The Journal of Mind and Behavior
Winter 1988, Volume 9, Number 1
Pages 29–56
ISSN 0271-0137

On the Radical Behaviorist Conception of Pain Experience

Thomas Natsoulas

University of California, Davis

It is time for radical behaviorism no longer to pretend, but to begin to reflect with increasing accuracy the true state of affairs as regards people's inner lives. The present article pursues the part of the radical behaviorist conception of consciousness that bears, successfully or not, on our conscious experience of pain. I hope to see radical behaviorists assume some of the scientific leadership that psychology needs to bring it out of the inner darkness of the twentieth century.

Stepping Out of Character

The founder of radical behaviorism, B.F. Skinner, has been one of the few most influential psychologists of the entire twentieth century; therefore, it feels like something of a privilege for me to address, as I do here, the radical behaviorist conception of *pain experience*, and to urge that this undeveloped and problematic conception receive the magnitude of theoretical effort that it requires and deserves. From my postdoctoral days as a psychologist to the present, I have been constantly intrigued by this so-called "radical" yet representative figure of twentieth-century psychology, and in particular by Skinner's contributions to the psychology of consciousness, which is the topic to which I have devoted my scientific life. Although our descendants will remember the twentieth century as *a century of rampant overt behavior and thick inner darkness*, this outstanding leader of the "Party of Behavior" has repeatedly propounded a unique conception of consciousness through four decades. In this way among others Skinner has succeeded time after time in stepping out of the one-dimensional character that some psychologists have tried to write for him. Needless to say, it is not only in Skinner's case that one ought to attend closely to the author's words, rather than place one's trust in secondary sources. Original statements of Skinner's account are readily available in a long list of publications (Blanshard and Skinner, 1966–1967; Skinner, 1945a, 1945b, 1953, 1957, 1963, 1969, 1972a, 1972b, 1976, 1978, 1980a, 1980b, 1984a, 1984b). These should be consulted whenever the reader develops

Requests for reprints should be addressed to Thomas Natsoulas, Ph.D., Psychology Department, University of California, Davis, California 95616.

any doubt concerning my representation of Skinner's views. In several articles, I have provided detailed exposition and critical consideration of the radical behaviorist conception of consciousness (Natsoulas, 1978, 1983b, 1985c, 1986). The most recent one of these four articles discussed this conception in the special context of Skinner's (1984a, 1984b) importantly informative replies to many brief evaluations, criticisms, and extensions for which two (of five) of Skinner's (1945b, 1963) so-called "canonical papers" served as an occasion. A large group of knowledgeable philosophers and psychologists working individually or in pairs (e.g., Danto, 1984; Meehl, 1984; Robinson, 1984) wrote these often carefully composed and well reasoned commentaries to which Skinner freely responded. In the process of preparing my own discussion of the radical behaviorist conception of consciousness that drew heavily on this fascinating exchange between *the* psychologist (as far as the American public is concerned) and highly qualified students of his psychological thought (Natsoulas, 1986), I quickly found that one crucial focus of my explication and evaluative assessment had very definitely to be the account (or the nonaccount; see "The Denial of Experiences" below) that Skinner has proffered for those experiences of pain and the like with which all of us are intimately acquainted. (Or nearly all of us: see Sternbach, 1968, 1978, and Melzack and Wall, 1983, concerning those rare individuals with a congenital absence of all pain experiences. Note that these people are not insensitive to the kind of stimulation that produces experiences of pain in others; rather, what they experience, when they are so stimulated, is other than pain.) Therefore, I pursue further, in the present article, the part of the radical behaviorist conception of consciousness that bears, successfully or not, on our conscious experience of pain.

A Permissive Environment

Any psychological conception of consciousness must include as a central part an account of pain experience and the like; to label one's theory behavioristic, behavioral, or behaviorist does not excuse one from the responsibility of addressing what it is for a person to have experiences and the role that experiences play in functioning. Although Skinner (1945a) recognized, early on, the importance for psychology of "what might be called [E.G.] Boring-from-within," the radical behaviorist conception of consciousness passed its first forty years in *a permissive enviornment* that placed few demands on Skinner to develop the theory. This environment, which is perhaps best epitomized by Hebb's (1972) audacious statement to introductory psychology students and their teachers, "You are not conscious of your consciousness" (p. 2), echoed with proclamations of how pointless it is for people to try to know firsthand any of the processes transpiring between the stimulation of their receptors and nerve endings and their behavior. Often, these proclamations

were accompanied with a crude behavioral determinism that also seemed *to encourage thoughtless, spontaneous behavior.* The radical behaviorist conception of consciousness could remain fixed in a psychological environment that far surpassed Sigmund Freud's advocacy of unconscious mental processes as interacting with conscious ones in the determination of behavior (see Natsoulas, 1984a, 1985a, in press-a) and Skinner (1980a) could say, "Behavior, its controlling variables and the relations among them, do not include or presuppose a conscious state. Behavior comes about for specifiable reasons. In Freud's term it *is* unconscious. Freud himself showed that behavior does not demand consciousness" (p. 353). Skinner reported that he produced this piece of verbal behavior on being asked, after a talk to psychologists, how he would handle "the unconscious." His answer was the kind of statement that many twentieth-century psychologists have found reinforcing; and, in turn, the statement has been strongly reinforced, no doubt, the many times that Skinner has spoken it to psychologists. However, Skinner's statement does not adequately represent his position on the role of consciousness in behavior—even when his further sentence is added to the statement, to the effect that conscious behavior is built on unconscious behavior. Although this brings Skinner's reply more into line with his position on consciousness, the total piece of verbal behavior still constitutes a different one of Skinner's (1953) "selves" than the "self" that includes the following statement:

> Self-knowledge is of social origin. It is only when a person's private world becomes important to others that it is made important to him. It then enters into the control of behavior called knowing [i.e., knowing the private world]. But self-knowledge has a special value to the individual himself. A person who has been "made aware of himself" by the questions he has been asked is in a better position to predict and control his own behavior. A behavioristic analysis does not question the practical usefulness of reports of the inner world that is felt and introspectively observed. (Skinner, 1976, p. 35)

My Own Attitude

My own attitude toward radical behaviorism differs from the permissive attitude that this variety of psychology so frequently encountered in the past, as well as from the attitude that, increasingly, radical behaviorists will be encountering in the future within the larger community of psychologists. I am concerned to do what I can to render the psychological environment such that radical behaviorism *cannot remain static* in its treatment of my topic. My point of application is that which Skinner (1976) surprisingly called "the heart of radical behaviorism," namely, its "alternative account of mental life" (p. 233). I want radical behaviorism no longer to pretend (see "A Picture of Inner Darkness" below), but to begin to reflect with increasing accuracy the true state of affairs as regards people's inner lives. My desire is encouraged, on occasion, when Skinner himself seems amenable (though I have the impression that more than a few of his followers are not ready for change). For

example, see the statement from Skinner (1976, p. 35) with which I ended the previous paragraph. And how else should we understand statements like the following? " 'Whenever introspection conflicts with scientific behaviorism, deny the former.' That is the position of methodological behaviorism, which I explicitly rule out" (Skinner, 1984b, p. 660). Forty years before, Skinner (1945a) criticized methodological behaviorism for retaining pain and other experiences, which it did (Bergmann, 1956; Natsoulas, 1984b). However, Skinner's statement is no less encouraging, since it serves to distance him from positions that are dogmatic about that within people to which they may have direct access. Again (cf. Natsoulas, 1983b, 1986), it sounds as though Skinner may be preparing to lift the inner darkness that characterizes his current conception of consciousness (see next section). This is what I hope to see radical behaviorists accomplish, that is, *to assume some of the leadership that we need to bring pschology out of the inner darkness of the twentieth century.* Radical behaviorism would then deserve to be called "radical" in the very best sense. Obviously, I differ markedly from the critics of radical behaviorism in wanting to see its psychological theory improved rather than forsaken. Behaviorism's imperialist past is a poor reason indeed for conducting ourselves toward behaviorism as behaviorists treated other psychologists. We should resist imperialism within our science as we should resist imperialism in our other institutions. Although advantageous to individuals or groups, it does not help the science of psychology to declare a particular approach the winner, and, then, to try to make the declaration true by whatever means necessary. Encouragement and facilitation of *a diversity of theoretical approaches* will better serve the adaptation to the environment that we call the truth about it. Accordingly, psychologists at large should sincerely acknowledge radical behaviorism as one of the major perspectives on our subject matter that we have succeeded in producing. Radical behaviorism is, as it were, one of our major traditions—which does not mean, of course, that it is complete in the form that Skinner gave it as a philosophy of psychology.

