The Theory of Institutional Change

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If institutional economics is truly an "evolutionary" economics, it is because it has the capacity to explain the phenomenon of institutional change and because it incorporates the principles of that explanation in both theoretical and applied inquiry. While it cannot be argued that all that has been labeled "institutional" economics in the past rests either explicitly or implicitly on a coherent theory of institutional change, contemporary institutionalists generally agree that such a theory is, and must be, the diagnostic characteristic of the institutionalist perspective.

The purpose of this article is to set forth a systematic statement of the institutionalist theory of institutional change. The theory presented is a synthetic statement of what the author understands to be (at its present state of development) the theory of institutional change that informs all analytically grounded contributions to the institutionalist literature. The classical foundations of the theory were laid by Thorstein B. Veblen, John R. Commons, John Dewey, and Clarence E. Ayres. Contemporary refinements of the theory are to be found in the works of J. Fagg Foster, William Dugger, David Hamilton, F. Gregory Hayden, Louis Junker, Philip Klein, Anne Mayhew, Walter C. Neale, Baldwin Ranson, Marc Tool, and others who have offered explicit dem-

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onstrations of the theory of institutional change in their theoretical and applied investigations. The theory, like the phenomenon it purports to explain, has undergone evolutionary change. As the intellectual pace in institutional economics has quickened in recent years, contributions to the theory of institutional change have likewise appeared at an increased rate. The following presentation attempts to capture not only those classical principles set forth by Veblen at the turn of the century, but also the most recent contributions that have extended the theory and pointed it in new directions.

The article is organized into six major sections. The first section presents a discussion of the institutional structure and the concept of "behavioral patterns." The second section is devoted to an explication of the "institutional" dichotomy, which is a fundamental tenet of most contemporary institutionalist analyses. The third section examines the concept of the "technological dynamic," which institutionalists believe identifies the basic evolutionary force in social change. The fourth section describes the manner in which "institutional space" is partitioned by the knowledge fund and the value structure of the institution. The fifth section develops the concept of "ceremonial encapsulation" and explains both "progressive" and "regressive" institutional change. The article concludes with some observations on the discretionary character of social evolution.

The Institutional Structure of Society

The theory of institutional change must begin with a theoretical formulation of the institutional structure. This section and the next are devoted to that formulation. The primary focus in both will be the significance of the value system of the society in determining the character of the institutional structure.

Definition of the Term "Institution"

"Society" may be thought of as a set of institutional systems. An "institutional system," in turn, may be thought of as a set of institutions. And an "institution" may be defined as a set of socially prescribed patterns of correlated behavior. In each of the above sentences, the term "set" refers to functionally interrelated elements.

Social Prescriptions

When employing this definition of an institution, institutionalists lay
stress on the term “socially prescribed.” While it is entirely possible for human behavior to exhibit random characteristics, institutionalists argue that all behavior within a community is ultimately subject to social prescriptions or proscriptions. This is especially true of all problem-solving (purposive) behavior. The community at large has a stake in the manner in which its tools and intelligence are brought to bear on its life processes. Those patterns of behavior perceived to be vital to the survival of the community are the most carefully prescribed and carry the heaviest sanctions.

It is a well-established point in the fields of sociology and child psychology that social conditioning begins prior to an infant’s capacity to walk or talk. Throughout one’s life, the process of habit formation is the mechanism by which socially prescribed behavior is internalized. While some habits may be learned only through conscious effort, most habit formation is probably unconscious. Such unconscious habituation gives rise to the impression that certain patterns of behavior are “natural” and not amenable to discretionary change. The fruitless “nature” versus “nurture” debate is grounded in the misapprehension of unconscious habituation. Institutionalists hold the view that all socially relevant behavior is learned and is, for the most part, habitual. While unconscious habituation may account for most observed behavior, particularly “traditional” behavior, this fact must not be allowed to obscure the discretionary nature of the social prescriptions that are hereby internalized. Socially prescribed behavior arises from social choices, and the critical history of any culture is the story of how these choices evolved in the life experience of the community. As will be argued at length below, institutional change is discretionary precisely because all social prescriptions are the outcomes of conscious choices made at some point in the life history of the culture.

**Behavioral Patterns**

The term “patterns of correlated behavior” embodies two important concepts: (1) the notion that behavior within an institution is not random but purposeful and correlated; and (2) the notion that “values” function as the “correlators” of behavior within and among patterns of behavior. The term “behavioral pattern” (singular) may be thought of as two behaviors (or activities) correlated by a value. This conception of a “behavioral pattern” clearly indicates the social significance of “values.” Values function as the standards of judgment by which behavior is correlated. Values not only correlate behavior within the behavioral pattern, they also correlate behavioral patterns with one
another. The interconnection among behavioral patterns may be envisioned as the correlation of one behavior of one behavioral pattern by a given value with the behavior from another behavioral pattern. In essence, the interconnection among behavioral patterns is accomplished by a behavioral pattern.

In order to clarify these relationships, it may be helpful to symbolize a behavioral pattern as follows: \( B^1 V^2 B^2 \), where “\( B^1 \)” is one behavior or activity, “\( B^2 \)” is another behavior or activity, and “\( V^2 \)” is the value that correlates \( B^1 \) with \( B^2 \). A second behavioral pattern might be identified as follows: \( B^2 V^3 B^3 \). The correlation of the first behavioral pattern with the second is accomplished through the use of an additional value, \( V^2 \), such that \( B^2 \) is correlated with \( B^3 \) through \( V^2 \), which produces a third behavioral pattern: \( B^2 V^2 B^3 \). Thus “behavioral patterns” (plural) are correlated by values, and the correlation of behavioral patterns entails a behavioral pattern. It is, then, the value system of the institution that provides the functional interrelationship of all patterns of behavior within the institution. These comments on the nature of the correlation of behavior within and among behavioral patterns requires a further statement about the focus of the social prescriptions that give shape and form to the institutional structure. Clearly, what is prescribed are the values that will be employed as correlates of behavior. In other words, a given pair of behaviors or activities can be found in a number of different social contexts, but their relationship to one another will change depending on the value system under which they are correlated. This will be discussed at length below. Thus the diagnostic characteristic of an institution is the value structure that correlates the behavior within it. It follows from this that institutional change must entail a change in the value structure of the institution. This matter will also be explored at length later. But another concept fundamental to institutional analysis must be discussed first. It is the notion of the ceremonial-instrumental dichotomy.

**The Ceremonial-Instrumental Dichotomy**

Given the central importance of values to the structure of institutions, inquiry into the nature of institutions and the processes of institutional change is inherently normative. All inquiry involves interpretation, and interpretation requires judgment. When the subject matter under investigation is the value system of society, interpretations and their attendant judgments must be made about the value system. The methodology of institutional economics faces this intellectual
responsibility squarely by incorporating a philosophy of value that per-
mits a straight-forward analysis of the value system. In contrast, all
schools of mainstream economics attempt to evade this intellectual re-
ponsibility by purporting to adhere to the value-knowledge dualism
in their methodologies. This positivist tenet is the foundation for
claims of "objectivity" in mainstream economics. In the long history
of the institutionalist critique of mainstream economics (from Veblen
to Tool), this wertfrei methodology has been shown to be not only ster-
ile, but counterproductive: normative considerations are not eschewed,
they are merely suppressed, thereby obfuscating the true import of the
inquiry; and the notion of "objectivity" is held hostage to the positivist
dualism. As a consequence of these methodological strictures, main-
stream economists have evaded the study of institutional structure (let
alone institutional change) by relying on "methodological individual-
ism." The philosophical foundations of the institutionalist approach
to the study of the value system of society is grounded in the classical
works of Veblen and Dewey. Their works were synthesized and refined
by Clarence E. Ayres. Ayres's student, J. Fagg Foster, and his student,
Marc R. Tool, have brought "social value theory" to its present state of
development. It is this particular line of institutionalist thought that
informs the treatment of values in this essay.

Ceremonial Values

The institutional structure of any society incorporates two systems
of value: the ceremonial and the instrumental, each of which has its
own logic and method of validation. While these two value systems are
inherently incompatible, they are intertwined within the institutional
structure through a complex set of relationships.

Ceremonial values correlate behavior within the institution by pro-
viding the standards of judgment for invidious distinctions, which
prescribe status, differential privileges, and master-servant relation-
ships, and warrant the exercise of power by one social class over an-
other. The logic of the ceremonial value system, as Veblen put it, is one
of "sufficient reason." Validation of ceremonial values is found in ap-
peals to tradition and in the formulation of suitable myths (ideologies)
that mystify the origin and legitimacy of their existence. Ceremonial
values are by their very nature beyond inquiry in the sense that they
may not be subjected to critical scrutiny. They may be rationalized
through plausible argument, but they are never subjected to any sort of
test of refutability. They are accepted on authority and regarded as ab-
solute. Presumably, they emanate from human nature and, therefore,
are not subject to human discretion. Patterns of behavior in which behaviors are correlated by ceremonial values are referred to here as "ceremonially warranted" patterns of behavior. The operative criterion by which such patterns of behavior are judged within the community is that of "ceremonial adequacy."

*Instrumental Values*

Instrumental values correlate behavior by providing the standards of judgment by which tools and skills are employed in the application of evidentially warranted knowledge to the problem-solving processes of the community. Using Veblen's language once again, the logic of the instrumental value system is that of "efficient cause." Instrumental values are validated in the continuity of the problem-solving processes. Patterns of behavior correlated by instrumental values are referred to as "instrumentally warranted" patterns of behavior. The criterion by which the community judges instrumentally warranted patterns of behavior is that of "instrumental efficiency."

