

## What Veblen Owed to Peirce—The Social Theory of Logic

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In fall 1881, Thorstein Veblen studied with Charles S. Peirce, a logician with whose philosophy he is thought to have shared much. The graduate seminar, "Elementary Logic," was actually a favorite offering of Peirce. Veblen found himself attending the very small seminar along with John Dewey. According to the research of Max H. Fisch, however, Dewey found the mathematical presentations too technical for his taste, saw no benefit for himself from it, and withdrew from the seminar early in the term [Fisch 1986, 309-310]. Nevertheless, Dewey's writings on the origin and changing conceptions of philosophy, especially Chapter 1 of *The Reconstruction of Philosophy* [1920] and his statement of the scientific method in *Logic: The Theory of Inquiry* [1938], clearly reflect the kind of introductory material that Peirce customarily used in his course [Bernstein 1967, 380-385]. Dewey, as is well known, went on to develop his own instrumentalist philosophy of learning, science, and cultural process [Peirce 1986, 381-382; Fisch 1986, 309-310].

A Johns Hopkins University circular composed by Peirce for fall 1882, the year after Veblen took the course, lists the topics to be covered in "Elementary Logic" as follows: theory of cognition, the method of science, syllogism, logic of relatives, conception of number, induction and scientific reasoning, illustrations from the history of science, scientific theories of the constitution of matter, and, finally, philosophical questions such as the conception of causation "and the like." Of particular interest to institutional economists are the examples of leading researchers in "the higher places of science" to which Peirce would refer his students. They included, among others, Lewis Henry Morgan, whose Smithsonian Institute-sponsored research on Native Americans helped inspire the birth of cultural anthropology as a science, and Antoine Augustin Cournot, who along with Peirce initiated the mathematics of political economy [Peirce 1986, 380].<sup>1</sup> To adapt to one's own science the

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method of another, reasoned Peirce, "a man needs to be more than a mere specialist; he needs such general training of his mind, and such knowledge as shall show him how to make his powers most effective in a new direction. That knowledge is logic" [Peirce 1986, 380].

Unfortunately, Veblen wrote nothing about Peirce and never referred to him. In this respect, he differs from his contemporaries such as Dewey and William James. Most of what is to be set forth here, therefore, is of necessity surmised and drawn from theoretical parallels and circumstantial evidence. Yet, the evidence is strong that the three months of general tutorials that Veblen received from Peirce made a difference in his philosophical and scientific thought. This difference can be traced through the writings of Veblen, from his 1881 letter to President Gilman requesting a scholarship [it was turned down] for his research on the Ricardian theme of the "Relation of Rent to the Advance of Population" up to and including his last AEA essay on "Economic Theory in the Calculable Future."

### *Fixing Beliefs and Economic Preconceptions*

From his studies with Peirce at Johns Hopkins and President Noah Porter at Yale, Veblen acquired a strong penchant for pursuing every major inquiry as a *functional* analysis of the relations among ideas. This methodological skill received further reinforcement through his later study of *The Principles of Psychology* by William James [1890]. Veblen's functional approach to problems is aided strongly by the logic of relatives, a field of reasoning expanded by Augustus De Morgan and systematized by Peirce and Ernst Schroeder. At Yale, Veblen found that Porter was quite familiar and appreciative of these recent developments in logic, regarding them as valuable for studying the problems of human knowledge [Porter 1868, 468]. From his Kantian studies at Johns Hopkins and Yale, Veblen learned the new scientific outlook that physical "laws" are not absolute, but are our best generalizations of "opaque experience." Further, he learned that science and the universe are indeterminate, yet he learned they are susceptible of explanation through cumulative causal analysis.

In compiling this list of conceptions, it is easy to fall into the error of thinking that both Peirce and Veblen are our contemporaries and not nineteenth-century minds. This error results partly from an overestimation of both Peirce and Veblen and partly from an underestimation of the nineteenth century. In reality, Peirce and Veblen anticipated many ideas of twentieth-century scientists and thinkers, including Karl Popper and the existentialists. The former did so, however, not because they rejected the paradigms of their own day, but because they understood them more fully than did many of their contemporaries. If "Peirce was not somehow outside his own bubble," Veblen was hardly less so, even though he lived some 15 years longer into the twentieth century than did Peirce [Menand 1993, 32]. The central concepts

of both were fully "Darwinian," and their encyclopedic grasp of the ramifications of nineteenth-century thought was extensive and brilliant; but, it was indeed nineteenth-century thought whose ramifications they grasped.

A seminar with Peirce in "Elementary Logic," his favorite course, would begin with a discussion of the history of human reasoning and the four methods evolved for the settlement of opinion. His students were not required to read the famous essays of 1877-78 on "The Logic of Science" for the simple reason that Peirce always covered the same material in class. Since Veblen was an omnivorous reader, it is quite possible he reinforced his tutorials with a reading of the earlier papers.

What are the ways in which prevailing notions, or preconceptions, have come to be fixed beliefs that serve as guiding rules at various periods in the history of reasoning? Our main methods for settling opinion in society have superseded upon one another, resulting in a range of sanctioned choices for fixing the results of inquiry.

As these methods for fixing belief have evolved, they are tenacity, authority, a priori harmony with natural causes "agreeable to reason," and induction and the scientific method. While the last method has come to be preferred by persons aspiring to intellectual superiority, social evolution has resulted in the coexistence of all four methods of fixing belief. Of particular interest to Veblenian scholars is that this same theory reappears in characteristic Veblenian style in *The Instinct of Workmanship* and in his essay on "Economic Theory in the Calculable Future." Before further discussion of the Veblen variation on this theme from Peirce, an exposition of the Peircean theory is in order.

### *The Method of Tenacity*

According to Peirce,

the object of reasoning is to find out from the consideration of what we already know, something else which we do not know. Consequently, reasoning is good if it be such as to give it a true conclusion from true premises, and not otherwise. Thus, the question of its validity is purely one of fact and not of thinking. A being the premises and B the conclusion, the question is, whether these facts are really so related that if A is B is. If so, the inference is valid; if not, not. It is not in the least the question whether, when the premises are accepted by the mind, we feel an impulse to accept the conclusion also. It is true that we do generally reason correctly by nature. But that is an accident; the true conclusion would remain true if we had no impulse to accept it; and the false one would remain false, though we could not resist the tendency to believe in it [Peirce 1986, 242-257].<sup>2</sup>

Since for Peirce the settlement of opinion is the sole purpose of reasoning, it should not surprise us, he continues, that many persons adopt a method of tenacity.

