

TOWARD A SYNTHESIS OF MARX AND SKINNER

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ABSTRACT: This paper examines some relationships between the theoretical contributions of Karl Marx and B. F. Skinner--that is, between the natural sciences of the social change (scientific socialism) and of behavior change (behaviorology). I provide an overview of the science of behaviorology, describe its emergence as a scientific revolution within the natural sciences, and then highlight some of its implications for Marxist theory as well as for the development of the human being and social progress. I briefly compare the behaviorological and Marxist perspectives on language, personality, culture, and communist consciousness.

INTRODUCTION

Within the scientific community, ideology is often regarded as something that is antithetical to doing scientific work. If we take ideology to mean a general orientation toward a particular subject matter, however, then ideology per se is not a bad word. Rather, a particular ideology may be good or bad depending on whether or not it helps us achieve a more exact scientific understanding of the world in which we live. Thus, creationism is a bad ideology and evolutionary theory is a good ideology, cognitivism is a bad ideology and radical behaviorism is a good ideology, and so on.

So, is Marxism a bad ideology or a good ideology? Commenting on the ideology of the Cuban Revolution, Che Guevara (1960/1987) noted that Marxism is one of the most controversial terms of the modern world. With the recent disintegration of the Stalinist regimes of Eastern Europe and the Soviet Union, governments that identified themselves as Marxist, this term is even more controversial today. Addressing the Cuban people, Guevara (1960/1987) advocated that one should be a "Marxist" with the same naturalness that one is a "Newtonian" in physics or a "Pasturian" in biology, considering that if new facts bring about new concepts, the latter will never take away from that portion of truth possessed by those who have come before (p. 134). He added, "Obviously, one can point to certain mistakes of Marx as a thinker and as an investigator of the social doctrines and of the capitalist system in which he lived" (p. 134). Likewise, we can point to

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certain mistakes of Skinner (as Skinner does in writing about some of his own early work). It is precisely in this same sense, then, that I consider myself to be both a Marxist and a Skinnerian and call for a synthesis of these two perspectives (also see Ulman, 1979, 1983, 1986a, 1986b, 1988, 1989).

Radical behaviorists are well aware of the crude distortions of Skinner's beliefs that commonly appear in introductory psychology texts (the environment is the sole determinant of behavior, there is no difference between human behavior and pigeon behavior, etc.). Yet, in comparison, the distortions are many magnitudes greater in what has been attributed to Marx. In particular, one of the greatest crimes of the Stalinists is what they have done in the name of Marxism. By way of analogy, it couldn't be worse if cognitivists began claiming that what they are developing is an improved and more comprehensive form of radical behaviorism and most people subsequently came to believe such a claim.

There is little wonder that the workers in Eastern Europe and the Soviet Union are smashing the icons that symbolize what they have been taught to regard as Marxism. But now, as capitalist methods are being introduced into the planned economies of these worker states, the workers and farmers are beginning to receive some direct instruction in the workings of the "free enterprise" system --cuts in essential social services, inflation, unsafe working conditions, coerced speed-ups, unemployment, and generalized uncertainty about their futures. Inevitably, these toilers will learn to fight back against their worsening quality of life; in the process, they will also learn an uncorrupted form of Marxism as the only effective guide to the revolutionary transformation of their decaying social situation.

In sum, Marxist theory is revolutionary whereas Stalinist dogmatism is counterrevolutionary. Thus, as a body of scientific knowledge humanity has acquired in its struggle against oppression and exploitation, Marxism is a good ideology. Having stated what I mean by *Marxism*, I will now elaborate on what I mean by natural science of behavior relations, the science that for reasons stated earlier (Ulman, 1989) I prefer to call *behaviorology*. I will discuss its emergence, its defining paradigm (selectionism), its guiding philosophy (radical behaviorism), and its fundamental unit of analysis (contingency relations). I will then consider the behaviorological conceptualization of language, personality, culture, and communist consciousness--concepts that are of central importance to the Marxist analysis of society.