Instrumental values are not, however, fixed or immutable. The problem-solving processes of the community, being dependent on the processes of inquiry and technological change, are inherently dynamic, requiring changes in habits of thought and behavior. As new patterns of behavior are required to accommodate the absorption and diffusion of new technology, instrumentally warranted patterns of behavior must change accordingly; and this requires changes in the instrumental values that correlate such behavior. H.H. Liebafsky has referred to this capacity for change in the instrumental value system as "self-correcting value judgments." A specific standard of judgment is warranted only as long as it provides for instrumental efficiency in maintaining the causal continuity of the problem-solving process. When such a standard loses its capacity to do so, it is replaced by a more appropriate standard. The process is "self-correcting" by virtue of the fact that the processes of inquiry upon which the problem-solving processes depend involve a conscious awareness of the method by which behavior is correlated. The causal continuity of the problem-solving process is, in principle, open to the surveillance of the community. When a sensed awareness of a disappoointment between current institutional practices and instrumental efficiency arises within the community, the community has the capacity to opt for the discretionary change of those patterns of behavior that are no longer appropriate to the problem-solving processes.
The "Dialectical" Nature of Behavior

Whereas the value system of an institution is dichotomous, behavior is "dialectical" in the sense that Nicholas Georgescu-Roegen has used the term; that is to say, behavior may possess either ceremonial or instrumental characteristics, or possess both ceremonial and instrumental characteristics.9 This fact adds considerable complexity to the forms that behavior patterns may take. As will be shown below, a ceremonially warranted pattern of behavior may incorporate instrumental behavior, and an instrumentally warranted pattern of behavior may incorporate behavior that has ceremonial characteristics.

A few examples may help to clarify the notion of the dialectical nature of behavior. Some examples of purely ceremonial behavior \((B_C)\) would include: discrimination on the basis of race, color or creed; "wrapping oneself in the flag"; making a sacrificial offering; using deceit or coercion in manipulating the behavior of others; and kow-towing to those in authority. Some examples of purely instrumental behavior \((B_I)\) would include: sawing a board; practicing the clarinet; painting a picture; dialing a telephone; programming a computer; using persuasion to obtain the cooperation of others; solving a mathematical problem; and taking medicine under a doctor's prescription. Three examples of behavior that possess both ceremonial and instrumental characteristics \((B_{CI})\) are: taking a bath; giving an order; and standing behind a lectern. Let us turn briefly to an explanation as to why each of the behaviors in this last set are dialectical.

The example of "taking a bath" is borrowed from Clarence Ayres's discussion of the "cult of the tub."10 Noting Veblen's comments on the "ceremonial cleanliness" of the upper classes, Ayres discusses the ceremonial implications of the cult of the tub; but he also points out that whatever may be the ceremonial significance of cleanliness, regular bathing is instrumental to both personal and public hygiene. Similarly, the act of "giving an order" may at once announce one's status as well as perform the instrumental function of supervising the work of others. Most of us can tell the difference between the situation in which the boss issues orders just to remind everyone that he/she is in charge and the situation in which the boss issues orders that are instrumental to the supervision of an employee's work. Lastly, "standing behind a lectern" in a classroom clearly establishes the ceremonial status of the professor; but it is also an instrumentally efficient position from which to deliver a lecture.11

Whether a dialectical behavior will carry primarily ceremonial or in-
strumental significance in a given instance depends on the social context in which it occurs. Under the theory presented here, that social context is defined by the behavioral pattern in which the behavior is correlated with other behavior in the institutional arrangement. And that correlation is uniquely the function of the value that defines the behavioral pattern. If the value that correlates behavior is ceremonial, the dialectical behavior will take on ceremonial significance; thus, “taking a bath” performs the ceremonial function of displaying status; “giving an order” is intended to let everyone know who the boss is; and “standing behind a lectern” establishes the superior status of the professor over his/her students. If, on the other hand, the value is instrumental, the dialectical behavior takes on instrumental significance: bathing is understood to be necessary to maintenance of both personal and public health; orders are understood to be necessary to the instrumentally warranted process of supervision; and the physical location assumed by the professor is understood to be a function of his/her need to communicate effectively.

Types of Behavioral Patterns

The principle that the mode of valuation (that is, ceremonial or instrumental) will determine the ceremonial or instrumental significance of dialectical behavior is closely related to another important principle governing the formation of behavioral patterns in general. It was stated earlier that ceremonially warranted patterns of behavior can contain instrumental behavior and that instrumentally warranted patterns of behavior can contain behavior that has ceremonial characteristics. These possibilities emerge because there are a number of ways in which values and behaviors of a ceremonial or instrumental type can be combined. It has been demonstrated elsewhere that the number of possible combinations is finite. Using the symbols introduced above, the possible types of behavioral patterns may be enumerated as follows:

<table>
<thead>
<tr>
<th>Ceremonially Warranted Patterns</th>
<th>Instrumentally Warranted Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>(C-1) $B_c V_c B_c$</td>
<td>(I-1) $B_i V_i B_i$</td>
</tr>
<tr>
<td>(C-2) $B_c V_c B_i$</td>
<td>(I-2) $B_i V_i B_{ci}$</td>
</tr>
<tr>
<td>(C-3) $B_c V_c B_{ci}$</td>
<td>(I-3) $B_{ci} V_i B_{ci}$</td>
</tr>
<tr>
<td>(C-4) $B_{ci} V_c B_i$</td>
<td></td>
</tr>
<tr>
<td>(C-5) $B_{ci} V_c B_{ci}$</td>
<td></td>
</tr>
</tbody>
</table>
Several important observations may be made by reference to this tableau of behavioral patterns.

First, it should be noted that there are five possible types of ceremonially warranted behavioral patterns as compared with only three types of instrumentally warranted behavioral patterns. This reflects the fundamental differences in the two modes of valuation. The instrumental mode of valuing requires an open-ended process of inquiry capable of evaluating the consequences of the application of any particular standard of judgment in the correlation of behavior. The logic of instrumental valuation is, therefore, embedded in the causal continuity of the problem-solving process. This delimits the types of behavior to which instrumental values are relevant as correlators. The logic of instrumental valuation is relevant only to behavior that is somehow involved in the tool-skill nexus of the technological continuum. This is symbolized in the above tableau by the appearance of the “i” subscript in all behaviors shown in each of the three cases of instrumentally warranted behavioral patterns. Note the complete exclusion of any behavior exhibiting only a “c” subscript. In other words, instrumental valuation cannot rationalize purely ceremonial behavior. The values that correlate behavior in the pursuit of the arts and sciences cannot validly be made to justify such things as the imposition of invidious distinctions on the social structure of the community, the use of dishonesty and deceit in human affairs, or the denial of access to knowledge vital to the problem-solving processes of the community by vested interests.

In contrast, the ceremonial mode of valuation does not entail such limitations. As shown in the tableau, combinations of all three types of behavior can be correlated through ceremonial values. This is made possible by the very nature of the logic of ceremonial valuation. Resting as it does on the notion of “sufficient reason,” the logic of ceremonial valuation may be used to rationalize any combination of behaviors. All that is required is a plausible argument to validate any particular correlation of behavior. The boundaries of the logic are as limitless as the human imagination. A particular pattern of behavior may be required “because the memory of man does not run to the contrary,” or because “it is the will of God,” or because “blacks are inherently inferior to whites,” or because “it is consistent with the requirements of national security.”

There should be no difficulty in seeing that purely ceremonial behaviors will be correlated by a ceremonial value. But what can be said about those patterns of behavior in which a ceremonial value correlates
a ceremonial and an instrumental behavior? Such cases arise in C-2 and C-4 in the tableau. (Note that they do not arise in C-3 or C-5 where the ceremonial value gives ceremonial significance to the behaviors designated "B_{GJ}.") In these instances, instrumental behavior is “encapsulated” within a ceremonially warranted behavioral pattern, thereby incorporating instrumental behavior in a ceremonially prescribed outcome.

Bronislaw Malinowski provided a detailed description of such behavioral patterns in his account of the canoe-building practices of the Trobriand islanders. According to Malinowski, two kinds of behavior are clearly involved in the canoe-building activities of the Trobrianders; one is ceremonial, the other instrumental. “The building of the seagoing canoe,” he says, “is inextricably bound up with [the rituals of the Kula magic]. . . . the technicalities of construction are interrupted and punctuated by magical rites.” For example, before the tree from which the canoe will be carved can be felled, the magician must make an offering to the woodsprite that presumably inhabits the tree and utter an incantation designed to persuade the woodsprite to leave the tree. It is only after this ritual has been performed that the canoe builder can proceed to chop down the tree.

The Trobrianders are aware of the differences in the behavior of the magician and the craftsman. They apply instrumental criteria to the evaluation of the technical competence of the craftsman and the results of his efforts. It is clear that they understand that the rituals performed by the magician, however mystically potent they are presumed to be, “will not make up for bad workmanship.” Nevertheless, the Trobrianders would never consider building a canoe except under the guidance of the Kula magic, for they believe that “a canoe built without magic would be unseaworthy.” It is the logic of magic and ritual, not the logic of the tool-skill nexus of canoe-building technology, that determines the correlation of the magician’s behavior with that of the craftsman in the above example. In this instance, ceremonial considerations are dominant, and a ceremonially warranted standard of judgment correlates the behaviors of the magician and the craftsman. The instrumental behavior of the craftsman is “encapsulated” within a ceremonially warranted pattern of behavior. It should be obvious that there could be no instrumental warrant for this pattern of behavior because the technology of canoe-building is a causal continuum confined to the realm of evidentially demonstrable consequences within which the ritualistic behavior of the magician has no meaning.
The Concept of Ceremonial Dominance

The fact that an instrumental behavior can be encapsulated within a ceremonially warranted pattern of behavior leads to a broader set of considerations. In the case of the Trobrianders, Malinowski argues that magic is not merely an extraneous function "having nothing to do with the real work or its organisation." The presumed mystical powers of the magician give him the invidious status of a "natural leader whose command is obeyed, who can fix dates, apportion work, and keep the worker up to the mark." In the language of present analysis, Malinowski is saying that the entire range of the division of labor in the canoe-building process is dominated by ceremonial considerations. For the Trobrianders, the division of labor inherent in the technology of canoe-building is not a sufficient basis for the correlation of behavior. Something more is required to integrate the particular activities of canoe-building with other aspects of the culture; it is the function of magic to meet this requirement. Consequently, the instrumental warrant for the correlation of behavior inherent in the technology of canoe-building is dominated by a "higher order" of warrantability as the division of labor in this critical enterprise is required to meet the standard of "ceremonial adequacy."