They pursue simple and direct answers to questions and repeat with bravado everything that can support the answers used. Contempt and hostility are turned on anything that threatens to disturb the conclusion so reached. For this reason, he says, many persons converse about the problem of free trade in the manner of "a friend" who urged him not to read a certain newspaper because "its fallacies and misstatements" would deceive and ensnare one who is not "a special student of political economy" [Peirce 1986, 249]. If a person believes a doctrine to be true, why would he or she want to read dangerous material that might undermine his or her faith and cause him or her to believe what is not true? Such is the nature of the method of tenacity, and, adds Peirce, there can be no gainsaying the fact that "a steady and immovable faith yields great peace of mind" [Peirce 1986, 249]. On the other hand, he warns, the method entails certain inconveniences, especially if an individual believes fire will not burn. Unfortunately, he concludes, those who adopt the method of tenacity reject every thought that its inconveniences outweigh its benefits [Peirce 1986, 249].

In Peirce's social theory of logic, then, reasoning is generated when a member of the community finds that other people think differently from him, "and it will be apt to occur to him, in some saner moment, that their opinions are quite as good as his own, and this will shake his confidence in his belief. This conception, that another man's thought or sentiment may be equivalent to one's own, is a distinctly new step, and a highly important one. It arises from an impulse too strong in man to be suppressed, without danger of destroying the human species" [Peirce 1986, 250]. Similar to the principle of insurance, therefore, the social theory of logic poses the problem of "how to fix belief, not in the individual merely, but in the community" [Peirce 1986, 250]. Thus, Peirce likewise concludes that logic finds its origin and evolution rooted in social experience.

### *The Method of Authority*

Small communities must have a means of protecting established doctrines and accepted truths and a method for educating succeeding generations.

Let the will of the state act, then, instead of that of the individual. Let an institution be created which shall have for its object to keep correct doctrines before the attention of the people, to reiterate them perpetually, and to teach them to the young; having at the same time power to prevent contrary doctrines from being taught, advocated, or expressed. . . . let inquisitions be made into the manner of thinking of suspected persons, and, when they are found guilty of forbidden beliefs, let them be subjected to some signal punishment. When complete agreement could not otherwise be reached, a general massacre of all who have not thought in a certain way has proved a very

effective means of settling opinion in a country. If the power to do this be wanting, let a list of opinions be drawn up, to which no man of the least independence of thought can assent, and let the faithful be required to accept all these propositions, in order to segregate them as radically as possible from the influence of the rest of the world [Peirce 1986, 250].

Such is the method of authority, says Peirce, stating that in matters of theology and politics, "it has been practised from the days of Numa Pompilius to those of Pius Nonus" [1986, 251]. His opposition to the abuses of authority, however, is not limited to those that occurred in ancient Roman history and in the centuries of church history. More generally, "wherever there is a priesthood—and no religion has been without one—this method has been more or less made use of. Wherever there is an aristocracy, or a guild, or any association of a class of men whose interests depend or are supposed to depend on certain propositions, there will be inevitably found some traces of this natural product of social feeling. . . . Nor should this occasion surprise, for the officer of a society does not feel justified in surrendering the interests of that society for the sake of mercy, as he might his own private interests" [Peirce 1986, 251].

And yet, for all the atrocities perpetuated through this method, one can argue, as does Peirce, that the method of authority has "immeasurable mental and moral superiority to the method of tenacity" [Peirce 1986, 251]. The record of history bears witness to the superiority of the method of authority in the architectural triumphs, including the pyramids of Egypt and the cathedrals of Europe. Admittedly, too, organized faiths and their creeds, in spite of variations on them, have existed for vast periods of time, which have seemingly been exceeded only by geological epochs. Probably for the belief and conduct of most people, authority remains the method of choice. *Vox populo, vox Dei*, "If it is their highest impulse to be intellectual slaves," states Peirce, "then slaves they ought to remain" [Peirce 1986, 251].

### *The A Priori Method*

Even in the most authority-bound dominions, there will always be a heretic. No institution, Peirce reminds us, not even the most exclusive guilds, can manage to regulate opinions on every subject. Some things are bound to go unattended and these areas of freedom necessarily become subject to the activity of natural causes. "But in the most priest-ridden states some individuals . . . possess a wider social feeling; they see that men in other countries and in other ages have held to very different doctrines from those which they themselves have been brought up to believe" [Peirce 1986, 251-252].

Doubts arise. Furthermore, such individuals generalize a critical attitude toward every belief that appears to be based on caprice or on public opinion only. Adher-

ence to the belief and the need to impose it on others must be given up. A new method of "settling opinions" must be found. "Let the action of natural preferences be unimpeded, then, under their influence let men, conversing together and regarding matters in different lights, gradually develop beliefs in harmony with natural causes" [Peirce 1986, 252]. In the history of philosophy, systems of this sort have been adopted less for their bases in fact than for their arguments that "their fundamental propositions seemed 'agreeable to reason'" [Peirce 1986, 252]. In this manner, the method of authority that dominated medieval Europe was superseded by a method of establishing beliefs that was thought to be in harmony with natural causes. New systems of metaphysics were created by Thomas Hobbes, John Locke, Rene Descartes, Baruch Spinoza, and Gottfried Leibniz—all with the basic argument that their propositions were "agreeable to reason." It was German metaphysics led by Immanuel Kant, though, that gave this mode of thinking the title of the a priori method. In the field of political economy, philosophers from Hobbes to Adam Smith set forth "the doctrine that man only acts selfishly—that is, from the consideration that acting in one way will afford him more pleasure than acting in another. This rests on no fact in the world, but it has had a wide acceptance as being the only reasonable theory" [Peirce 1986, 252].

While the a priori method affords more intellectual respectability, philosophically, than do the methods of tenacity and authority, it is inherently subjective. "Its failure has been the most manifest. It makes of inquiry something similar to the development of taste; but taste, unfortunately, is always more or less a matter of fashion, and accordingly metaphysicians have never come to any fixed agreement, . . ." [Peirce 1986, 253]. What we know from the metaphysical excursions into the harmony of reason with natural causes, to speak Socratically, is that we know nothing. From this difficulty, says Peirce, there developed the modern concept of induction and the scientific method.

### *Induction and the Scientific Method*

In order to fix an objective standard for the resolution of doubts that genuinely disturb us, continues Peirce, a method needs to be formulated that is independent of individual caprice and reliance on public opinion, more natural than direct appeal to authority, and capable of inducing conviction through the influence of some external permanency. The method must also be sufficiently general so that it might be able to affect every person, ideally. Since "affections are necessarily as various as are individual conditions . . . the method must be such that the ultimate conclusion of every man shall be the same" [Peirce 1986, 253-254]. The ultimate conclusion that "shall be the same" is understandably "the same" for a qualified community of scientific investigators.

During the pre-scientific period initiated by Descartes, the medieval appeal to authority was replaced by a seemingly natural appeal to the doctrine of clear and distinct ideas. It is this period of pre-scientific thought to which Veblen refers when he writes of taxonomy and the dominance of the taxonomic method. Of this doctrine Peirce would instruct us that we do not advance the body of scientific knowledge by analyzing definitions. Linguists and librarians might want to differ with Peirce on this point, for surely information acquired earlier can be organized and arranged prior to examining its functional relationships. This consideration is the positive aspect of Veblen's comments on taxonomy. For Peirce, familiarity with an idea is the first step toward developing a clear understanding of it, and defining it is the second. But, "the enginery of modern thought"<sup>3</sup> requires a higher level of discernment. This higher "perspicuous thinking" [Peirce 1986, 264-266] can be attained only by visualizing how the idea *functions*.