THE EMERGENCE OF BEHAVIOROLOGY

Ever since psychology emerged from philosophy in the latter part of the 19th century, psychologists have debated about whether its proper subject matter consists of behavioral events or mental events. Even those psychologists who argued for study of behavior failed to specify their subject matter unambiguously. The Russian reflexologists studied responses but their accounts were cast in

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hypothetical neurophysiological terms. John Watson, the father of North American behaviorism, stipulated that only observable events are permissible as psychological facts. But he never defined the ontological status of events taking place within the individual, thus leaving the inner world open for speculation by mentalistic psychologists. In the thoroughgoing behaviorism of B. F. Skinner, however, behavior is neither a property of the organism (as reflexologists suppose) nor a product of the psyche (as mentalistic psychologists would have us believe). Behavior is the interactions of an organism with its environment and behavior may be public or private--thus correcting Watson's ontological error and laying claim to a domain of phenomena that speculative psychology had hitherto considered its own.

By the standards of natural science, a discipline is defined with respect to its subject matter. If behavior is taken to mean the interactions of an organism with its environment, such phenomena constitute a subject matter open to investigation by a natural science discipline. For Marxists, any natural science worthy of this designation must distinguish between the essence of a phenomenon and its appearance. The science of behaviorology meets this criterion. First, although behavior-environment relations are potentially observable phenomena, these relations--like the phenomena of biological evolution--are also historical processes and therefore not necessarily available to ordinary experience. Second, many behavioral processes are revealed only through experimental manipulations. Third, private phenomena such as thinking or imagining are construed as behaving--that is, private events are treated as being not different in kind from public events (Skinner, 1974). Conceived in this manner, then, behavior relations constitute a legitimate and definite subset of natural phenomena subject to scientific analysis, hence, the emergence of the natural science of behaviorology.

From its beginnings in Skinner's laboratory in 1930s, this discipline we now call behaviorology was and remains essentially an experimental life science. The identification and study of basic principles of behavior require specialized techniques of observation over time coupled with the exacting techniques of experimental manipulation. Marked by the founding of The International Behaviorology Association (TIBA) in 1988, this natural science of behavior relations has at last emerged from psychology as a separate discipline--a fifty-year struggle in which it initially became known as behavioral psychology, then behavior analysis, and now behaviorology. As the science that investigates the genetic, physical, and cultural variables that determine behavior, both human and nonhuman, behaviorology fills the gap between biology on one side and the materialistic study of human social relations on the other. Although the number of scientists who identify themselves as behaviorologists is small, many others practice this science but presently call themselves behavioral psychologists or behavior analysts.

It was inevitable that the study of behavior and the study of the psyche would become separate disciplines (see Fraley & Vargas, 1986). The core paradigms or approaches of these two disciplines are incommensurable. Even their respective

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language systems are inherently incompatible--one attributing the cause of behavior to a hypothetical agency within the organism, the other to a history of organism-environment interactions (Hineline, 1984). Or as a dialectical materialist might say, the reason for the emergence of behaviorology from psychology is the unfolding realization of their inherent contradictions, one based on the study of the psyche, the other on behavior. This separation is recent. As I mentioned, TIBA was organized in 1988. And only last year, Skinner (1989, May) declared that the study of behavior never was, nor is now, a branch of psychology. Up to that time he had been arguing otherwise.

SELECTIONISM

According to Thomas Kuhn (1970), revolutions in science take place in stages: First, there is the formation of a scientific community that selects a paradigm that appears to be best suited for the "normal" functioning of scientific activity. Next, the old paradigm breaks down and a crisis ensues in scientific explanation. Finally, a new paradigm emerges as the scientific community strives to resolve the crisis. The ultimate test of the new paradigm is its effectiveness in dealing with the problems that "normal science" was not able to handle. While Kuhn fails to provide an accurate picture of scientific progress beyond that of the "human element" (see Naletov, 1984), his account of the structure of scientific revolutions applies very well to the emergence of behaviorology from psychology (Bruce, 1990). The "normal" science of psychology has simply failed to deal effectively with the analysis of behavioral phenomena, especially in complex settings. One telling outcome is the failure of psychology to produce an effective technology for changing socially significant behavior.