A Picture of Inner Darkness

Given the historical conditions under which psychological science developed in the twentieth century (see Samelson, 1985, for a part of the true story), it is no wonder that Skinner's perspective on consciousness has been widely and badly misunderstood, and misrepresented, and not merely by those who are critical of his perspective or indifferent to it. As I proceed in the present article, I shall have occasion to comment on three groups of psychologists in this connection. At this point, the most sympathetic of the three groups is relevant. Some of the psychologists who are theoretically closest to Skinner's perspective have sought to project to other psychologists what is in fact a distorted image of Skinner's account of consciousness. They have tried to

make his account appear to be a way out of the inner darkness which psychologists have assiduously promoted for so many years among colleagues, the general public, and *millions* of undergraduate students. Any person who is knowledgeable about the radical behaviorist conception of consciousness knows full well that it is not a way out of the inner darkness. The fact of the matter is that, theoretically, Skinner has *left the person in the dark even with regard to his or her own pain experiences* (see "The Alienation of Pain" below). Although the ingenuity that went into the construction of Skinner's account of consciousness does deserve genuine admiration, this account fails to assign to the person any kind of special access to the part of him with which the person tends most closely to identify (see James, 1890/1981, on "the stream of thought" and "the consciousness of self"). For some reason, this point concerning Skinner's account is an easy one to forget or to neglect, this point on which Skinner (1976) could not have made himself more clear than he did when he claimed to be providing us with "an alternative account of mental life" (p. 233) and discussed how we can directly know some of what transpires within our body. One has only to witness Skinner's unambiguous statement that all we can directly know about what takes place in the body are "more stimuli and more responses." Perhaps some people miss the point as a result of their failing to take Skinner as literally as he meant what he stated. Others, sensing a problem, may misguidedly distort the point in order to help along the radical behaviorist conception of consciousness. Thus, we find a very knowledgeable, radical behaviorist, editorial reviewer of an earlier article of mine stating,

> In effect, Natsoulas wants a variety of neural phenomena (such as those we label "sensations" or "thoughts") to be stimuli which can control subsequent neural phenomena, which, in turn, can control subsequent neural phenomena, and so on. I have no problems with that, and neither would Skinner. All responses are, after all, stimuli.

I shall not comment on the accuracy of this statement except as regards one immediately relevant aspect: the truth is that neither Skinner or I would consider neural phenomena as stimuli, nor would we consider neural phenomena as responses (with one exception; see just below). It is quite clear that Skinner did not loosely mean causes and effects by stimuli and responses. He meant activity in sense receptors and nerve endings, and actual muscular and glandular behavior of all magnitudes. (An exception seems to be incipient behaviors in the brain. These are the central start of a response that does not take place; see Natsoulas, 1986, pp. 112–113.) According to Skinner (1976), we cannot directly know anything that proceeds within our nervous system, for the reason that "we have no nerves going to the right places" (p. 238; Skinner, 1978, p. 51). That is, the brain itself produces no stimulation, which would allow us to respond to the brain's processes, states, or events, and thereby to know their characteristics or, simply, to know the fact of their occurrence.

Even the private stimuli and covert responses which transpire inside the body can only be known directly by responding to them, as one responds to stimulation whose causal source is at a distance from the respective receptors, *no more intimately than that.* What better picture of a psychological condition of inner darkness could Skinner have drawn than this one?

The Alienation of Pain

Many psychologists will react to Skinner's picture of inner darkness by asking first about their pain experiences. Do we not have a special access to our pain experiences, they will say, that is more than our responding to private stimuli and covert responses, which is no different basically, according to radical behaviorism, than responding to the ceiling light? Are not Skinner and other radical behaviorists intimately acquainted with their own experiences of pain, as nearly all of us are? Although they may deny the existence of experiences (see "The Denial of Experiences" below), none of them pretends to be anesthetic to pain and other experiences; least of all among them Skinner (1980a) who surprises us with such sentences as this one: "The intimacy of music is like affectionate massage—the composer, helped by the performer, is doing things which feel good to the listener" (p. 165). Yet the psychological theory to which radical behaviorists loyally subscribe *does not provide them with a means whereby* they can be so acquainted with their pains and pleasures. This fact comes out clearly in Skinner's publications, and does not require deep interpretation of what Skinner has been saying. For example, Skinner (1972b) stated,

> As physical states in the individual, [aches, pains, feelings, and emotions] are a part of the physical world, but the individual himself has a special connection with them. My aching tooth is mine in a very real sense because none of you can possibly get nerves into it, but that does not make it different in nature from the ceiling light which we all react to in more or less the same way. (p. 255; cf. Skinner, 1945b)

If, according to radical behaviorism, people's "connections" with their aches and pains are no different fundamentally from their "connections" with, for example, a ceiling light, then this conception leaves people theoretically in the dark about their experiences of pain. Indeed, according to radical behaviorism, people are supposed to know firsthand about anything at all only by literally responding to it. As the radical behaviorist Day (1975) stated, "Feelings are as observable as anything else: that is, they are capable of governing differential responding" (p. 95). If pain is *private stimulation* (Skinner, 1953, p. 237; 1969, p. 255; 1984a, p. 577) from a tooth for example, its occurrence can be "observed," in the radical behaviorist sense, by the act of feeling it, which is held to be a piece of behavior: "We may take feeling to be simply responding to stimuli" (Skinner, 1976, p. 34). If, instead, pain is *the act of feel-*

ing certain private stimulation (Skinner, 1969, p. 255; Skinner, 1986, p. 568: "When we have a toothache, we are feeling an inflamed tooth"), pain can be known directly only by responding to the proprioceptive stimulation that the act of feeling produces. In either case, whether radical behaviorists treat pain as stimulation or as behavior, the person can do no more than respond to his or her pain; this is the only form of direct access that the person has to it. But surely, some psychologists will protest, we have conscious awareness of our pains. The following is an interpretation of radical behaviorism on this point. I place the words *awareness* and *conscious awareness* in quotation marks because there is question as to whether the words are being used by radical behaviorists to refer to the same happenings to which the protesting psychologists refer (cf. Natsoulas, 1986, pp. 97–98). If pains are strictly analogous to ceiling lights with respect to how we have "conscious awareness" of them, "conscious awareness" of them must involve the behavior of feeling in the role of the behavior of seeing. We are "aware" of the ceiling light (pain) when a particular form of the behavior of seeing (feeling) occurs. This behavior is our "awareness" of the ceiling light (pain) in the sense that the light (pain) exercises stimulus control over the behavior. And we have "conscious awareness" of the light (pain) by being "aware" of (responding to) the involved behavior of seeing (feeling).

A Dental Appointment

The radical behaviorists Hayes and Brownstein (1985) recently expressed themselves as critically as I do about the pretense that the radical behaviorist conception of consciousness gives to us, theoretically, access to what goes on within us beyond stimulation and behind behavior. With their statement, they helped *to improve the prospects of radical behaviorism within the scientific world.* They wrote,

> It is indeed true that at times radical behaviorists have translated such important issues ["as visualizing, self-talk, intentionality, thoughts, and feelings"] into behavioral language only so as to dismiss them, and at other times they may have acted as if difficult phenomena are necessarily explained merely by translation. (p. 153)

The signs are that the field of psychology has grown much less permissive than it was during the reign of behaviorism. Radical behaviorists can no longer blithely equate "the difficult phenomena" (cf. Natsoulas, 1983b) with stimuli and responses, and expect to be taken seriously. Psychologists are now much less likely to sit still for displays of behaviorist doctrine. The following is one psychologist's personal reaction to the radical behaviorist conception of pain experience upon visiting the dentist. One should judge not only the validity of the reaction, but also what such reactions portend for radical behaviorism when they are multiplied across the community of psychologists. Early on

the July day when I wrote the first draft of these words, I kept a dental appointment. The dentist quickly discovered a broken filling and prepared to replace it. When he jabbed my upper right gum with his anesthetizing needle, I was mainly aware of two things: (a) the needle's entry into my gum, which was a kind of smooth, sliding, painful penetration into the flesh, and (b) the awareness whose object and content I have just indicated. As part of its qualitative content, this awareness included an experience of pain. Consequently, I would sit still with greatly difficulty while a radical behaviorist explained to me that, really, I was aware of something else that is more compatible with the radical behaviorist conception of pain experience, such as a combination of activity in certain nerve endings in the gum and referred proprioceptive stimulation from some muscle group. (Skinner, 1969, p. 255, implied that pain may consist of a combination of private stimulation, produced by a carious tooth, for example, and the "behavior" of feeling the stimulation.) Why should I accept the radical behaviorist account in place of my own empirical acquaintance with what transpired? Why should I join in *the pretense that no experience was involved,* only stimuli and responses?