The first lesson that logic should teach us, according to Peirce, is how to examine our ideas *functionally*. The method of functional reasoning to which Peirce directs us is stated as follows:

Consider what effects, which might conceivably have practical bearing, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object [Peirce 1986, 266].

(Ironically, this maxim is a modern translation of a main principle of medieval logic: *Nota notae est nota rei ipsius*, the English of which is "The mark of the mark is the mark of the thing itself.")

The new principle of search was already valuable for Thorstein Veblen in composing his 1884 review of Kant's *Critique of Judgment*, which at the time was still unavailable in English translation [Dorfman 1972, 51]. Veblen had studied with Peirce during the centennial year celebrations honoring the publication of Kant's *Critique of Pure Reason*. While not mentioning his debt to Peirce, Veblen appears to echo the doctrine of Peirce for a higher perspicuity of thought as "the principle of adaptation," terminology that in fact is more typical of the Kantian style of his mentor at Yale, Noah Porter. Yet, in what can be counted as a paraphrase of the pragmatic maxim of Peirce, Veblen states: "The principle of adaptation says that [for the normal ordering and functioning of our thought processes] things must be conceived as adapted to one another so as to form a systematic totality—that things must be conceived . . . as to make up an organic whole—and the mind goes to make its knowledge of reality conform to its own normal activity." What follows is clearly in the spirit of Peirce, as it was also in the thought of Porter: "What the principle of adaptation does for us is, therefore, in the first place, that it makes us guess, and that it guides our guessing" [Veblen 1954, 189]. Peirce used the terms guess and conjecture interchangeably.

The scientific method, then, emanates from our judgment processes. In one of his most famous passages, Veblen wrote: "Judgment must come in, if experience is

to be of any use, and morality more than a dream. The power of judgment, or of reasoning, must mediate between theoretical knowledge and moral action; and the kind of judgment that is required is inductive reasoning" [Veblen 1954, 176-177]. Just as characteristically Veblen is the comment: "All this is simple enough. It is so simple and is so obvious that it is difficult to see it until it has been pointed out, and after it has been pointed out it seems to have been unnecessary to speak of it" [Veblen 1954, 176-177]. Although such language may appear arrogant to some, actually it is astonishingly modest for the student of Peirce and Porter who shed so much light on the Kantian question so important to the advancement of modern science: "How are synthetic judgments a priori possible?" "One of the outstanding Hegelians, Professor George Howison, considered Veblen's article a highly competent piece of work," according to the record of Dorfman [1972, 51].

In the teaching of Peirce, scientific reasoning placed a heavy emphasis on induction. "Induction in its broadest sense," he taught, was "Scientific Reasoning" [Peirce 1986, 378-382]. Real examples of induction with rules for the performance of inductive operations were to be given to his students of "Elementary Logic" in "great variety" [Peirce 1986, 382]. For example, Peirce taught that induction draws a general rule from a series of related observations. Formally:

#### *Deduction*

- Rule – All the beans from this bag are white.
- Case – These beans are from this bag.
- Result – These beans are white.

#### *Induction*

- Rule – These beans are from this bag.
- Result – These beans are white.
- Rule – All the beans from this bag are white [Peirce 1986, 382].

In his 1878 paper for the *Popular Science Monthly* titled "Deduction, Induction and Hypothesis," part of the series on the logic of science, Peirce provided several examples of scientific work involving reasoning. Such examples, and more recent ones, would probably have been supplied to Veblen during his three-month tutorial [Peirce 1986, 332-338].

### *The Veblen Variations on a Theme from Peirce*

In his early review titled "Kant's Critique of Judgment," Veblen seems to express a moral discontent with the Peircean view of tenacity. Peirce, as has been noted, regarded tenacity as a primitive, less socialized method of settling opinion. Veblen finds this description too simple. A broader view of the matter appears to



reflect the results of his graduate studies with Porter on the moral philosophy of Kant [Porter 1868].<sup>4</sup> For Veblenian scholars, however, it is important to note first that the Peircean discussion of tenacity is already uppermost in the mind of Veblen. It remains so until his final essay on "Economic Theory in the Calculable Future." Philosophically, Veblen finds Peirce's view on human tenacity and its method to be an inadequate account of all the mental facts. The method of tenacity, observes Veblen, is showing us something—communicating a behavioral need to us. Why, for example, do so many people cling tenaciously to a teleological conception of the world? It is inadequate to state merely that tenacity is the first phase in the social evolution of reasoning and logic. We must inquire more deeply as to how it came about and why it continues to be held so tenaciously by members of the community. What purpose could the belief have for the future of the group? Of course, we can attend to any object or process, including the method of tenacity; but, our knowledge of it can never be complete as long as we have not asked and tried to answer the question of why it is [Veblen 1954, 186]. Precisely at the first point in the social theory of logic does Veblen make a critical departure from Peirce's social theory of logic, a difference that makes a difference throughout all of his works.

"The higher places of science," Peirce observed in his 1882 circular for the course in "Elementary Logic," are exemplified by persons who adapt to their own sciences the method of another with which they are less familiar. Such persons need to be more than mere specialists. They need such general training of the mind and such knowledge as will enable them to make their powers most effective in a new direction. "That knowledge is logic," proclaimed the master [Peirce 1882, 380]. Veblen was, indeed, one of his students who was destined to be in "the higher places of science," as Peirce described it. In philosophy and economics, Veblen assimilated the logic of Peirce, adapting it to his own, expanded philosophical studies with Porter at Yale, and thus advanced beyond the master Peirce in philosophy and social science. How was this possible? Not only was it possible, it was necessary. In spite of Peirce's claim that his maxim afforded a pathway to gaining a higher degree of clarity, the analytical method of Peirce, as James sensed, was too limited to serve as a strong method for any full accounting of cultural knowledge and processes. To serve as a more general maxim and method for the study of culture, a further transformation was needed [Perry 1968, 178]. In fact, what may be called the practice of the pragmatic maxim demanded just this transformation if it was to become a functioning, scientific instrument for the explication of culture by culture, as Ralph Barton Perry, the successor to William James at Harvard University, once put it. Pursuing this line of thought, Perry [1968, 247-272] came to view economics as the cultural science that takes the institution called the "economy" as its subject matter.<sup>5</sup> This view, of course, falls short of Veblen's, for Veblen insisted on the need for an explanatory hypothesis to clarify the historical processes and effects of business en-

terprise, or the capitalist economy, not just an ahistorical abstraction called the "economy."