Psychology's paradigm is *transformational*, based on a Cartesian dualistic assumption about reality. Psychologists begin their investigations by observing behavior or products of behavior, ranging from oral responses to Rorschach inkblots to written responses on cognitively-oriented questionnaires. These behavioral data are then treated as indicators of hypothetical processes taking place within the individual, speculative psychological processes such as the id-ego-superego dynamics of Freudian psychology, the self-concept of humanistic psychology, the information-processing computer metaphor of cognitive psychology, and the hypothetical nervous-system processes of neuropsychology. Although the methodologies in psychological research are quite varied, they all conform to the psychological paradigm: the conceptual transformation of behavioral data into mental or cognitive processes existing in some non-spatial-temporal dimension within the individual.

The paradigm of behaviorology is *selectionistic*. Skinner (1981) describes selection as the causal mode of all the life sciences, a causal mode that enables us to conceptually integrate biology, behaviorology, and the materialistic study of

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culture (defined in terms of social relations). Through selection by consequences, human cultural processes evolved from behavioral processes which, in turn, evolved from biological processes. Yet we must recognize that these three forms of life processes operate according to qualitatively different principles at different levels of organized complexity that must be respected if we are to avoid the error of reductionism (cf. Ulman, 1988; 1989). Selection by consequences should be considered as the primary dialectical law of development of all life processes, from the reproduction of a single cell to the reproduction of an entire human social formation of any magnitude. Scientifically oriented Marxists should welcome this important theoretical contribution to dialectical materialism.

Behaviorologists are not pure environmental determinists; we do not view the organism as a *tabula rasa*. As we have defined our discipline, behaviorology includes ethology, the study of inherited patterns of animal behavior in the natural environment. At the same time, we reject the unsubstantiated claims by some sociobiologists about certain human social behavior (e.g., altruism) being genetically determined, claims based primarily on ethological investigations of nonhuman organisms (but see Fetzer, 1985). Behaviorologists believe that accurate identification of phylogenic and ontogenic variables controlling human behavior will require exacting experimental analyses.

In sum, behaviorologists are concerned with the prediction, control, and scientific understanding of behavior relations. We accept as a given the neurophysiological processes of the organism and consider such processes to be the concern of the adjacent life science, biology. Undoubtedly, certain physico-chemical changes occur within the organism's nervous system as it interacts with its environment, but we leave the investigation of such changes to the biologists. We also consider the effects of the social environment on the behavior of the individual, but leave the study of society to other scientists. This demarcation of disciplinary boundaries does not, of course, discount the potential for fruitful interdisciplinary work. In general, though, a behaviorologist need not know about the details of the nervous system to be able to deal effectively with behavior. Future collaborative efforts may result in important discoveries for both disciplines, however. Similarly, with respect to a comprehensive understanding of society, behaviorologists need not become political economists. But I anticipate that both revolutionary Marxists and behaviorologists will greatly benefit practically and theoretically by studying each others' works.

RADICAL BEHAVIORISM

The behaviorological approach to the study of behavior relations is based on a philosophy of science known as *radical behaviorism* (see Skinner, 1974). In this context, the word *radical* means *fundamental*. The ontology of radical behaviorism is materialistic monism. We could just as appropriately call this philosophy

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behavioral materialism. Behaviorologists assume no breaks in the spatio-temporal event continuum. Thus, such concepts as mind, psyche, cognition, and the like have no place within behaviorology. With equal rigor, behaviorologists reject methodological behaviorism—the behaviorism originating with John B. Watson in 1913—which holds that the proper subject matter of a science of behavior must be restricted to observable events, events subject to interobserver verification.