This is the phenomenon of ceremonial dominance, and it is by no means confined to the Trobriand society. Institutional economists believe that it is a characteristic of all cultures. In modern, industrial societies, ceremonial dominance is rationalized not through magic but through ideologies. The magician's incantations are replaced by the harangues of the ideologue. Mystical potency is no longer perceived as the ability to drive out the demons of the lagoon; it is now perceived as the capacity to mobilize the *Herrenvolk*, or to awaken entrepreneurial spirit from its slumbers, or to inspire greater productive efforts by the new socialist man. All ideologies possess ritualistic language that serves to block inquiry and to mystify the warrant for socially prescribed patterns of behavior. Thus the "*untermensch*" may be sent to the gas chambers, "property rights" may be viewed as superior to "human rights," and "counterrevolutionaries" may be sent to the gulags.

Clarence E. Ayres argued that ceremonially warranted patterns of behavior stifle progress precisely because they are "past-binding" and inhibit technological innovation. He noted, however, that ceremonial practices are believed by members of the culture to be the source of instrumental efficiency; thus the Trobrianders believed that a canoe,
no matter how well built, would not be sea-worthy unless the prescribed magic rituals were performed. This confusion abounds, Ayres said, because "ceremonial adequacy is an imitation of technological efficiency. The tribal medicine man purports to be altering the course of events in imitation of the tool activities by which technicians really do alter the course of events." As indicated above, it is the encapsulation of instrumental behavior within a ceremonially warranted behavioral pattern that gives plausibility to this imitation of instrumental efficiency by ceremonial adequacy.

Ayres argued that the degree to which the ceremonial practices of the community inhibit technological innovation will vary from culture to culture and from one historical epoch to another. The fact that technological innovations appear to occur with greater frequency in one culture as compared to another is in part because of the relative degree of "permissiveness" in the ceremonial practices of the two cultures. For example, the ceremonial practices of feudalism were less permissive of technological innovation than the ceremonial practices of the system of mercantile capitalism that emerged from the "cracks and crevices" of feudalism. The permissiveness of the ceremonial practices of a culture is a function of ceremonial dominance as defined above. In the analysis that follows, the phrase "index of ceremonial dominance" will be used to indicate the degree of permissiveness within the institutional structure. The two concepts are inversely related; thus a high index of ceremonial dominance would indicate that the institution has a very low degree of permissiveness with respect to technological innovation.

\textbf{The Dynamic Character of Technological Innovation}

The foregoing analysis of ceremonial dominance required the premature introduction of the concept of technological innovation. Since this concept is fundamental to the institutionalist theory of institutional change, it requires careful consideration, and it is to that task the discussion now turns.

\textit{The Meaning of "Technology"}

The term "technology" has been defined in various ways by institutionalists. While there is a continuity of meaning to the various definitions, the term continues to produce confusion and often heated dispute. Part of the problem arises from the failure of institutionalists always to distinguish clearly technology as a process from the tools or
machinery that embody technology. Sloppy conceptualization along these lines was encouraged by Veblen's (almost) invariant coupling of the words "machine" and "technology." Despite the fact that he habitually used the term "machine technology," it is clear that he never intended the term to be confined to "machines" as such. Accordingly, when speaking of the relationship of technological change to economic development, he says,

the changes that take place in the mechanical contrivances are an expression of change in the human factor. Change in the material facts breed further change only through the human factor. It is in the human material that the continuity of development is to be looked for; and it is here, therefore, that the motor forces of the process of economic development must be studied if they are to be studied in action at all.24

Technology for Veblen was a process that arose out of the human proclivity for workmanship and the exercise of intellectual curiosity. It was embodied in the tool-skill nexus of problem-solving activities. The essence of technological change, therefore, was the change in "prevalent habits of thought" associated with a given state of the arts and sciences. Veblen saw technological change as a process of "cumulative causation." The problem-solving processes of the community generate innovations in the ways of "bringing material things to account," thereby changing the industrial environment in which the community works; and this changed environment produces further changes in prevalent habits of thought about how to conduct the community's affairs.

Clarence Ayres endeavored to explicate the broad implications of Veblen's notion of machine technology. Comparing Veblen's analysis with John Dewey's philosophy, Ayres argued that Veblen's conception of the technological process was the logical equivalent of Dewey's notion of "instrumentalism."25 According to Ayres, Dewey faced the problem of formulating a concept that would "identify the intellectual procedures of science with the use of instruments and at the same time... identify the instruments of scientists with the tools which are in still wider use by artisans and craftsmen."26 This is precisely what Veblen had accomplished in his overall treatment of the interplay of science and technology in his description of the manner in which the evolution of the scientific point of view had transformed society.27 In Ayres's view, the confluence of the ideas of Veblen and Dewey require us to think of "technology" in the broadest possible terms. "So defined, technology includes mathematical journals and symphonic scores no less than skyscrapers and assembly lines, since all these are equally the product of human hands as well as human brains."28
This broadening of the conception of technology to incorporate the full sweep of the arts and sciences, does not render the notion vacuous; on the contrary, it enhances its theoretical precision. As Anne Mayhew has argued so convincingly, Ayres's integration of Veblen and Dewey brings us to the recognition that the essence of the technological process is "instrumental valuing." The instrumental mode of valuation is the thread of continuity running through all of the arts and sciences which permits "the evaluation of the consequences of any particular use of a tool." With reference to the foregoing discussion of the ceremonial mode of valuation, it is useful to note that Mayhew cites H.H. Lieb- hafsky's telling observation that ceremonialism inhibits progress precisely because it "inhibits... the free inquiry necessary for instrumental valuing."

Thus "technology" is broadly conceived in the institutionalist literature. This is consistent with the "holistic" nature of the institutionalist methodology, which facilitates an understanding of the workings of the economic system as a cultural process. From this perspective, the fund of knowledge available to the community for problem-solving purposes is composed of the instrumentally warranted knowledge generated across the full range of the arts and sciences. "Technological innovation," therefore, can originate in any field of inquiry or creative endeavor. This broadened view of technology also encompasses the notion that the knowledge fund is expanded through the efforts of the entire community, not just some academic or scientific elite. The proclivities for workmanship and intellectual curiosity, the well-springs of the pursuit of instrumentally warranted knowledge, are the common heritage of all members of the community. Incremental contributions to the knowledge fund occur on a daily basis through the efforts of individuals found in all walks of life and at all levels of the socioeconomic structure of the community. This idea was captured brilliantly in a statement that Solomon Fabricant made before the Joint Economic Committee of the U.S. Congress in 1978.

In short, the high productivity of the American economy is the end result of a great many different activities involving decisions by millions of scientists, engineers, and technicians in laboratories and industry; educators in schools, universities, and training centers; managers and owners of production facilities; workers and their families and unions; and government officials. Increase of this country's output per hour over the long run is the result of the energy, ingenuity, and skill with which all of us, individually and as a Nation, manage our resources of production.

The institutionalist view that "capital" can only be meaningfully iden-
tified as the “inmaterial capital” of the knowledge and skills possessed by the community at large is founded on the kind of evidence to which Fabricant alludes in this statement.34

The Technological Dynamic

The technological process is inherently dynamic. Technological innovation creates new possibilities for inquiry and problem-solving. Whether it takes the form of ideas embodied in a new mathematical equation, a new physical implement, or a new technique for organizing problem-solving activity, technological innovation involves a change in behavior, and changes in behavior create new problems for the community in the correlation of behavior. This is the process that Veblen called “cumulative causation.” He captures the essence of the process in the following passage:

All economic change is a change in the economic community—a change in the community’s methods of turning material things to account. The change is always in the last resort a change in habits of thought. This is true even of changes in the mechanical processes of industry. A given contrivance for affecting certain material ends becomes a circumstance which effects the further growth of habits of thought—habitual modes of procedure—and so becomes a point of departure for further development of the methods of compassing the ends sought and for further variation of ends that are sought to be compassed.35

The observation that the solution of one problem creates a whole host of new problems, trite though it may be, is nevertheless, pertinent. The expansion of the community’s fund of knowledge is not only instrumental to the solution of problems, it is the means by which new problems are identified.

It would appear that anthropological research and studies of the history of technology support the proposition that technological innovation is developmental in the sense of being cumulative, combinatorial and accelerating in character. As a cumulative process, it exhibits a one-way time vector; the expansion of the knowledge fund through technological innovation is an irreversible process through time. This is true because the emergence of new technologies involves the combination of previously existing technologies. The time rate of technological innovation appears to approximate an exponential function, exhibiting a very flat curve through history until the last three centuries. William F. Ogburn, among others, attributed the exponential expansion of the community’s knowledge fund to the cumulative nature of its growth. As Ogburn puts it: “The fact that material culture is accumulative, that
is, new inventions are not lost but added to the existing stock, and the fact (if it be a fact) that the larger the stock the greater the number of new inventions, suggests at first glance the compound interest law.\textsuperscript{36} Marc R. Tool uses a graphical presentation of this proposition in his book \textit{The Discretionary Economy} to illustrate the \textquotedblleft exponential growth in the knowledge of continuum.\textquotedblright\textsuperscript{37} These, then, are the major premises upon which the institutionalist hypothesis of the technological dynamic is based.

Clarence Ayres laid particular emphasis on the combinatorial aspect of technological innovation. The thrust of his argument is contained in the following passage:

knowledge and skills accumulate. They do so . . . because knowledge and skills are objectified in tools and symbols . . .