Although Veblen never explicitly restated Peirce's functional translation of the medieval schoolmen's *Nota notae* doctrine, it is possible to reformulate Peirce's maxim functionally and differentially in the spirit of Veblen as:

Consider the object of our conception, why and how it came about, why it remains vitally active among us. Then, consider what differential effects which might conceivably have alternative practical bearings, we conceive the object of our conception could have. Finally, our conception of the differential origins, functioning roles and projected effects is the whole of our conception of the object, subject to variations relative to historical and inter-personal-group processes.

Admittedly, this broader way of stating the maxim lacks much of the elegant simplicity of Peirce's Pragmatic Maxim. On the other hand, it well formulates the more general outlook emanating from Porter, James, and Veblen that different attitudes and interests can become a part of different cultural processes of knowledge and genius. How does this differentiated thinking work out for Veblen's theoretical position? What, functionally, are the consequences for his economic thought? Although signs of the Veblenian variations on the Peircean social theory of logic are evident in his earlier works, they enter more fully into his book titled *The Instinct of Workmanship*. For this reason, most of the views of Veblen on the social theory of logic will be drawn from this book.

### *Work vs. Wits*

For both Peirce and Veblen, the historical advancement of knowledge occurs as an evolutionary process. The process is not inherently linear, although the sequential method of the presentation could give a casual reader that impression. Actually, the historical presentation encompasses four phases of development in the history of reasoning and logic that have been outstanding for their prevailing standards of arriving at opinions and establishing beliefs. The phases, to recapitulate, are early socialization of the individual in the community; appeal to authority as a group process of resolving disagreement and conflict; rejection of the standard of authority and transition to the appeal to natural order, harmony, and reason; and adoption of scientific reasoning and the scientific method for settling disputes. Such, at least, appears to have been the maturing of logic in the social history of Western civilization. Each new stage of relatively stable social organization reflects a cultural equilibrium and standard by which most community activities have been measured and problems solved.

For Veblen, the merging of inner and outer relationships of group experience is a complex matter requiring a more careful and thorough investigation. Conceptions do not spring full-blown as from the head of Zeus. Therefore, more must be known about their social and historical origins before we can logically examine their respective functions, "practical bearings," and effects significantly. Short-term and long-term contexts are important whether we are looking at economics or medical histories. A more functional maxim of logic, thought Veblen, could help us comprehend how and why conceptions arise, change, or remain active among us.

Since, therefore, we need a complete accounting of the socio-historical origins of human conduct, it is important to recognize that the method of tenacity is not just a happenstance of individual opinion in the larger community. Within a primitive, peaceful community, for instance, one might well expect an extremely tenacious defense of either work or ceremonial customs. Innovations of technology and knowledge and where they are adopted and assimilated are, at first, slowly and gradually infused into the material and immaterial capital of the community. Often the innovations come into the community capital belatedly, and this is the normal course of affairs where the society is governed, reasons Veblen, by the spirit of workmanship. Institutionally, what is, is right; nature and natural change, however, always serve to remind us that what is, is wrong. Social inertia is inherent to the total complex development of culture. The spirit of tenacity, which Peirce tends to depreciate, takes the form of group solidarity in any peaceful, workmanlike community. This would be especially true where the group is concerned with the preservation of customs it deems valuable.

Workmanship, or the desire to take pains with even the most tedious routines of daily life, will also be associated in the peaceful community with a healthy spirit of emulation, according to Veblen. Even in the most cooperative societies, there is a discernible desire to excel in the performance of some task, art, or, in the case of modern industrial society, "symbolic-analytic service" [Reich 1992, 225-242].

For individuals inclined to live by their wits—shamans, members of priestly castes, and people in predatory communities—the matter of tenacity lies otherwise, states Veblen [1918, 176-177]. It is perhaps these groups to which Peirce objected. Among predators and predatory societies, Veblen believes, the method of tenacity takes the form (1) of living off the surplus capital of the community. "In the known cultures of this simpler plan—i.e., plan of transition from accumulated wealth to ownership and property rights—there are usually, or at least frequently, present a class of magicians [shamans, medicine men, *angekut*], an inchoate priestly class, who get their living in part 'by their wits' half parasitically, by some sort of tithe levied on their fellow members for supernatural ministrations and exploits of faith that are worth as much as they will bring" [Veblen 1918, 155]. When all else fails, (2) the form of military conquest and dominance is employed [Veblen 1918, 155-156]. In both cases, the method of tenacity is resorted to as the ultimate, if not the

main, argument for defending claims to invidious emulation, proprietary interest, or, more recently, to management prerogatives and "market share" [Veblen 1918, 155].

Therefore, since differences make a difference, the method of tenacity in the Peircean social theory of logic requires the kind of differentiation and generalization it was given by Veblen.

### *The Method of Authority Revisited*

Through all the various combinations and permutations of human culture, there runs a striving to take pains, "an instinct of workmanship," that "carries with it habitual thinking in the terms in which the logic of workmanship runs. The facts of observation are conceived as facts of workmanship, and the logic of workmanship becomes the logic of events" [Veblen 1918, 53-54]. Doubtless this sense of workmanship remained basic and ever-present throughout the ancient city-state economies based on slavery. It was best exemplified, Veblen felt, in its pervasive influence on all the arts and crafts that were fundamental to Roman civilization for a thousand years and is an enduring reminder of the folk art and crafts that accompanied and decorated the cathedrals of the Middle Ages. Why and how was this relationship of lordly authority and human servitude maintained?

Peirce hypothesized that every individual in a community could see himself as a member of an insurance company. Pursuing the metaphor, he reasoned an insurance company could not take a single risk in exceeding its amount the sum of all the others [Peirce 1986, 250; 1935]. Taking such a risk would destroy the security of the company. A similar principle is at the root of the social theory of logic. The myth of individualism, with it also the myth of marketplace individualism free from social responsibility, therefore is just that—a myth contrary to reason, for Peirce was a communitarian. Even logic, he taught, rigidly requires that no determining fact that happens to the individual self should be allowed to destroy the individual's sense of personal security. Such thinking for the socialized individual would be illogical in all its inferences, collectively.

It was, perhaps, this thought of Peirce's that guided Veblen to write, once again in a different way, that a principle of mutual insurance lay at the source of the evolution of property rights, that "the authentication of ownership . . . may well have arisen as a sort of mutual insurance among owners as against the disaffection of the dispossessed . . ." [Veblen 1918, 182]. The development of a "sentiment of solidarity within the class of owners" would go through a series of institutional transformations until it became the system of "that highly moralised expression of self-aggrandizement which it is today" [Veblen 1918, 182].