Contrary to the mistaken opinion of many critics, radical behaviorism is not a form of logical positivism, as Lawrence Smith's (1987) book amply documents. Moreover, radical behaviorism complements and is complemented by dialectical materialism (Ulman, 1979, 1986). Thus, I believe that Marxist philosophers who become competent with radical behaviorism will be able to eliminate mentalistic idealism from their analyses without any danger of becoming mechanistic materialists. By the same token, I believe that behaviorologists, like other natural scientists, can enhance their scientific work by becoming conversant with dialectical materialism, a point nicely illustrated in Levins and Lewontin's (1985) book, *The Dialectical Biologist*.

In brief, radical behaviorism does not consider the skin to be an absolute boundary between qualitatively different phenomena. Events that occur inside an individual's body are taken to be no different in kind from those occurring outside the body. Behaviorologists do not find the philosophical categories *subjective/objective* useful; rather we divide the world into public and private events, the difference between them being merely a matter of a continuum of accessibility to observation. For behaviorologists, the test of scientific merit is not the issue of objectivity but whether or not the outcome of an investigation will enable us to operate more effectively on the world around us. Thus, observations of a single observer potentially have just as much empirical respectability as those of a second observer.

Another aspect of radical behaviorism having important epistemological implications is its reinterpretation of those actions traditionally believed to be purposive. Instead of positing purposes or intentions as causes of behavior, behaviorologists treat such behavior as being caused or selected by its consequences. Through such a selection process, under similar circumstances the person will behave in a similar way in the future. This causal mode, selection by consequences (Skinner, 1981), enables us to discuss human actions ordinarily presumed to be intentional without having to suppose teleological explanations (see Lee, 1983).

Behaviorologists are concerned not only with the interpreting the causes of behavior within the framework of natural science, but also with changing behavior. As Marx (1888/1970) stated, "The philosophers have only *interpreted* the world, in various ways; the point is to *change* it" (p. 123). Of course, Marx was referring to changing society, to advancing the class struggle for the dictatorship of the proletariat, whereas behaviorologists qua behaviorologists focus on changing the behavior of individuals. In both cases, though, effective change depends upon

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accurate analysis of the problem situation. The starting point for revolutionary Marxists is an analysis of social class relations; for behaviorologists, it is the analysis of behavioral contingency relations.

CONTINGENCY RELATIONS

A contingency relation is the basic unit of analysis in behaviorology--as basic as the cell is in biology or the commodity is in Marxist economics. A contingency relation is the relation between a class of responses in which each has the same effect on the environment (postcedent events or consequences that follow those responses) and the situation in which the responses are made (antecedent events or discriminative stimuli).

The apparent simplicity of the concept of contingency relations can be very deceiving. In the behaviorological investigation of verbal behavior, for example, a contingency analysis can become astonishingly complex. Applied behaviorological research on stimulus control has produced a highly effective instructional technology, including methods for teaching abstract concepts (e.g., see Sulzer-Azaroff & Mayer, 1986). The area within psychology traditionally called perception can be interpreted as investigations of stimulus control.

Marx wrote a great deal about acquired needs. With the analysis of contingency relations, behaviorologists can also explain precisely how needs are acquired. In behaviorological terms, acquired needs are conditioned reinforcers. All the things we learn to like in the course of our lives, from our favorite foods to our favorite music, can be understood in terms of the development of conditioned reinforcers. Money acquires its reinforcing properties by functioning as the means of exchange for other commodities. The so-called drive for money is nothing but learned behavior acquired under particular cultural circumstances, a "drive" that can be eliminated by changing those circumstances. Clearly, the possibility exists for fruitful collaborative research between scientific socialists and behaviorologists. In the remainder of this paper I will briefly consider the behaviorological conceptualization of language, personality, culture, and communist consciousness--concepts that are of central importance to Marxists.