The importance of such objectification of this whole aspect of culture is not merely that of accumulation. Rather accumulation is only the minor premise to innovation. The major premise is the combining of previously existing \textquotedblleft culture traits\textquotedblright\ to form new ones.\textsuperscript{38}

Ayres's emphasis on the idea that technological innovation is a combinatorial process bears a striking resemblance to Nicholas Georgescu-Roegen's conception of evolution as \textquotedblleft the emergence of novelty by combination.\textquotedblright\ In both formulations, the evolutionary process is couched in terms of a \textquotedblleft developmental continuity\textquotedblright that arises out of a combination of previously existing traits. Unlike the evolutionary processes of the biological and physical realms, the emergence of novelty by combination in human culture results from the choices made in the problem-solving processes. In other words, the rate and direction of social evolution is subject to the discretionary control of mankind. Using terminology established earlier in this discussion regarding patterns of behavior, technological innovation involves changes in instrumentally warranted patterns of behavior. Such changes are made possible by the mode of instrumental valuation, which permits changes in the standards of judgment by which behavior is correlated. J. Fagg Foster used the term \textquotedblleft developmental continuity\textquotedblright to identify both the meaning of evolution and the method by which it was accomplished, that is, instrumental valuing.\textsuperscript{40} Thus it can be seen that the institutionalist hypothesis regarding the technological dynamic is conceptually linked to the instrumental theory of value.

\textit{The Interface of the Knowledge Fund and the Institutional Structure}

At any given point in time, the institutional structure of society
incorporates a given fund of knowledge that is distributed between ceremonial and instrumental patterns of behavior. Knowledge is either "encapsulated" within ceremonial patterns or "embodied" within instrumental patterns of behavior. This distinction in language is required to indicate that the index of ceremonial dominance determines the permissible use of existing knowledge in the community's problem-solving processes. The knowledge fund is translated into problem-solving activities through instrumentally warranted patterns of behavior. But because of the phenomenon of ceremonial dominance, only that part of the knowledge fund that can be reconciled with the existing value structure of the community would be sanctioned for problem-solving purposes. In other words, the instrumental behavior that is permitted within the community is required to meet the standard of ceremonial adequacy. Thus knowledge that cannot be reconciled with the need to justify existing patterns of status, power, and other forms of invidious distinctions would not be intentionally sanctioned.

While ceremonial dominance determines the ceremonial feasibility of the range of permissible behavior, it is the knowledge fund that determines the instrumental feasibility of problem-solving activities. When these two standards of feasibility are taken into account, the interface of the fund of knowledge with the institutional structure defines an "institutional space" that may be partitioned into four sectors delineating the ceremonial and instrumental feasibility of behavioral patterns. These four sectors are presented schematically in Figure 1 and can be identified as follows:

Sector I. In which the behavioral patterns are both ceremonially and instrumentally feasible.

Sector II. In which behavioral patterns are instrumentally feasible but ceremonially nonfeasible.

Sector III. In which the behavioral patterns are ceremonially feasible but instrumentally nonfeasible.

Sector IV. In which behavioral patterns are both ceremonially and instrumentally nonfeasible.

Each of these sectors will be discussed in turn. Sector IV can be immediately disregarded since it is an empty set. Behavioral patterns of this sector, even if they could be imagined, are both ceremonially and instrumentally nonfeasible; they would not fall within either the myth structure or the technology of the community. Sector I, on the other hand, is that sector in which the actual institutional structure exists. The patterns of behavior in this sector are tech-
nologically feasible, and they meet the standard of ceremonial adequacy. Sector II defines, for a given state of the knowledge fund, the technological possibilities of the community that are denied to it by the existing level of ceremonial dominance. As will be shown below, it is into this sector that the community would move if “progressive” institutional changes reduced the degree of ceremonial dominance. Sector III may at first blush appear to be socially irrelevant, but as the subsequent discussion will show, it has always been a factor in human history, particularly in the history of the twentieth century. Sector III contains behavioral patterns that involve an extension of the myth structure that not even the ceremonial encapsulation of instrumental behavior can sustain without a loss of instrumental efficiency to the community at large. Such extensions of the myth structure will be referred to later as “Lysenko effects.” It is into this sector that the community would move if “regressive” institutional change increased the degree of ceremonial dominance.

The Process of Institutional Change

This discussion has now reached the stage where the process of institutional change can be brought under direct inspection. Both the “regressive” and “progressive” forms of institutional change will be delineated. Fundamental to a discussion of either is the concept of “ceremonial encapsulation.” In the case of “regressive” institutional change, a particular type of ceremonial encapsulation, the “Lysenko” type, will be shown to be the cause of what might be called the absolute “triumph of imbecile institutions over life and culture.”

Ceremonial Encapsulation

In the foregoing discussion of the technological dynamic, it was ar-
gued that the dynamic force for change in the institutional structure is
the growth of the community's fund of knowledge. The phenomenon
of ceremonial dominance, however, poses an obstacle to the absorption
and diffusion of the new knowledge in the form of technological inno-
vation. Consequently, a new discovery in the arts or sciences will be
incorporated into behavioral patterns only to the extent that the com-
munity believes that the previously existing degree of ceremonial
dominance can be maintained. Technological innovations will be per-
mitted only if it is anticipated that they will not disrupt the existing
value structure of the community. This will involve changes in behav-
ioral patterns, but any increase of instrumentally warranted behavioral
patterns will be offset by concomitant increases in ceremonially war-
anted patterns of behavior. The new ceremonially warranted patterns
are required to "encapsulate" the increase in instrumentally warranted
behavioral patterns. It is through this process that the community seeks
to attain a *status quo ante* with respect to its value structure. Hence,
ceremonial encapsulation, to the extent that it is successful, denies to
the community those technological innovations that the existing
knowledge fund is capable of generating, thereby depriving the commu-
nity of higher levels of instrumental efficiency in the problem-solving
processes.  

Two important qualifications must be introduced to the discussion
at this point. First, it should be noted that the theoretical formulation
of "ceremonial encapsulation" does not require the assumption that the
community is omniscient in its effort to "encapsulate" new knowledge.
There may be considerable slippage in the process, and technological
innovations inconsistent with the existing value structure may indeed
be adopted without a full comprehension of the consequences of doing
so. To the extent that such innovations "slip through" the ceremonial
net, so to speak, some amount of "progressive" institutional change (as
defined below) will take place.  

Second, it must be noted that both anthropological and contemporary studies indicate that all societies at-
tempt to maximize the efficiency with which they employ their existing
ceremonially encapsulated) technology. Whatever the community's ta-
pons may be that bound use of knowledge, the knowledge that is
demed ceremonially adequate is used to the fullest. If one must
rice with little more than one's bare hands, it would be wise to study
the rice-growing methods of the Vietnamese peasant. And if one must
navigate among the South Pacific archipelagos in an outrigger canoe, it
would be desirable to do so in one built by the Trobrianders. Veblen's
"instinct of workmanship" appears to manifest itself even under the
most trying ceremonial circumstances.
It is the attempt to preserve the existing value structure in the face of technological innovation that gives the ceremonial practices of the community what Ayres called their "past-binding" character.\(^{45}\) This notion is similar to Ogburn's concept of "cultural lag," which he formulated to explain the lag in the correlation of adjustments between two interrelated aspects of culture.\(^{46}\) The concept of ceremonial encapsulation offers a precise explanation of the cultural lag involved in the institutional response to technological innovation. It focuses on the fact that although "past-binding," the ceremonial practices of the community are "permissive" in the sense that some aspects of the expanding knowledge fund will be absorbed into the behavioral patterns of the community. As indicated above, this involves the effort to preserve the existing value structure. Thus it is the value structure that correlates behavior within the institution that "lags." Even though there is some technological innovation, as long as the value structure remains unchanged, it cannot be said that an "institutional change" has taken place. Under the logic set forth in the present analysis, an "institutional change" does not take place unless there is a change in the index of ceremonial dominance; which is to say, an institutional change occurs only when there is a change in the value structure of the institution.

There are three identifiable types of ceremonial encapsulation of the knowledge fund.\(^{47}\) For purposes of identification, the three types of ceremonial encapsulation will be called: (1) the "past-binding" type, (2) the "future-binding" type, and (3) the "Lysenko" type.

The "past-binding" type. The first type of ceremonial encapsulation for which the term "cultural lag" is most appropriate involves the "past-binding" resistance of the traditions of the community to the absorption and diffusion of technological innovations. The community responds to unanticipated advances in the arts and sciences (either indigenous or borrowed from other cultures) by attempting to minimize the impact of the technological innovation on existing habits of thought and behavior. Since technological innovation requires changes in instrumentally warranted patterns of behavior, it carries with it a threat to the stability of the ceremonially warranted patterns of behavior that traditionally encapsulate the knowledge fund that is the common heritage of the community. In the face of this threat, conscious efforts are made to shore up the existing value structure by an elaboration of ceremonial practices designed to minimize the innovation's dislocation of the status quo. Veblen described this type of ceremonial encapsulation as follows: "The innovation finds its way into the system of use and wont at the cost of some derangement to the system, provokes new usages, conventions, beliefs, and principles of conduct, in part directed
advisedly to its utilisation or to the mitigation of its immediate consequences, or to the diversion of its usufruct to the benefit of given individuals or classes.” 48 While this type of ceremonial encapsulation is most easily identified in traditional, preindustrial cultures, which exhibit very slow time rates of technological diffusion, the cultural lags it produces are also quite evident in modern society. For example, Ogburn argued that the historical delay in the development of workmen’s compensation laws, coming almost a century after the onset of the industrial revolution, constituted a major cultural lag. 49 But perhaps the most widely recognized evidence of this type of ceremonial encapsulation in the standard economics literature is to be found in those studies that report the frustration of the best-laid plans for economic development in less developed economies.