In the medieval period, when religious and theological authority was the standard of the feudal scheme of custom and tradition, revealed truth directed people gen-

erally to the question of "what hath God ordained?" The Marconi question of "what hath God wrought?" telegraphed a new form of knowledge typical of an entirely different socioeconomic scheme of living [Veblen 1918, 256-257]. Science, so far as we can speak of it in the medieval period and scheme of things, said Veblen [1918, 257-258], was viewed as derived from the "authentic ordinances of the Heavenly Kings." In the medieval predatory scheme of conceptions, the logic of systematization was the logic of subsumptions visually represented as a vertical hierarchy of ideas and deduced within the categories of a revealed divine authority. Axioms about the Divine led quite directly to divinely ordained conclusions. The spiritual essence of the medieval scheme of thought was fleshed out with "the quasi-Aristotelian scheme of things" [Veblen 1918, 258]. Clearly, Veblen has reference to the theological and metaphysical formulations of Saint Thomas Aquinas and his disciples, who sought to justify the canonical authority of church traditions by reinforcing them with a presumptive authority of Aristotelian philosophy. A logic of hierarchical powers and qualities tended to resemble "the devolution of powers and dignities under the finished scheme of feudalism" [Veblen 1918, 257].

### *Natural Order and the A Priori Method*

When the late medieval period gradually gave way to the growing influences of humanism and the Renaissance, a rising handicraft and small trade economy assisted the adoption of new approaches to scientific inquiry. New inventions and new technologies, noted Veblen, called for more satisfactory answers to the questions posed than did the arbitrary answers obtained under the standards of religious authority. The problems of the new science arose from material questions presented in the uses of the new technology, mostly of a manual sort such as shipbuilding and optics. By almost insensible shifts of adaptation and reconstruction, said Veblen, significant changes were brought about in the fundamental conceptions of medieval thought [Veblen 1918, 255-261]. Slow, but just as firm, were the spiritual, tectonic-like shifts that occurred during the lengthy course of theological polemics of the age. God was conceived less and less as the eternal King, and more and more as the Great Artificer of the universe and mankind. By the time Newtonian conceptions ascended to prominence and prevailed as the new world view, God was envisioned as the eternal craftsman, the efficient cause and creative First Cause of the Natural Order and harmony of all things, physical and social. There was a distinct absence of warmth and sentiment in the newer preconceptions; but, they possessed a greater appeal to the rationality of the average person than did the medieval standard of authority [Veblen 1918, 258-259].

During the era of handicraft and early commercial enterprise, the benefits ordained by Providence were transformed into the natural and beneficial effects of an "invisible hand" [Adam Smith] working out markets in the earthly Order of Nature

for the practicable well-being of nations. The Order of Nature itself possessed a scheme of Natural Law, Natural Liberty, and Natural Rights that ruled the world of visible fact. "To the inquiring minds of that era," and here Veblen is referring to the philosophers of the seventeenth and eighteenth centuries from Descartes to the French Encyclopaedists, "it is a matter of course and of common sense that the forces of Nature are seen to work out the effects which emerge before their eyes" [Veblen 1918, 260]. As a corollary to these conceptions, Nature was believed to be essentially rational, devoid of miracles, and governed by a fairly direct correlation of cause and effect. The simple correlation of cause and effect, given as parallel orders in sequence, appeared to complement the craftsman thinking of the time quite handsomely. Additionally, the times elevated to prominence the principle of efficiency, a principle that Veblen could have heard Porter describe as corresponding "with the cause of modern philosophy," and one that "has been of service in scientific discovery" [Porter 1968, 592-616].

Perspectives on Reason and the Natural Order tended to differ greatly between the craftsmen and the petty tradesmen [Veblen 1918, 190, 243-244]. The craftsmen habitually rated themselves as serviceable members of their communities. Their bias toward pride in personal workmanship did much to promote the principle of efficiency for industrial use. On the other hand, the principle served to fortify an old tenaciousness for construing all empirical observations in anthropomorphic terms. By contrast, the education of the commercial classes concerned itself very little, when at all, with the artisan ideals of the craftsmen [Veblen 1918, 243-244]. The merchant's huckstering and buying and selling, Veblen recognized, did lend some emphasis to individualistic appreciation of persons and objects; but, his training in commerce led to a greater emphasis on the rating of goods and services in terms of price. It is the price concept and the evolving price system that comes to dominate. With the increasing number of towns and commercial centers, created to a great extent by the strength of the craftsmen classes, life tended to center on markets and market relations. With the increase of traffic and the influence of the price system, bookkeeping became a necessity for the merchants. Since the craftsmen had habitual recourse to the market, the general practice of bookkeeping likewise spread among these lower classes, although in a far more rudimentary way. According to Veblen [1918, 264], the merchant's fostering of the price system was at this time a major contribution that facilitated the development of accountancy and the growth of statistical concepts.

While the commercial classes used trade and sometimes wars among the landed nobility to increase their accumulation of capital, the community of craftsmen continued to nurture its spirit of self-sufficiency. The wars of the nobility also led to their frequent impoverishment. With offers of slight improvement in their incomes, the artisans were easily drawn into direct relations with the market system. What Veblen sees at this point is the *alienation* of some artisans from their colleagues as

they are drawn into the factories and capitalist market relations [Veblen 1918, 275-282]. In the process, the craftsmen are also alienated from the sentiments for Reason and the Natural Order, for they find themselves subjected to the urban realities of the wage system. The only collective interest left to them for struggling against the increasing alienation they experience is their own activity in their older guild orders, where they either continue or become active in building working-class unions. What the artisan has lost by way of self-sufficiency, finds Veblen, he can more than regain through the new solidarity of socialized labor.

As for the noble appeal to the scheme of Natural Order and Reason, this standard was, indeed, more intellectual and respectable than the earlier prevailing method of appeal to sanctioned authority. But, basically, it was a subjective appeal to fashionable notions of Natural Order. There never was any objective, empirical basis for settling opinion and building scientific agreement. Science was driven, in the language of Bacon and Peirce, from the a priori claims of Reason to "a true induction" [Peirce 1986, 253].

### *The Scientific Method*

The history of larger mechanical inventions, notably the series of inventions leading up to the steam engine, reasoned Veblen, transformed the manual industry of the craftsmen into the machine technology of the industrial revolution. A similar shift at the intellectual level transformed scientific and technological thought from anthropomorphic sentiments into the impersonal conceptual patterns demanded by the technological processes of modern industry. The views of Veblen on this process were not particularly new. Quite probably he learned them first from his Johns Hopkins' studies with George Morris and Peirce, and from the contributions available in published form by Augustus De Morgan, Boole, Jevons, and Babbage, whose famous counting machine fascinated scientists and technicians in England and the United States. The influence of Marx and Engels, whose published works he read in German, also fits well into this scientific tradition.<sup>6</sup>

"The *form* or *law* of thought . . . is detected," proclaimed De Morgan in 1858, "when we watch the machine in operation without attending to the matter operated on" [1966, 75-79]. Again, in language that his London contemporary Marx could readily appreciate: "The syllogism is the nut to be cracked. I believe I have got to the pure form, which equally applies to two levers, a screw forced into a receptacle, Nasmyth's steam-hammer, the collision of a couple of planets, as the case may be; the common form of all being pressure enough applied to opposite sides of the nut" [De Morgan 1966, 79]. Reflecting the same spirit of the times, Peirce, correspondent and admirer of De Morgan, spoke of "the enginery of modern thought" [Peirce 1918, 258-259]. Likewise reflecting the scientific spirit of the times, Veblen emphasizes that the mental training necessary for mastering the use of modern technology

entails learning the logic of the machine process, "a logic of masses, velocities, strains and thrusts, not of personal dexterity, fact, training, and routine" [Veblen 1918, 241, 264, 303, 306, 310-311]. The voices are those coming from the time of the industrial revolution; yet, they are the voices of an intellectual revolution that extend to the present era of computer science and technology.

