The following article is an extension of a draft written in 1971. It is addressed to the lay person as well as the behavior analyst. Individuals who are familar with behavioral terminology may wish to skip the section labeled "Behavior Science and B.F. Skinner".

HUMANITARIANISM, SCIENCE, AND B.F. SKINNER

By R.H. Nicolaus
Sacramento, California

Introduction

For centuries men of good will have wanted to create a world in which everyone would be happy. To achieve this universally happy state, it has generally been agreed that human behavior must show, or be made to show, certain characteristics. One of the most important of these characteristics arises from the fact that men live together in groups: In order to achieve general happiness under the conditions of group life, it follows that men must behave in ways which are compatible with each other's happiness. They must, to promote happy group living, show the sort of conduct we call "good," "right," "moral," or "ethical." Additional behavioral requirements may be equally obvious. For example, in order to obtain the things that make themselves happy and to insure the survival of the group that is organized to produce a happy life, men must behave in ways which promote health, which show knowledge and skill, and which are productive and inventive. The list might, of course, be easily extended.

There is a difficulty, however. Men of good will agree that human behavior is of central importance for achieving a happy world, but they disagree violently on *where* that behavior originates. In the traditional view, man has within himself a nonphysical mind which has the power to freely choose the behavior that his physical body exhibits. In the radical determinist view, however, a strict scientific approach is taken and human behavior is seen, like all other phenomena in the natural world, as a physical effect produced by prior physical causes. In the first view, human behavior is determined by a genetically produced body and its surrounding environment.

It will be the contention of the present effort that the issue of free-will versus determinism is the major barrier which divides men of good will and which, by extension, undermines a program of united action aimed at achieving the goal of a happy world.

There is a further problem that needs to be resolved. It is very difficult for the scientific determinist and the free-will traditionalist to talk with each other about human behavior, much in the same way as it is difficult for an atheist and a Christian to talk with each other about theology or a communist and a capitalist to talk with each other about economic systems. Both parties to each discussion usually have widely different personal histories, and for that reason they behave toward their particular topic in widely different ways. The problem of supplementing different personal histories in approximately the same way for bringing both parties into intelligent contact with the fundamental issues that divide them has never been satisfactorily resolved, and it would be too much to hope for a solution here. It may not be too much to hope for progress in this direction, however. It is important, moreover, that efforts toward a solution be made. For in an age when deterministic science has reached the point where it can intervene in human affairs and deal with behavioral problems effectively, it meets its most savage resistance from supporters of the free-will tradition.

As an informal student of science and as an advocate of its application to human affairs, I have tried to work out ways for clarifying the basic issues which set the traditionalist and the radical determinist against one another. A major problem is that of reducing the issues to a manageable simplicity without omitting anything important from the account. In attempting to do this I have found it helpful to proceed in a rather simple way, aiming at the heart of the matter and avoiding the artificial complexities that are encouraged by an emphasis on rhetorical sophistication. I shall try to bring this strategy to bear in the present discussion of humanitarianism science, and the work and practical proposals of Dr. B.F. Skinner, whom I personally regard as the most advanced scientific thinker of our age. The treatment will be general in scope. It should be well within the competence of the educated lay person. Hopefully it will help diminish the unfortunate misunderstanding which centers around a science of behavior and which undermines its use for releasing men from the evils that have burdened them since earliest antiquity.

Humanitarianism

Men of good will, as we have noted, have long wanted to create a world which would insure the survival of the human species and the happiness of all its members. The men who have sponsored this aim have called themselves or have been called various names—such as "humanists," "liberals," "democrats," "socialists," "communists," and so on. For present purposes it may be convenient to use the word *humanitarian* as a more or less neutral term for identifying men of this general viewpoint.

There is, as we have also noted, a fundamental difficulty. The happy world envisioned by humanitarians is contingent upon *behavior:* For all men to be happy, they must all behave in ways which promote a happy life. But how can they be made to do this?

Humanitarians have long tried to answer this question, but the result has been a dispute of classical proportions. For while they all agree on the same *goal*, they often disagree sharply on the *means* required for achieving that goal. Why?

The failure to agree on means is not difficult to explain. To achieve the humanitarian goal, there are certain basic questions for which valid answers are required. These basic questions arise from the simple but central fact that men live together in groups. *In order for men to live together in groups successfully, it follows that they must behave in ways which are compatible with successful group living.* This fact necessarily raises two basic questions:

(1) What are the best ways for men to behave in order to insure successful group living?
(2) How can men be made to behave in those ways?

These are the *two basic questions*—the *two basic issues* which arise from the fact that men live together in groups. In short, these are the *two basic social issues*. And because the government of a group is responsible for its success, these are also *two basic issues of government*.

The first basic question implies a need for behavioral change, and for that reason it may be restated as follows: What changes in the behavior of men need to be made in order to insure successful group living? The second basic

question implies a need for ways to produce behavioral change, and therefore it may be alternately expressed as follows: How can the behavior of men be changed? But before we can have an effective understanding of how to change behavior, we must first have an accurate understanding of why men behave as they do. Implicit in the second question, therefore, we have a third question, and for that reason the original two basic questions need to be reformulated in a way that will make explicit the three basic questions with which we must finally deal:

(1) Why do men behave as they do?
(2) How can their behavior be changed?
(3) What changes in their behavior need to be made?

These, then, are the *three basic questions*—the *three basic issues* which necessarily arise from the fact that men live together in groups. These are the three basic social questions and, by extension, the three basic questions of government. These are the three basic questions for which valid answers are required in order to achieve the humanitarian goal of constructing a world which will insure the survival of the human species and the happiness of all its members.

The failure of humanitarians to agree on means for achieving their goal may be explained by the fact that different and conflicting answers have been given to these three basic questions. It would be pointless to indicate even in a general way the wide range of answers that have been supplied. Nor would it serve any legitimate purpose to point to the numerous humanitarian schemes that have been tried for achieving a successful and happy group life. The point to be emphasized is that men of the humanitarian tradition have never been able to agree on means nor have they ever been successful in accomplishing their goal. And the principal reason for this seems to be a mere restatement of the one that divides them in the first place: They have never been able to discover *valid answers* to the above three questions.

A valid answer to any question about the world will obviously depend on an effective *method* for acquiring valid information or knowledge about the world. The ultimate source of disagreement among humanitarians on the matter of means must therefore be sought in the method by which valid information about the world can be obtained. It is to this crucial methodological issue that we may now turn.

Science

It is important that the issues raised by the three basic questions be openly faced. To acquire valid information about why men behave as they do, we must discover the *causes* of their behavior. To acquire valid information about how to change their behavior, we must discover ways to manipulate those causes in order to *control* their behavior. And to acquire valid information about what changes in their behavior need to be made, we must discover all the *effects* of their behavior upon themselves, upon others, and upon the species of which they are members. How this may be done is simply stated. Men live in, and are part of, a natural world which consists of relations between physical causes and effects. By discovering those relations, men may acquire knowledge of the world. By devising ways to use that knowledge, men may acquire skills for changing the world. And by using the knowledge and skills for making changes that work to the ultimate advantage of all living individuals and their as yet unborn descendants, men may change the world in a way which best promotes human happiness and survival. This is the difference between science, technology, and ethics.

Broadly speaking, men acquire knowledge of the world by the *method of observation*. There is a difficulty, however. Throughout most of human history, knowledge has been acquired by *casual observation*. Frequently, however, genuine cause-and-effect relations escape detection when observations are made in a casual way. Valid answers to important questions can seldom be discovered at will. But men often find it difficult to tolerate indecision and to defer action on matters that are important to them, and in the absence of authentic information they are inclined to *guess*—simply invent causal accounts. Folklore, philosophy, theology, psychology, and the so-called social sciences supply many examples of fictional explanations. Although it is often claimed that these explanations have been acquired through special methods, such as "reason," "intuition," "revelation," and so on, a more careful analysis suggests that the processes involved were probably much simpler. Guesswork based on casual observation has been the traditional means used by men for explaining the world and their place in it.

One form of guess work based on casual observation is an appeal to *miracle-working agents* which lack the physical dimensions of the natural world. Explanations of this sort are called "supernatural" or "metaphysical." A particularly troublesome example is the traditional doctrine of free will—the notion that human behavior is controlled by a "free" or "autonomous" mental or psychic agent enclosed within the organism. Now if men do have within themselves a special nonphysical power which enables them to defy the process of physical causation that governs the rest of the world and to initiate and alter the course of their own actions spontaneously, then we are apparently helpless. If their behavior is not already controlled by physical events, then it seems pointless to look for its causes in the physical world or to rearrange that world for producing changes in conduct. To believe in the freedom of human behavior and to be at the same time concerned with its causes is to show a curious paradox. But the paradox is seldom acknowledged and the importance of understanding and improving the external conditions which affect human behavior is almost never seriously challenged. The obvious importance of the matter has, in fact, created difficulties, for it has led men to anticipate legitimate inquiry and to invent and accept with conviction spurious explanations which have often been used in reconstructing the surrounding environment.

The human species took what was almost certainly its most important step when it began to refine its techniques of investigation so that selected parts of the world could be studied by means of *controlled observation*. This marked the origin of the *scientific method*. The basic assumption underlying the use of the scientific method is that men live in, and are part of, a natural world of causes and effects, and that both causes and effects are physical in nature. This assumption is variously called *natural* or *material* or *physical determinism*. Since the natural or material or physical world is the only world that can be known by observation and controlled by manipulation, it is the only world that can be studied by empirical science and changed by a controlling technology based on science. Insofar as science is concerned, this is the only real world. Using this basic assumption as a guide, the practice of science led to two epochal results: (1) explanatory fictions were steadily overthrown and miracle-working agents were gradually dislodged from their seats of control and driven from the world; and (2) facts were steadily accumulated and men acquired a power that was the

closest thing possible to being miraculous. The results of this practice are, in fact, virtually unique, for no other method of inquiry can in any way compare with science in showing endless progress in accumulating facts and in using those facts for dealing with the world effectively.

With such a powerful method at their disposal, it was inevitable that men should adopt it in the study of their own behavior. The first clear proposal to do so came from J.B. Watson, and the program which sprang from this effort became known as *behaviorism*. In a formal sense, this marked the origin of a *science of behavior*. Essential to the program of a science of behavior is the assumption that human behavior is controlled, not by a nonphysical inner agent, but by physical events in the natural world. If that assumption is false, then science can be of no help in discovering why men behave as they do and how their behavior can be changed. In this case, universal good will must come, if at all, from a miracle in the form of a universal act of free will. If, however, that assumption is true, then science can answer these questions and, for the first time in history, men of good will can proceed confidently and intelligently with a program of humanitarian reform.

Behavior Science and B.F. Skinner

We may therefore consider it fortunate that today there is a compelling and growing body of evidence to show that this assumption is indeed valid. The man chiefly responsible for this achievement is B.F. Skinner, the dean of modern behavioral science. Skinner clarified the relations between the earlier scientific work of I.P. Pavlov and E.L. Thorndike. Pavlov's studies had dealt with the sort of behavior usually called "involuntary" or "reflexive," but which Skinner termed *respondent* behavior. Thorndike, on the other hand, had been concerned with the kind of behavior commonly called "voluntary" or "free," but which Skinner termed *operant* behavior. There were excellent reasons for the rechristening. Respondent behavior inevitably responds to a particular environmental event, as when saliva is elicited by the introduction of food into the mouth. Operant behavior, in contrast, *operates* upon the environment to produce consequences or effects, as when a man walks, talks, works, plays, and so on. These two behavioral processes—respondent and operant—appear to exhaust the range of action exhibited by animal organisms.

Skinner's primary interest was in operant behavior. This kind of behavior—the kind which is commonly called "voluntary"—is that which is most often explained by invoking a free inner agent. It was the study of this behavior under the carefully controlled conditions characteristic of an experimental science that forced Skinner to a quite different conclusion.

Skinner discovered that behavior which operates upon the environment is caused or controlled, not by a free inner agent, but by its own consequences or effects, which arise from the surrounding environment. In order to understand how behavior which operates upon the environment is affected by its own consequences, Skinner designed a special apparatus that enabled him to observe and control environmental conditions in a systematic way. In order to quantify changes in behavior that occurred as a function of changes in the environment, Skinner used the *rate of response*—the frequency at which a particular act is emitted—as his measure of behavior. By systematically manipulating the environmental consequences which followed upon a given response, he was able to observe whether a corresponding change in the rate occurred. If it did, a controlling relation between behavior and a specifiable antecedent event was established. Skinner was eventually able to report:

> Manipulation of environmental conditions alone made possible a wholly unexpected practical control. Behavior could be shaped up according to specifications and maintained indefinitely almost at will (1).

Thus, by manipulating the environment of an organism, Skinner discovered that he could *shape* and *maintain* its behavior with precision. These two effects—shaping and maintaining behavior—roughly correspond to the traditional notions of, respectively, "learning" and "motivation." The point to be emphasized is that by achieving what may fairly be described as a total practical control of behavior by controlling environmental conditions alone, Skinner demonstrated in rigorous fashion that the environment of animal organisms exercises, by way of metaphorical description, a "totalitarian control" over their behavior. This led to the notion of the *controlling environment*. The environment controls behavior, and the genetic structure of the organism mediates the controlling relation. If this were not the case, it would be difficult to imagine how Skinner was able to achieve this "wholly unexpected" environmental control.