LANGUAGE

In *The German Ideology*, Marx and Engels (1932/1965) observed that "for philosophers, one of the most difficult tasks is to descend from the world of thought to the actual world. Language is the immediate actuality of thoughts" (p. 491). Further, "neither thoughts nor language in themselves form a realm of their own . . . they are only manifestations of actual life" (p. 491). Behaviorologists would agree wholeheartedly with this position. In Skinner's words, "when we study human thought, we study behavior" (1957, p. 451). Acknowledging the difficulty of

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this task, he points out that "if a behavioristic interpretation is not all we should like to have, it must be remembered that mental or cognitive explanations are not explanations at all" (1974, p. 103).

What is the behaviorological conception of language? First of all, language is not behavior. For behaviorologists, what we commonly call language is nothing but an abstraction that refers to the complex arrangement of social contingencies maintained by our verbal community. It is those social contingencies that determine whether we speak English, Spanish, Russian, or Swahili. Cultural practices such as the language we speak and the way we make a living are transmitted via social contingencies from one person to another and from one generation to the next (see "Culture" below).

Thus, verbal behavior is a product of contingencies maintained by our verbal community, a uniquely human environment. There are two ways we humans can affect our environment: directly, as when we turn a knob and open a door; and indirectly, as when we ask someone else to open a door. Only the latter case is verbal behavior. Hence, verbal behavior is defined as behavior whose contact with the environment is mediated through other behavior (Skinner, 1957). Following this definition, researchers have been able to demonstrate verbal behavior in the chimp, but only at a relatively primitive level in highly contrived environments. Above all, humans are apparently the only animals whose natural environment is a verbal community (i.e., as Skinner has defined *verbal*).

It is a standard practice among psychologists to eschew the operant view of verbal behavior by citing Noam Chomsky's (1959) caustic review of Skinner's (1957) book entitled *Verbal Behavior*. They evidence no awareness that radical behaviorists have written cogent refutations of Chomsky's objection to Skinner's analysis (e.g., Julià, 1983; MacCorquodale, 1969). For somewhat different reasons, Chomsky offers Marxists no acceptable perspective on language. As the Italian Marxist philosopher Sebastiano Timpanaro (1975) remarked, in order to explain linguistic competence, Chomsky "has resorted to the most metaphysical and retrograde side of Cartesianism: the doctrine of innate ideas and the absolute distinction between spirit and 'mechanism', between man and animal" (p. 199). Like most other Marxists, however, Timpanaro is not knowledgeable of Skinner's alternative perspective. One great challenge behaviorologists face today is how to disseminate to others the many important theoretical and practical contributions our science has to offer. Perhaps as Marxist theorists understand more of the common points of agreement between themselves and behaviorologists, fruitful working partnerships will ensue.

PERSONALITY

At the Second Latin American Conference on Marxist Psychology and Psychoanalysis held in Havana in February 1988, it was reported in the newsletter

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of the Society for the Philosophical Study of Marxism (Shames, 1988) that "many of the participants maintained that psychoanalytic theory is indispensable in extending Marxist theory to the level of understanding of personal life. Whereas many other participants were seeking ways beyond Freudo-Marxism to develop Marxist theory" (p. 16). Specifically, it was reported, "there is a recognition of a need for Marxism to understand . . . that political directions and solutions require the understanding of the individual and of the interactions of economics with psychological forms" (p. 16). Toward this end, two sources were recommended as deserving particularly careful study: Marx's *Grundrisse* and Lucien Sève's *Man in Marxist Theory*.

In my reading of Sève (1968/1978, 1968/1975), I find remarkable similarities between his conception of the human personality and the behaviorological interpretation. Both reject concepts of personality based on speculations about some kind of elaborate mental apparatus, a hypothetical *thing*, as in Freudian theory. As defined by Sève, personality is "the total system of activity of a given individual, a system which develops throughout his life and the evolution of which constitutes the essential content of his biography" (1968/1978, p. 451).