The “future-binding” type. The second type of ceremonial encapsulation involves the active development of technological innovations for the purpose of strengthening and extending the control of vested interests over the life of the community. In this case, the introduction of technological innovations into the life processes of the community is carefully coordinated with the formulation of an appropriate mythology and related ceremonial practices that rationalize and enforce the legitimacy of the control over the technology by the vested interests that have captured it. The strategy is to promote, capture, and control all those technological innovations that can reasonably be anticipated to have a bearing on the ceremonially warranted exercise of power by the vested interests over the life processes of the community. To the extent that vested interests can maintain control over the process of technological innovation, they effectively control the future of the community, hence the term “future-binding.”

It is this second type of ceremonial encapsulation that has been the main preoccupation of institutional economists from Veblen to the present. Veblen formulated the problem in terms of his distinction between “pecuniary” and “industrial” employments, in which the ceremonially warranted pecuniary employments were dominant over the instrumentally warranted industrial employments. 50

Contemporary institutionalists have identified this type of ceremonial encapsulation in several recent works. F. Gregory Hayden has offered extensive evidence of the capacity of giant enterprises in the chemical, farm machinery, and agribusiness industries to encapsulate science and technology for the purpose of increasing their own power and profits at the expense of instrumental efficiency in maintaining a healthy food chain, the conservation of viable agricultural acreage, and the preservation of vital social and ecological systems. 51 The late Louis
J. Junker analyzed the ceremonial encapsulation of knowledge pertaining to diet and health by what he called the “American food power system.” While many of the conclusions he drew in this study are highly controversial, he offered compelling evidence that those industries involved in the production, distribution, and sale of commodities and services relating to nutrition and health have the power to prevent the community from utilizing the complete fund of knowledge available for the proper maintenance of health and dietary practices. In the concluding paragraphs of his study, Junker summarizes the social significance of this “future-binding” type of ceremonial encapsulation as follows:

As a general theoretical principle, the ceremonial-instrumental dichotomy posits the existence of a gap between the growing knowledge fund (and the value structure it entails) and the vested interests of the existing power system that governs and exploits its use. All the forces that encapsulate and control knowledge for the benefit of limited vested interests create master-servant relationships between themselves and the community at large, and this produces organized waste. Genuine knowledge sets the outer limits of human potential. But ceremonial forces encapsulate genuine knowledge, and thus the human potential, by confining the use of knowledge within the framework of the core values of the established power structure. This encapsulation reduces the community’s flexibility and adaptivity to the potentialities of the new knowledge. In the case of the food power system, the encapsulation can lead quite literally to death.52

The Hayden and Junker studies, while focusing on specific industrial clusters, lay bare the underlying process of ceremonial encapsulation that is endemic to the economy as a whole. Other institutionalists have produced works that reveal the specific means by which the process contaminates the entire society.

William M. Dugger’s study of “corporate hegemony” analyzes the social mechanisms by which this type of ceremonial encapsulation is transmitted throughout the community.53 It is Dugger’s contention that the corporation has become the dominant institution in American society and that this dominance is manifest in its hegemonic influence over all other institutions of the society. This hegemony is maintained, he says, “not through a conspiracy, but through four social mechanisms”: subordination, contamination, emulation, and mystification. He identifies each as follows: “Subordination ties all institutions together so that noncorporate institutions are used as means to corporate ends. Contamination puts corporate role motives into noncorporate roles. Emulation allows corporate leaders to gain acceptance, even respect, in
non-corporate leadership roles. And mystification covers the corporate hegemony with a protective (magic) cloak.\textsuperscript{54} It is through these mechanisms, Dugger argues, that the corporate interests are able to control the availability and use of knowledge throughout the society. One of the most significant features of his analysis is his treatment of the ceremonial encapsulation of institutions of higher learning by corporate interests.\textsuperscript{55} He shows how the university’s instrumentally warranted social goals to pursue unfettered inquiry and to expand the intellectual horizons of its students have been subordinated to the ceremonially warranted corporate goals of industry-specific research and the vocationalization of the curriculum. Beginning with Veblen’s \textit{The Higher Learning in America}, institutionalists have stressed the critical importance of the educational system (most particularly, the system of higher education) to the development of society’s capacity to adapt to growth in the knowledge fund.\textsuperscript{56} Dugger’s analysis reveals how this critical educational mission has been ceremonially encapsulated to the detriment of the community.

John Munkirs has also produced a powerful analysis of the American economy that comes to rest, in part, on his identification of the ceremonial encapsulation of technology by what he calls the system of centralized private sector planning (CPSP), which is dominated by giant financial and industrial corporations. One of his main contentions is that the reality of centralized private sector planning is only dimly perceived by policy makers and the public at large because their view of the real world is obscured by the mythical \textit{Weltanshauung} of capitalist ideology. In the language of the present analysis, this ceremonially warranted perception of reality has impaired our society’s capacity to develop instrumentally warranted social policies. Munkirs sums up the matter in the following passage:

Unfortunately, in America, the real choices that our technological knowledge make possible (choices between different production and distribution systems, for example, centralized versus decentralized) have been circumscribed by, or encapsulated within, our capitalistic ideology and, in particular, by the values of self-interest, profit seeking, and laissez-faire. In brief, the particular type of centralized planning that exists in America today is due neither to technological determinism nor to conspiratorial machinations. Rather, CPSP is a direct result of combining the values of self-interest, profit seeking, and laissez-faire with certain technological possibilities.\textsuperscript{57}

Munkirs’s detailed analysis of the structure and functioning of the centralized private sector planning system provides dramatic evidence of
the existence of “future-binding” ceremonial encapsulation throughout the entire economy of the United States.

While space does not permit an extended discussion of the subject, it must be noted that a driving force for “future-binding” ceremonial encapsulation in the twentieth century has been the military-industrial complexes of the nations of the world. Veblen set forth the first systematic analysis of the military-industrial complex in 1917. He demonstrated how the ceremonial preoccupation with nationalism, patriotism, and the pecuniary employments encapsulate technology and the industrial employments at the expense of life and culture. Fortified by appropriately formulated myths (for instance, “the balance of powers,” “mutually assured destruction,” “strategic defense initiative”), the military-industrial complex has virtually unlimited capacity to produce, capture, and control modern technology. The degree of ceremonial dominance enjoyed by the military-industrial complex in the United States is indicated by the fact that most Americans take it for granted that not only national security but economic stability is dependent on a “strong national defense.”

The “Lysenko” type. In the “past-binding” and “future-binding” types of ceremonial encapsulation, genuine knowledge is encapsulated by the ceremonial beliefs and practices of the community. In the “Lysenko” type of ceremonial encapsulation, on the other hand, the community attempts to achieve instrumentally nonfeasible outcomes through ceremonially warranted behavioral patterns. This is the extreme case of ceremonial practices imitating instrumental efficiency. Under the concept of institutional space set forth earlier, such an effort pushes the community into Sector III, which entails ceremonially feasible, but instrumentally nonfeasible patterns of behavior. Spurious “knowledge” is substituted for genuine knowledge, and ceremonially warranted patterns of behavior displace instrumentally warranted patterns of behavior in critical areas of the community’s problem-solving processes.

This type of ceremonial encapsulation is called the “Lysenko” type, after Trofim D. Lysenko, whose name has become synonymous with the corruption and manipulation of science for ideological purposes. Lysenko was the Russian “agrobiologist” who argued that genetic change could be induced through the environmental conditioning of biological organisms. Although his theories were diametrically opposed to the evidentially warranted hypotheses developed over the previous century in the field of genetics, they were embraced by Stalin as the only biological theories consistent with Marxist-Stalinist ideology. Ly-
The Theory of Institutional Change

Lysenko's theories became the official dogma in agronomy and the supporting biological sciences. The application of Lysenko's theories to the growing of field crops produced disastrous results; nevertheless, Lysenkoism dominated Soviet science for thirty years. But perhaps the most devastating effect Lysenkoism had on the reduction of instrumental efficiency in the Soviet Union was not its impact on the practice of agriculture, but its impact on the practice of science.59

History offers numerous examples of the "Lysenko" type of ceremonial encapsulation, but space limitations permit only a brief mention of two cases (one historical, and the other potential) that have emerged in the twentieth century. The most notorious historical case is, of course, the Nazi theory of Aryan racial supremacy. The Nazis did not invent anti-Semitism and racism; these virulent forms of invidious discrimination were the cultural heritage of Europe. The Nazi innovation was to formulate a theory that would provide a cloak of "scientific" legitimacy for the racial laws adopted in the Third Reich. The new, spurious "science" displaced genuine science, thereby providing the intellectual foundation for the monstrous crimes against humanity that followed. Turning to the potential case, while it is perhaps not the same threat to civilization that the Nazi racial theories were, the so-called science of "creationism" is, nevertheless, a contemporary example of a "Lysenko" type of ceremonial encapsulation going somewhere to happen. Creationists, encouraged by the moral support of President Reagan, are engaged in a nationwide campaign to place "creationism on a par with classical evolution in public school instruction."60 Aside from the damage this would cause to the teaching of science, one can only speculate on the broader social ramifications of a successful creationist campaign to substitute religious dogma for the processes of inquiry.

The Definition of Institutional Change

Institutional change takes the form of a change in the value structure of the institution. A change in the value structure may be measured theoretically by a change in the institution's index of ceremonial dominance. The index of ceremonial dominance reflects the dominance of ceremonially warranted values over instrumentally warranted values in the correlation of behavior in the behavioral patterns of the institution. An increase in the index of ceremonial dominance entails the displacement of instrumentally warranted values by ceremonially warranted values in the correlation of behavior. An increase in the index of ceremonial dominance signifies a "regressive" institutional
change. A decrease in the index of ceremonial dominance entails the displacement of ceremonially warranted values by instrumentally warranted values in the correlation of behavior. A decrease in the index of ceremonial dominance signifies a "progressive" institutional change. As already indicated in the foregoing discussion of "past-binding" and "future-binding" ceremonial encapsulation, the index of ceremonial dominance may remain unchanged if ceremonially warranted patterns of behavior increase at a rate sufficient to encapsulate increases in instrumentally warranted patterns of behavior brought about by changes in the community's fund of knowledge. In such cases, there is no institutional change.