There is an implication in this finding which is important. It must be carefully stated and clearly understood, for it will have a critical bearing on later stages of the present undertaking. When casual observation was replaced by carefully controlled observation, all suggestions of an inner agent of control vanished without a remainder. No inner agent was observed, and no inner agent was required to explain the behavior. *Skinner did not, however, exorcise the inner agent; he simply discovered that it had never been there in the first place.* Nothing was subtracted from the organism; it remained completely intact. Deliberate control replaced accidental control, but *control as such* was neither increased nor lessened. Because control is inevitable, this would not have been possible.

Previously an inner explanation seemed required because the control exerted by the environment is often too subtle to detect under the usual conditions of observation. Skinner's analysis, like scientific analysis in general, simply brought into clear focus what formerly had passed unnoticed. At the same time, the analysis exposed as fraudulent an inner agent whose authority had long been imposed by the tyranny of ignorance.

In describing what he observed, Skinner borrowed from Pavlov's terminology. The term *reinforcement* is applied to all objects and events which have the consequence of increasing the rate of behavior. The resultant increase is called *conditioning*, while the decrease in rate which follows the withholding of reinforcement is called *extinction*. Skinner has indicated these processes in the following way:

> By arranging a reinforcing consequence, we increase the rate at which a response occurs; by eliminating the consequence, we decrease the rate. These are the processes of operant conditioning and extinction (2).

Accordingly, the pivotal operation for controlling the strength of behavior is the manipulation of reinforcing consequences.

Reinforcing events are of two sorts. The first is called *positive reinforcement* and this consists of giving the organism something, such as food, money, or verbal

approval. If the *presentation* of any event (for example, praise) is made contingent upon behavior (for example, studying) and if it has the consequence of increasing the rate of that behavior, then it is by definition a positive reinforcer. The second is called *negative reinforcement* and this consists of releasing the organism from what is called an "aversive" condition, such as a loud noise, a temperature extreme, or verbal disapproval. If the *removal* of any event (for example, criticism) is made contingent upon behavior (for example, working) and if it has the consequence of increasing the rate of that behavior, then it is by definition a negative reinforcer (an aversive event). These relations between behavior and its consequences are called *contingencies of reinforcement*, a concept which denotes how the environment controls the behavior that operates upon it. Although this statement is incomplete in one important respect, it will nevertheless suffice within the limits of the present assignment. The importance of reinforcement contingencies has been usually explained by Skinner in the following way:

> If it's in our power to create any of the situations which a person likes or remove any situation he doesn't like, we can control his behavior. When he behaves as we want him to behave, we simply create a situation he likes, or remove one he doesn't like. As a result, the probability that he will behave that way again goes up, which is what we want (3).

Under both positive and negative contingencies of reinforcement, then, the effect upon behavior is the same: (its rate, or the probability that it will recur, increases. Both, in the vocabulary of the layman, are "rewards." What we call "punishments," on the other hand, entail a reversal of reinforcement procedures. By making the presentation of a negative reinforcer contingent upon behavior, we administer, as it were, a "positive punishment." And by making the removal of a positive reinforcer contingent upon behavior, we inflict, as it were, a "negative punishment." The effects of "contingencies of punishment" upon behavior need not be described here, since this controlling operation will form no important part of the humanitarian program later to be set forth.

Nor will it be our purpose here to describe the effects upon behavior which result from various contingencies of reinforcement that are arranged according to schedules. To explore here even in a very general way all the ramifications of operant conditioning would take us beyond the scope of our present objective. Where, as here, the interested reader may consult evidence which is available elsewhere and which will support our case, it is perhaps enough to say at this point that the experimental analysis of behavior pioneered by Skinner has cleared the way for answering the first basic question concerning the determination of human behavior: the actions of men are to be explained by appealing to contingencies of reinforcement embedded in the controlling environment.

It may therefore be said that for the first time in history men have an authentic science of behavior with which to work. This, according to the view taken here, was Skinner's first major contribution toward resolving the three basic issues which form the subject of the present essay. By use of this science, Skinner was able to supply a valid answer to the first basic question by showing that contingencies of reinforcement are the causes of behavior. Thus, for the purpose presently at hand, the important point to be made is that the basic concept for explaining why men behave as they do is that of reinforcement.

Behavior Technology and B.F. Skinner

From this we are led to consider a second important point: If reinforcement is the basic concept for explaining why men behave as they do, then the manipulation of reinforcement is the basic operation for demonstrating how the behavior of men can be changed. To change behavior is to control it, and behavior control is the business of behavior technology. The behavior technology that has emerged from the experimental analysis of behavior is, in the view taken here, Skinner's second major contribution to a settlement of the basic issues with which we are here preoccupied. For the first time in history, it may be said, men have a scientific behavior technology with which to work and, by implication, an authentic means for providing a valid answer to the second basic question concerning how human behavior can be changed. To change human behavior, a controlling technology simply changes the contingencies of reinforcement under which men live. This follows from the fact that reinforcement contingencies are the causes of behavior, and to control or change behavior it is necessary to manipulate those causes.

A technology based on a science of behavior inevitably recommends itself to enlightened men in all practical fields. As a major extension of his second principal contribution, however, Skinner has pointed to the ultimate importance of a scientific behavior technology for the reconstruction or replacement of an entire society and, by extension, of all the societies of the world.

Behavior technology is the field of *government*. To govern is to control—to engineer or manipulate. It is the practical control of behavior by manipulating contingencies of reinforcement. Organized control by a special agent or agency having a monopoly on coercive power is government in the traditional sense, but it would be a mistake to suppose that the processes according to which behavior is controlled obey conventional distinctions. Whether the governor or controller of a group is a parent, teacher, clergyman, psychotherapist, employer, or politician, he necessarily governs or controls in the same way: he manipulates the contingencies of reinforcement which govern or control—which shape and maintain—the behavior of the governed or controllee. A translation of established verbal practices reads as follows: "psychology" is a basic knowledge, "politics" an applied knowledge, of human behavior. An experiment in behavior is simply an experiment in government—in the control of behavior. It is conducted by arranging a form of government—a set of contingencies—and noting the result. In the laboratory it is conducted to see what happens, in society at large to see if it works. This is the difference between a science and technology of behavior.

As we have seen, men are part of a natural world composed of physical cause-and-effect relations. Stated more precisely, the world is a set of contingencies of reinforcement. It imposes upon men a "totalitarian government," as the metaphor would have it. This is implied in the notion of the controlling environment. Technological or governmental behavior is the human manipulation of causal relations in the natural world. It is behavior which controls but which in turn is controlled by its reinforcing consequences. The reinforcing products of control shape and maintain the controlling behavior upon which their production is contingent. That part of the world which is the product of human manipulation—which consists of contingencies of reinforcement arranged by men—is what we call *culture*.

The human design of contingencies of reinforcement is called *cultural design*. The design of culture implies a cultural designer, and his behavior must also be explained. This may be done by pointing to the contingencies under which his designing behavior occurs. The design of contingencies which control designing behavior is called *governmental design*, and this is a special case of cultural design. The effectiveness of behavior—and hence of a group of behaving individuals—will ultimately depend on the effectiveness of the contingencies which control the behavior of the cultural designer. Governmental design is the link in the causal chain upon which effective behavior depends, and a science that makes behavior its object of inquiry is uniquely qualified to design a government. *This, as a special case of cultural design, is the closest thing possible to the intelligent design of a controlling center.*

As we have seen, culture, in the broadest sense, is simply that part of the world which is arranged by men. It is therefore through the practice of culture that men may take over the adventitious contingencies of reinforcement set up by the mindless interplay of unpremeditated events and, by redesigning and manipulating them intelligently, control themselves for producing a desired effect. Contingencies arranged by intelligence—by a knowledge of their probable consequences for the behaving human organism— are the kinds of events men attempt to set up when they deliberately or intentionally design and implement cultural practices. Sometimes they are successful, but most often they are not. In the usual case the important contingencies are designed and manipulated by the wrong hands—by selfish who exercise control, not for the good of the group, but for biased purposes. But if humanitarians can devise a way to bar selfish men from these contingencies and perfect them according to information supplied by a science of behavior, then they at last will be able to build on a universal scale the good life which, for millennia, has been their vision. This, in fact, will be the central concern of the enlightened humanitarian. For behavior control by reinforcement is not a theory but a fact, and if good men are not quick to take advantage of this new found knowledge, then bad men almost certainly will.

This much of the present discussion may be summarized in the following way. First, the causes of human behavior are contingencies of reinforcement in the controlling environment. This is the basic causal principle discovered by behavior science. And second, human behavior is changed by manipulating its causes in the controlling reinforcement contingencies. This is the basic operation performed by behavior technology—by government in the narrow technological sense. As chief architect in the construction of a behavioral science and a behavioral technology based upon it, Skinner supplied the means necessary for yielding valid answers for two of the basic questions here at issue. On these two matters—on the actual establishment of an authentic behavior science and an authentic behavior technology based upon it—there is full agreement among radical behaviorists.

At this point we must consider the practice of government in the broadest sense, which includes both a method of behavior technology and *a method for determining the specification for behavior to be produced by behavior technology.* The latter method is needed to answer the question about how men need to behave—about what changes in their behavior must be made—in order to insure successful group living, which is to say the survival of the human species and the happiness of all its members. This third basic question, as well as the method by which it may be answered, is perhaps the most difficult issue with which we must deal, if only because it is the least understood. Even some radical behaviorists have not devoted themselves sufficiently to acquiring an adequate understanding of the matter, and this has led them to retreat to a popular prescientific practice which then intervenes as an alien and hostile ingredient in an otherwise rigorously consistent scientific program. The third basic issue, therefore, needs to be approached carefully and in easy stages in order that the empirical validity of our way of meeting it may be fully understood and finally accepted.

As we have pointed out, government in the narrow technological sense rests on two basic questions: (1) Why do men behave as they do? And (2) How can their behavior be changed? But at the point where practical control is reached, the third basic question must then be added: (3) What changes in their behavior need to be made? In traditional academic practice, the first question has been assigned to the field of "psychology," the second to the field of "political philosophy" or "practical politics," and the third to the field of "moral philosophy" or "ethics."

As we have also pointed out, the first basic question is implied in the second, with the result that the three basic questions may be most economically expressed in two-part form. The third question becomes: (1) What are the best ways for men to behave in order to promote successful group living? The first and second questions combine in a single question as follows: (2) How can men be induced to behave in the best ways? Traditionally, the first question has been assigned to the field of "law-making," the second to the field of "law-enforcing."

From this simple exercise it should be clear that our main emphasis on the basic questions is not unique, but in fact has a counterpart in traditional thought and practice. This is necessarily so, since, as we have seen, the basic questions inexorably arise from the very nature of social living, and no society or government can function without dealing in some way with behavior specifications and with means for producing behavior according to those specifications. The first or "law-making" function of government has to do with *behavior design* and, by extension, a *cultural* or *contingency design* that will produce behavior according to specifications set forth in the behavior design. The second or "law-enforcing" function of government has to do with *behavior management* and, by implication, a *cultural* or *contingency management* that will construct and maintain the contingencies designed to produce the behavior specified. It is true, of course, that traditional treatments of the two basic functions of government—and hence of the basic issues as expressed in two-part form—are typically far less explicit than what has been set forth here. It is nevertheless evident that the traditional distinction between law-making and law-enforcement—between the legislative and executive functions of government—corresponds in the broadest possible sense to our distinction between behavior or cultural design and behavior or cultural management.

Traditionally, then, answers to the first basic question have come from law-makers, while answers to the second have come from law-enforcers. In both cases the various answers have emerged from the established pattern of guesswork based on casual observation. But how might a government based on a science of behavior answer these questions?

The second question is, of course, easily disposed of, since, as we have seen, it requires only an extension of a

technology based on a science of behavior to society at large for arriving at a valid answer to the question regarding the most effective controlling practices for governing men. On this point informed men no longer quarrel. The first question still causes trouble, however. The issue has traditionally been assigned to the field of "ethics," which is concerned with *justifying* the control of human behavior. Broadly described, the object of the business of ethics is to find some "rational" or "logical" criterion according to which behavior may be classified as either "good" or "bad," and then on this basis design rules, laws, or codes of conduct. It scarcely needs pointing out, however, that men have often been in violent disagreement on the criteria to be used in deciding questions of "right" and "wrong" and, by extension, on the distinction between moral and immoral behavior. But can science supply a valid answer to the question of what behavior is *best* for men—of how they *should* behave?

Not according to the traditional view of the matter. The answer to this question is said to require a "value judgment." It is commonly supposed that "values" and "facts" are different, and that they require different kinds of knowledge for that reason. It is further supposed that science is necessarily confined to the latter. This presumably means that the practice of law-making depends upon extrascientific sources of information. Is it true that science must be abandoned at this point in favor ot some unique method which yields a special kind of knowledge?

Behavior Design and B.F. Skinner

The resolution of this singularly troublesome issue represents Skinner's third major achievement, which is an analysis of how science may supply valid answers to moral or ethical questions and thus provide the basis for a scientific behavior code. By discovering behavior specifications which maximize the chances for the survival of the human species and the happiness of all its members, science may furnish a behavior design or behavior code which would answer the third basic question and which would, moreover, be independent of the behavior designs or codes that have resulted from the accidental cultural or conditioning histories of traditional societies. Skinner has stated the matter as follows:

> Much has been written recently of the need to return to "moral law" in deliberations concerning human affairs. But the question, "*Whose* moral law?" frequently proves embarrassing. Faced with the problem of finding a moral law acceptable to all peoples of the world, we become more acutely aware of the shortcomings proposed by any one group or agency. The possibility of promoting such principles, either through education or military conquest, is not promising. If a science of behavior can discover those conditions of life which make for the ultimate strength of men, it may provide a set of "moral values" which, because they are independent of the history and culture of any one group, may be generally accepted (4).