What is the nature and scope of the new scientific method that has gradually replaced the a priori appeal to Reason and Natural Order? How has it affected us institutionally? How has it altered, in the terms of Peirce and Veblen, the metaphysical preconceptions of modern science? The answers Veblen gives to these questions help build the strong climax to *The Instinct of Workmanship*.

Choosing a material-perceptual approach to the scientific method, rather than the idealist approach of Peirce that was limited to conceptual development, Veblen stressed that the attitude of the research scientist should be conducive to an understanding of and an appreciation for "matter of fact," guarding against idealist tendencies of an anthropomorphic sort. In other respects, Veblen follows the methodology of his teachers Peirce and Porter in emphasizing a functional inquiry of factual relationships. All—Peirce, Porter, and Veblen—emphasize the need for inductive research supported by quantitative, statistical measurements. The new functional standard of systematization, in contrast to the method of authority and the a priori method of Natural Law and taxonomy, is seen to be derived from a historical and material logic of the machine process. The nature of the scientific method, according to Veblen, is material, experimental, and quantitative.

The scope of the scientific method requires a meticulous investigation of quantitative relationships combined with causal explanations that help the researcher generalize to a larger structure of theory characterized by cumulative change [Veblen 1918, 306].

One consequence of modern science and the scientific method, says Veblen, is the modern development of public education, for a longer period of training is necessary for building the skills required by the logic of the machine process [Veblen 1918, 308-309]. At this point, the reader can sense a strong kinship with the educational philosophy of Dewey. Since the effects of the scientific method have likewise had practical bearings on the social attitudes and routines on the nation throughout this century, it is of little surprise that administrative issues are regularly framed by it.

Time is of the essence in our daily affairs, and people often express a desire to have matters run like clockwork. Therefore, concluded Veblen [1918, 311-12], the time shown on all our time pieces, regardless of the time zone used, is "standard time." The predominance of the railroads and of "railroad time," so important during the life of Veblen, has long since been superseded by the airline schedules of today. These, however, also operate on "standard time." Moreover, modern, electronic communications have also become "standardized" as to time, space, pro-



gram quantity and format, wave frequency used, etc. Novelties of his day: the typewriter, the telephone, the automobile; all these have become greatly elaborated industries that include the production and use of computers, teleconferencing, minivans, etc. Furthermore, they all find both commercial and industrial uses today, notwithstanding a strong bias by Veblen that they should be viewed as of service to business mainly.

What Peirce and Veblen chose to call our metaphysical conceptions that govern the prevailing spiritual attitude continue to serve as leading principles of the industrialized world, in no small part, we may presume, because of the impact of the scientific method on cultural development. Social science and physical science still give prominence to functional, or "operational," principles that emphasize motion, impact, and continuity. Mathematical economics itself makes wide use of them. A second metaphysical postulate of modern science is the conservation of energy. It is the modern version of the old Latin dictum *ex nihilo nihil fit* [Veblen 1918, 336]. While the extent to which this principle of science has served to curb the atavistic impulses of creationists today remains debatable, somewhat contrary to the expectations of Veblen, certainly the principle has been of great service to the advocates of preservation in the debates over environmental management. Further, the metaphysical postulates of modern science continue to have "practical bearings," for they continue to fuel current policy debates over "natural" ownership rights and administrative regulation in the public interest; no doubt they also serve to motivate the debate over efficiency ratings based on price vs. efficiency for public service.

On the topic of the scientific method, Veblen once again offers a dialectical analysis that never fully engaged the attention of his teacher Peirce. For Peirce, the existing market society was almost always dealt with as an eternal given, not as a product of history. Sentimentally, Peirce disliked the economy and the economists of greed (e.g., his essay "Evolutionary Love"); but, Peirce could never bring himself to a historical and material analysis of capitalism. By contrast, Veblen [1918, chap. 7] pointed to the historical and material basis for the origin and evolution of the scientific method during the rise of the machine industry. He also indicates the different classes and different class purposes served by the scientific method in relation to the different interests of those classes. He recognized the conditions of large ownership and modern management as further developments of the business control of technology. Then as now, Veblen would regard mergers as serving the business ends of price and profit with little, if any, regard for the advancement of the community at large. On the other hand, the increased accumulation of capital gained in this manner makes possible a greater and more sophisticated union organization of the workers over time, as well as a better education of union leaders in modern accounting practices. An aggrieved community tends ultimately, if permitted, to save itself alive by joining its strengths with the new expertise of the union and community organizers [Veblen 1918, 344-348].<sup>7</sup>

What, then, did Veblen owe to Peirce? In the first instance, Veblen is indebted to Peirce for a social theory of logic. This theory of logic envisioned the advancement of human reasoning from the tenacity of fixed beliefs to an education in the attitudes and methods of modern science. What Veblen contributed to the social theory of logic was a history and differentiation of group goals and interests entailed in realizing the ideal of the scientific method.

### *A Critique of Conspicuous Leisure*

A clear example of the kind of logic taught by Peirce can be found in Veblen [1899]. The modification Veblen contributed to that logic was also clear. The literary passage occurs in the discussion of "abstention from labor" in Chapter 3.

"Abstention from labor," writes Veblen, "is the conventional evidence of wealth and is therefore the conventional mark of social standing; and this insistence on the meritoriousness of wealth leads to a more strenuous insistence on leisure. *Nota notae est nota rei ipsius*" [Veblen 1953, 44-45]. The line of reasoning up to the semicolon has the distinct ring of Peirce. The formulation of thought can even be reproduced as the syllogistic mode of Barbara presented in an 1881 paper of Peirce titled "Methods of Reasoning" [1881, 251]. Given, inductively, that the sum-total of "evidence" = *A*, then:

If *A*, then *B*;  
 If *B*, then *C*;  
 Hence, if *A*, then *C*.

For the example given, *A* is "abstention from labor," *B* is "wealth," and *C* is "social standing." The translation of the Latin principle with which the reasoning concludes is, according to Peirce, "the mark of a mark is a mark of the thing itself, where the mark of a mark must be interpreted as a description applicable to everything to which another description applies." Adding a modern touch to his interpretation, Peirce observes further: "Another way is to say with De Morgan that the relation of antecedent to consequent is a transitive one, that is, if *A* is in relation to *B*, and *B* to *C*, then *A* is in this relation to *C*" [Peirce 1881, 251]. Seen in the context of the scientific tradition of De Morgan and Peirce, this piece of reasoning by Veblen appears highly significant.