"Regressive" Institutional Change

The "Lysenko" type of ceremonial encapsulation (called a "Lysenko effect") generates "regressive" institutional change by causing the displacement of instrumentally warranted patterns of behavior by ceremonially warranted patterns of behavior, thereby raising the index of ceremonial dominance in the community. This is a quite different outcome from the institutional adjustments associated with either "past-binding" or "future-binding" ceremonial encapsulation. In those cases, the index of ceremonial dominance remains unchanged, and there is a net increase in the instrumental efficiency of the community, meager though it may be. In the case of a "Lysenko effect," there is a net loss of instrumental efficiency because there is no way to maintain legitimate scientific or technological practices in those parts of the community affected directly or indirectly by the intrusion of the spurious "science." The Russian agronomists and biologists who opposed Lysenkoism were expelled from the academies or worse. Agricultural practices were modified to meet the Lysenkoist criteria, and agricultural productivity declined. A similar fate befell the German scientists, intellectuals, and ordinary citizens who disputed Nazi dogma. Their options were: (1) remain on the faculties, join the party, and teach the despised doctrines; (2) speak out against these intellectual outrages and risk death or the concentration camps; or (3) emigrate. The loss of instrumental efficiency to the community was measured ultimately by the Holocaust and the death and destruction of World War II.

While one can be sanguine that "regressive" institutional changes are ultimately reversible, since the demonstrable adverse consequences of spurious "knowledge" cannot be long endured in the life processes of the community without a sensed awareness that something is amiss,
Veblen admonished us to remember that “history records more frequent and more spectacular instances of the triumph of imbecile institutions over life and culture than of peoples who have by force of instinctive insight saved themselves alive out of a desperately precarious institutional situation.” Lysenkoism lasted for thirty years in Russia; and while the Third Reich lasted for only twelve, the cost of reversing the “regressive” institutional changes it spawned were ultimately borne by the entire world.

**Progressive Institutional Change**

“Progressive” institutional change occurs when, *for a given fund of knowledge, ceremonial patterns of behavior are displaced by instrumental patterns of behavior.* This entails an increased reliance on instrumental values in the correlation of behavior within the community, thereby lowering the index of ceremonial dominance. The displacement of ceremonial patterns by instrumental patterns of behavior moves the institution into Sector II, which was defined by the interface of the knowledge fund and the original index of ceremonial dominance. Sector II, it will be recalled, isolates that institutional space in which behavioral patterns are instrumentally feasible but ceremonially non-feasible. In other words, this sector contains those behavioral patterns that the knowledge fund makes possible but which cannot be undertaken because of ceremonial restraints on behavior. “Progressive” institutional change involves technological innovations that break down those ceremonial barriers.

To reiterate, innovations in the arts and sciences bring about growth in the fund of knowledge, but the new knowledge is incorporated into the problem-solving processes only to the extent that it is possible for the community to maintain the previously existing level of ceremonial dominance. With the exception of the “Lysenko” type, the process of *ceremonial encapsulation* involves some technological innovation. This is the first phase of institutional adjustment. Even though the new instrumental patterns of behavior generated through the technological innovation are ceremonially encapsulated, they are integrated into the experience of the community. The new standards of instrumental valuing they bring to the problem-solving processes have demonstrable consequences that become known to the community. As the community becomes habituated to employing these new standards of judgment in the correlation of behavior, the learning process reveals new opportunities for their application elsewhere in the problem-solving
processes. The diffusion of the new instrumental values throughout the community erodes the ideological foundations of those ceremonial practices that are dominant in the affected areas of activity. Eventually, instrumental standards of judgment displace ceremonial standards of judgment in the correlation of behavior in a range of problem-solving activities not contemplated in the original technological innovation. "Progressive" institutional change is, then the second phase of the institutional adjustment brought about by innovations in the arts and sciences.

Veblen’s conception of “cumulative causation” explains the dynamics of the process that produces “progressive” institutional change. Technological innovation changes the objective circumstances of the community; the new set of circumstances alters habits of thought and behavior; these new habits of thought and behavior are projected into other areas of the community’s experience, giving rise to further innovations in the arts and sciences, which, in turn, produce new technological innovations in the community’s efforts “to turn material things to account.”63 Veblen believed that the change in the material circumstances of the culture brought about through the introduction of machine technology during the Industrial Revolution conditioned working people to think in terms of cause and effect. “The machine,” he said, “throws out anthropomorphic habits of thought.”64 This affects not only the ability of working people to become consciously aware of the manner in which their behavior is correlated in the workplace, but also their ability to think in causal terms about broader social relationships that affect the life processes of the community. Machine technology creates the material circumstances that are inhospitable to those habits of thought that rationalize ceremonial patterns of behavior. “Its scheme of knowledge and of inference is based on the laws of material causation, not those of immemorial custom, authenticity, or authoritative enactment.”65 Thus the working people in an industrial society are less likely to submit to the kind of master-servant relationship that existed under feudalism. The industrial system gives rise to an “animus of insubordination” and the individual’s status shifts from “subject” to “citizen.”66

A critical factor in bringing about “progressive” institutional change is a sensed awareness within the community that there is a need to modify habitual patterns of thought and behavior in order to achieve a higher level of instrumental efficiency in the problem-solving processes. Veblen saw this sensed awareness arising out of the change in the material circumstances of the community brought about by the in-
roduction of machine technology. Other factors affecting the material circumstances of the community can also bring about such a sensed awareness. Clarence Ayres stressed the importance of the "frontier experience" in breaking down the allegiance to traditional patterns of behavior. Environmental catastrophes that disrupt the physical habitat of the community can also have a profound effect on the community's willingness to consider alternative patterns of behavior as a simple matter of survival. Finally, contact with other cultures through war or trade can induce a sensed awareness of new possibilities for social adaptation.

One additional brief comment must be made on a subject that should be given detailed attention, and that is the dynamic interrelationship between "progressive" institutional change and growth in the knowledge fund. It is clear that there is a feed-back relationship between "progressive" institutional change and further growth in the knowledge fund. As the theory has been formulated so far, it is the change in the fund of knowledge, generated by the community-wide problem-solving processes (incorporating both formal and informal processes of inquiry), that provokes institutional adjustment. As the second phase of institutional adjustment ("progressive" institutional change) lowers the index of ceremonial dominance in the community, it becomes easier to absorb and diffuse technological innovations; but it is also this process that accelerates the growth of knowledge. As Milton Lower puts it, "knowledge increases in the degree that it is used." The higher rates of technological innovation made possible by a lower index of ceremonial dominance provide the social environment conducive to the processes of inquiry throughout the culture. Thus, the growth of knowledge is both the cause and consequence of "progressive" institutional change. The dynamic relationship between the growth in knowledge and "progressive" institutional change is presented schematically in Figure 2.

The Limits to "Progressive" Institutional Change

There is, of course, nothing inevitable about "progressive" institutional change. Veblen expressed his generally pessimistic view about it when he warned of the "triumph of imbecile institutions over life and culture." The historical reality of "regressive" institutional change has already been acknowledged. Given the present state of the theory presented here and the level of empirical work associated with it, predictions regarding either the time rate or the direction of institutional
INSTITUTIONAL ADJUSTMENT

PHASE I:
CEREMONIAL ENCAPSULATION
[No change in the value structure.]

(a) Elaboration of ceremonial practices to encapsulate new knowledge
(b) Encapsulated technological innovation.

PHASE II:
"PROGRESSIVE" INSITUTIONAL CHANGE
[Change in the value structure.]

Learning processes give rise to the displacement of ceremonial values by instrumental values, permitting further technological changes based on the existing knowledge fund.

Leads to further growth in the knowledge fund.

Figure 2. The Dynamics of the Relationship between Growth in the Knowledge Fund and the "Progressive" Institutional Change.
change on anything but the most narrowly defined range of cultural activity is probably impossible. Nevertheless, the theory does specify qualitative limitations on the generation and rate of institutional change. They are: (1) the availability of knowledge; (2) the capacity for understanding and adaptation; and (3) the principle of minimum dislocation.  

The availability of knowledge. The breadth and depth of the accumulated fund of knowledge available to the community clearly sets the limits to the feasibility of institutional change. The greater the fund of knowledge, the greater the potential for institutional change. Scientifically primitive societies do not exhibit rapid rates of “progressive” institutional change. The dynamics of technological innovation are at work in these communities as in any other, but the time rate of change is constrained by the paucity of the technological base from which the innovations must spring. “Cultural borrowing” can make a significant difference to the rate of change in any society since the transfer of technology from other cultures creates a quantum increase in the borrowing culture’s knowledge fund. The institutional consequences of this fact have been the focus of the institutionalist literature on economic development. Development programs involving technological transfer from advanced to less-developed economies, in order to be successful, must anticipate the “progressive” institutional changes that will be required to accommodate the new technology; otherwise ceremonial encapsulation will significantly diminish the culture’s ability to adopt and diffuse the technology.

The capacity for understanding and adaptation. The ability of the members of the community to understand and adapt to the changes in habits of thought and behavior entailed by technological innovations affects the time rate of both the adoption and diffusion of the innovations. There must be some social mechanism to facilitate the changing of habits of thought if “progressive” institutional change is to occur. Veblen’s analysis of the impact of the “discipline of the machine” on the institutional structure was premised on the fact that a broad cross-section of the population came into contact with machine technology on a daily basis. The workplace served as a “school of hard knocks” so to speak. Contemporary institutional economists lay greater stress on the educational system of the culture as the most important social mechanism performing this function. But, as the earlier discussion of Dugger’s theory of corporate hegemony revealed, it is clear that the educational system can be so organized as to inhibit rather than enhance “progressive” institutional change. If it is organized along invid-
ious lines that reflect the existing occupational structure, it will simply reinforce the status quo and contribute to increasingly sophisticated strategies for the ceremonial encapsulation of the knowledge fund. If it is to contribute to the community's capacity for understanding of and adaptation to advances in the knowledge fund, the educational system must be organized for that purpose. Baldwin Ranson states the matter plainly.