In addition to the prospect of a science of morals or ethics, Skinner's statement suggests a collateral point of enormous consequence: Science and scientific technology, because of their singular effectiveness, tend to unify the societies of the world in the sense of making their cultures more and more alike. The tendency of physical and biological science and technology to unite, at their respective levels of analysis and application, the various cultures of the world is well marked, and we may look forward to an enlargement of this trend when behavior science and technology receive comparable acceptance. The completion of this science-induced process of cultural unification would be achieved in all its major aspects with the universal acceptance of a moral or ethical science.

In returning from this momentary digression, we may note an unfortunate state of affairs. Skinner has not, in any single treatise, provided us with a complete account of all his ideas with respect to morals or ethics and the susceptibility of this field to the scientific method of discovery. This may be part of the reason radical behaviorists sometimes feel it necessary to resort to prescientific methods when faced with the challenge of deciding which kind of behaviors men need to be taught. In the absence of a complete and comprehensive analysis conveniently located in a single work, we have only one recourse. To become fully acquainted with Skinner's position on this crucial issue, we must conduct a search of his many writings with this object in mind. Although the following citations in no way exhaust all that he has written on the subject, they may nevertheless suffice for supplying a general outline of his novel contribution.

> In conceiving of a community as a pilot experiment, the designer may turn directly to two practical questions: What behavior on the part of the members of a community is most likely to contribute to its success? How may that behavior be generated and maintained? (5)...(W)hy not experiment? The questions are simple enough. What's the best behavior for the individual so far as the group is concerned? And how can the individual be induced to behave in that way? Why not explore these questions in a scientific spirit (6)?...Ethics and morals are particularly concerned spirit (6)?...Ethics and morals are particularly concerned with bringing the remoter consequences of behavior into play (7)...If there is any purpose or direction in the evolution of culture, it has to do with bringing people under the control of more and more consequences of their behavior (8)...The task of the cultural designer is to accelerate the development of practices which bring the remote consequences of behavior into play (9)...(T)he ultimate good is ultimately determined by consequences (10)...A science that clarifies (the relation between behavior and its deferred consequences) is in the best possible position to specify a better world in an ethical or moral sense (11).

At this point we seem to be in a favorable position to enunciate the means by which Skinner would supply a valid answer to the third basic question concerning how men need to behave—concerning what changes in their behavior must be made—in order to insure successful group living. A summary statement of Skinner's third principal contribution may therefore be set forth in the following way:

> By discovering all the consequences or effects of all possible forms of behavior which result for the behaving individual himself, for all other individuals, and for the species of which he is a member, science may specify how men need to behave in order to maximize positive consequences and minimize negative consequences in the world in which they live. By making the relations between all forms of behavior and their consequences clear—by, in other words, setting

forth a *complete statement of the contingencies of reinforcement* in each case—science may supply valid information for the *design of behavior* and, by implication, for the *design of rules, laws,* or *codes of conduct*. It is by this means that men may at last devise an *authentic science or morals or ethics*.

Although expressed in somewhat idealistic language, this, we may judge, is a basically accurate description of Skinner's position. And this, we may also judge, is almost certainly the most revolutionary conception of morals or ethics ever to be advanced in the history of human thought. It is also the most plausible. This scientific conception of morals or ethics renders obsolete every "social" or "political philosophy" ever to appear in the annals of governmental theory, for it makes plausible, for the first time, a government based on a scientific analysis with respect to its law-making function as well as to its law-enforcing function. Put in another way, it makes plausible a government based on a science that is aimed at discovering both a behavior design that will most effectively promote successful group living and a cultural design that will most effectively shape and maintain the kinds of conduct specified by the behavior design. A science of government, conceived in the widest sense as a behavior code based on a science of ethics and supplemented by a behavior technology based on a science of behavior, offers a complete and valid guide to the practice of government. With the advent of this innovation, the traditional practices of political philosophy and party politics lose their point.

The foregoing account of the means by which men may devise an authentic science of morals or ethics and, by implication, an authentic science of law or legislation, is clearly hostile to traditional conceptions of government, whether democratic or otherwise. A government based on the scientific method, for example, is wholly incompatible with a government based on the democratic method, which appeals, not to a specialized study of the relations between behavior and its ultimate consequences, but to a polling of a general opinion of these relations. In theory, the method of democracy assigns an ultimate role to the governed in deciding what kind of behavior is necessary in order to promote successful group living. And in practice, the method is hopelessly disasterous. Democracy, which is based on free-will doctrine, has gained powerful and widespread support, and for that reason it is almost certainly the greatest single hindrance to the adoption of science in the practice of government. This will be further discussed at a later stage of the present account. At the moment, however, it may be sufficient to note that a program aimed at discovering the most effective ways for people to behave in order to live together successfully is in principle no way different from a program aimed at discovering the most effective ways for people to behave in order to construct houses successfully, to raise crops successfully, to successfully achieve and maintain optimum health, or to successfully control their own and each other's behavior. What we call morals or ethics, then, is simply a special case of the general tendency of all living organisms to learn ways of adapting or adjusting successfully to the conditions of their environment—in this case, the conditions of their social environment. In all cases, success is judged by appealing to the consequences or effects that arise from the particular action taken.

This is not, however, the traditional view of the matter. In this view, as we have previously remarked, moral or ethical questions require a value judgment in order to be answered. It is said that a knowledge of values and a knowledge of facts represent two different kinds of information, and that science is restricted solely to the discovery of facts. Science, it is argued, may be able to tell men how they must behave in order to achieve a particular goal (such as successful group living), and it may be able to tell them how to produce the required behavior (such as by means of a particular kind of culture), but it cannot tell them that they should behave in ways which promote that goal. Questions which entail a "should" or "should not" decision are said to be answerable only from a knowledge about an individual's values and about the choices he makes incident to consulting those values to form a judgment. Thus, choices made on the basis of value judgments are said to be the final authority in deciding between good and bad or right and wrong. But what, then, are values?

A scientific analysis of behavior has offered a surprisingly simple answer to this classical problem by showing that values are simply concealed references to reinforcing objects and events. When a man works for money or spends it on alcohol we may say that he "values" money and strong drink, but these reduce to statements about things that reinforce him. When we say that a child "values" candy we are simply reporting that candy is a reinforcer for the child. When a man behaves in ways which insure that he does not go to prison we may say that he "values" freedom, but what we really mean is that he is reinforced for avoiding an aversive condition. When we say that a person "values" a life of honesty and peace or its opposite, we are simply describing conditions which have been observed to reinforce him. Values, then, are nothing more than reinforcers which, of course, are integral parts of a scientific analysis.

A scientific analysis is also fatal to the notion that an individual behaves as he does because of a prior "value judgment" or "value choice." Human behavior is determined, not by value judgments or choices, but, as we have seen, by reinforcing consequences. When we say that a man makes a value choice prior to either spending his money or saving it, we cannot be referring to a *cause* of his behavior but only to an *effect* upon it by certain contingencies of reinforcement. He does not spend or save because he chooses, but does one or the other because of the control exerted by prevailing contingencies. This control, in turn, may be explained by many earlier contingencies in which spending or saving was reinforced. The value which an individual appears to choose is nothing more than the controlling effect of reinforcement upon the behavior which seems to exemplify making a choice. Accordingly, to acquire knowledge of why an individual behaves as he does, we are not required to guess at or ask him to guess at "matters of value." Rather, we must analyze the complex contingencies in which his behavior occurs and discover the "matters of fact" responsible for it. The traditional distinction between "values" and "facts" is therefore spurious.

The same sort of analysis is required for overthrowing the common belief that one individual can choose or try to choose the values of another. No individual can be an originating center of control, for he himself is controlled. The fact that under the conditions of group life one individual often controls the behavior of another must be accounted for in the usual way. Certain characteristics of behavior in the controllee—for example, cooperation—are reinforcing for the controller. For that reason the controller implements controlling practices which reinforce those characteristics in the controllee. But the control exercised, or the behavior it produces, is not the result of a prior value

judgment or choice made by the controller. Rather, it must be explained in terms of its reinforcing effects upon the controller, and this may be done by analyzing the contingencies in his environment and enviornmental history. This kind of analysis is required, for example, in order to account for why parents typically reinforce or try to reinforce certain characteristics in their children—such as the kind of behavior which promotes health rather than sickness, which shows intelligence rather than stupidity, kindness rather than cruelty, helpfulness rather than destructiveness, and so on. It would be incorrect to say that the parent makes a value judgment or choice which he or she then attempts to set up in the child. The characteristics are set up because of their reinforcing consequences for the parent, which in turn must be explained by pointing to the parent's environment and environmental history. The same kind of analysis is necessary to explain why a government attempts to set up certain behaviors in its citizens by use of various cultural practices, or why a scientist proposes changes in cultural practice to remedy certain behavioral problems. In whatever case, there are no values or choices to be taken into account.

But the question remains: Can science tell the individual how he *should* behave or a government that it *should* implement controlling practices to produce that behavior? We may begin by recalling that it is within the competence of a scientific analysis to make clear the full range of consequences—immediate and ultimate—that follow from particular behaviors. Science may, for example, be able to specify all the important consequences for the individual which result from ingesting alcohol. It may be able to show that despite momentary reinforcing effects, alcohol damages his health and that good health is more permanently reinforcing. It might also show that inebriation works against stable social relations, and that stable social relations are ultimately more reinforcing. By making all relations between particular behaviors and their consequences clear—by, in other words, specifying the contingencies of reinforcement in each case—science may be able to supply a statement of how the individual *will* behave *if* he is to live a maximally reinforcing life. But this is only another way of saying that science can tell the individual how he *should* behave in order to be maximally reinforced.

To counter by saying that science cannot tell the individual that he should behave in ways that *are* reinforcing is of no help, since his behavior will be controlled by reinforcing consequences. The fact that there are many different ways in which men may be reinforced in no way alters the basic controlling relation. But the fact that there are certain behaviors which are ultimately more reinforcing to others is a matter upon which science can supply important information. The new contingencies set up by that information will become part of the individual's reinforcement history. If the additional facts—the new contingencies—gain control over his behavior, the individual will behave in ways that are ultimately more reinforcing. If they do not, it will be because competing contingencies still have a more powerful effect. If the introduction of new information alone is not enough, then more extensive changes in the individual's environment may be required to work a change in his behavior. But once that new information has been introduced, the likelihood of a change in the individual will at least to some extent be increased.

When we turn to the field of social life, the same sort of analysis applies with respect to morals or ethics. Moral or ethical questions arise because men live together in groups, and for that reason they must be analyzed in a group context. When living together in groups, as emphasized at the outset of the present undertaking, men must behave in ways that are compatible with group living. If they do not, the group will be weakened and, at length, it may not survive. Since the consequences of group living are powerfully reinforcing for men, it is to their advantage to behave in ways which preserve and strengthen the group. Generally speaking, to the extent that behavior has consequences which promote successful group living, to the same extent it is "good;" to the extent that it works an opposite effect, to that extent it is "bad." When undertaking to discover whether particular behaviors are good or bad, as we have seen, an analysis must be made not only of their immediate, but also of their ultimate consequences for social life. By making the full range of consequences clear, as we have also seen, science may furnish a description of moral or ethical behaviors which is independent of the descriptions that have been determined by the particular cultural or reinforcement histories of different traditional societies. Information of this sort may tell a government what kind of behavior it *should* produce in order to create a maximally reinforcing group life. Once a government has this information, the probability that it will design and implement cultural practices to produce the behavior specified will to at least some degree increase. In summary, then, it may be said that questions of "right" and "wrong" are experimental questions that may be answered by science.

It would be wrong to suppose, however, that a behavior science alone is sufficient to decide "questions of value," since the consequences of behavior may work good or bad effects not only on subsequent behavior, but also on the biological and physical properties of the human organism and its environment. For example, eating behavior that is under the control of foods composed of concentrated calories—such as sugar and fat—may have remote effects which contribute to metabolic disorder and degenerative disease, and only a biological science is competent for discovering these remote effects. And productive behavior that is under the control of machines operating on certain kinds of fuel may have deferred consequences which disturb the atmosphere of the earth, and only a physical science is qualified to detect these deferred consequences. For this reason, both biological and physical science must unite with behavioral science to construct a valid "science of values."

By way of summary, then, the special information which values seem to demand is traditionally supplied by the casual observation of reinforcing consequences. These are the consequences which "justify" the control of human behavior. And since these consequences are also the very facts analyzed by science in order to explain behavior, it is a science of behavior that is uniquely qualified to define moral or ethical values. The things men call "good"—the things that make them "happy"—are the things they "value" and these translate into positive reinforcers. The things men call "bad"—the things that make them "unhappy"—are the things they act to "free" themselves from and these translate into negative reinforcers. A good or happy life—a life that men value—is a life in which men are controlled by positive reinforcers and free of control by negative reinforcers. It is a life that is contingent upon behavior and, since men live together in groups, a successful group life is contingent upon behavior which has the kind of consequences—which results in the kind of goods or values—that are called moral or ethical, the whole subject of which is the

special province of a science that makes behavior its object of inquiry.