Sève (1968/1978) states, "the type of conceptual breakdown of the 'action' that will make it possible to investigate it [personality] scientifically . . . must . . . be into acts and not into mere *behaviour patterns*. . . . Acts are behaviour considered in the context of their objective social results which return to the individual in the form of psychological results" (pp. 45-46). If we interpret Sève's terms *biography* as an individual's learning history, *results* as consequences, and *acts* as behavior under the control of contingency relations (i.e., context, behavior, and consequences as a functional unit), then Sève's conception of personality seems very close to being behaviorological.

Similarly, Skinner (1974) writes that "personality is at best a repertoire of behavior imparted by an organized set of contingencies. The behavior a young person acquires in the bosom of his family composes one. . . [personality]; the behavior he acquires in, say, the armed services composes another" (p. 149). Skinner adds, "as Marx and many others have pointed out, the individual is born of society, and his individuality depends upon . . . [that] society" (pp. 149-150). Further, in Skinner's view, "Freud's great triumvirate, the ego, superego, and the id represent three sets of contingencies which are almost inevitable when a person lives in a group" (p. 150).

Behaviorologists reject both the conscious and the unconscious as inner causal agents. Thus, "to increase a person's consciousness of the external world is simply to bring him under more sensitive control of that world as a source of stimulation" (Skinner, 1974, pp. 153-154). As for Freud's unconscious defense mechanisms, these notions are more parsimoniously and realistically reformulated in terms of the emotional and behavioral effects of avoidance and punishment contingencies (see Sidman, 1989, pp. 149-164; Skinner, 1974, pp. 155-158). From

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the behaviorological perspective, the Freudian concept of personality is nothing but animistic mentalism.

Mentalism tends to place the blame for personal problems in people's heads rather than in social environment. Trait-type personality theories and mental tests are little more than tools of ideological control in service of the status quo, tools that mystify rather than clarify social relations (see Sampson, 1981). Marxists who live in capitalist society must be critical of the psychotherapeutic goal of the "well-adjusted personality." Well-adjusted to what? In short, all mentalism is mystification that may serve to justify any institutional practice. This observation is undoubtedly why Marx commended the analysis of what people do as the antidote for any form of mysticism. As Marx (1888/1970) said, "all mysteries which lead to mysticism find their rational solution in human practice and the comprehension of this practice" (p. 122). Skinner's (1974) materialistic solution to mentalistic mysticism follows suit: "What has evolved is an *organism*, part of the behavior of which has been tentatively explained by the invention of the concept of mind. No special evolutionary process is needed when the facts are considered in their own right" (p. 45).

CULTURE

Sève's theory of personality is formulated in terms of actions in specific contexts, not traits. He states that the personality is not at all to be reduced to individuality, or to the ensemble of the particular formal characteristics of an individual's psychism " (1968/1978, p. 451). Rather, "it is a matter of constructing a *science of biography* which is homologous in depth to the *science of history* founded by Marx and Engels and which is its basis, biography being to personality what history is to society" (p. 451). I submit that the "science of biography" Sève is searching for is precisely the science of behavior relations we now call behaviorology. But what about the relationship between behaviorology and the science of history (i.e., historical materialism)? I suggest that the bridge between these two perspectives can be found in Skinner's definition of culture:

A culture may be defined as the contingencies of social reinforcement maintained by a group. As such it evolves in its own way, as new cultural practices, however they arise, contribute to the survival of the group, and are perpetuated because they do so. (Skinner, 1987, p. 74).

Contingencies maintained by a group form into a nexus of social relations. In his sixth thesis on Feuerbach, Marx (1888/1970) stated that "the human essence is no abstraction inherent in each single individual. In reality, it is the ensemble of social relations" (p. 122). If we equate Marx's "ensemble of social relations" with Skinner's concept of culture, we may be able to advance toward an integration of the materialistic view of the individual (behaviorology) with the materialistic view

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of history (historical materialism). For a start, I suggest that to the above quoted reading list of Marx's (1953/1973) *Grundrisse* and Sève's (1978) *Man in Marxist Theory*, we add Skinner's *Science and Human Behavior* (1953) and *About Behaviorism* (1974). As a Marxist, I would also add Carlos Tablada's (1987/1989) new book, *Che Guevara: Economics and Politics in the Transition to Socialism*.