Educational planners can promote economic progress by providing everyone with the skills necessary to master the best technology. That planning objective is not dictated by any occupational structure, but rather by the nature of technological progress: the more the community knows, the more it can learn. Transmitting the ability to adapt to evolving technological opportunities will maximize economic progress as well as educational excellence, not as measured by competitive superiority of one group over another, but by the growing potential for economic and social wellbeing of the entire community.74

In sum, the time rate of "progressive" institutional change is bounded by the community's capacity to learn the adaptive skills necessary to absorb technological innovation.

The principle of minimal dislocation. The principle of minimal dislocation is critical to an understanding of both the direction and rate of "progressive" institutional change.75 The principle states that while technological change always involves dislocation in the institutional structure, the interdependence of the institutional structure is such that "progressive" institutional change is possible only if it involves a minimal dislocation of the behavioral patterns of the community. Technological innovation in the context of "progressive" institutional change always involves the displacement of ceremonial patterns of behavior, and it may also involve the displacement of outmoded technology. Such dislocation of the institutional structure is inherent in the process. But those patterns of behavior that are displaced by the technological innovation are interlinked with other patterns of behavior (both ceremonial and instrumental) throughout the institutional structure of the society. As the earlier analysis of behavioral patterns indicated, the variety of forms that behavioral patterns can take introduce considerable complexity into the institutional structure. Ceremonially warranted patterns of behavior may contain instrumental behavior as well as ceremonial behavior.76 Thus care must be taken not to displace ceremonial practices that encapsulate instrumental activities vital to the problem-solving processes of the community.

To illustrate the argument, recall the case of canoe-building in the
Trobiand culture. The division of labor within the culture as a whole that regulated not only the tasks of the craftsmen in building the canoe but also the correlation of canoe-building with other activities of the culture was ceremonially encapsulated by a system of magic and ritual. A "progressive" institutional change that would free the division of labor in canoe-building from magic and ritual, but would not somehow provide for the reintegration of canoe-building with other activities of the community still under the rule of magic and ritual, would entail a maximum dislocation of the institutional structure. The attempt to introduce an instrumentally warranted division of labor in one part of the culture would disrupt the instrumentally vital (but ceremonially encapsulated) division of labor on a culture-wide basis. It is highly unlikely that any community (scientifically primitive or advanced) would knowingly undertake institutional changes that entail a maximal dislocation of the institutional structure, but this does not preclude the possibility that errors in judgment or lack of knowledge could lead to maximal dislocation. Thus the principle of minimal dislocation provides insight into the problems that must be addressed in any form of social or economic planning.77

The Discretionary Character of Institutional Change

Marc Tool describes "progressive" institutional change as change that "provides for the continuity of human life and the noninvidious recreation of community through the instrumental use of knowledge."78 This language is descriptively accurate of the process in which ceremonially warranted patterns of behavior are displaced by instrumentally warranted patterns of behavior under conditions of minimal dislocation. It is the institutionalist view that this is in fact what happens when the community alters its behavior to accommodate the use of existing knowledge. But it is also clear that Tool's language states a social value principle that is applicable to the formulation of social policy. It provides a criterion for selecting among alternative institutional arrangements when the purpose is to achieve genuine progress in the community's problem-solving processes. Thus the theory of institutional change presented here achieves a dual purpose: it provides an explanation of the process of institutional change while at the same time it reveals the social value criterion most appropriate to the planning of the process.

It would not be historically accurate to suggest that all institutional changes result from the conscious formulation of social policy, and it
has not been the author's intention to make such an argument. What has been argued is that the evolution of a culture results from the choices made to adopt or not to adopt the technological innovations. The intentional choice to improve the instrumental efficiency of the community through the adoption of a technological innovation does not necessarily involve the intention to throw over some aspect of the ceremonial practices of the culture. The displacement of ceremonially warranted patterns of behavior by instrumentally warranted patterns of behavior is a consequence of the extension of instrumental valuing in the correlation of behavior. The "progressive" institutional changes that have brought modern cultures to their present stage of development may have appeared to have been quite unremarkable at the time of their occurrence. This is most likely to be true of the process of technological diffusion wherein the adaptation to new technology requires incremental adjustments in the habits of thought and behavior over a broad cross-section of the community. Nevertheless, no matter how subtle the process, it involves the making of choices, and these choices define the evolutionary continuum of the culture.

A conscious awareness of the nature of the choices made in the process of social evolution is a precondition to the planning of that process. By revealing the nature of these choices, the institutionalist theory of institutional change demonstrates that social evolution is subject to the discretionary control of mankind. It is this realization that informs the institutionalist approach to public policy formation. In the institutionalist view, social problems arise when the institutional structure is unable to accommodate the noninvidious application of instrumentally warranted knowledge to the support of the life processes of the community. The solutions to social problems take the form of "progressive" institutional changes that will alter those ceremonially warranted patterns of behavior that thwart the extension of instrumental valuing in the problem-solving processes.

Tool argues that the social value principle that emerges in this theory of institutional change has the greatest potential for successful application within a democracy polity.79 Those habits of thought that make instrumental valuing possible are most likely to be nurtured in a system of democratic self-governance.80 He cites three reasons for this affinity: (1) because democracy "encourages the development of distinctively human potentialities for creative and reflective use of the mind"; (2) because it "engenders an experimental approach to social change"; and (3) because "self-rule generates consequences that must be endured, a democratic public becomes increasingly self-conscious about the char-
acter of the value theory it employs." As Ayres put it, "The essence of democracy is not the fact of majority rule, but rather the process by which majorities are formed." For the institutionalist, the process by which majorities of a democracy are formed is identical with the process of inquiry upon which instrumental valuing depends. Thus, democracy is the political process most likely to nurture the conscious exercise of human discretion over the evolution of the society.

Notes

3. This theme is developed most fully by Marc R. Tool in *The Discretionary Economy: A Normative Theory of Political Economy* (Santa Monica: Goodyear Publishing Co., 1979).
4. The notation used here for behavioral patterns was first developed by the author in "An Exploration of the Structural Characteristics of a Veblen-Ayres-Foster Defined Institutional Domain," *Journal of Economic Issues* 17 (March 1983): 35–66.
7. Space constraints do not permit a detailed review of this literature in this essay. For a systematic treatment of the institutionalist approach to value theory see Steven Hickerson's "Instrumental Valuation: The Normative Compass of Institutional Economics" in this volume.
11. It is interesting to note that Veblen treated "conspicuous consumption" as dialectical behavior. Accordingly, he says, "an article may be useful and wasteful both, and its utility to the consumer may be made up of use and
waste in the most varying proportions. . . . It would be hazardous to assert that a useful purpose is ever absent from the utility of any article or of any service, however obviously its prime purpose and chief element is conspicuous waste." Thorstein Veblen, *The Theory of the Leisure Class* (New York: Augustus M. Kelley, 1975 [1899]), pp. 100–101.


15. Ibid., p. 115.


17. This discussion of Malinowski's commentary should not be misinterpreted. It is not at all clear that Malinowski would have agreed with the treatment of his observations set forth here. See Clarence E. Ayres's remarks on Malinowski's analysis of the function of magic in the Trobriand culture in Ayres, *Toward a Reasonable Society*, p. 133.


26. Ibid.


30. Ibid.

31. Ibid., p. 514. The Liebhafsky observation was contained in a letter he had written to Warren Samuels and which Samuels quoted in his article, "Technology vis-a-vis Institutions." The Liebhafsky quotation appears on p. 887 of the Samuels article.

32. The term "holism" was first used in reference to institutional economics
by Allan G. Gruchy in Modern Economic Thought: The American Contribution (New York: Prentice-Hall, 1947). An excellent discussion of "holistic" methodology in institutional economics is to be found in Yngve Ramstad, "A Pragmatist's Quest for Holistic Knowledge: The Scientific Methodology of John R. Commons," Journal of Economic Issues 20 (December 1986): 1067-1105. In a passing remark, Ramstad indicates that the kind of approach the present author took in "An Exploration of the Structural Characteristics," (and, by extension, in this article) is incompatible with the "holistic" methodology. The author disagrees with Ramstad on this point, but this is not the place to argue the issue.


37. Tool, The Discretionary Economy, p. 39. A smooth, continuous exponential function, such as that used in Tool's illustration, is an oversimplification, as he would readily admit. Most institutionalists would agree that in real time there can be discontinuities and "quantum leaps" in the rate of growth that require the qualification that the function is only a rough approximation of an exponential curve. This qualification does not, however, reach to the notion of "developmental continuity" discussed in the following paragraphs.

38. Ayres, Toward a Reasonable Society, pp. 112–13. Ogburn also stressed the combinatorial aspect of the growth of technology and cultural traits; see Ogburn, On Cultural and Social Change, pp. 25–26.


40. This attribution of the use of the term "developmental continuity" to Foster is based on the author's recollection of Foster's lectures at the University of Denver. The recollection is corroborated by Baldwin Ranson's

41. This discussion of the partitioning of “institutional space” is based on a mathematical modelling of these relationships developed by the author in “A Veblen-Ayres Model of Institutional Change: A Provisional Formulation,” a paper presented at the Annual Meetings of the Western Economic Association, Anaheim, California, 21 June 1977.

42. The language, “the triumph of imbecile institutions over life and culture” is, of course, Veblen’s ringing phrase. See Thorstein Veblen, *The Instinct of Workmanship* (New York: Augustus M. Kelley, 1964 [1914]), p. 25.