But, what is the origin of the statement that follows the semicolon? Any idea of including "insistence," much less "strenuous insistence," in the argument was foreign to the thought of Peirce during his years at Johns Hopkins University. Part of his dispute with James was that Peirce expressly excluded dynamic interests from his philosophical formulations. Here again, a Veblenian departure from the thought of Peirce is evident, one that was already seen in the review of Veblen on "Kant's

Critique of Judgment." For Veblen, dynamic impulses must be included in any full accounting of knowledge and its sources. It was a view he acquired during his graduate studies with Porter and which Veblen would have reinforced through his reading of *The Principles of Psychology* by William James, whom Porter also admired. The *dynamic* modification that Veblen brings to the thought of Peirce, therefore, is a strong reflection of the epistemology of Porter and James, but more so the latter with his theory of habit formation.

According to James, the moral problem in habit development is that of selecting correct processes and pathways of habitual relationships while strenuously resisting whatever wrong alternatives tend to present themselves until, let us say, the "whole chain, A, B, C, D, E, F, G, rattles itself off as soon as A occurs, just as if A and the rest of the chain were fused into a continuous stream" [James 1896, 116-126].<sup>8</sup> Strenuously resisting and strenuously insisting are significant components of the knowledge process. Veblen, therefore, agreed with James that Peirce's theory was in need of modification. Veblen himself further adapted to and transformed the thought of James by moving it toward a Marxist critique of capitalist economy. In this sense, Veblen transformed and elevated the practice of Pragmatism, notwithstanding his apparent aloofness from the dispute, to the level of a functional theory of culture and a critique of political economy. In doing so, he also set forth important ideas for resolving the dispute between Peirce and James.

The comments that follow the logic exercise on "abstention from labor" indicate the different cultural aspects to which such a habit as "abstention from labor" can *proliferate* and become institutionally elaborated. From being a community *convention* for the sum-total of facts, or "evidence of wealth," leisure becomes a general mark of *caste belief*, fixed tenaciously in people's minds as something ennobling. The ceremonial belief so *institutionalized* demeans productive labor and causes it to become irksome in the eyes of the community. A noble leisure class that evolved with this ideal comes to set a mark of *taboo* on labor. As the population governed by a predatory ruling class increases and the society gains in complexity, the institutionalized belief about the abstention from labor acquires a more generalized status of being a *canon*, or guiding rule, of conspicuous leisure. In this manner, Veblen expands and generalizes the relational logic of Peirce into a theory of socioeconomic evolution and institutional elaboration, thereby providing the necessary conceptual instruments for pursuing quantitative analyses of industry, business, political economy, and culture, generally [Veblen 1953, 44-45].

To render a full accounting of economic processes, explanatory hypotheses and methodological framework are necessary. Such a theory and framework, moreover, should imply analyses that extend beyond the narrative description of microeconomic arrangements of firms, market exchanges, and material inventories; they should include generalized conceptions, attitudes, and feelings of interpersonal ex-

perience, group and occupational relationships, and class differences affected by these economic activities.

As we pass from the economic substructure to the higher levels of a social edifice that depicts the whole complex of a given period, we need the help of modern logic and cultural analyses. Only this kind of scientific investigation—one that gives us a complete accounting of ideas, interests, and emotions—provides us with the most valuable assistance for explaining the economic processes of a given period, e.g., the economic activities of the plebeians of Rome at a certain period, the artisans of Florence when the movement of Savonarola burst forth, or the peasants of France at the time of the Revolution in 1789 [Labriola 1908, 11-113; Griffin 1987].

Helping to guide the transformation of natural and moral metaphysics into the work of modern mathematical, physical, and social science, Peirce stated: "It may be acknowledged, therefore, that the books are right in making familiarity with a notion the first step toward clearness of apprehension, and the defining of it the second. But in omitting all mention of any higher perspicuity of thought, they simply mirror a philosophy which was exploded a hundred years ago. That much admired 'ornament of logic'—the doctrine of clearness and distinctness—may be pretty enough, but it is high time to relegate to our cabinet of curiosities the antique *bijou*, and to wear about us something better adapted to modern uses" [Peirce 1935, 260]. Adaptation to modern science through the use of inductive inquiry was the lesson that Veblen took from Peirce and which he employed in his review of "Kant's Critique of Judgment." Based on his doctoral work at Yale University, Veblen [1918, 323] further concluded, ". . . in the course of the transition to modern times and modern ways of thinking the principle of efficient cause gradually replaced that of sufficient reason as the final ground of certitude in conclusions of a theoretical nature."

In matters of political economy, Peirce regarded himself as a Ricardian. The examples of political economy, which he regularly used as illustrations for his lessons in logic, took their cue from his Pragmatic Maxim: "Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object" [Peirce 1925, 266]. To arrive at the level of scientific thought it has attained, human history has had to cultivate its own inner reasoning power through three previous stages: (1) primitive tenacity, (2) authority, and (3) reason, intuition, and appeal to natural order. Currently, according to Peirce, we are in the process of establishing and elaborating stage 4, the level of scientific thought and method. Peirce, however, limited the formulation of his maxim to conceptual solutions of mathematics, natural science, and social science problems. Strongly influenced by the critical philosophy of Kant, Peirce preferred to eliminate elements of feeling and emotion from the domain of science as he saw it, even doubting anything useful could come of applying the Calculus to psychological problems [Peirce 1935; 1873,

109]. This doubt, however, did not extend to the study of political economy, nor did it prevent him from envisioning that many benefits would flow from the application of the Calculus to political economy.

Porter, James, and Veblen all differed from Peirce in that they reasoned that human "moral relations, so far as they are rational or intellectual . . . are the necessary result of a special application of the category of adaptation or design" [Porter 1884, 138].<sup>9</sup> Any full, Darwinian account would have to include considerations of moral sentiments. James and Veblen, however, did not agree with the teleological metaphysics of Porter, choosing rather to propose a transformation of this sentiment for the teleology of physics back to the real physiological teleology of behavior and conduct, i.e., to see the individual as a fighter for ends. Following his studies with Porter, Veblen acquired an appreciation for the work of the Italian philosopher Antonio Labriola and the Darwinian studies of the Italian Marxists. From this standpoint, he generalized and differentiated the Peircean history of reasoning, as we have seen, into his own unique, class conscious theory of economic, social, and institutional development.