The classical "problem of values" is, therefore, really no problem at all. What may be called "positive values" are simply positive reinforcers; and what may be called "negative values" are simply negative reinforcers. Because of the way men are constructed, they act to achieve the happy effects caused by positive reinforcers and to escape or avoid the unhappy effects caused by negative reinforcers. By analyzing all the happy and unhappy effects of different forms of behavior upon the behaving individual himself, upon all other individuals, and upon the human species, science may specify the forms of behavior which ultimately maximize happiness and minimize unhappiness. These behavior specifications may be used to design behavior by translating them into rules, laws, or principles of conduct that may be incorporated into a behavior code based on science would be eminently rational or intelligent, since rational or intelligent behavior may be defined as action which is effective for maximizing positive effects and for minimizing negative effects. Such a code would also be eminently moral or ethical, since moral or ethical behavior may be defined as action which is effective for maximizing positive effects and for minimizing negative effects not only for the behaving individual himself, but also for all other living individuals and for future generations yet to come.

There is, apparently, one final problem that needs to be met: *Who* will decide what behavior is best and, by extension, what behavior to produce? In light of the previous discussion, this historically troublesome question now seems quite meaningless. A more useful question, at this point, is this: *How* will optimal forms of behavior be discovered? The identification of a human agent is no longer the important issue. This becomes evident when the original question is raised with respect to established scientific practice in the fields of causal analysis and practical control: *Who* will discover why men behave as they do? And *who* will discover how their behavior can be controlled? If we are not likely to ask these question when confined to the already established explanatory and technological aspects of scientific practice, it is because we have come to realize that the decisive issue is the *facts*, and not the individual who discovers the facts.

The same principle must be brought to bear in the present case. We have noted that a scientific analysis of the relations between behavior and its positive and negative consequences furnishes a general pattern according to which a scientific behavior design or behavior code may be constructed. Such an analysis supplies *facts* about the relations between behavior and its important effects. *And in order to maximize positive effects and minimize negative effects, men must place themselves under the control of the facts. In short, the facts, and not a human agent, will decide what behavior is best for men and, thus, what behavior to produce.*

Since behavior is most effective when controlled by all its consequences, the task of a scientific analysis is clear: it is to identify all the effects of human behavior so that they can be brought to bear for controlling it. A government based on laws scientifically extracted from the pattern of relations between behavior and its consequences—from, in other words, a factual account of the reinforcement contingencies—would be, in the classical phrase, "a government of laws, not of men." The principle would simply be made effective as a device for designing a code of conduct. Since, however, the laws would be ultimately derived from facts, such a government would be ultimately, to suggest a new phrase, "a government of facts, not of men." We may, if we wish, call this form of government a "scientocracy."

It may be important to remark that, at any given point in time, a set of facts about a particular part of the world may, to varying degrees, be incomplete in some important respect. But where the facts end, guesses, not value judgments, begin. When men do not have all the facts on matters of immediate importance to them, their only recourse is to guess. The guesses are called "theories." And, of course, the most plausible guesses or theories are most likely to be advanced by scientific specialists whose object of special study is the particular part of the world for which there is, at any given moment, a lack of factual information.

If behavior is most effective when governed by all its consequences, and if a government frames its laws on the basis of facts discovered by a scientific analysis of the relations between behavior and all its consequences, then such a government should be, in another classical phrase, "a government for the good of the governed." It should also be, in yet another classical phrase, "a government by the consent of the governed," since it is reasonable to suppose that enlightened men would eagerly consent to being governed effectively for their own good. A scientific behavior code, supplemented by a scientific behavior technology to insure its effectiveness, offers mankind its only reasonable hope for the cultural unification of the world and, by implication, for the establishment of a universal network of strong societies composed of happy individuals.

No existing government—that is to say, no existing behavior code and supporting technology—can in any way approach this offer. No existing government is worthy of human possibilities. But a science capable of analyzing the remote consequences of behavior may progressively discover the specific forms of action which make for the full development of human genetic potential and, by implication, the maximum strength of the group. Information of this sort will specify how men *should* behave—and, as a special case of this, how the governors of men *should* behave—for creating a strong group composed of happy people. Such information will be indispensible for designing a culture—and, as a special case of this, for designing a government—which will guarantee that both men and their governors behave as they should. Here, if anywhere, is an intelligent foundation for a universal humanitarian order designed to maximize the happiness of the individual and the strength of the species of which he is a member.

With this, our survey of the three basic questions is complete. In each case, Skinner has been the principal driving force in identifying the means by which valid answers may be discovered. This, according to the view taken here, is by far the most important development ever to appear in the history of social analysis and, by implication, in the history of the analysis of government. This, according to the view taken here, is the scientific revolution in psychology, government, and ethics. We may therefore conclude that the general scientific revolution which began with the Newtonian revolution in the study of physics, and which was followed by the Darwinian revolution in the study of biology, has now been completed with the Skinnerian revolution in the study of behavior.

With the means for answering the three basic questions ready at hand, it now only remains for men of good will to work out the details of practical implementation. A final stroke of good fortune comes in the form of a model of how

this may be done. It is to this matter that we may now turn.

Scientific Humanitarianism and B.F. Skinner

Skinner's three major contributions therefore consist of a behavior science, a scientific behavior technology, and a scientific behavior design or behavior code. In common parlance, he put psychology, government, and morals or ethics on a scientific basis. In doing this he supplied the *means* by which valid answers may be found for the three basic questions upon which the achievement of the humanitarian *goal* hinges. Stated in another way, he established a scientific basis for discharging the two basic functions of a humanitarian government, which are to discover (1) the most effective behaviors for creating a strong group composed of happy individuals and (2) the most effective ways for producing those behaviors. Stated in yet another way, he showed how science may be used by a humanitarian government to achieve its principal objective, which is to maximize the development of human genetic capacities for effective living.

But beyond these three decisive achievements lies a final major contribution, for Skinner has also been the chief spokesman for the practical use of behavior science and its products for attaining the humanitarian goal. He is the leading figure within the humanitarian tradition in the sense that he speaks above all others for an *effective* humanitarianism—a *scientific* humanitarianism. His earliest and most widely known effort in this connection may be found in his utopian novel, *Walden Two* (12), which offers a draft of history's first scientific humanitarian utopia.

The application of a science of behavior for humanitarian ends is described by Skinner in this monumental work. The work is concerned with the use of science for designing a culture—the contingencies of reinforcement—for an entire society as a means for achieving a happy life for all its members. But once we undertake to explicitly design the environment—and hence the behavior—of a group of men, many striking features of social organization emerge which set the group apart from the kind of organization that is characteristic of traditional societies. The main objective of the present stage of our discussion will be to make a general comparison between Walden Two and the traditional societies it is designed to replace.

A scientific program constructed from valid answers to the three basic questions forms the essential basis for the cultural design of Walden Two. As with all governments, the government of Walden Two governs by designing and manipulating contingencies of reinforcement. Designing and manipulating reinforcement contingencies are, as we have seen, the two basic functions of government. In Walden Two, the designers of the contingencies are called *planners*, and the manipulators of the contingencies are called *managers*. These two kinds of specialists approximate in a very general way the law-makers and law-enforcers of traditional usage. Accordingly, the planners and managers of Walden Two have their counterparts in traditional societies, as we would expect from our earlier discussion.

There are four crucial differences, however, and they need to be carefully noted:

(1) *Origin of Control.* None of the contingencies are left to chance, but all are products of deliberate or intentional design. This is the difference between *accidental* and *intelligent* control.

(2) *Basis of Control.* The contingencies are not designed on the basis of conjecture arising from casual observation, but on the basis of a self-testing and self-correcting process of perpetual experimentation monitored by carefully controlled observation. This is the difference between *prescientific* and *scientific* control.

(3) *Kind of Control.* The contingencies control through neither punishment nor negative reinforcement, but through positive reinforcement alone. This is the difference between *negative* and *positive* control.

(4) *Object of Control.* None of the contingencies are designed to promote special preferments (the selfish interests of individuals and factions), but exclusively to promote the general interest or common good. This difference between *biased* and *ethical* control.

In broadest outline, these are the four principal features which distinguish the controlling or governing practices embodied in the cultural design of Walden Two.

Since remote antiquity, the issue of biased versus ethical control has burdened men of good will. It is perhaps the most salient issue with which the humanitarian tradition may be identified. Man's ancient struggle against biased control—against, in other words, tyranny, despotism, or exploitation—has been primarily responsible for the formation of various democratic and socialist or communist movements in the course of history. Because ethical control or control for the common good is the principal aim, but by no means the achievement, of the democratic program, the matter requires special attention.

We may begin by noting that governing for the common good is nothing more than a special case of behaving in ways which best promote successful group living. Thus, the basic questions in two-part form may be reformulated to accomodate the special case:

(1) What are the best ways for governors to govern in order to insure successful group living?
(2) How can governors be induced to behave in those ways?

As we may be led to expect from our previous discussion, the method by which answers may be discovered is that of science. The first question may be met by a scientific analysis of all the effects of governmental behavior upon the governed. The second may be met by consulting a science and technology of behavior. Since the technological assignment of insuring that government be conducted for the common good is nothing more than a special case of devising effective techniques for inducing men—in this case the governors of men—to behave in ways which promote successful group living, it is evident that we are faced with the classical problem of how the governors themselves can be governed. This is the problem of controlling the controllers—of devising a kind of government that will guarantee that governors will govern for the good of the governed. It is the problem of what Skinner has called "countercontrol." In other words, it is the problem of governmental design.

Skinner has met in an intelligent fashion the issue of governmental design, and his position may be summarized in the following way. The heart of the matter is this: *The strength of government—and hence of the group—rests upon the strength of the governed.* It is therefore a matter of the first importance that governing practices be designed and implemented which insure the complete well-being of each member of the group—his health, his education, his welfare, as the current democratic prescription would have it. This is

an ethical assignment that requires specialized knowledge, and it calls for a governmental design which will guarantee a double result: (1) that competent governors be selected; and (2) that they govern for the good of the governed. But how can the competence and morality of governors be guaranteed?

It is impossible to achieve this result by assigning power with the democratic method of "universal suffrage" or "self-government." The reason is not far to seek. The layman cannot intelligently decide on the best specifications for behavior, on the best techniques for producing them, or on the best men for performing these functions any more than he can intelligently decide on comparable issues raised by technological applications in physics and biology. To ask him to do so is to impose upon him an impossible burden, and to then hold him responsible for his decision is to impose upon him the worst possible morality.

The only intelligent and moral solution is to explicitly design contingencies of reinforcement which will effectively control governmental behavior to make it intelligent and moral, and this is exemplified in Walden Two. The principle used is this: a man engages in self-control when he designs the contingencies under which he lives; a group may engage in self-government by making its governors live under the same contingencies they design for the group. In order to guarantee its own success, the government must design contingencies for the group which maximize intelligent and ethical behavior, and such behavior is then insured in the governors by making them live under the same contingencies they design for the governed. The governors are veritable members of the group which they govern, the sole difference being that they are responsible for the group's success. That is their specialty. Self-government, in the sense that it can have any meaning at all, is simply made effective as a technique of countercontrol without contaminating the scientific specialization that is required for a successful and progressively better design.

In Walden Two, then, the government is carefully designed to make biased control a virtual impossibility. The governors have no police or military power at their disposal to compel the obedience of the governed. They must govern by positive reinforcement alone. Their limited terms of office insure that they will eventually return to a nongoverning vocation in the group for which it is their current business to design cultural practices. Accordingly, the design insures that governors would not only have nothing to gain from attempts at biased control, but in fact would find it to their obvious disadvantage. Thus, in response to commonplace prophesies of a dystopian nightmare, Skinner has persuasively shown that a science of behavior can be used, not to perfect tyranny, but to abolish it completely.

It may be helpful at this point to undertake a more casual description of the social design presented by Skinner in *Walden Two*. This work portrays a cooperative society which is carefully planned and managed by its government with the aim of making all its members happy, healthy, well-behaved, informed, skillful, productive, and creative. Every group member is guaranteed an equal share in the life and wealth of the community in return for his contribution to the common goal. As in all societies, the government of Walden Two faces two broad problems. The first is *economic*, which may be generally defined as the problem of controlling the nonhuman aspects of nature in order to supply all men with the things they need for survival and happiness. The second is *behavioral*, which may be generally defined as the problem of controlling the behavioral aspect of human nature in order to assure that the actions of men effectively promote the survival and happiness of all. It is crucial to note that whereas modern traditional societies have largely solved the economic problem by applying the methods and technologies of science to the physical and biological realms, they have all failed completely in efforts to solve the behavioral problem. The reason is not difficult to detect: they have neglected to extend the same scientific and technological methods to the realm of human behavior. In Walden Two, however, both problems are successfully met with the methods and technologies of science.