43. The term “ceremonial encapsulation” has only recently been introduced into the institutionalist literature. The author and the late Louis J. Junker, unbeknown to one another, began using the term almost simultaneously in their teaching and writing. The author’s first effort to define the term rigorously appeared in “A Veblen-Ayres Model of Institutional Change: A Provisional Formulation.” The author presented an application of its use in “The Ceremonial Encapsulation of Capital Formation in the American Economy,” a paper presented to the Western Social Science Association, Lake Tahoe, Nevada, 27 April 1979, and extended the rigorous treatment of the concept in “An Exploration of the Structural Characteristics,” pp. 35–66. For Louis J. Junker’s theoretical formulation of the concept, see: “The Ceremonial-Instrumental Dichotomy in Institutional Analysis: The Nature, Scope, and Radical Implications of the Conflicting Systems,” *American Journal of Economics and Sociology* 41 (April, 1982): 141–50; and “The Conflict Between the Scientific-Technological Process and Malignant Ceremonialism,” *American Journal of Economics and Sociology* 42 (July, 1983): 341–52. The dates of these articles do not accurately reflect the time frame in which Junker began using the term since both were published several years after the papers on which they are based were presented to various professional societies. Junker’s most detailed application of the concept of ceremonial encapsulation to a specific problem area is to be found in his “Nutrition and Economy: Some Observations on Diet and Disease in the American Food Power System,” *Review of Institutional Thought* 2 (December 1982): 27–58. The author has commented on the origin of the concept and Louis Junker’s pioneering application of it in an article entitled “On the Concept of Ceremonial Encapsulation,” *Review of Institutional Thought* 3 (December 1986): forthcoming. Whether the term “ceremonial encapsulation” is merely a new way of referring to well-established concepts in the institutionalist literature or, for better or worse, an extension of institutionalist analysis into new intellectual territory is a matter that must yet be settled. For two important contributions to the deliberations on this point, see William T. Waller, Jr., “The Evolution of the Veblenian Dichotomy: Veblen, Hamilton, Ayres, and Foster,” *Journal of Economic Issues* 16 (September 1982): 757–71; and Hans E. Jensen’s article on the “Theory of Human Nature” in this volume, pp. 1039–73.
44. A special case of this kind of "slippage" is discussed as the "add on" process in Bush, "An Exploration of the Structural Characteristics," pp. 59–61.

45. Ayres, Toward a Reasonable Society, pp. 30, 137, and 233.

46. See Ogburn, On Cultural and Social Change, pp. 200–213. The similarities between the works of Veblen and Ogburn have been widely noted, and the notion of the cultural lag is often attributed to Veblen. He did not, of course, use the term. Ogburn denied that his formulation of the concept was influenced by Veblen. There are some fundamental differences between the Veblen-Ayres approach and Ogburn's. Whereas Veblen and Ayres postulate technological innovation as the dynamic factor generating the cultural changes to which there is a lagged cultural response, Ogburn argued that changes in those aspects of culture identified by Veblen and Ayres as "ceremonial" could be the dynamic cause of a lagged cultural response. Nevertheless, Ogburn's comments on this point do not appear to offer a serious challenge to the arguments made by Veblen and Ayres. Virtually all of Ogburn's own studies treat technology as the "independent variable"; and in those instances where he would appear to make ceremonial practices the independent variable, a case can be made that he failed to probe far enough along the chain of causal events to discover the technological innovation that produced the change in the ceremonial practices. As will be demonstrated in the following paragraphs, "regressive" institutional changes prompted by purely ceremonial considerations force the community into Sector III, and this results in a loss of instrumental efficiency. This line of analysis directly contradicts Ogburn's speculations. See William F. Ogburn, On Culture and Social Change: Selected Papers, ed. Otis D. Duncan (Chicago: The University of Chicago Press, 1964), p. 87.

47. This discussion of the three types of ceremonial encapsulation is based on the author's presidential address to the Association for Institutional Thought entitled "On the Concept of Ceremonial Encapsulation" (Albuquerque, New Mexico, 29 April 1983), a revised version of which appears in The Review of Institutional Thought 3 (December 1986): forthcoming.


53. It should be noted that while Dugger does not employ the term "ceremonial encapsulation" in his discussion of corporate hegemony, there can be no question that the term applies to his analysis. See William M. Dugger, An Alternative to Economic Retrenchment, (New York: Petrocelli Books, Inc., 1984). This point is clearly established by William T. Waller, Jr. in "Ceremonial Encapsulation and Corporate Cultural Hegemony," Journal of Economic Issues 21 (March 1987): 321–28.

55. Ibid., pp. 135–42.


62. As Ayres put it: “the progressive advance of technology means a similarly cumulative diminution of the extent and importance in the affairs of the community of superstition and ceremonial investiture.” *The Theory of Economic Progress*, p. 243; see also page 201 where he refers to the process as the “displacement of ceremonial by technological functions.” Ayres did not specify the requirement of a given fund of knowledge. This is an analytical refinement that has been developed by the author. Putting the matter of “progressive” institutional change in the context of problem solving, Marc Tool states that “The resolution of a problem consists of the reduction or removal of ceremonial behavior and attitudes and the creation or extension of instrumental behavior and attitudes.” See Tool, “A Social Value Theory in Neoinstitutional Economics,” *Journal of Economic Issues* 11 (December 1977): 823–46 at p. 837; this essay is reprinted in Tool, *Essay in Social Value Theory: A Neoinstitutionalist Contribution* (Armonk, N.Y.: M.E. Sharpe, 1986), pp. 33–44; the quotation appears on page 47.

63. Veblen discusses the process of “cumulative causation” throughout his works, but perhaps the most pertinent of his remarks on the subject for present purposes is to be found in *The Place of Science in Modern Civilisation*, pages 74–75.


65. Ibid., p. 311.

66. Veblen, *Imperial Germany and the Industrial Revolution*, p. 100. The question as to whether Veblen, in giving this account of institutional change, failed to distinguish adequately between what has been called “functional” rationality and “substantial” rationality has been given careful consideration by Rick Tilman in his masterful study of C. Wright Mills. See Rick Tilman, *C. Wright Mills: A Native Radical and His American Intellectual Roots* (University Park: Pennsylvania State University Press, 1984), pp. 97–98.

68. In one of his most remarkable essays, Veblen described in some detail the mental processes involved in achieving the "sensed awareness" discussed here. In "The Intellectual Pre-eminence of Jews in Modern Europe," Veblen argues that the cultural alienation of the European Jew gave rise to a "skeptical animus" among Jewish intellectuals that emancipated them from the ceremonial practices of both the Christian culture and their own traditional heritage. Being thus released from the "dead hand of conventional finality," they were free to explore truly innovative approaches in all of the arts and sciences. The intellectual transformation of the European Jew was, for Veblen, a metaphor for the emergence of the scientific habit of thought. See "The Intellectual Pre-eminence of Jews in Modern Europe," in Essays in Our Changing Order, ed. Leon Ardzrooni (New York: Augustus M. Kelley, 1964 [1934]), pp. 219–31. The essay originally appeared in *The Political Science Quarterly* 34 (March 1919): 33–42.


70. These three limiting conditions of "progressive" institutional change were discussed by Marc Tool in *The Discretionary Economy*, pp. 172–76. They were originally formulated by J. Fagg Foster and presented in his lectures at the University of Denver in the late 1940s and early 1950s. A severely truncated version of his treatment of them appears in Foster, "Syllabus for Problems of Modern Society: The Theory of Institutional Adjustment," *Journal of Economic Issues* 15 (December 1981): 929–35.

71. "Cultural borrowing" is the term Veblen used to identify this phenomenon in *Imperial Germany*; see especially pp. 19–43.


73. While David Seckler may not regard himself as an institutionalist, he has provided solid evidence of the correctness of the institutional position on this point in his article entitled "Institutionalism and Agricultural Development in India," *Journal of Economic Issues* 20 (December 1986): 1011–1027.


75. While there can be no question that J. Fagg Foster formulated this principle, it is clear that Clarence Ayres had an intuitive grasp of it, as indicated by the following statement: "It is also true that the sudden nullification of the ceremonial system of any community would produce a grievous state of disorganization." See Ayres, *Toward a Reasonable Society*, p. 138.

76. To reiterate the point by way of an additional example, it should be recalled that Veblen found a "non-invidious residue" even in the ceremonial labyrinth of organized religion. He commented favorably on the instrumentally warranted" sense of communion with the environment, or with the generic life process—as well as the impulse of charity or of sociability," which he found to be encapsulated in religious life. See Veblen, *The Theory of the Leisure Class*, p. 334.

77. A matter of some importance in any discussion of "minimal dislocation" is the environmental impact of the technological innovations contemplated in "progressive" institutional change. The principle of minimal dis-
location requires that any technology be compatible with the sustainability of the evolution of the ecosystem. This is a point that may not have been given sufficient attention by institutionalists in the past. Space limitations preclude any discussion of this vital issue. A most valuable discussion of this matter is to be found in James A. Swaney, "A Coevolutionary Model of Structural Change," *Journal of Economic Issues* 20 (June 1986): 393-400. The author's only quibble with this article has to do with Swaney's misapplication of the terms "ceremonial" and "instrumental" in his discussion of ecosystem feedbacks.

80. This theme runs throughout the institutionalist literature. It reflects the heavy influence of John Dewey's philosophy on American Institutionalism. Clarence Ayres viewed democracy as the system of governance most compatible with the emergence of the scientific point of view. See Ayres, *Toward a Reasonable Society*, pp. 281-94. The thesis was advanced most persuasively by the mathematician and philosopher Jacob Bronowski in his elegant little book *Science and Human Values*. While Bronowski was not an institutionalist, his philosophical writings have been most enthusiastically embraced by them.