Some practical bearings of the preceding discussion for the unique paradigm of Veblen in the history of economic thought include:

1. Veblen acknowledged "the achievements of the classical economists" from the Physiocrats, Smith, and Ricardo to, in all probability, the mathematical economics of Cournot. His aim, in line with what he saw to be the scientific preconceptions of his own day, was to *adapt* the inherited legacy of economics, "pre-scientific" as it appeared to be, to the more recent, frequently alternative demands of scientific and economic change, e.g., to the alternative demands coming from machine industry and financial capitalism as both sought to respond to the advancement of science and technology at the turn of the century. It appears probable that Veblen learned about the mathematical economics of Cournot, and that of Peirce himself, in the small seminar of Peirce at Johns Hopkins University. Such a probability makes more understandable his early appreciation of marginalist theory as "a genetic study" of the valuation process, while objecting to its unilateral emphasis on distribution [Veblen 1919, 73].<sup>10</sup>
2. The general theory of evolutionary economics owes much to the philosophical studies Veblen pursued with Peirce and Porter. Perhaps it is also to Porter that Veblen owes his lifelong struggle to transform the former's teleology of the physical universe into the physiological teleology, or purposive behavior, of the human universe. The later elaboration of his evolutionary economics is the result of applying and generalizing the theory of habit formation of James into the cultural sci-

ence of institutionalist economics. This matter has been discussed elsewhere [Griffin 1986, 1150-1163; 1992, 569-583].

3. An institutionalist theory of political economy, in the unique sense lent to it by Veblen, takes the form of being a "critic," or logic of political economy. It seeks to transform and adapt the pre-scientific conceptions of the classical tradition to the requirements of modern industry and capital formation. Further, Veblen's theory is directed to an examination of current economic practices and institutional developments for their serviceability: (1) to the advancement of modern science as a cultural institution embracing physical and social knowledge; (2) to the advancement of technology and industry; and (3) to the improvement of the community at large. Such a coherent theory offers valuable assistance for the understanding, interpreting, and development of the ongoing concerns of capitalist, socialist, and mixed economy formations of the growing global economy. Capitalist, socialist, mixed economy and global economic structures, variously, are treated by Veblen as historical products, adapting to current processes and their respective, institutional requirements, and evolving into the future.

### Notes

1. A student of Peirce made a *logic machine* [Mills 1966, 62].
2. All quotations from Peirce in pages x through xx are from "The Fixation of Belief." Compare Veblen [1925], for parallels to the social theory of logic in relation to "the inveterate tenacity of human preconceptions . . ." [Veblen 1954, 5].
3. Peirce [1986, 258] and his metaphor, "the machinery of the mind" [1986, 259].
4. "The power of thought is developed last of all . . ." "But though this power is last and reluctantly developed, it surpasses all other kinds of knowledge in dignity and importance." On efficient causation and adaptation: "The remaining class of relations is the *real*, the so-called qualities, properties or powers of existing material and spiritual beings. These are reducible to two, viz., *causation*, or the capacity to produce effects; and *adaptation* or the fitness to accomplish certain designs or ends" [Porter 1868, 5].
5. Perry was a Harvard contemporary of Joseph Schumpeter.
6. See Veblen [1918, 239-242], Thurow [1996, 10-11], Griffin [1982, 17-18], but, more recently, Dyson, [1997, 38-44]. For notes and comments on the cultural anthropology of Lewis H. Morgan in relation to the thought of Marx and Engels, see Engels [1972].
7. Griffin [1986, 1149-63] presents a systematic statement of the dynamic theory of political economy. Of recent value for the study of the political economy of Peirce is Wible [1994, 135-160, 136-137]. Of contemporary interest is the theoretical reflection of Thurow [1996, 73-74] ". . . if factor proportions have dissolved in a world of global markets and worldwide logistics, . . . if new product introductions come so fast that there is never time enough for equilibrium to develop in labor or capital markets, . . . then the real world is far removed from the classical theory of comparative advantage." (Sraffian scholars dissolved the myth of "production factors" over two decades ago. - R.G.).
8. As the embodiment of our thoughts, attitudes, and shared emotions, cultural institutions are psychological, not physical entities [Perry 1968, 153-167]. The economic institutions

are just those routines by which we organize the production of goods and consumer services necessary for our social living according to given, historical standards.

By 1908, Peirce was moving toward the acceptance of a position shared variously by Porter, James, and Veblen. Neither Peirce nor Veblen took any public note of their respective works, however. Mostly, Peirce was concerned to oppose the modification that James wanted to make on the Pragmatic Maxim. "In the first place," wrote Peirce, "there is the pragmatism of James, whose definition differs from mine only in that he does not restrict the 'meaning,' that is, the ultimate logical interpretant, as I do, to a habit, but allows percepts, that is complex feelings endowed with compulsiveness, to be such" [Peirce 1935].

James's view shares much with the social psychology of Veblen used in *The Theory of the Leisure Class*, and actually the psychology of James fairly permeates all the works of Veblen. In *The Theory of the Leisure Class*, Veblen takes the position that complex feelings endowed with compulsiveness contribute significantly to the strenuous and persistent efforts of the leisure class to eliminate aristocratic values while at the same time fostering bourgeois values important to establishing "the accepted scheme of life," or "the prevalent spiritual attitude or a prevalent theory of life" [Veblen 1953, 132, 140]. By a principle of *selective variation*, certain *temperaments* favored by socioeconomic contexts and historical process take on concrete, individual meaning. Therefore, while Veblen learned from Peirce that the condition of modern science and technology has become characterized by "greater stability of aim—greater singleness of purpose and greater persistence in effort" [Veblen 1953, 132], he went beyond Peirce in seeing the need for a more general theory to explain human dynamics. Peirce later proposed what he called the *energetic interpretant* to accommodate the more general theory of meaning for which James argued. Veblen, meanwhile, moved the whole dispute toward a more general, almost Marxian position.

Quite simply, complex feelings endowed with compulsiveness are a vital part of the material experience that enters into literature, ritual, and ceremony. Such feelings and emotions distinguish a culture and mark even its scientific attitude and methodology as being "different" from those of another culture. Within the class hierarchy of a predatory society, Veblen believed, it is just such complex feelings of work that distinguish the dynamic, or for Peirce "the energetic interpretant," of the industrial classes from the complex feelings of "living by your wits" that is the practice of the leisure classes.

Yet, even the introduction by Peirce of an "energetic interpretant" is inadequate, for he rigidly maintains that meaning is only acquired collectively. Individual signs—"marks"—are meaningless in themselves, he believed. But such a position, as A. J. Ayer pointed out, would leave us unenlightened as to "how the mere accumulation of signs which are meaningless in themselves can endow them all with meaning" [Ayer 1968, 125].

For further details on the Veblenian variations of the thought of Peirce, see the definitive work in Italian by Vianello [1961, 35-44].

9. Again, at the opening of Chapter 8, "Origin and Nature of Moral Relations:" ". . . the intellect does not derive moral relations from without the individual man, either in the form of information, or authority, or influence, but . . . it develops and learns them from within" [Porter 1884, 133]. For the view of *adaptation* as the consequence of *efficient causation*, the doctoral student Veblen could draw much material and inspiration from the major work of Porter [1868, 592-616]. The first of several editions appeared in 1868.
10. "The entire discussion of marginal utility and subjective value as the outcome of a valuation process must be taken as a genetic study of this range of facts" [Veblen 1919, 73, 88]. The work of Turgot presents an empirical "doctrine of the reasonable course of development through which wealth is accumulated and reaches the existing state of unequal distribution; so also his doctrines of interest and of money."

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