Are We Aware of Sensory Activity?

There is an implicit phenomenology contained in radical behaviorism that also contributes to my refusal to go along with its account of pain experience. Radical behaviorists have not yet assumed the responsibility of arguing for their strong faith that *one can be aware of activity in one's sense receptors and nerve endings.* This article of faith can no longer enjoy the condition of protected, unquestioned dogma. In the present article, I must at least raise the question of whether radical behaviorist perception theory is superior to, for example, the perception theory of Gibson (1979), who took a very different view of our relation to stimulation:

> The stimulation of the receptors in the retina cannot be seen, paradoxical as this may sound. The supposed sensations resulting from this stimulation are not the data of perception. . . . What we mean when we say that vision depends on light is that it depends on illumination and on sources of illumination. We do not necessarily mean that we have to see light or have sensations of light in order to see anything else. . . . Just as the stimulation of the receptors in the retina cannot be seen, so the mechanical stimulation of the receptors in the skin cannot be felt, and the stimulation of the hair cells in the inner ear cannot be heard. So also the chemical stimulation of the receptors in the tongue cannot be tasted, and the stimulation of the receptors in the nasal membranes cannot be smelled. We do not perceive stimuli. (p. 55; see Natsoulas, 1984c)

Perhaps radical behaviorists will continue to disagree with Gibson's statement. They may maintain that stimuli are the only things of which we can be directly aware. All else must be known by inference from our direct awareness of the various kinds of stimulation that we are physiologically constituted to

receive. Perhaps some will agree with Gibson's statement except as it applies to private stimuli. In any case, radical behaviorists must recognize that there are alternative hypotheses in the marketplace, and they must enter into the competition of ideas *concerning that which people can be directly aware of.* At the dentist's office this morning, I observed a certain event that involved a needle and my upper right gum. I witnessed properties of this event, as well as my awareness of it in terms of the awareness's object and content. Radical behaviorists must tell me whether I suffered any hallucinations or illusions. Was I radically and systematically mistaken in what it was, really, that I witnessed? No doubt, the quick radical behaviorist reply will be that, in fact, a causal relation has been scientifically demonstrated between nerve-ending activity and certain reports of awareness. However, this is too quick and too easy a reply, since we all know *that many causes and effects intervene between activity in receptors and the consequent awareness and report.* Therefore, argument is necessary for the claim that we are actually aware of sensory activity, rather than something else that is either prior to or subsequent to sensory activity in the causal sequence that results in our being aware.

Denoting and Connoting

How shall radical behaviorism reply to the following counterproposal? People with toothache are normally in a position to report to other people their present experience of an aching tooth. They are able to make such reports because they have a direct (reflective) awareness of their tooth's aching; that is, they have a particular kind of pain experience of which they are conscious. In making their report, they use the word *toothache* to give expression to the content of their direct (reflective) awareness. They use the word to denote, in as immediate a fashion as is possible, as concretely as one is able to denote anything, their particular experience of an aching tooth. According to this counterproposal, radical behaviorists do not differ from other people with respect to the process that goes on in them when they too, of course, report having a toothache. However, since they have been schooled in radical behaviorist doctrine, have acquired certain ideas that are central to their world view, and are practicing radical behaviorists, they may very well *think about* private stimulation while they are denoting their toothache. As the toothache is proceeding, they may even have thoughts of B.F. Skinner and one of his discussions of toothache, though they are making reference in their reports to their present experience of pain. I believe that their toothache, their particular pain experience, should be included among those things that radical behaviorists speak of as "inner causes." And so, their toothache may remind them of various things that they believe about pain, for example, the role of the interoceptive nervous system, the proprioceptive nervous system, the role of operants, respondents, and so on. And they may display further

linguistic performances, in addition to reporting the toothache. For example, thinking about the radical behaviorist conception of pain experience may cause them to denote other things that, simultaneously, they are aware of as well. They may notice that they are responding with their jaw and use the term *pain behavior* to denote the muscular contractions. Also, they may use different words than *toothache* to denote their pain experiences. Understandably, a radical behaviorist will prefer to use the term *aversive stimulation,* or the like, in referring directly to his or her experience of an aching tooth, in order to avoid the implications of the concept of aching (see Natsoulas, 1986, on "presence"). However, all of the above would not alter the fact of what radical behaviorists are referring to by means of their report of toothache, namely, *the pain experience that they are here and now aware of as here and now proceeding within them.* In this direct way, we denote only those things of which we have immediate awareness. In the above example, the radical behaviorist may *infer* the presence of activity in his or her nerve endings, but not being aware of this activity, the radical behaviorist cannot denote it as he or she is able to denote toothache and pain behavior. However, Hocutt (1985a) recently suggested, on behalf of Skinner (1945b), that people at large do not use the word *toothache* as they think they do. Whereas they do succeed in using the word *tree* to denote the large object before their eyes of which they are here and now visually aware, they do not succeed with regard to their (purported) experience of pain. What they use the word *toothache* to denote is the private stimulation that their carious tooth produces. Why do they not succeed in this case? How do they manage to miss the mark? What makes the tree easier to "reach" than their own experience of an aching tooth? Could they succeed in denoting their toothache if they proceeded in a different way? Or can only certain things be denoted, while everything else is "connoted"?

"Let Him Tell This to a Person with Migraine Headache"

One would expect the radical behaviorist argument that we cannot denote our experience of a tooth's aching to rely on *a psychological proposal* concerning the process that goes on in successful denoting. However, the argument seems to be, simply, that the private stimulation from a carious tooth, being "objective," can be denoted, whereas pain experiences, being "subjective," can only be connoted (Hocutt, 1985a, p. 90). This argument would seem to amount to the claim that people can only denote those things that radical behaviorists agree are "objective." Hocutt (1985a) stated, "We don't care what people are thinking when they use the term 'toothache'; our interest is solely in the empirically detectable features of the events they use the term to denote" (p. 90). It is, evidently, an assumption of radical behaviorist philosophy that pain

experiences have no empirically detectable features! Therefore, how could anyone denote a pain experience? Of course, one can turn one's thoughts to all sorts of nonexistent objects and happenings, for example, a fire-breathing dragon. Pain experiences can, in this sense, enter one's thoughts. However, when we directly denote something, we enter into an actual relation to it, rather than just a seeming relation. When one uses the word *toothache* successfully to denote, it may be as though one were aware of an experience of one's tooth aching; actually, one is aware of something else. My aspiration is to cause this radical behaviorist assumption about pain experience to be abandoned; hence, the title of the present article. My reply to the radical behaviorist claim is the one Rachlin (1985a) used in a different context: "Let him tell this to a person with migraine headache" (p. 78). Such a person is in the unfortunate position of being able to denote with the word *headache* something psychological that is other than, but just as real as, what radical behaviorists are in a theoretical position to denote. How was it decided that pain experiences lack all empirically detectable features? Better: Why do radical behaviorists not allow pain experiences to have empirically detectable features? Why do radical behaviorists contradict the migraine sufferer who claims that his or her headache *has features that are as empirically detectable as anything that he or she has ever perceived?* Instead of rejecting the migraine sufferer's evidence of consciousness, why do not radical behaviorists give arguments for their claim that people can be aware of activity in their sense receptors and nerve endings? Attempting to so argue, radical behaviorism may find that it has to *move on* to other candidates for object of awareness in reports of headache. The migraine sufferer may be right, after all, when he or she wonders *what a radical behaviorist might mean* when the radical behaviorist says that the migraine sufferer cannot directly refer to his or her headache, and can merely "connote" it.