The cultural design of Walden Two, then, is based on cooperation, rather than competition, between men. The entire society, including the behavior technology that is organized around the economic problem, is intelligently designed to minimize aversive events in the lives of its citizens. Aversive emotions—such as hatred, anger, and envy—are minimized or eliminated altogether by a rationally designed behavior code supported by a carefully engineered social environment. Social practices that involve competition between men are never used. In competition the reinforcing consequences which accrue to the winner are unavoidably matched by punishing consequences for the loser, and for this reason the practice cannot possibly work for the common good. Inasmuch as politics is competition between men for power, and capitalism is competition between men for wealth, neither social method has any place in Walden Two's repertoire of cultural practices. In Walden Two, men work together to triumph over the problems of life, rather than separately or in factions to triumph over each other. In short, Walden Two represents the ideal cooperative society. By use of science, it is able to achieve an *effective* cooperativism. For this reason we may, if we wish, describe Walden Two as a *scientific* cooperative society, thereby distinguishing it from all other cooperative societies.

In very similar fashion we may compare the cultural design of Walden Two with the socialist or communist ideal. As noted earlier, the government of Walden Two consists of a group of planners who are charged with the success of the community. They are assisted by managers of various administrative divisions who are responsible for executing the plans that are made.

But planning and managing, like working at farming or manufacturing or scientific research, are viewed, in Walden Two, as nothing more than jobs that need to be done. No job is assigned any special status, nor endowed with any special privilege. All members of the community, whatever their vocation, have equal access to its wealth—its food, shelter, clothing, medical services, educational programs, recreational facilities, and so on. In sum, Walden Two meets all the specifications of the socialist or communist ideal: all property is socially or communally owned; the society or community is classless and egalitarian. By the careful and comprehensive application of the method of science, Walden Two is able to achieve an effective socialism or communism. We may therefore, if we wish, legitimately describe Walden Two as a *scientific* socialism or communism to distinguish it from all other socialist or communist societies.

Walden Two also meets all the specifications of the democratic ideal, except in one important respect. While it is a government *of* the people *for* the people, it is not a government *by* the people. Government is conducted, not by laymen unschooled in social planning and management, but by specialists in the science of governing. This is merely an

extension of the principle that has to do with the division of labor and the specialization of work. Farmers specialize in farming, mechanics specialize in machinery, doctors specialize in preventive and corrective medicine, teachers specialize in education, and so on. In Walden Two, at least two further specialties are added: child-raising specialists and specialists in governing—in planning and managing the affairs of the group. It has often been pointed out that what may be the two most important vocational roles in any society require, in traditional society, virtually no specialized training at all— namely, parenting and governing. Walden Two makes good these two traditional deficits, and in so doing it is able to successfully achieve the *goal* of democracy by using, not democratic methods, but the methods of science. If the important criterion is the goal of democracy rather than its method, then Walden Two is, by virtue of the scientific method, the first *effective* democracy ever portrayed in a plausible way. Therefore we may if we wish, call Walden Two a *scientific* democracy and thereby distinguish it from all other democracies.

An indispensible feature of Walden Two is its *size as a social unit*. To successfully attain the humanitarian aims that are associated with traditional democratic and socialist or communist programs, the size of the social unit must be taken into careful account. This is an integral part of the scientific approach characteristic of Walden Two. The accomplishment of humanitarian aims depends not only on the democratization of government in the sense of control in the interests of all the people, or on the socialization or communization of the economy in the sense of social or communal ownership, but also on the *democratization* or *socialization* or *communization of behavior*. The achievement of humanitarian aims is contingent on behavior, and for that reason an effective behavior technology is the most important means for insuring that achievement. It is, however, only in a relatively small group or society that the behavior of men can be effectively governed or controlled. This is true for the behavior of both the governors and the governed—the controller and the controllee. Both control and countercontrol depend on social units of controllable size. Thus, by keeping the size of its groups within manageable limits, Walden Two avoids the wholly overwhelming and insoluble problems that are endemic in mass societies characteristic of the modern world. Using the model of Walden Two as a guide, we may confidently conclude that a truly humanitarian world would consist of a universal network of small communities united by a common goal and a common method. The goal would be the survival of the human species and the happiness of all its members; the method would be that of science mobilized for achieving that goal. It may be hoped that conscientious democrats, socialists, and communists will begin to take this guide to cultural replacement seriously. If they do not, then they will never be able to convincingly demonstrate to a wholly confused and exploited mankind that their anciently cherished social ideals are fully within reach.

There are other important features of Walden Two that may be briefly described. The government controls production and consumption in an intelligent way for eliminating waste, duplication, and the various forms of sophisticated ignorance which are engineered in badly organized societies to emphasize conspicuous consumption. It carefully refrains from propaganda of any sort. Specialized versions of group life which celebrate past and present glories and the heroes who contributed to them along with all other devices and the heroes who contributed to them along with all other devices for piecing in a bad or incomplete governmental design are not required. The use of such spurious devices would, in fact, be fatal to the experimental spirit of science upon which the government is founded. The point is an important one, for as long as propaganda exists there is no way to determine with assurance whether men support their government because they are reinforced by actual living conditions, or because they are reinforced by imaginary conditions created by clever indoctrination. The valid test of any cultural design must rest on the honesty which is indispensible to a scientific analysis.

By implementing a total culture that is carefully designed to make all its citizens happy and competent for social living, the government of Walden Two is able to produce a striking social effect. Not only is there a release from the ignorance and evil that are characteristic of traditional societies, but there is also a corresponding simplification of life. Drug addiction, deception, crime rebellion, and other troublesome or dangerous forms of behavior do not exist. There is no place for policemen, soldiers, politicians, lawyers, capitalists, salesmen, and other representatives of the kinds of practices which trade on conditions bred by badly designed and mismanaged societies.

It is important that the essential key to the workings of this markedly superior culture be clearly understood. In designing controlling practices for creating a strong and happy people, it is not only the *use* to which control is put that is important but also the *kind* of control that is used. In other words, the superiority of Walden Two culture is explained not only by invoking the moral or ethical objective for which control is consistently exerted, but also by invoking the particular method of control that is applied for accomplishing this objective. Accordingly, in Walden Two systematic efforts are made to eliminate the method of negative or aversive control (which includes both negative reinforcement and punishment), and to govern by the method of positive reinforcement alone. Moral or ethical training is accomplished by dealing not with the individual's *final behavior to behave* (as is the case when positive reinforcement is used). The result is that people behave well not because they *have to;* "freedom" need never arise.

But the importance of using positive reinforcement for achieving a universally consistent ethical result does not end there. For if the citizens of Walden Two do not become drunk, quarrel, steal, rape, murder, or make war, it is because they have never been reinforced for behaving in these ways, or for behaving in ways which might culminate in these behaviors. The result, in traditional mentalistic language, is that they do not *want* or *desire* to do these things, they do not *feel like* doing them, they do not *value* or *choose* activities of this sort. In traditional societies, the "wants," "desires," "feel likes," "values," or "choices" or men are left to the control of various and conflicting patterns of accidental, biased, and ethical contingencies embracing positive reinforcement, negative reinforcement, and punishment. This, of course, explains the various and conflicting patterns of behavior displayed by traditional men. But in Walden Two the above noted "mental" events are solely the product of ethical contingencies mediated by positive reinforcement. This, of course, explains the consistent ethical conduct shown by the men of Walden Two. It also explains why, in Walden Two, the question of moral or ethical "values" need never arise.

The general picture that emerges from Skinner's utopian exercise is one in which all the important aims of traditional humanitarian programs have been realized. The men of

Walden Two are uniquely free, not from the inexorable laws of behavior which govern the rest of the human species, but from the multitude of aversive conditions which hold all other men in bondage. They are uniquely equal, not in the genetic capacities which divide all men, but in opportunities to operate upon their environment in order to generate reinforcing consequences. They are uniquely intelligent, not because of superior genetic endowments, but because they have been taught how to learn and think effectively, rather than what to learn and think. They are uniquely moral, not because of any innate virtues, but because they live in an environment where all contingencies of reinforcement are products of ethical design. The final result, therefore, conforms with the *goal* that has typically been identified with the words "humanism," "liberalism," "democracy," "socialism," and "communism." The difference is in the *means*: it is a humanitarianism based on science. This is the program of B.F. Skinner.

What is Wrong with Walden Two?

The picture, of course, is not complete. But neither have its general features been overdrawn. Nor is it implausible. *Skinner was the first to supply a plausible humanitarian utopia for the simple reason that he was the first utopian to have an authentic science of behavior with which to work.* It is therefore reasonable to suppose that traditional students of human behavior—"psychologists" and "social scientists"—would discard their false sciences and convert to scientific legitimacy for mobilizing a massive practical assault on the widespread evils which arise from human conduct. It is also reasonable to suppose which arise from human conduct. It is also reasonable to suppose that men of the humanitarian tradition would be especially eager to advance this objective. But this has not been the case at all. In fact, it would appear that those who have shown Skinner the most vigorous opposition are the very people who have been loudest in proclaiming their support for the goal of universal peace and happiness. This may ultimately stand out as the most curious paradox in the history of humanitarian thought.

Many objections have been raised against *Walden Two*, but all suffer from a combination of two defects: first, an inadequate understanding of science and of its application to human behavior; and second, the reinforcing effects of the traditional viewpoint. But once they have been shorn of their extravagant logic and verbal excesses, the most persistent and forceful complaints all seem to reduce to a common denominator: the issue of free will versus determinism. Skinner's entire program is based on an explicit denial of the mentalistic doctrine of free will, and the success of his program depends on the validity of that denial. The traditional doctrine of free will has, for the first time, been consistently and aggressively challenged by Skinner's hostile assumptions and supporting evidence. Heresies of this enormity are not likely to be understood, much less tolerated or forgiven.

It would seem that men are powerfully reinforced by the traditional belief that they have within themselves a special nonphysical agency which enables them to miraculously intervene at some point in a physical cause-and-effect process and display their behavior capriciously. Flattered when told that they are free agents who can perform incredible and impressive feats, men then become disturbed when that claim is opposed by hostile evidence. The men who accept this claim are mainly products of the tradition of liberal-democracy, which is founded directly on free inner agent doctrine. Liberal-democratic philosophy shares its free-will conception of human conduct with Judeo-Christian theology, which is based on yet another miracle-working agent that is endowed with powers which are even more astonishing. Rather than adapt themselves to newly discovered facts, the faithful of the liberal-democratic tradition react savagely against behaviorism and all of its works. The verbal behavior shown by these reactionaries frequently deteriorates to a degree which by some standards might suggest a need for clinical attention. For them a condition of universal good will among men is an acceptable aim only if it can be achieved by a universal act of free will. It is evident that liberal-democratic doctrine has left its faithful wholly unprepared for the facts which behavior science has brought to light. In sum, mentalism in its many various forms still enjoys powerful and widespread support, and the scientific revolution, which Skinner is attempting to bring to completion, has not yet had its full impact on men of good will.

Those who have complained that *Walden Two* is an essentially wicked document because of its denial of mental freedom have devised several lines of attack, but most if not all of the fears expressed in these attacks seem to reduce to two in number. First, it is sometimes supposed that in a scientifically planned and managed society, men, because of constraints imposed on their "free minds," would lose their ability to "think." And second, it is often said that because the individual would lose his "mental freedom" or "autonomy"—his "liberty to choose" and his "personal responsibility for making choices"—the life that he would lead would be "degrading," "ignoble," and devoid of "dignity." The complaints are intimately related with one another, and for that reason a rejoinder may be expected to show some overlap.

We may begin with the matter of thinking behavior. F.W. Matson (13) has described Walden Two as an "entire community of robots" and concludes that "the conditioned community is in fact a cataleptic society." This is reminiscent of the warning issued by the late J.W. Krutch (14) to the effect that if a science of behavior has its way, "we may never be able to really think again."

These comments seem strange, for Skinner has been in the forefront in attempting to supply a scientific analysis of thinking behavior and in developing techniques for improving it. The evidence indicates that thinking is an operant process which obeys the established principles of operant conditioning and extinction. At the close of an extensive analysis of thinking behavior, Skinner (15) states:

> The present analysis should lead to an improvement in educational practices. If our account of thinking is essentially correct, there is no reason why we cannot teach a man how to think. There is also no reason why we cannot greatly improve methods of thinking to *utilize the full potentialities of the thinking organism*... (Emphasis added.)

This language hardly seems consistent with a program which would condition men so that they could never "really think again" or which would create a society of "robots" or "cataleptics."

The position is not entirely theoretical, however. Through Skinner's pioneering efforts the facts of operant conditioning discovered in the experimental laboratory have been extended to practical learning situations. The most dramatic result has been programmed instruction mediated

by a teaching machine. The equipment used in operant laboratories arrange contingencies of reinforcement. And this is all that teaching amounts to—arranging contingencies of reinforcement. But one of the most critical factors in the technology of teaching is arranging optimally timed contingencies. Learning is most effectively achieved when reinforcement follows immediately upon the correct answer or response. Machines can mediate reinforcement much more rapidly that the human teacher. In addition to the timing of reinforcement, there are, of course, other important details.

But when scientific knowledge of operant principles is applied to practical learning situations, does it destroy the ability to think? Are men reduced to robots or to a state of catalepsy? Thus far no instances of these phenomena have been reported. The results, in fact, have been quite the opposite. For example, the use of programmed instruction has become widespread in industry, where the emphasis on profits puts a premium on the rapid and effective training of personnel. A parallel trend may be found in the result. Learning cannot occur in the absence of conditioning. Skinner did not *invent* operant conditioning, but *discovered* its principles and devised ways of making them more effective. The dire consequences predicted by pessimists simply offer one example of the deep and widespread misunderstanding which prevails with respect to Skinner's work.

