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 familiar with behavioral

divides men of good will and which, by extension,

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
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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 what
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

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 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
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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 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 specify able 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 inflect, 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 controlllee. 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 unmediated 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 of 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 momentous 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)...Why 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 remote 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
If a complete statement of the contingencies of reinforce ment 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 disastrous. 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 controller—for example, cooperation—are reinforcing for the controller. For that reason the controller implements controlling practices which reinforce those characteristics in the controller. 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 environmental 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, 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 questions 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 all its 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 indispensable 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 accommodate 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 prophecies 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 aid 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