The Denial of Experiences

In contrast to the first group of psychologists who promote Skinner's account of consciousness for what it is not, the second group's theoretical residence lies far from the radical behaviorist estate. This group denies that Skinner has made any effort at all in the direction of accounting for consciousness, or that the account is an account of anything at all to do with what we commonly mean by consciousness. The esteem in which I hold Skinner's efforts disqualifies me from membership in this group of psychologists. Their depreciatory evaluation goes too far, and fails to acknowledge one of the very few theories of consciousness, right or wrong, that contemporary psychologists have managed to produce. With very rare exceptions, which may be counted on one hand perhaps and no more than two, the huge community of living psychologists has made up its mind to leave the theory of

consciousness for another century. And some of them continue to apply the methods that are traditional to twentieth-century psychology to "encourage" other psychologists to follow their lead (cf. Jaynes, 1976, p. 15). Skinner deserves high praise and genuine admiration for treading again and again where the departmental "strong men" across the country feared to tread. At the same time, I can understand why the detractors pass their negative judgment on Skinner's account. I need only to recall Skinner's (1945a) early statement "that 'experience' is a derived construct to be understood only through analysis of verbal (not, of course, merely vocal) processes" (p. 293). The rest of Skinner's efforts on the problem of consciousness could be viewed through the lens of this statement. That is, one may interpret all his succeeding relevant claims in the light of his position that *the psychologist's task as regards the phenomena of consciousness is psychologically to explain, in terms of radical behaviorist concepts, how mental terms are used.* As Day (1983) stated, the heart of radical behaviorism, which is its answer to the question of what is inside the skin and how we know about it, "boils down to a commitment to the central relevance of a functional analysis of verbal behavior" (p. 99). As regards the concept of experience, Skinner meant that however the concept may be exercised, the concept cannot succeed in referring to an experience, because *there are no experiences* (see Natsoulas, 1986). Besides the physical world itself, a concept cannot refer to something that this one physical world does not, did not, and will never contain. This includes pain experiences! To say, as we often do say, that an organism "experiences" its body or its environment, when its receptors or nerve endings are stimulated, is not to "specify what the organism is actually doing" (Skinner, 1969, p. 78). In the radical behaviorist theory, the only psychological concepts are concepts of stimuli and concepts of responses, most importantly discriminative stimuli and the operant responses over which they exercise stimulus control. In the production of operant behavior or any behavior, no "experience," so-called, ever participates or intervenes.

Are Feelings of Pain Responses?

Skinner would assuredly consider that he has been misunderstood if this discussion of mine leads readers who are unfamiliar with Skinner's writings to conclude that, incredibly, Skinner does not believe in feelings of pain. Rather, Skinner would say something along the following lines:

> Of course, we have feelings of pain, and toothaches, and migraine headaches, and so on *ad nauseum*. That is not the issue. Who could doubt that? However, radical behaviorism refuses to submit to a common confusion, to confuse feelings of pain with pain experiences. Feelings of pain should not be interpreted in the traditional way, in terms of very old ideas, such as the idea of an experience of pain. To so interpret feelings of pain is perforce to treat them as mental, whereas all happenings that proceed within the organism

> are just as physical as those that proceed outside it. It is all one kind of "stuff." Feelings of pain, which are physical occurrences, exist. Pain experiences do not exist, any more than does any other kind of mental occurrence.

However, what Skinner held feelings of pain to be, namely a kind of behavior, means that feelings of pain are not accessible to us *in the way that we know that they are*. For this reason, Skinner's account must meet with our skepticism. We are forced to ask him in disbelief, "How could feelings of pain be what you say they are? We do not merely respond to stimulation produced by the behavior that you call 'feelings of pain': we experience feelings of pain. There is a large ontological difference between responding to something and having a conscious experience. You are displaying greater confusion than if you claimed that apples grow on orange trees." From Skinner's perspective, however, if there were experiences of pain, we could not know them in any direct way, since *our direct way of knowing things applies only to things of a certain kind. These things are all either stimulational or sources of stimulation. Clearly, experiences are not included.* Experiences are neither happenings in sense receptors or nerve endings, nor are they causes of such happenings (except, more remotely, if their effects are such causes). Some people claim that pain experiences, and so on, transpire in the brain. If pain experiences did transpire in the brain, we could not know of their occurrence directly, as we know our feelings of pain, for the above reason that I gave from Skinner (1976): we have no nerves going to the right places. As Hocutt (1985b) stated, "Rightly understood, behaviorism requires the . . . thesis . . . that mental traits, dispositions, and states are empirically detectable because manifest in behavior [cf. Husserl, 1913/1983, p. 6]. Belief that there are invisible and inaudible states of mind is a Cartesian myth" (p. 81). Of course, there are invisible and inaudible processes that transpire in the brain (and elsewhere) but these are not a subject for radical behaviorist science to investigate. I shall return to this view, because radical behaviorists should not allow their present methodology to dictate to them concerning what exists in the world and what they shall investigate.

Cutting through Ambiguous Language and Pretense

A further group of psychologists construes Skinner's treatment of consciousness as they imagine a radical behaviorist treatment of consciousness *would have to be*. These psychologists are joined by many educated laypersons who believe that Skinner's radical behaviorism denies both consciousness and feelings. To radical behaviorists, it will seem that these people distort Skinner's words for their own reasons—perhaps for their personal satisfaction or in order to simplify the intellectual life of our field. My own view is that we have been entrusted with an important segment of this society's

scientific enterprise; and, therefore, we should resist the forces toward simplification that are emanating from the undergraduate classroom and from the popular press. Displeased and disappointed with what people commonly say about his perspective on consciousness, among many other things, Skinner (1976) listed consciousness first in a list of twenty areas of misunderstanding of his science. And he emphatically rejoined,

> Methodological behaviorism and certain versions of logical positivism could be said to ignore consciousness, feelings, and states of mind, but radical behaviorism does not thus "behead the organism;" it does not "sweep the problem of subjectivity under the rug;" it does not "maintain a strictly behavioristic methodology by treating reports of introspection merely as verbal behavior;" and it was not designed to "permit consciousness to atrophy." (p. 241)

However, I should state that those who stereotype radical behaviorism in such ways may not be entirely out of touch with certain truths concerning the basic doctrine (see "Four Misunderstandings?" below). We do not want to stereotype, in our own turn, what all of these people are up to. Some of them may be trying to dig deeply, that is, trying to reach radical behaviorism's fundamental attitude toward consciousness. After all, in order to understand the proffered radical behaviorist account, there is a certain quantity of *ambiguous language and pretense* that one has to cut through. That some of those people who appear to be distorting may be on to something important is strongly suggested by a recent, still more radical turn that a prominent radical behaviorist has taken, while remaining very much a radical behaviorist. Indeed, he suggested that *his* radical behaviorist conception of pain is more faithful to the radical behaviorist philosophy of science than *Skinner's* own conception: "In a (truly) Skinnerian science of psychology, a toothache must be a respondent or an operant (or some combination of the two) . . . . In either case, however, the toothache is overt, public behavior" (Rachlin, 1984, p. 566). I believe that there is neither consciousness nor feelings in Rachlin's (1984, 1985a, 1985b) "behavioral theory of pain." Only overt behavior is left standing in their place (see below).

Is All the World Behavior?

Before I briefly discuss Rachlin's radical behaviorist understanding of pain experiences and people's immediate acquaintance with them, I take the liberty of an aside, which is the only aside of any size in this article. In anticipation of a future article, I hasten to include here a rather large point that I look forward to developing. The whole issue requires a great deal more thought than I have had the opportunity to devote to it. Nevertheless, I want to indicate here what the basic question is: Should we expect to see, in time, a radical behaviorist position claiming that, after all, *all the world is behavior?*

I am merely trying to anticipate how radical behaviorism will develop. I do not advocate such a view; and perhaps it will be, anyway, only a minority radical behaviorist position. I am wondering whether, if carried through unflinchingly, radical behaviorist philosophy leads to the conclusion that *we can only know behavior*; everything else would be granted a heuristic status for the purpose of thinking what to do next. That is, are we in store for a version of radical behaviorism that is strongly analogous to *mentalist idealism?* Will a prominent radical behaviorist soon propose, in this context, that what Skinner has been calling *stimuli really amount to behavior?* Will the truly radical behaviorist begin from the proposition that we have, after all, no independent access to stimuli? We cannot "reach" stimuli in any other way than by "responding to" them. As regards knowledge of them, they lie always just beyond the responses that we make to them. Someone may point out that all our descriptions of stimuli, not to mention our finest measurements of them, consist of no more than the behavior of describing or measuring them. Will it be said that the individual behaves *as though* he or she had access to what lies beyond the labelling and other responses that he or she produces? Stimuli and their evident properties may come to be considered *assumptive*, a matter of what we propose exists beyond our behaviors. And given their assumptive character, perhaps we had better stick closely, instead, *only to that of which we can have firsthand knowledge.* We have no way to break out of the circle of our behaviors. We are not capable of anything more than, however complexly, "responding to" things. Will it be held, therefore, that all we can really know about are behaviors, *that knowledge is behavior both in form and in content?* For a start, note Rachlin's (1985a) statement:

> As Rorty (1979) has convincingly argued, the metaphor of the internal mirror is not viable. The behaviorist view suggests that the mirror by which we see our own bodies is outside of ourselves, in the environment, particularly that part of the environment sensitive to our behavior. (p. 78)

Perhaps a radical behaviorist will propose that the proper model for making sense of all our knowledge is the model of radical behaviorism's treatment of *the mental.* According to this treatment, the mental amounts to certain patterns of our behavior, including verbal behaviors that purport to denote and describe mental happenings. Why stop in this analysis with only the mental? Consistently, other parts of our behavior may be interpreted as purporting to denote and to describe stimulation. Interestingly, this seems to be the direction that a part of current philosophy is taking under the leadership of Richard Rorty—who draws on behavioristic philosophy in debunking consciousness. I believe that a number of radical behaviorists will find his views attractive. Just think of what may be implied: behaviorism can be extended everywhere, while the whole idea of a world beyond behavior pales before it and becomes ghostly. *There is no way that the world is.* There is only behavior and the con-

versation among us that behavior makes possible. I am eager to learn how compatible Rorty's views are with the radical behaviorist philosophy of knowledge.