Skinner has pointed to ways by which the teaching machine may be adapted to the task of teaching effective thinking (16). He has also described how he applies a knowledge of conditioning principles to himself in order to bring out his thinking or verbal behavior with "maximal efficiency" (17,18). Essentially the same approach has been described in connection with the design of educational practices in Walden Two. The following quotations may be illuminating (19).

> We appeal to that curiosity which is characteristic of the understand child, as well as the alert and inquiring adult...Since our children remain happy, energetic, and curious, we don't have to teach "subjects" at all. We only teach the techniques of learning and thinking.

As for subject matters—the arts, crafts, and sciences—the individual is given opportunity and guidance, but the contingencies are arranged so that he will be reinforced for learning for himself. Unlike the traditional educational process which characteristically ends with "graduation," in Walden Two "education goes on forever." It is simply part of the culture. Nor are students forced to adapt to the traditional standardization practices which do violence to individual differences.

> Everyone knows that talents and abilities don't develop at the same rate in different children...Here the child advances as rapidly as he likes in any field. No time is wasted in forcing him to participate in, or be bored by, activities he has outgrown...Our gifted children aren't held back by organized mediocrity.

There are other important details, but they all lead to the same conclusion. Contrary to Skinner's critics, we have every reason to suppose that Walden Two is, so to speak, a "thinking man's paradise."

But the importance of a science of behavior for the elaboration of thinking behavior does not simply end with a maximally effective thinking organism. Where, as in Walden Two, men are taught how to think effectively rather than what to think, we are entitled to expect radical differences in the way they approach the field of time-honored ways for acquiring special information about the world—as exemplified by the special methods for discovering ideological, philosophical, or religious "truths"—would long survive in a universally intelligent population. It is therefore not surprising that we find no political, economic, theological, or other dogmas in Walden Two, where the entire culture is founded on scientific experimentation. The major features of the pattern are clear. By avoiding stubborn commitments to theory, the society is kept free to change its practices with the accumulation of new facts. All members of the group are encouraged to examine each personal habit and every social custom with an eye to improvment. By teaching all citizens how to learn, how to think, how to ask questions, and how to find the answers, the government of Walden Two widens the base of experimental practice and hastens the accumulation of knowledge, which in turn quickens the pace of cultural progress.

All this is in massive contrast to what is found in traditional cultures, including those of so-called "free" or "open" societies. The established practice is to teach men what to believe—to condition them in ways which will guarantee their unquestioning support of "truths" or "principles" which are regarded as final and beyond challenge. Where, as here, the individual is schooled in "certainties" which require no critical examination, it is likely that he will either reject or ignore any hostile evidence that would otherwise upset his prior commitment to "truth." It is therefore not surprising that the progeny of Christians generally become Christians, that totalitarian states generally produce men who conform with whatever ideology the state teaches, and that the products of democratic societies typically subscribe to democratic doctrines. The fact that there are occasional oddities or deviants may be explained by appealing to minor defects in controlling techniques or to the unexpected introduction of competing contingencies of greater strength. But in the usual case the continuity between the individual's beliefs and those of his surrounding social environment is clear. Yet it would be difficult to convince a product of any one of these traditions that an accident of birth is responsible for his convictions. Despite any analysis that might show the individual how his beliefs were designed for him, he is apt to insist that he "chose" them on the basis of some "rational judgment." He is likely to dismiss those who disagree with him as victims of ignorance, and to regard his own views as something more than a consequence of specially arranged contingencies of reinforcement.

The power of even prescientific conditioning techniques is therefore easy to demonstrate. It would be a simple matter to show, for example, that loyalty to the democratic conception of man and to practices based on that conception is engineered in a way that prevents even many scientists from thinking effectively about human behavior and the design of human culture. Men of democratic cultures are products, not of any "free and responsible choice based on reason," but of contingencies that are arranged to shape and maintain the belief that they are.. It would also be easy to show that in a society where government refuses to control—in a so-called "free" or "liberal" society—the control is relegated, not to the individual himself, but to other parts of his environment. But if that environment is not intelligently designed to produce an ethical result, the kinds of behavior required for successful group living will not be set up and maintained in strength. A poorly designed and badly

managed culture permits accidental and biased contingencies to reinforce in men the most unlikely answers to important personal and social problems. Occasionally, moreover, the answers are dangerous. When contingencies that are contrived to support and extend control by selfish interests are allowed to flourish, the individual is deprived of problem-solving behaviors which are important for his own happiness, for the happiness of others, and for the strength of the group. This effect is not limited to the controllee, for the controller is also part of the total group which his selfish actions serve to weaken. But the momentary and often striking success of cleverly devised biased control usually has the tragic effect of disguising an urgent need for an experimental change in design. The common result of control by selfish men or by men who pretend to have the final answers is cultural conservatism and, in the end, cultural extinction. But the program of Walden Two has a quite different consequence, for there the contingencies are deliberately arranged to foreclose on any possibility of adventitious and biased control, and to reinforce men for testing all beliefs against relevant experimental evidence.

The extensive planful control of Walden Two has sometimes invited a comparison with the programs of various traditional totalitarian states. The comparison, however, fails to show any affinities. An analysis of traditional totalitarianism would probably show it to be a program of deliberate control implemented primarily through aversive means to achieve primarily biased ends. To the extent that democracy shows aversive and biased controlling features, it resembles traditional totalitarianism much more closely than does the program of Walden Two. Any appeal to "totalitarian control" as the decisive criterion is spurious, since, as we have seen, control is "totalitarian" in any case. As we have also seen, it is the *kind* of control and the *use* to which it is put that are important, and judged by these criteria Walden Two stands at opposite poles from the traditional totalitarian despotisms, with democracy falling somewhere in between. A comparison made with respect to the *results* of control—in the present instance the advantageous effects upon thinking behavior—would probably show the same distribution. But one think may be stated with assurance: As a society designed to reinforce effective intelligence—or, indeed, any other known advantageous feature of behavior—Walden Two stands virtually alone.

By now we have seen enough of how behavior is controlled by reinforcement contingencies to know that a statement such as "the conditioned community is in fact a cataleptic society" simply makes no sense. All communities are conditioned communities. The conditioning can be the result of accidental events or of events arranged by intelligent human design. If they are arranged by intelligence, they can be either biased or ethical. Traditional societies are the result of both accidental and intelligent conditioning, and the latter is undertaken for both biased and ethical ends. Conditioning may be mediated by either positive or negative methods, and traditional societies use both. Walden Two is to be distinguished by the fact that it is solely the result of intelligent conditioning undertaken for ethical purposes by means of positive techniques.

It therefore seems fair to say that no one has been more alive than Skinner to the importance of intelligent behavior or effective thinking for producing a strong and happy people. This, indeed, is the whole point of his plea to apply science to human affairs. To the extent that the word "intelligent" has any meaning at all, it must be synonymous with the word "scientific"—which we may generally define as the accurate analysis and effective manipulation of causal relations for maximizing positive effects and minimizing negative effects. And the more scientific thinking comes to pervade a society, the more intelligent it will be. It should not be difficult to understand that the practice of science does not diminish effective or intelligent thinking, but strengthens it. The use of science for producing the kind of behavior which defines science itself can only result in markedly improved cultural practices that will vastly accelerate the progress of human intellectual achievement. Traditional moral or ethical practices lack intelligence to the extent that they fail to make a full coverage of all instances of behavior which affect group living in important ways. But as science makes clear the full range of consequences generated by alternative patterns of behavior, societies that are prepared to utilize that knowledge will be able to devise moral or ethical practices which show increasing intelligence. By hastening the accumulation of facts, to paraphrase Skinner, science speeds the departure of ignorance. It is perhaps astonishing that this lesson has been lost upon Skinner's critics.

This discussion should have prepared us for the second principal objection to Walden Two—namely, that the individual in such a society is "degraded" or stripped of his "dignity" because he loses his "free will" and therefore his "personal responsibility for making choices." We may approach this matter by noting that scientists do not always handle the issue of freedom in a satisfactory way, and for that reason there often appears an embarrassing inconsistency in their account which supporters of the traditional view are quick to exploit. We shall gain nothing by hedging, but must face the matter squarely and say that the notions of "personal freedom," "personal choice," and "personal responsibility" have no place in a scientific account. From the standpoint of both a theoretical and an applied science, human behavior is determined, caused, lawful, orderly, or controlled. The behaving organism has no freedom, no choice, no responsibility. Every current feature of that organism—anatomical, physiological, and behavioral—is solely the product of a confluence of particular genetic and environmental histories. To appeal to some inner psychic or mental agent of control to account for apparent signs of spontaneity or caprice is to illegitimately anticipate scientific discovery by resorting to an animistic fiction.

There are, however, other senses in which the term "freedom" may be used which do not raise the same issue. The casual reporting of human events supplies many examples. When, for instance, we describe a social situation in which men are "striking for freedom," we simply mean that they are reacting against a form of control that is aversive—such as force or the threat of force imposed by a government to compel obedience. It would be ludicrous to suggest that they are striking to free themselves from the natural laws which control their behavior. The same rule applies when we say that biological advances in medicine and agriculture free men from the aversive effects of disease and hunger, or that advances in behavior science may free men from the aversive consequences of punitive control or of a biased cultural design. But in freeing men from one set of determinants, the control of their behavior is not simply turned over to nothing, for another set of determinants must take hold. For example, when a man is freed from prison his behavior inevitably comes under the control of another environment, though he is not likely to report that he has

simply been transferred from one prison to another. The freedom referred to in these instances is a freedom from a particular kind of control—a kind that the individual finds objectionable—and it is therefore not the same freedom that is at stake in a science of behavior.

Yet, confusion on this point is widespread. C. R. Rogers (20) has stated that "we can choose to use the behavioral sciences in ways that will free, not control." This sort of misunderstanding is common among traditional humanitarians. There is a failure to realize the inevitability of control. Human behavior has always been controlled, and it is impossible to envision how the fact of *control as such* might in any way be lessened. While science can never be used "in ways that will free, not control," it can be used to set up conditions in which control will work to man's best advantage. This, of course, is what happens when the sciences of physics and biology are applied in ways which reduce or eliminate the aversive effects of human labor, disease, and deprivation. In the same way a science of behavior can, use control to reduce or eliminate the aversive consequences of man's own behavior—of, in other words, man's selfish and punitive actions. In short, behavior science may be used to eliminate tyranny—the tyranny of human abuse, of human exploitation, of human slaughter. It is here, if anywhere, that human dignity is to be found. The power that a science of behavior may confer upon man for dignifying or ennobling or upgrading himself is suggested in the following passage by Skinner (21).

> No scientific advance has ever actually damaged man's position in the world. It has merely characterized it in a different way...If we eventually give a plausible account of human behavior as part of a lawfully determined system, man's power will increase even more rapidly. Men will never become originating centers of control, because their behavior will itself be controlled, but their role as mediators may be extended without limit.

The lesson is important for coming to terms with the present issue. As we have seen, operant behavior is controlled by its effects or consequences. This principle is called the "law of effect." It could just as easily be called the "law of consequence." The effects or consequences of behavior become the antecedent causes of subsequent behavior. Thus, when men control, the consequences of that control in turn control them. By using this law of behavior to design a culture, the consequences of men's controlling actions may be manipulated in ways which control those actions in a direction that insures successive increments in the power to control for the ultimate benefit or "dignification" of the species. But science does not *invent* the laws which control human behavior. It merely *discovers* them. In the same way science did no *invent* a heliocentric universe or the evolutionary process by which man descended from lower forms of life. These were all *discoveries*. The facts were already there, but previously man had not known about them. Once they became known, and however momentarily distasteful their implications, it was only sensible for man to abandon the flattering prescientific notions he had about the world and his place in it. The alternative is persisting ignorance and, in areas which affect the human conditions, the continued perpetuation of indignity, ignobility, and degradation.

It is therefore important that we do not take seriously the plea made by Matson (22) to uphold the "freedom to make choices and the right to blunder." The freedom is fanciful and the blunders are at the root of the very indignities which Matson and his traditionalist brethren find offensive. The indignities will be removed, not by holding science back, but by extending it to the blunderous behavior which produces them. And this means redesigning the environment of men in a way that will reinforce "choices" which lead, not to blunders and indignities, but to actions which display wisdom and virtue.

Closely related to the issue of freedom is the subject of "values," a topic for which our previous discussion should have prepared us. Rogers (23), for example, has found it objectionable that the planners of Walden Two "choose" the "values" of its citizens, and that Skinner has "chosen" such "values" as happiness, good behavior, productivity, and so on when suggesting reasonable specifications for the behavior of men. This complaint, of course, is commonplace. But it is also spurious. We have seen enough of "values" to know that the application of science to human affairs does not raise this issue at all. A doctor confronted by a cancer victim does not consult a set of alternative "value judgments" or make a "subjective value choice" before instituting a program of treatment. Rather, he explores the alternative possibilities with respect to a cure, and if unsure of the best one, he *guesses*. The application of science involves empirical knowledge and, at the point where that ends, guesswork, not "values." The fact that the doctor "wants" or "chooses" to behave in a way which will cure his patient, or that he "values" the application of knowledge in ways which lead to a cure, must be explained by an analysis of his environment and environmental history. His "wants," "choices," or "values," as we have already seen, will be a function of reinforcement contingencies.