In reading Skinner, however, we should bear in mind that he is not a Marxist (nor are most other contemporary behaviorologists). For instance, Skinner (1953) regards what he calls the controlling agencies of society -- government, religion, education, psychotherapy, and even economic institutions -- essentially as independent variables in the control of the behavior of the individual. When he does discuss society, his analysis is often very abstract and petty bourgeois in political content. Not surprisingly, when Skinner does refer to Marxism, more times than not he gets it wrong.

Nevertheless, Skinner's political orientation does not detract from the historical significance of his scientific contributions--any more than, say, Darwin's politics did from his contributions. Further, I submit, the science he founded--behaviorology--is a major revolutionary development within the natural sciences that is comparable in historical importance to the Copernican revolution in astronomy or the Darwinian revolution in biology. The primary message I would like this paper to convey is that the time has come for the grand synthesis of the thinking of Marx and Skinner, a synthesis of the science and technology of the behavior of the individual human and the science and technology of the transformation of society. One essential step toward this goal would be to translate Marx's pivotal concept *labor* into behaviorological terms. Along this line, I have presented an analysis of verbal behavior in the labor process that decomposes Marx's abstraction *consciousness* into behavioral relations (Ulman, 1985). Behaviorologists who may become interested in this project would do well to study Sève along with other relevant Marxist works (see Ulman, 1983).

COMMUNIST CONSCIOUSNESS

Guevara stated that "one of the fundamental aims of Marxism is to eliminate material interest, the factor of 'individual self-interest'" (cited in Tablada, 1987/1989, p.215). In January 1990 I spent some time at a successful behaviorological community called Los Horcones, located in Sonora, Mexico. In the Los Horcones community "individual self-interest" and money exchange have been replaced with social contingencies of reinforcement that promote the well-being of the total community. This experimental community has implemented social contingencies that encourage its members to work cooperatively for the benefit of the entire community (Horcones, 1982, 1989,1990). I hasten to add that these behaviorological communitarians are not utopian socialists. They recognize that the elimination of profit motivation requires nothing less than a socialist revolution.

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Although necessarily confined to the boundary of their community, they have developed to some limited degree what I think Che Guevara (1965/1987) meant by *communist consciousness*. For Guevara, of course, to be a communist meant to be committed to the revolutionary transformation of the entire world in the interest of humanity as a whole.

CONCLUSION

I have outlined the behaviorological approach to the study of the human being and attempted to highlight some of its philosophical implications for Marxism. I wish to conclude by mentioning the role of behaviorology in social progress. Because of necessary constraints on the length of this paper, I have said little about the application of behaviorological technology to problems of everyday living, a technology supported by an ever-growing body of research literature--with studies, as one recent text put it, covering virtually the full range of socially significant human behavior, including academic skills, language acquisition and use, work productivity and performance, marital interactions, child-rearing skills, consumption of electricity, public littering, clothing selection, self-help skills, highway speeding, seat belt usage, exercise, elevator use, and sport and leisure skills (Cooper, Heron, & Heward, 1987, p. 5). Yet, much of this powerful technology remains sadly neglected while ineffectual but lucrative therapeutic practices continue to thrive, practices premised on the notion that the cause of people's problems is located in their psyches. Still, behaviorological technology remains available to all, including those who have set their course on transforming the world to be free of exploitation, oppression, poverty, war, and environmental degradation.

The problem, as Skinner (1971) put it, "is to design a world which will be liked not by people as they now are but by those who will live in it" (p. 156), a world in which working for the good of others will become automatically reinforcing--in Guevara's words, a world in which people will perform "voluntary work based on the Marxist appreciation that man truly reaches his full human condition when he produces without being compelled by physical necessity to sell himself as a commodity" (1965/1987, p. 254). I believe that revolutionary practice informed by the synthesis of Skinner (behaviorology) and Marx (scientific socialism) will enable humanity to construct such a world.

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