A Return to Hebb's Inner Darkness

Rachlin's (1985a) following statement is reminiscent of Hebb's (1954, 1968, 1969, 1972, 1977, 1978, 1980, 1981) long-term effort to debunk any direct knowing of what is transpiring in one's own mind. James (1890/1981, pp. 290–291) stated Hebb's position, but James could not endorse it (see Natsoulas, in press-b). In several articles, I have given arguments against Hebb's inferential view of how we know anything at all about our mental occurrences, whose existence he did not deny (Natsoulas, 1977, 1978, 1983a, 1985a). Rachlin (1985a) stated,

> A's introspection belongs to the class of A's other behavior. It is part of A's interaction with the world. Ainslie [1985] says that A's introspection is actually an observation . . . . In other words, how can you know yourself? Ainslie believes you can know yourself by focusing inward . . . that is, by introspection. I believe you can know yourself by focusing outward—by taking an observer's attitude toward the interaction of your whole body with the environment. . . . It is not ridiculous to look in the mirror to discover your mental state. (p. 80)

It seems that our direct (reflective) awareness of our own pain experiences, our intimate firsthand knowledge of them, consists in nothing more than perceiving how we are behaving relative to the external environment. The person's access to his or her pain experiences is no different fundamentally from the psychologist's access to the person's pain. For ages, people have been systematically in error when they distinguished their pains from their pain behavior. They would agree with Searle's (1980) statement: "Are there no pains underlying Rachlin's pain behavior? For my own case I must confess that there unfortunately often are pains underlying my pain behavior, and I therefore conclude that Rachlin's form of behaviorism is not generally true" (p. 454). According to Rachlin, radical behaviorism has finally gotten right that in which "introspection" consists. Whenever we think that we are introspecting and we are in a position to make denotative reference to our pain experiences, we are in fact practicing an extreme behaviorist "Psychology of the Other One" upon ourselves. James (1890/1981) wrote of the stream of thought as "playing psychologist" upon itself. However, he got wrong the kind of psychologist whom we play. Introspection does not consist of direct (reflective) awareness by which we recognize, among other things, our pain experiences, and not by perceiving our behavior. We are all, really, extreme behaviorists, like Rachlin, though we have learned to accept a different description of what we are doing.

Limited Possibilities

I believe that Rachlin's colleague at Stony Brook, Logue (1985), correctly stated that for Rachlin "operant behavior is synonymous with the subjective experience of aversiveness" (p. 66). Indeed, this is how Rachlin is now using the language in his writings on pain. Accordingly, someone who behaves in a "bothered" fashion is bothered, and knows that he or she is bothered in the same way that other people can tell. In this language, we would speak of a conscious subjective experience of aversiveness as consisting in bothered behavior that is not occurring unconsciously. As already noted, being conscious of an experience is a matter of perceiving one's overt behavior. Does how one perceives one's behavior that is the pain make one differentially aware of it? Does proprioceptive stimulation from the behavior give the person whose behavior it is any more intimate contact with the subjective experience of aversiveness than someone else who can only see or hear the same behavior? Given Rachlin's analysis, I do not see that it does, since proprioception is just another perceptual system that provides stimulation for responding. Perhaps one is best informed concerning the nature of one's experience by seeing one's behavior in the mirror; this may allow one most accurately to perceive one's behavior relative to the environmental situation. Rachlin (1985b) stated, "For a strictly behavioral theory pain occurs as overt behavior, at the point of interaction between the organism and the environment" (p. 49). The well-known joke against behaviorism, about asking someone else how you feel, is not a caricature of radical behaviorism if one thinks of Rachlin's version. (The contrast with Skinner's view is clear when Skinner, 1984a, p. 579, states that the person who has learned to describe his or her private event may now respond to it directly and does not necessarily have to infer its occurrence on the basis of observing something else.) Perhaps Skinner's displeasure and disappointment with how people have depicted his views should be directed partially on radical behaviorist philosophy itself. This philosophy seems to allow those whom it guides *very few options* of concepts with which to work in expanding the horizons of their psychology. Rachlin wishes to address the phenomena of pain from within the radical behaviorist perspective, and he finds that he can only speak in terms of stimuli and responses. (I am reminded of cognitive psychology's analogous difficulties with desires, among other mental occurrences.) For example, experiences of pain have been described as covert stimuli by some radical behaviorists and as a form of behavior by other radical behaviorists. The third possibility, given that radical behaviorism provides basically only these two psychological concepts, is that experiences of pain are a combination of stimuli and responses. *Radical behaviorist philosophy cannot allow experiences of pain to be anything else, if they are to be included at all in radical behaviorist theory.* Consequently, new announcements by a radical behaviorist as to what an experience of pain

is must be greeted skeptically. Any new candidate must come from the same short list that is asked to do all the work. Radical behaviorists give the impression of simply working through limited possibilities.

Four Misunderstandings?

Given the very limited conceptual resources that the radical behaviorist conception of consciousness has at its disposal, and what has been done recently with these resources with respect to pain, we are forced to reconsider those understandings of Skinner's radical behaviorist conception of consciousness that Skinner (1976) argued were misunderstandings. Let me consider, in turn, the four that Skinner (1976) quoted. (a) *Does radical behaviorism "behead the organism?"* Although radical behaviorism does not behead the organism, it does not allow the organism any special access to its own brain processes. To a physical monist who has not eliminated mental occurrences (e.g., Sperry, 1980), this means that the person has no direct access to any mental event, state, or process, the latter including one's pain and all other experiences. In any case, these are held by the radical behaviorist not to exist, or to be no more than stimuli or responses or some combination of both. When radical behaviorism gets done with the organism, the organism's head is still in place, but something of extraordinary significance for its survival has been extracted from its head. For example, it cannot visually experience the world before its eyes, nor can it have experiences of pain. (b) *Does radical behaviorism "sweep the problem of subjectivity under the rug?"* Indeed, radical behaviorism has treated the problem of subjectivity as though it did not exist. I realize that the latter will seem too strong a judgment to many people who are cognizant of Skinner's efforts on behalf of the private stimulus, the covert response, and the acquisition of verbal responses to them. However, these efforts obscure the problem of subjectivity by pretending that the problem is far less than what it really is. Accordingly, the individual's mental life is held to consist of stimuli and responses within the body, and the individual is held to have no greater access to them than to the ceiling light; both ceiling light and one's mental life are known by responding to them. This implies that the individual is no more the subject of his or her mental life than of happenings outside the body to which the individual responds. The radical behaviorist's satisfaction with pointing out that no one else can respond to certain of the individual's private events as he or she does has the effect of sweeping the problem of subjectivity under the rug. In this way, it is treated as a mere technological problem, for example, the problem of not being able to get one's nerves into Skinner's bad tooth. (c) *Does radical behaviorism "maintain a strictly behavioristic methodology by treating reports of introspection merely as verbal behavior?"* What I argued in reply to the previous question can be seen as well from radical behaviorism's treatment of introspective reports. Although Skinner accepted

the idea that such reports may be informative of what is transpiring in the body, he saw the information as very limited, as a consequence of the verbal community's poor access to the controlling stimuli for the reports. More important for the present point, while Skinner accepts introspection, his theory provides no way by which the reports can be disambiguated. Skinner and other radical behaviorists assume without argument that, insofar as introspective reports are informative, they are informative about private stimulation or covert responses. However, introspective reports are preceeded in the causal chain that leads to them by many causes and effects. Which of these should we consider the one that an introspective report refers to and why that one? The commonsensical treatment of introspective reports assumes that the person has awareness of something transpiring within him or her, and that the person picks out a piece of speech or the like that will communicate some part of the content of his or her awareness. In contrast, the radical behaviorist treatment of such reports assumes that the person "responds to" that which is reported, thereby making it that which is reported. The relation of "responding to" is not what we normally mean by reporting something. We normally mean that the person is aware of that which he or she may report about. I believe, therefore, that it can fairly be said that "radical behaviorism maintains a strictly behavioristic methodology by treating reports of introspection merely as verbal behavior." In process, responding to a private event verbally is no different than responding to it nonverbally, according to radical behaviorism. (d) *Was radical behaviorism designed "to permit consciousness to atrophy?"* I very much doubt it. In fact, there seems to be sufficient interest in problems of consciousness among radical behaviorists to motivate my efforts to get them to broaden their philosophy of science to the point where consciousness will be adequately treated. The improvement in radical behaviorist theory that I call for here has to do with its treatment of experience. I stress pain experience in particular because it comes close to having an undeniable character. Thus, many radical behaviorists will have great difficulty in countenancing Rachlin's (1985a) implication that we might know our pains equally directly by looking at our behavior by means of a mirror. Feeling intense pain makes it difficult to deny that it is an experience or to hold that radical behaviorism need not treat of experience. A major lack in radical behaviorism is a concept of experience. This can be seen from how radical behaviorists must strain other concepts to do the work of such a concept.