It is therefore wrong to suppose that the planners of Walden Two are the only men in that society who are "free" to make "subjective value choices" because they design the contingencies of the culture. There are simply no "freedoms" or "values" to be taken into account. The behavior of the planners is no less controlled than that of the rest of the group's members. An analysis of their environment and environmental histories would show how that control is exerted. Such an analysis would include the governmental design which keeps their behavior within specified ethical bounds. It would also include the scientific information available to them which is relevant for answering the three basic questions, and the effect this information has upon their "thinking" and "decision-making" behavior with respect to designing cultural practices. No individual-including a contoller—can step outside the stream of physical cause-and-effect.

Nor, of course, is the scientist exempt from this rule. Skinner's thinking in regard to human behavior and cultural design is the product of a particular history. A very important part of that history is an intimate contact with the experimental analysis of behavior. The contingencies set up by this contact exert a powerful control over his thinking behavior and over the statements he makes. Science has enabled Skinner to demonstrate controlling relations between behavior and specifiable antecedent conditions, and this has supplemented or changed his history in an important way. His thinking and verbal behavior with respect to applying this knowledge of controlling relations to practical human affairs is not the result of any "value judgment" or "subjective value choice," but of a particular history of reinforcement.

Skinner's theoretical analysis represents a generalization of the facts that have emerged from the controlled

observation of his subject matter, while the views of his critics are based primarily on inferences drawn from casual observation. Here, if anywhere, may be found the main reason for the clash between Skinner's conception of man and the conceptions held by traditionalists. Where, as here, the results of controlled study are in conflict with the results of casual inspection, it becomes immediately evident that both are not in the same degree of contact with the facts. Important parallels in other fields are not far to seek. How for example, may we account for the fact that modern men believe that the earth is round, while their ancestors held that it was flat? The obvious explanation is that men today are in closer contact with the facts of geography than were their forbears, and therefore they can think about and deal with geographical matters more effectively. Science, in bringing men under better control of the facts, reinforces them in ways which lead them to behave in the world with increasing success. And this is where Skinner's critics make their mistake. By failing to examine carefully the evidence upon which his statements are based, that evidence never becomes an important part of their histories. As a result, they continue to demonstrate the conditioning imposed by the dominant prescientific viewpoint.

But the most important questions remain to be asked. How, in the traditional idiom with which social conditions are usually described, does Walden Two compare with a "free" or liberal" society that arises from "democratic" methods of social planning and management? What does such a comparison reveal in terms of the "significance" or "meaningfulness" of life, or in terms of the "wholeness" or "dignity" or "worth" of the individual? Our previous discussion of Walden Two should have been sufficient to meet the questions with which we are now explicitly confronted. However, there are several points which, in the context of the traditional language of description, seem worth emphasizing.

If the word "Freedom" means anything at all, it seems evident enough that Walden Two is the only plausible "free society" ever described. There is a maximization of freedom from the tyranny of ill-health, of punishment and the threat of punishment, of interpersonal exploitation, and of unnecessary labor. With the average work-day curtailed to four hours, and with the group deliberately organized to maximize personal satisfaction and fulfillment, the individual's liberty to do as he wants is unprecedented. He may pursue at will the arts, the crafts, or the sciences; he may engage extensively in athletics or games; or he may simply socialize in any number of informal ways which are compatible with happy group living. Because of the *kind* of control used, the individual is never *forced* to do anything. Whatever he does it is because he *wants* to, not because he *has* to. In short, the individual's "feeling of freedom" is maximized to the fullest extent possible when his behavior is totally controlled by positive reinforcement. And, by implication, his worth or dignity is thereby set above the bullying threat or the vindictive penalty.

Unknown in Walden Two are the degrading features of even the most alleviated brute existence—the drunkeness, the quarreling, the mendacity, the hypocrisy, the clever deception. Unknown are the savage rivalries among men to find a place in a social structure which, upon intelligent reflection, can command no faith. Unknown is the revolting discrepancy between the ideal and the real—between endless sermons calling for "good will toward men" and the vicious struggle to gain mastery over men and use them for a selfish ends. Unknown are the gross contrasts between human blight, squalor, and poverty on the one hand, and luxury, gleam, and wealth on the other. Unknown are the "free" or "permissive" conditions which breed indifference to the worth, wholeness, and dignity of the individual—the conditions which produce neglected and brutalized children, stunted behavioral repertoires in adults, the painted whores, the insane, the robbed, the beaten, the raped, and the murdered. Unknown, in short, is the badly planned and managed society which gets better results in civilizing its dogs than it does its men.

What, then, *is* wrong with Walden Two? Only one thing, in Skinner's estimate (24), and that is that "someone planned it that way."

> If these critics had come upon a society in some remote corner of the world which boasted similar advantages, they undoubtedly would have hailed it as providing a pattern we all might process of cultural evolution. Any evidence that intelligence had been used in arriving at this version of the good life would, in their eyes, be a serious flaw. No matter if the planner of Walden Two diverts none of the proceeds of the community to his own use, no matter if he has no current contact or is, indeed, unknown to most of the other members of the community (he planned that, too), somewhere back of it all he occupies the position of prime mover. And this, to the child of the democratic tradition, spoils it all.

If, in other words, through some extraordinary combination of accidental events all men in a given society happened to come under the control of just the reinforcement contingencies needed to produce a Walden Two, it would *appear* as though they and formed and maintained their happy society on a "free and voluntary" basis. Because no "benevolent despot" had used his intelligence to design the contingencies required, the result would seem quite compatible with democratic doctrine. But in the absence of such an unlikely— one might safely say impossible— combination of accidents, the whole program seems inherently wrong. It suggests a "totalitarian dictatorship" which, however intelligent and morally predisposed, flies in the face of all that has been traditionally taught. And on this ground alone it must thoroughly and emphatically rejected.

There is one exception, however. Since the single case apparently does not sin against the general rule, the traditional dogma may allow us to applaud the intelligent and moral individual as the product of a "good upbringing." Even though considerable parental planning and management may obviously have been involved, for some reason it does not seem like "quite the same thing" as "paternalism" practiced on a community scale. The individual blessed with a "proper upbringing" may go throughout his entire life happy and well-behaved, he may devote himself assiduously to improving his knowledge, skill, and productivity, and when we inquire why he behaves in these laudable ways, he may report that he "wants to" or "likes to" so behave. He may even make a grateful reference to his parents in acknowledgment of the wisely planned and effectively managed circumstances which shaped him during his "formative years," and we may nod our heads in agreement without, apparently, sinning against the cardinal rule of free inner agent doctrine. It is certainly not likely that he has lost his ability to think, or that he may be a "robot" or a victim or "catalepsy." We are more likely to point to certain important features of his environmental history to account for his virtues, in which case we are simply

appealing to a history of operant conditioning. But if our knowledge of his history is inadequate or if this sort of explanation seems, upon reflection, to have offensive implications, we may seek refuge from the problem by simply saying that he "freely chooses" to exhibit the behavior we admire. In this case, however, we have offered no real explanation at all. Unless we can explain *why* he "chooses," we have said nothing.

Even so, we may succeed in maintaining this illusion so long as an entire community of men do not all "choose" to behave in the same laudable ways. It is only when this happens that we may begin to suspect that "something is wrong." And if we discover that they are all products of a carefully planned and managed upbringing, our suspicion is then likely to be transformed into the conviction that they have been deprived of their "autonomy" and "freedom" and, hence, of their "responsibility for making choices." They have been robbed of their "dignity" and their ability to think. They represent, in short, a "community of robots," a "cataleptic society." Numbers, as it has often pointed out, have a magic all of their own.

The Fateful Controversy: Democracy Versus Science

Thus, the heart of the matter seems to be simply this: What the traditional humanitarian finds objectionable about Walden Two is not its achievement, but the *means* to that achievement—the deliberate or intentional or intelligent design of a culture for producing "humanitarian" people on a universal scale. And this, of course, is where we began—with the failure to agree on means. We are back to the ancient source of dispute between humanitarians which arises from a lack of valid information with which to answer the three basic questions concerning why men behave as they do, how their behavior can be changed, and what changes in their behavior need to be made. And the lack of valid information, in turn, may be traced to the lack of a valid method for acquiring that information. The entire controversy, therefore, ultimately turns on the failure of traditionalists to apply the method of science for discovering answers to the three basic questions. The principal reason of this is not difficult to discover: Traditional humanitarians are, for the most part, animated by a zeal that approaches, or perhaps even approximates, religious fanaticism in defending the democratic method and, by implication, the liberal doctrine of free will. It may be said that, in an earlier day, supernatural religion was the main enemy of science; but it may also be said that today this wholly misguided role has been usurped by liberal-democracy.

But if it is finally discovered that men must be intelligent and planful in constructing their environment in order to make themselves universally happy, healthy, wealthy, wise, and well-behaved, why should this bother the liberal-democrat so much? Is the product of the liberal-democratic tradition so bound by his conditioning that he cannot see that any belief in the finality of democratic doctrine is not in any important way different from supernatural beliefs which are taught and perpetuated with the same assurance? Have the controlling practices used in his ideological indoctrination engineered the very same attitudes in him that he finds objectionable in the religious dogmatist? Has his commitment to the democratic conception of man and to democratic procedures for group planning and management become so pathological that he is now willing to sacrifice the goals of democracy in order to preserve that conception and its supporting procedures? Has he become such a prisoner of dogma that he simply cannot believe that the architects of democracy could have been wrong about human nature and about how to improve it? In a day when even religionists are beginning to question the infallibility of their popes and sacred books, are men of the liberal-democratic faith, like the faithful of some rival political creeds, ready to assign papal infallibility to the chief priests of their idological heritage? Have the propaganda devices of a "free society" been so effective that even its scholars have been successfully taught what to think—with the result that they can never "really think again?" Unless men of the democratic tradition are able to shake free of their conservatism and acknowledge that democratic governing practices can, through a scientifically guided cultural evolution, be succeeded by much better ones, they will almost certainly commit themselves to a much more ignominious form of cultural extinction.

Unwittingly, the faithful of the liberal-democratic tradition form what is almost certainly the greatest single obstacle to the realization of the humanitarian goal. This is a strong indictment against a doctrine that has long enjoyed sacred status and widespread support, but it is important that the facts, however distasteful, be squarely met. For this an analysis of democracy is required. Here only an abbreviated discussion will be possible in so brief a compass.

As we have seen, the central tenet of liberal-democratic doctrine is the concept of free will. The origin of this psychic or mentalistic conception may be found in the animistic beliefs of antiquity, many of which survive today in relatively crude form among primitive peoples. The details of the mentalistic kind of explanation vary. From time to time new features are added and old ones are dropped. The basic pattern, however, is always much the same: human behavior is controlled by some inner mental agent, inner mental force, or inner mental componentry which is different in nature from the physical character of the natural world. The main implication of this primitive notion is seldom made fully explicit, but it nevertheless represents the most celebrated attribute credited to the human animal under liberal-democratic doctrine: man has within himself a supernatural or metaphysical power which sets him apart from the natural or physical world, and his behavior is therefore beyond the reach of a natural or physical science.

Few would challenge the monopoly of science for developing technologies to deal with the inorganic part of nature and the anatomical and physiological aspects of the organic part of nature. This is the traditional distinction between physical technology and biological technology, and the need for a scientific foundation in both cases is now accepted by educated men. But when it comes to developing a technology for dealing with the behavioral aspect of the organic part of nature, the scientific pattern is challenged. A behavioral technology founded on science seems strange only because men have not yet accepted the fact that behavior is continuous with physiology and anatomy. It is the fanciful nonphysical inner agent which is at fault, since its function is to miraculously break this continuity and make behavior subject to a spontaneous change of course. But once the continuity is recognized, the argument for extrascientific sources of information about behavior is no more convincing than arguments for extrascientific sources of information about anatomy and physiology.

Democratic government is necessarily incompatible with science, because it is a behavior technology based on a belief in miracle-working agents. By implication, it is a behavior technology based on the belief that a behavior technology is impossible—except in the form of physical coercion. This follows when the controlling role of the environment is denied, and its function is assigned to a fanciful free inner agent. A doctrinaire refusal to acknowledge a subtle but nevertheless inexorable form of noncoercive control prevents the adoption of explicit technological measures for dealing with that control intelligently according to the ethical requirements of group life. Thus, the liberal-democratic conception of individual or personal freedom actively inhibits any planful effort to promote technological advance in the field of government for making ethical control increasingly more effective and for increasingly extending its scope. As a result, the individual under democratic government remains the victim of accident and bias, and the group suffers in turn. Here, if anywhere, is the fatal flaw in democracy.

Democracy is therefore an inherently conservative design which, by its self-limiting nature, acts as a thwarting mechanism in the face of the ethical purposes which support it. From the standpoint of the individual, it abandons him to the tyranny from which it promises relief. From the standpoint of the group, it is a lethal mutation in the evolution of government.

As the difficulties of men persist or worsen or even threaten to finally engulf the entire democratic program, it is often argued that more democracy will save the situation. But democracy will not be put in good order by extending the very practices which are fatal to it. When the behavior of men is not adequately affected by an intelligently planned and managed ethical control, their problems will not be solved by abolishing all semblance of that control. The rational, free, self-determining, and morally responsible creature of democratic lore is a fiction. And when it is made the basis of governmental design, it is a dangerous fiction. A "government by the consent of the governed" is a government by the contingencies of reinforcement which control that consent. A "faith in the common man" is a faith in those same contingencies. To the extent that those contingencies are manipulable, to the same extent "consent" can be engineered and "faith" can be either justified or shattered. The absurdities that result from "democratic politics" are well known. And as the complexities of social life increase, the situation grows worse. It should be evident by now that this is not the road to the good life, but to disintegration and disaster.

