. 1962, Florida State
U.

Moved to Huntsville-Madison center in 1970 after six years as professor of psychology at Auburn U. Planned and coordinated conversion of center to whole-system use of empirical—chiefly operant—techniques and now directs three-year implementation and evaluation program.



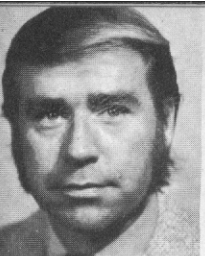
LEONARD P. ULLMANN
Professor of Psychology,
U. of Hawaii
b. May 28, 1930
M.A. 1953, Ph.D. 1955,
Stanford

Joined Hawaii faculty in 1972 after nine years at U. of Illinois. Also taught at Stanford and San Jose State and was coordinator of Psychiatric Evaluation Project at Palo Alto VA Hospital. Major work has been on normal and schizophrenic responses to emotional stimuli, problems of psychodiagnosis and modification of verbal behavior. Author of *Institution and Outcome: A Comparative Study of Psychiatric Hospitals* (Pergamon, 1967) and coauthor, with Krasner, of *A Psychological Approach to Abnormal Behavior* (Prentice-Hall, 1969). Also coeditor, with Krasner, of two collections of major behavior-modification articles (see Krasner).



ROGER E. ULRICH
Research Professor of
Psychology, Western
Michigan U.
b. August 30, 1931
M.A. 1957, Bradley U.;
Ph.D. 1961, Southern Il-
linois U.

Joined Western Michigan faculty in 1965 after teaching and conducting research at Anna State Hospital, Illinois Wesleyan U. and Illinois State U. Studied at U. of Illinois and Indiana U., worked with Azrin and Goldiamond. Set up and directs Learning Village, a private, behavior-oriented school for children in Kalamazoo. Does experimental analyses of aggression in animals and people. Coeditor, with T.J. Stachnik and J.H. Mabry, of two-volume collection of important papers in behavior shaping, *Control of Human Behavior* (Scott, Foresman, 1966 and 1970). Third volume is in press.



ROBERT G. WAHLER
Professor of Psychology,
U. of Tennessee
b. October 1, 1936
M.S. 1960, Ph.D. 1962,
U. of Washington

Did post-doctoral work at U. of Washington Child Development Clinic under supervision of Bijou and Baer. Moved to Tennessee in 1964. Specialist in use of behavioral techniques in evaluation and treatment of deviant child behavior. Best-known work is with "oppositional" children—or "brats," as Bernal calls them—and with parents as therapists. Current work, on generality of behavior changes, takes ecological approach. Coeditor, with O. H. Milton, of *Behavioral Disorders: Perspectives and Trends* (Lippincott, 1969).



RALPH J. WETZEL
Professor of Psychology,
U. of Arizona
b. June 11, 1933
M.S. 1958, Ph.D. 1961,
U. of Washington

Joined Arizona faculty in 1962. Chief work has been in training parents, teachers and para-professionals to use behavioral techniques with children. Former consultant to Head-Start and Follow-Through programs. Current research involves change processes in educational and mental-health systems. Coauthor, with Tharp, of *Behavior Modification in the Natural Environment* (Academic Press, 1969).



MONTROSE M. WOLF
Professor of Human De-
velopment, U. of Kansas
b. May 29, 1935
M.A. 1961, Ph.D. 1963,
Arizona State U.

Joined Kansas faculty in 1965 after teaching and conducting research for two years at U. of Washington and a year at U. of Arizona. As graduate student, he was a research assistant to Goldiamond and Staats; his dissertation adviser was Michael. Developed behavioral techniques for modifying problems of normal, disadvantaged and retarded children and adolescents. Created Achievement Place, a community-based home for predelinquents, and the teaching-family model.

BEHAVIOR SHAPERS	TARGET BEHAVIORS	ENVIRONMENTS	BEHAVIORAL PRODUCTS
experimental psychologists	operant responses	campus psychology laboratories	Skinner box, operant paradigm, experimental designs, token incentives
clinical and school psychologists	severe disturbances, learning disabilities, physical handicaps	mental institutions, clinics, special-education classrooms	treatment and learning techniques for human subjects, token economy
psychologists, teachers, special therapists, parents	social and educational disturbances	prisons, regular classrooms, halfway houses, homes	applied-behavior-analysis model, teaching techniques and models for professionals and paraprofessionals, new environmental designs, evaluation research, accountability techniques
administrators, teacher aides, employers, students, families, selves	mild disturbances, normal	mental-health centers, social and welfare agencies, businesses, open settings	packaged learning programs for university classes, schools, homes, institutions, child-care centers, nursing homes, halfway houses
everyone	all kinds	everywhere	a happy, productive culture without war, poverty or pollution