Turning Visual Experiences On and Off

In his farily recently published notebooks, Skinner (1980a) characteristically asked the following question: "When we see a box on a table, 'we normally . . . perceive and classify it appropriately, in a useful hierarchy of relations.'

Does this mean more than that we respond to it according to past contingencies" (p. 159)? Surely Skinner knows that seeing a box on the table means having visual experiences of it, and that one would not be appropriately described as seeing a box on a table unless one were having visual experiences of the box on the table. Moreover, Skinner knows what it means to have visual experience not merely from hearsay, as a blind person might, but also *by having visual experiences and knowing that he or she is having them through having them.* Skinner knows the English language, he is sighted, and he has direct (reflective) awareness of some of his visual experiences, including some of those that transpire when he sees a box on the table. In fact, Skinner knows, just as Hebb (1980, p. 28) knew firsthand, that he can rapidly and repeatedly turn on and off, so to speak, his visual experiences of the box on the table. His procedure for this operation is simply opening both his eyes together and closing them together. He knows that he must do this with both eyes simultaneously if he is alternately to have and to not have visual experience of the box on the table. Closing and opening just one eye while the other remains open, though markedly varying the quantity of visual receptor activity, does not interrupt *the stream of Skinner's visual experience.* Elsewhere in his notebooks, Skinner (1980a, pp. 309–310) stated that seeing a thing for what it is consists of all the behaviors that one has acquired under the stimulus control of the stimulation that the thing produces. That is, when Skinner opens and closes both his eyes together while he is visually oriented toward a tree, what comes into existence and then goes out of existence is a set of incipient behaviors. However, I suggest *that Skinner knows on a firsthand basis that this is not all that happens.* On the basis of a form of direct (reflective) awareness, Skinner knows that when he behaves in that way with his eyes (i.e., opening and closing them together), visual experiences come and go. I believe that he holds visual experiences to be collections of incipient responses because this is good radical behaviorist doctrine. However, we must ask whether the doctrine corresponds to what is actually taking place. Recall Skinner's (1984) statement that radical behaviorism does not automatically reject the deliverances of introspection whenever these conflict with what it believes. In the present instance, direct (reflective) awareness is picking out an alternation in the presence and absence of a kind of perceptual experience. What comes and goes is *qualitatively visual,* rather than auditory experience, and so on. Hebb (1980) wrote of a whole vivid "pattern of existence" ceasing and returning, an existence that is visual. In contrast, the totality of incipient behaviors that Skinner identified with seeing *lacks any specifically visual character.* Incipient behavior is just the very early part of a muscular or glandular response, the part of the response that takes place in the brain. (I shall not develop this point as it bears on Skinner's denial that we have any direct access to processes of the brain; however, see Natsoulas, 1986, pp. 112–113.) If a psychologist succeeds in synchronizing a succession of *different* scenes with

each opening of one's eyes, scenes that call out in one very *different* patterns of incipient behavior, the visual character of that of which one is directly (reflectively) aware *remains visual despite the change in behavior.* Skinner would not reply to this argument by saying that what one is directly (reflectively) aware of in this example is the alternating occurrence and nonoccurrence of visual receptor stimulation. According to Skinner (e.g., 1976), reports of seeing are under the control of seeing itself, and may be issued in the absence of visual stimulation. The occurrence of seeing a box on the table and direct (reflective) awareness of this seeing does not require the physical presence of a box on the table and its affecting the stimulation of one's visual receptors.

A Function of Visual Experiences

Here is how Skinner (1976) discussed seeing in the absence of the thing seen:

> With no external support whatsoever, we may simply "see Venice" because we are reinforced when we do so. We say that we daydream about Venice. The mistake is to suppose that because we create physical stimuli which enable us to see Venice more effectively by going to Venice or buying a picture, we must therefore create *mental* stimuli to be seen in memory. All we need to say is that if we are reinforced for seeing Venice, we are likely to engage in that behavior—that is, the behavior of seeing Venice—even when there is very little in the immediate setting which bears a resemblance to the city. (p. 92)

I agree that there transpire, in this situation, incipient behaviors that correspond to behaviors for which we were reinforced in Venice. But why do these incipient behaviors occur now "with no external support whatsoever?" I do not propose that they occur now due to "mental stimuli," which function as did the original physically produced stimulation of the visual receptors in Venice. Actually, I do not know what Skinner meant by *mental stimuli.* I suspect that he was setting up a straw alternative to his own view. Skinner (1976) was correct to speak of seeing in the absence of the thing seen. When one daydreams about Venice, something other than Venice is not thereby seen. As I would express this point, there are *no phenomenal objects* that we imagine when we imagine Venice (Natsoulas, 1980). However, it does seem necessary to explain the incipient behaviors' occurrence in more than terms of past reinforcement. A great deal of our behavior was reinforced in the visual presence of objects like those that surround us here and now. Why are the Venice-relevant incipient behaviors now transpiring, without any external support whatsoever? How do they "win out" over incipient behaviors under the control of present stimulation? What is their *internal support?* Not "mental stimuli" but something else that resembles what took place in Venice must be occurring, namely, what actually seems to us to be occurring, what we can tell is occurring by direct (reflective) awareness: somehow, we are

managing to have imaginal visual experiences of Venice, and *these experiences, being like the perceptual visual experiences we had in Venice, are producing the incipient behaviors that were reinforced in Venice.* Neither imaginal nor perceptual visual experiences are stimuli of any kind, though visual experiences are often produced by stimuli. In the imaginal case, these visual experiences are taking place in the absence of the stimuli that produced visual experiences in Venice, and in the absence of the Venetian scenes that produced those stimuli. The concept of experience is useful in helping to explain behavior and should not be identified with behavior: one should follow Skinner's (1953) wise lead in carefully distinguishing between "private seeing" and behavior that is based on and facilitated by private seeing. He clearly had visual imagery in mind *as he described the person's mental manipulation of objects depending on how they look.* If all that visualizing consisted in was incipient behavior, there would be nothing experientially "present" *in relation to which* one could execute one or another covert behavior. Skinner (1953) gave this example of problem solving by means of seeing in the absence of the thing seen:

> "Think of a cube, all six surfaces of which are painted red. Divide the cube into twenty-seven equal cubes by making two horizontal cuts and two sets of two vertical cuts each. How many of the resulting cubes will have three faces painted red, how many two, and how many one?". . . The solution is easier if one can actually see the twenty-seven small cubes and count those of each kind. This is easiest in the presence of actual cubes, of course, and even a sketchy drawing will provide useful support; but many people solve the problem visually without visual stimulation. (p. 273)

If one's visualizing the cube was merely a matter of the occurrence of incipient responses to it, there would be *no support* for the covert responses that Skinner postulated to explain how the problem is solved. Rather, one has visual experiences of the cube in its absence, and these experiences are *the basis* of one's choice of the appropriate covert responses. As one proceeds with solving the problem, one has direct (reflective) awareness of visually experiencing the cube. *If one was not so aware, one would not proceed with the various manipulative responses that Skinner mentioned.* One's manipulative responses depend on how one imagines the cube, and also on how it looks after the manipulation. Feelings of behaving, which "discriminative responses" (Skinner, 1953, p. 273) produce, are easily discriminated from visual experiences, which are typically produced by visual stimulation. When Skinner identifies seeing, hearing, and so on, with a form of responding, he commits the major error of identifying all perceptual experiences, not merely the proprioceptive experience of behaving, with stimulation produced by behavior.

A Function of Pain Experiences

That experiences help to explain behavior and should not be identified with it can be seen as well by returning to Rachlin's (1985b) analysis of pain.