Yet, to most humanitarians this is not evident at all. There is a failure to understand that the damage inflicted by democratic methods cannot be repaired by intensifying and extending the use of those methods. The assignment is not to spread democracy, but to intelligently evolve a better form of government. It is not to give "power to the people," but to design a government which will guarantee that power it assigned to competent people, and which will further guarantee that they will exercise that power for the good of all the people. All methods are amenable to improvement, and the methods of government, democratic or otherwise, form no exception. But improvement or progress in methods encompassed by the field of governmental design cannot be made without also abolishing an especially cherished traditional practice called "politics."

Politics, like capitalism, is a flagrant example of bad design. Both are competitive social practices. Capitalists compete for the wealth of a group, and politicians compete for the power conferred by the government of a group. Since both practices divide men into competing factions organized to establish, defend, and extend special interests at the expense of rival interests, neither practice can possible work for the common good. Capitalism divides men into the kind of rival factions called "economic classes." Politics divides men into the kind of rival factions called "political parties." The two may, of course, be connected with each other in varying degress. But the important point is that both social practices divide men into mutually competing factions based on selfish or biased interests, and this is wholly incompatible with the humanitarian aim of uniting men in a common effort to promote the common good.

A second important point is that the method of politics can insure neither ability nor morality on the part of governors. This is true in the case of both "democratic politics" and "power politics." Democratic politics is said to be based on "persuasion," which is a controlling technique based on behavioral processes subject to reinforcement. Power politics is said to based on "coercion," which is controlling technique based on sheer physical strength. In either case, politics is a dangerous anachronism. Neither popular consent nor physical force can insure governmental conduct that is both intelligent and ethical. Accidental, biased, and aversive controlling features are inherent in any competitive process, and this is dramatically illustrated in political practice. As a device for selecting governors, it cannot guarantee competence; as a device for making governors moral, it cannot make good conduct inevitable. A government based on politics is in its very nature a defective design.

It bears reiteration and emphasis that all technology is subject to continual improvement. We are not permitted to suppose that politics, democratic or otherwise, is the exceptional case. To accomplish their purpose, it is imperative that men of good will prepare themselves for a substantial technological advance in the field of government. The problem is not to decide between a faith in the common man or a faith in the philosopher-politician, but to *discover* the most effective set of reinforcement contingencies for controlling all men for the good of all. The competence and morality of governors cannot be decided either by a universal show of hands or by force of arms, but only by contingencies which are carefully designed to select for competence and guarantee moral conduct. To successfully meet the ethical assignment of constructing a government which will assure the complete well-being of the individual and the survival of the group, men must emerge from the ignorance that separates them into conflicting and outmoded categories of political faith. Once it is understood that the contingencies under which men live exert a "totalitarian" control in any case, the issue of freedom versus control loses its point. The important issue then becomes the problem of designing a totally intelligent control based totally on positive reinforcement and exercised for purposes that are totally ethical. The assignment is fully within the scope of a science of behavior.

A government based on science rather than on politics may be taken as the central lesson of *Walden Two.* This, together with its many implications, may easily make this book the most important document ever written on the

subject of government. But to mobilize support for a government based on science, men must be educated to the fact that they have long been badly misled by mentalism in the form of free-will theory and its practical counterpart in the form of liberal-democratic politics. They must be educated to the fact that these false theoretical and practical devices are largely responsible for the widespread ignorance and evil which continue to oppress men living in so-called "free societies."

Although it is in the nature of science to eventually have its way, the struggle between emerging facts and well-established fictions is often a protracted one. It would be naive to expect the triumph of behavior science over the free will tradition to be quick and easy, but it is possible that the outcome may be hastened if parallel struggles in the history of science are carefully scrutinized. The parallels are not far to seek, and biology supplies an excellent example.

Since remote antiquity, men have been intrigued by the enormous differences they observed in both the anatomy and behavior of living things. Almost always the differences were explained by appealing to miracle-working minds which created them at will. What Skinner has done is to bring to completion a process in biology that began with Darwin: just as a creative outer mind was replaced by differential reproduction (natural selection) so a creative inner mind has now been replaced by differential reinforcement (operant conditioning). Contingencies of reproduction select organisms, and contingencies or reinforcement select behaviors. Both sorts of contingencies are arranged by the controlling environment.

Long before Darwin men deliberately selected genetic endowments through a kind of environmental control called "artificial selection," and long before Skinner men deliberately selected behavioral repertoires through a kind of environmental control called "teaching," but in each case the full importance of the controlling environment remained unsuspected. The reason, as we have seen, is simple: casual observation is not enough. Observation needs to be performed in the controlled way that distinguishes the scientific method.

But just as Darwin was faced with a stubborn tradition of entrenched fictions, so also is Skinner. The first was challenged by Judeo-Christian theology, the second by liberal-democratic philosophy. The battles fought and won by biological science must now be fought and won all over again by behavioral science. It is perhaps surprising that men resist facts with such vigor, but it is not surprising that science always wins in the end. It makes its way on the basis of facts.

It is at the point of practical application where resistance is likely to become extreme. Once discovered, the facts recommend themselves for use, and certain questions may then be asked. Why not design a species according to specifications? Why not design behavior according to specifications? In other words, why not move out into all reaches of the controlling environment to overthrow the tyranny of accident and to supplant it with an ethically governed intelligence for directing man's genetic and behavioral evolution?

Questions of this sort make excellent sense. Making mindless accident give place to intelligent design is the basis of cultural progress. Yet all of this is very disturbing to men of the Judeo-Christian and liberal-democratic faiths. As stated at the outset, it is difficult for the scientific determinist and the free-will traditionalist to talk with one another. The scientist lives in a world of physical cause-and-effect, and the traditionalist in a world where nonphysical personified actors are held responsible for physical action. In the last analysis, it is a question of the scientific account versus the animistic explanation. But just as physical science dispelled the belief that rain was hurled down by Jupiter Pluvius and that the wind was blown by Aeolus, and just as biological science overthrew the doctrine that life was originated and maintained by a nonphysical vital principle, so a science of behavior must finally banish the notion that behavior is started up and maintained by a nonphysical psychic or mental agent enclosed within the organism. The scientist may confidently say that history, if the phrase will not be misunderstood, "is on our side."

We can, of course, continue to deny that human behavior is caused, and struggle as long as possible to maintain the fiction that we are free and responsible agents who choose our own behavior at will. But as a terrible cost, for we must also be prepared to continue on in a world of ignorance, immorality, and chaos. This is the price we must pay for refusing to accept the universal principle of cause-and-effect, and for refusing to act accordingly by designing our environments intelligently for producing a universally consistent moral result. On this fundamental point there can no longer be any mistake.

But the free-will traditionalist is still not likely to be convinced. No matter how firm the evidence that emerges from an experimental analysis of behavior, if it conflicts with established democratic beliefs it must be summarily rejected. But the men who react in this intolerant fashion simply exhibit the tragic effects of their own conditioning. We might suggest, moreover, that the critics of Skinner are excellent cases in point. We must be quick to add that this suggestion is made not by way of insult but in the spirit of compassion, for the evidence entitles us to suppose that these men are unwittingly subverting the very objectives to which they and their followers aspire. Ironically, if these same men were products of the Walden Two culture which they so forcefully condemn, they would be free of the kind of ideological conditioning that urges them tp propose a holy war against a science that offers them the only real hope of salvation. For although science can offer no final answers of infallible truths it can offer a successfully tested and self-correcting body of methods and techniques for bringing about what would be in the most literal sense possible, a *moral revolution* in the human condition.

At this point we may summarize the central lesson of the present undertaking. It has not been our primary purpose to simply show that Skinner occupies a legitimate place within the humanitarian tradition. This, in fact, has been incidental to the main objective. Rather, it has been to show that his program may, in fact, be its only hope. The humanitarian cannot, in good faith, evade the responsibility for investigating this possibility. Unfortunately, this requires intellectual labor of a rather difficult sort. For this there is no help. Nor do the difficulties end there. Once a successful science or behavior is available, it makes no sense to allow obsolete loyalties to stand in the way of effective solutions. Old practices must be reappraised in the light of new evidence. This, of course, adds greatly to the original burden. But the responsibility for undertaking an assignment cannot be avoided simply because it is difficult. The assignment must be appraised according to its importance. And it is important. Critically important. And while broad advances in human morality, wisdom, and happiness may necessarily entail the abandonment of politics, capitalism,

and other anciently cherished cultural practices, we should not be sorry to see them go. The momentary sense of loss or discomfort that may be felt during transition will be far outweighed by the ultimate compensations to be gained.

Conclusion

In the course of the present undertaking, we have labored to show that men must abandon primitive and prescientific free-will doctrines in favor of behavioral determinism in order to have legitimate scientific framework in which to view their social problems accurately. We have also labored to show that the results of Skinner's practical and theoretical efforts offer a complete scientific guide for answering the three basic social questions and, by implication, for designing the culture of a society, including the designing of its government. We have further pointed out that with the advent of this scientific guide, all so-called social or political philosophies immediately lose their point. There is no need to borrow from any of these systems of thought, since the working model of behavior which has emerged from a scientific analysis, and which we have attempted to describe in a very general way, can be applied to all situations, social or otherwise, in which men behave. These philosophies have all become relics of a bygone age, equivalent in status to the prescientific philosophies that arose from man's early speculations in the fields of biology and physics. It may be difficult, at first encounter, to grasp the full enormity of this remarkable achievement.

It must not be supposed, as some have supposed, that a Walden Two culture would be the end; on the contrary, it would be only the beginning. It would be a fresh start for *homosapiens*, an historical starting point at which this remarkable species would begin experimenting with the intelligent control of its cultural evolution. This unprecedented experiment in cultural evolution would not only be directed at progressively increasing the development of human genetic capacities for successful living; it would also eventually be directed at progressively increasingly the genetic capacities themselves. In sum, both the behavioral (cultural) and the genetic (biological) evolution of man would, for the first time, be brought under the control of an intelligent design. Man would, to put the matter bluntly, play God, a role which for too long he has left to blind accident. The question of where Walden Two, the new beginning, would eventually lead makes, of course, for interesting speculation, but one thing may be stated with assurance: man would, to slightly alter the words of Skinner, finally discover what he can make of himself.

The only major aspect of Skinner's social program that we have not considered is in regard to the *problem of cultural replacement*: by what means can we replace traditional culture with scientific culture in all the many groups of societies currently existing on the face of the earth? The magnitude of the task set by the problem is, of course, staggering in the extreme, but this is not a good reason for neglecting it. The matter, in fact, requires immediate and devoted attention, for the survival of our species may easily depend on how quickly the Skinnerian program can be put into effect for reversing the perilous course set by the wholly confused conduct of traditional statecraft. Skinner has, in *Walden Two*, set forth a brief description of how the problem of replacement may be met, but this aspect of his program needs much more development, as he would almost certainly admit. Radical behaviorists have not yet, unfortunately, addressed themselves to this problem in any systematic way, and for this, in light of the gravity of the problem, they may be cited for gross negligence.

Because the problem of replacement requires exhaustive treatment, a systematic formulation of possible solutions has not been attempted here. For the moment it may be enough to say that here, as everywhere, two basic questions immediately arise:

(1) What are the most effective ways for men to behave in order to successfully replace traditional society with the new society?
(2) How can men be induced to behave in those ways?

To anwer these questions, we may, resumably, proceed in a scientific way. We may also, presumably, single out the behaviorist or behavior modifier as the person who would, by virtue of his particular history, be best equipped to suggest plausible answers to these questions, particularly the second. The fact that he has not, apparently, so far undertaken this assignment is a puzzle on which our present ignorance forbids us to speak.

By way of conclusion, a personal note may not be entirely inappropriate. The concept of free will is, theoretically, at the heart of the issue of crime and punishment, and on this matter I have had, unfortunately, an abundance of personal experience. I have served thirteen years in prison, including almost three years on death row. I have had the opportunity to observe in myself and in countless others the most striking results of "freedom"—freedom from an intelligently designed and manipulated ethical control. This sort of freedom is in no way worth the price, neither for the criminal nor for his even less fortunate victims—the dead, the raped, the mutilated. And as I received reports coming from the "free world"—reports of madness, disorder, destruction, war—I could not help but ask, "is *more* freedom from this sort of control the answer?" For those of us who lived our lives in intimate contact with the results of this kind of freedom, and who at the same time were reasonably well acquainted with the work of Skinner, there was often an unusually sensitive appreciation for the promise this man's accomplishments hold for humankind. We were therefore, inclined to respond with some emotion at the abuse that is sometimes showered upon him by men calling themselves "liberal-democrats." For it was not Skinner who we had learned to fear, but rather the men who react against the use of science for banishing human evil and suffering. It was, to be brutally frank, the misguided reactionary of the liberal-democratic tradition who filled us with trepidation, and not the behaviorist with humanitarian aspirations. Men writing in the twenty-first century might very well say of Skinner: "He held the answer to the important problems of his age, but he was too far in advance of the rest of his kind." But today to the traditionalist we can only say: "If you seek a monument to the freedom that you above all else cherish, then simply *look around!*"

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