In effect, Rachlin proposed that a migraine sufferer is behaving in a certain way that "bothers" him or her. The migraine sufferer's intense headache consists in this "bothersome" behavior and other behavior. Accordingly, it becomes necessary for radical behaviorism to explain the "bother" that is taking place. The migraine sufferer is very differently affected in a psychological way by the "behavior of pain" than he or she is affected by the behavior of, say, driving a car. For the radical behaviorist merely to describe the behavior does not explain the "bother" unless we are told *how the properties that are specified in the description make the psychological difference that they obviously do.* If the behavior of pain is aversive in the sense that, for example, electric shock is aversive, both of them causing one to behave in an avoiding or escaping manner, what is it about them, these two sources of stimulation, that is aversive? An answer that simply refers to the idea that the behavior of pain and the electric shock both produce aversive stimulation will call for the same question about the stimulation. Commonsensically, we would say that an electric shock that results in an experience of pain is aversive, that its aversiveness depends on whether or not it is intense enough to produce an experience of pain. It is true that a sufficiently intense electric shock will produce a reflex withdrawal that precedes the occurrence of a pain experience. And it may be argued that, therefore, the pain experience does not explain the aversiveness of the electric shock. However, suppose that the reflex withdrawal does not succeed in getting rid of the stimulation. Does not, then, the pain experience motivate efforts beyond simple withdrawal? Is not the taking of analgesics and anesthetics so motivated? And are not the pain experience's motivating properties intrinsic to the pain experience, and not a matter of how the pain experience fits into a network of causes and effects? I realize, of course, that there are experiences of pain that, because of their weak intensity or the absence of an emotional dimension to them, are not motivating; one may do nothing to eliminate them. Therefore, only some experiences of pain can be used to explain the aversiveness of their causes; other pain experiences do not render their causes aversive. Apply what I have been saying to the special behavior that Rachlin identified with a migraine headache. Does this behavior produce pain experiences? Is this why the behavior is so "bothersome?" Even after Rachlin has walked away from pain experience, speaking purely of behavior, he may need pain experience to explain the aversiveness of the behavior that he calls pain. Whereas radical behaviorists may walk away from the conceptual unpleasantness of pain experiences, with such statements as "The fact that subjective feelings may be part of the connotation of the term [*toothache*] for most users is of little consequence" (Hocutt, 1985b, p. 90), they thereby walk away from their function as scientists, with a commitment to knowledge, and walk toward behavioral engineering, with a commitment only to what works.

Experience and Knowledge

In my view, which is not the radical behaviorist view, nothing else in the entire universe can have the same unremoved, here and now, concrete existence for us individually as our experiences do (cf. James, 1890/1981, on "the most concrete thing"). Skepticism about the latter statement can best be shaken by experiences like pain experiences. It is hard to think that something else—not the "illusory" *this*—is really going on when one has certain experiences. From all else, other than our own experiences, we are causally removed; we know anything else, if we know it, through the having of experiences. For example, the question of how one knows, without smelling, tasting, feeling, or hearing, that a cup has been placed on the table before one's eyes is answered in terms of one's having visual experiences of the cup. In contrast, the question of how one knows that one is having a pain experience, or any other kind of experience, is answered by reference to one's having the experience. One knows by having it; certainly, one does not know, analogously to seeing a cup, by having a further experience that is the experience of having the first experience. This special epistemic status of pain experiences, and other experiences, suffices to require their inclusion in the radical behaviorist conception of consciousness. *To leave experience out of radical behaviorist theory would be to omit that which is basic to our knowing about anything.* Even someone's telling you what is the case, that is, hearsay as opposed to witnessing it yourself, depends on your hearing what he or she says, which involves auditory and often visual experiences. Moreover, the having of conscious experiences of pain, and so on, lies at the very core of what occupies us when we commonly speak of consciousness. A psychological theory of consciousness must include an account of pain experience or else not be such a theory. One cannot simply call consciousness whatever suits one's purposes. A somewhat earlier exchange, than the one in which Skinner (1984a, 1984b) participated, brought out the point about what psychologists require from a theory. Against computational theory in psychology, Miller (1980) stated,

> It is difficult for me to believe, however, that all traces of the metaphorical use of computation can be eliminated as long as conscious experience eludes this kind of explanation. I believe that consciousness is the constitutive problem of psychology. That is to say, I am as dissatisfied with a psychology that ignores consciousness as I would be with a biology that ignored life or a physics that ignored matter and energy. Since I assume that psychology is a cognitive science, I assume that cognitive science inherits the problem of consciousness. (p. 146; cf. Miller, 1981, 1985)

In his reply, Pylyshyn (1980) grasped the point very well, immediately referring it to the experience of pain; however, what he *could* say suggested that he had no idea how to deal with the problem from within computational theory.

He stated in part, "Noticing that one has pain is a perfectly serviceable cognitive state . . . while . . . the raw pain itself . . . may simply end up as one of life's infinite mysteries" (p. 166). One is reminded, by Pylyshyn's reply, of the radical behaviorist failure to grasp that responding to, say, a part of one's body does not adequately "translate" being qualitatively aware of the part. The kind of serviceable cognitive state that Pylyshyn had in mind has *purely propositional content. It does not include an experience of pain.* The cognitive state is a matter of being aware of the pain "from the outside," as one is aware of the ceiling light, with the awareness (the cognitive state) being completely distinct from the pain and being, simply, a response to the pain. However, radical behaviorism cannot treat of pain as an essential mystery, to be left unexplained. Skinner (1976) argued that an important dimension of human consciousness is our learned awareness (from the verbal community) of states of our body. And surely, from the perspective of a physical monist (such as Skinner, 1953, p. 257, is: "we need not suppose that events which take place within an organism's skin have special properties for that reason"), our pains should be prime examples of such states of the body. However, there is one way in which experiences of pain might be righteously ignored by radical behaviorist science, assuming that experiences of pain are acknowledged to exist. Pain experiences may be left to the physiologist!

You Can't Leave It to the Physiologist

For a science of behavior to leave experiences to the physiologist, because experiences occur in the brain, is a poorly considered, desperate measure. One of the very major problems with passing experiences along, to a different kind of scientist, is the important role that experiences play *in operant behavior itself.* That is, experiences enter consciously into decisions that a person makes as regards which operant behavior to emit. If this is true, as I next argue that it is, then no further case needs to be made for the inclusion of pain and other experiences in radical behaviorist science. Experiences serve as occasions for operant behavior, and not only for the kind of operant behavior that Skinner called introspection. (a) Indeed, when we report the experience that we are now undergoing, *we must be directly (reflectively) aware of the experience, and choose our words accordingly,* that is, according to the content of our awareness. (b) However, something very analogous transpires in the case of other forms of operant behavior as well. For example, suppose we want to take a photograph of a scene. We are concerned, of course, with how the scene will look in the photograph. Therefore, in choosing when to snap the photograph, *we must attend closely not simply to the scene itself but also to how we are here and now visually experiencing the scene through the camera.* Only when the visual experience that we are having is acceptable or highly desirable, that is, when it meets certain standards, do we finally take the

photograph. We may spend many minutes moving about or waiting for the scene to change before we judge that the visual experience that we are having is worthy of being recorded on film, so that others may have a similar visual experience. (c) A further case of experience as the occasion of operant behavior occurs when a scientist is performing an experiment that requires a succession of manipulations, each one of them depending on the visible consequences of the previous manipulation. In order for the scientist to perform each manipulation, he or she must see the previous result. What the scientist does next depends on what just happened. However, there is more involved in this process than just seeing and responding. The scientist's succession of manipulative behaviors will not be emitted *unless, at each point, the scientist is aware that he or she is seeing what he or she is seeing* (or seems to see). This is, so to speak, a condition of the behaviors' occurrence. Simply seeing will not suffice for the behavior, as the reader will quickly realize by hypothesizing that the scientist suddenly becomes "blind-sighted" at some point along the succession of manipulations. That is, the scientist can still see but is no longer able to tell whether or not (and what) he or she is seeing. If, at any point, the scientist is visually aware of what is happening but is unaware of being so aware, the scientist will cease performing the succession of manipulations. These depend not only on his or her having visual experiences (qua causes in the brain). Rather, *the scientist chooses manipulations according to what he or she is aware of himself or herself as experiencing here and now*. There is a good chance that radical behaviorists will disagree with my analysis. However, I must conclude: You can't leave it to the physiologist.

References

Ainslie, G. (1985). Behavior is what can be reinforced. *Behavioral and Brain Sciences, 8,* 53–54.

Bergmann, G. (1956). The contribution of John B. Watson. *Psychological Review, 63,* 265–276.

Blanshard, B., and Skinner, B.F. (1966–1967). The problem of consciousness—A debate. *Philosophy and Phenomenological Research, 27,* 317–337.

Danto, A.C. (1984). Skinner on the verbal behavior of verbal behaviorists. *Behavioral and Brain Sciences, 7,* 555–556.

Day, W.R. (1975). Contemporary behaviorism and the concept of intention. *Nebraska Symposium on Motivation, 23,* 64–131.

Day, W.R. (1983). On the difference between radical and methodological behaviorism. *Behaviorism, 11,* 89–102.

Gibson, J.J. (1979). *The ecological approach to visual perception.* Boston: Houghton Mifflin.

Hayes, S.C., and Brownstein, A.J. (1985). Mentalism and the "as-yet-unexplained:" A reply to Killeen. *Behaviorism, 13,* 151–154.

Hebb, D.O. (1954). The problem of consciousness and introspection. In J.F. Delafresnaye (Ed.), *Brain mechanisms and consciousness* (pp. 402–421). Springfield, Illinois: Thomas.

Hebb, D.O. (1968). Concerning imagery. *Psychological Review, 75,* 466–477.

Hebb, D.O. (1969). The mind's eye. *Psychology Today, 2*(12), 54–57; 67–68.

Hebb, D.O. (1972). *A textbook of psychology* (3rd ed.). Philadelphia, Pennsylvania: Saunders.

Hebb, D.O. (1977). To know your own mind. In J.M. Nicholas (Ed.), *Images, perception, and knowledge* (pp. 213–219). Dordrecht, The Netherlands: Reidel.

Hebb, D.O. (1978). A problem of localization. *Behavioral and Brain Sciences, 1,* 357.

Hebb, D.O. (1980). *Essay on mind.* Hillsdale, New Jersey: Erlbaum.
Hebb, D.O. (1981). Consider mind as a biological problem. *Neuroscience, 6,* 2419–2422.
Hocutt, M. (1985a). Spartans, strawmen, and symptoms. *Behaviorism, 13,* 87–97.
Hocutt, M. (1985b). The truth in behaviorism: A review of G.E. Zuriff, *Behaviorism: A conceptual reconstruction. Behaviorism, 13,* 77–82.
Husserl, E. (1983). *Ideas.* The Hague, Netherlands: Nijhoff. (Originally published in 1913)
James, W. (1981). *The principles of psychology.* Cambridge, Massachusetts: Harvard University Press. (Originally published in 1890)
Jaynes, J. (1976). *The origin of consciousness in the breakdown of the bicameral mind.* Boston: Houghton Mifflin.
Logue, A.W. (1985). Functional behaviorism: Where the pain is does not matter. *Behavioral and Brain Sciences, 8,* 66.
Meehl, P. (1984). Radical behaviorism and mental events: Four methodological queries. *Behavioral and Brain Sciences, 7,* 563–564.
Melzack, R., and Wall, P.D. (1983). *The challenge of pain.* New York: Basic Books.
Miller, G.A. (1980). Computation, consciousness, and cognition. *Behavioral and Brain Sciences, 3,* 146.
Miller, G.A. (1981). Trends and debates in cognitive psychology. *Cognition, 10,* 215–225.
Miller, G.A. (1985). The constitutive problem of psychology. In S. Koch and D.E. Leary (Eds.), *A century of psychology as science* (pp. 40–45). New York: McGraw-Hill.
Natsoulas, T. (1977). Consciousness: Consideration of an inferential hypothesis. *Journal for the Theory of Social Behaviour, 7,* 29–39.
Natsoulas, T. (1978). Toward a model of consciousness$_4$ in the light of B.F. Skinner's contribution. *Behaviorism, 6,* 139–175.
Natsoulas, T. (1980). Against phenomenal objects. *Journal for the Theory of Social Behaviour, 10,* 97–114.
Natsoulas, T. (1983a). Concepts of consciousness. *The Journal of Mind and Behavior, 4,* 13–59.
Natsoulas, T. (1983b). Perhaps the most difficult problem faced by behaviorism. *Behaviorism, 11,* 1–26.
Natsoulas, T. (1984a). Freud and consciousness. I. Intrinsic consciousness. *Psychoanalysis and Contemporary Thought, 7,* 195–232.
Natsoulas, T. (1984b). Gustav Bergmann's psychophysiological parallelism. *Behaviorism, 12,* 41–69.
Natsoulas, T. (1984c). Towards the improvement of Gibsonian perception theory. *Journal for the Theory of Social Behaviour, 14,* 231–258.
Natsoulas, T. (1985a). An introduction to the perceptual kind of conception of direct (reflective) consciousness. *The Journal of Mind and Behavior, 6,* 333–356.
Natsoulas, T. (1985b). Freud and consciousness. II. Derived consciousness. *Psychoanalysis and Contemporary Thought, 8,* 183–220.
Natsoulas, T. (1985c). The treatment of conscious content: Disorder at the heart of radical behaviorism. *Methodology and Science, 18,* 81–103.
Natsoulas, T. (1986). On the radical behaviorist conception of consciousness. *The Journal of Mind and Behavior, 7,* 87–115.
Natsoulas, T. (in press-a). Freud and consciousness: III. The importance of tertiary consciousness. *Psychoanalysis and Contemporary Thought.*
Natsoulas, T. (in press-b). The six basic concepts of consciousness and James's stream of thought. *Imagination, Cognition and Personality.*
Pylyshyn, Z.W. (1980). Cognitive representation and the process-architecture distinction. *Behavioral and Brain Sciences, 3,* 154–169.
Rachlin, H. (1984). Mental, yes. Private, no. *Behavioral and Brain Sciences, 7,* 566–567.
Rachlin, H. (1985a). Ghostbusting. *Behavioral and Brain Sciences, 8,* 73–83.
Rachlin, H. (1985b). Pain and behavior. *Behavioral and Brain Sciences, 8,* 43–83.
Robinson, D.R. (1984). Behaviorism at seventy. *Behavioral and Brain Sciences, 7,* 641–643.
Rorty, R. (1979). *Philosophy and the mirror of nature.* Princeton, New Jersey: Princeton University Press.
Samelson, F. (1985). Organizing for the kingdom of behavior: Academic battles and organizational policies in the twenties. *Journal of the History of the Behavioral Sciences, 21,* 33–47.
Searle, J. (1980). Intrinsic intentionality. *Behavioral and Brain Sciences, 3,* 450–457.

Skinner, B.F. (1945a). Rejoinders and second thoughts. *Psychological Review, 52,* 291–294.
Skinner, B.F. (1945b).The operational analysis of some psychological terms. *Psychological Review, 52,* 270–277.
Skinner, B.F. (1953). *Science and human behavior.* New York: Macmillan.
Skinner, B.F. (1957). *Verbal behavior.* New York: Appleton-Century-Crofts.
Skinner, B.F. (1963). Behaviorism at fifty. *Science, 140,* 951–958.
Skinner, B.F. (1969). *Contingencies of reinforcement.* New York: Appleton-Century-Crofts.
Skinner, B.F. (1972a). *Beyond freedom and dignity.* New York: Knopf.
Skinner, B.F. (1972b). *Cumulative record* (3rd ed.). New York: Appleton-Century-Crofts.
Skinner, B.F. (1976). *About behaviorism.* New York: Vintage Books.
Skinner, B.F. (1978). *Reflections on behaviorism and society.* Englewood Cliffs, New Jersey: Prentice-Hall.
Skinner, B.F. (1980a). *Notebooks.* Englewood Cliffs, New Jersey: Prentice-Hall.
Skinner, B.F. (1980b). The experimental analysis of behavior: A history. In R.W. Rieber and K. Salzinger (Eds.), *Psychology* (pp. 191–202). New York: Academic Press.
Skinner, B.F. (1984a). Coming to terms with private events. *Behavioral and Brain Sciences, 7,* 572–581.
Skinner, B.F. (1984b). Representations and misrepresentations. *Behavioral and Brain Sciences, 7,* 655–667.
Skinner, B.F. (1986). What is wrong with daily life in the Western World? *American Psychologist, 41,* 568–574.
Sperry, R.W. (1980). Mind-brain interaction: Mentalism, yes: dualism, no. *Neuroscience, 5,* 1223–1226.
Sternbach, R.A. (1968). *Pain.* New York: Academic Press.
Sternbach, R.A. (1978). Psychological dimensions and perceptual analyses, including pathologies of pain. In E.C. Carterette and M.P. Friedman (Eds.), *Handbook of perception* (Vol. 6B, pp. 231–261). New York: Academic Press.