

Darwinism and Institutional Economics

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Thorstein Veblen proposed that economics should be reconstructed as a “post-Darwinian” science. One of the aims of this essay is to explore the meaning of this statement. A second aim is to show that American institutional economics had largely abandoned this commitment to Darwinian principles by the time of Veblen’s death. In this context, the appearance of the book by David Hamilton (1953)—especially with its original title of *Newtonian Classicism and Darwinian Institutionalism*—is all the more remarkable. It re-established the Veblenian links between Darwinism and institutionalism that most institutionalists had abandoned.

The first part of this essay summarizes the philosophical and analytical meaning of Darwinism and counters some prominent misunderstandings in this area. The second part shows how Veblen had incorporated these Darwinian ideas into his thinking. The third part shows how institutionalists after Veblen abandoned these Darwinian ideas. Having established this context, the fourth part emphasizes the importance of Hamilton’s contribution.

What Is Darwinism?

A host of misunderstandings surround the question of Darwinism and its relation with the social sciences. Contrary to widespread suppositions, Darwinism does not support any form of racism, sexism, nationalism, or imperialism or provide any moral justification for “the survival of the fittest.” Furthermore, Darwinism does not imply that militant conflict is inevitable, that human inequalities or power or wealth are inevitable, that cooperation or altruism are unimportant or unnatural, that evolution always leads

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to optimization or progress, that social phenomena can or should be explained in terms of biology alone, that organisms can or should be explained in terms of their genes alone, that human intention is unimportant, or that human agency is blind or mechanistic.

Humans differ from plants and most animals in that they have language and culture. We prefigure many actions and consequences in our minds and act intentionally. The mechanisms of socio-economic evolution and biotic evolution are very different. In studying socio-economic evolution we are concerned with human welfare and well-being, and not merely with survival or fecundity. All that is vitally important. But it does not diminish the importance or analytical value of Darwinism one iota.

Above all, Darwinism means causal explanation, where a cause is understood as necessarily involving transfers of matter or energy. Divine, spiritual, miraculous, or uncaused causes are ruled out. Explanations of outcomes are in terms of connected causal sequences. In addition, Darwinism upholds that the evolution of organisms and complex systems involves the mechanisms of variation, inheritance, and selection.

Darwinism upholds that every event or phenomenon has a cause. As the institutional economist Albert Wolfe (1924, 465) put it, "All science must . . . rest on the faith that nothing happens without a cause and that every cause has an effect." This applies to human intentionality as well as everything else. Contrary to widespread belief, causal explanation does not mean that intentions are ignored in Darwinism; it simply means that they are caused, and they have to be explained. Also contrary to widespread belief, the commitment to the idea that every event or phenomenon has a cause does not imply that every event is predictable or that event regularities are pervasive or that the universe is a Parmenidean block or a machine. The principle of causal determination is not the same as determinism, as it is often defined (Bunge 1959; Hodgson 2002b).

Of course, Charles Darwin died before the idea of a gene was formulated and before the incorporation of Mendelian genetics into biology. Without relevant knowledge of the mechanisms of reproduction, Darwin did not rule out the possibility of the Lamarckian inheritance of acquired characters.

The importance and enduring value of Darwinism is its elaboration of a causal mechanism of evolution involving variation, inheritance, and selection. In principle, this mechanism could apply to any open and evolving system with a variety of units. Darwinian evolution occurs when there is some replicating entity that makes imperfect copies of itself and these copies do not have equal potential to survive.

Darwin himself conjectured that natural selection operates upon the elements of human language as well as on individuals (1859, 422–3; 1871, vol. 1, 59–61). He also argued that tribal groups with propensities that served the common good would be favored by "natural selection" (1871, vol. 1, 166). Hence Darwin seemed to endorse a version of the natural selection of groups, as well as the natural selection of individuals. Several modern Darwinian biologists have argued that evolutionary selection occurs at higher levels: not simply on genes but on individuals, groups, and even species.¹

The core ideas of Darwinism were not widely understood in the decades after 1859 (Bowler 1988), and they are still widely misunderstood today. Darwin was more widely associated with the proposition that humankind is descended from apes rather than with his particular causal evolutionary mechanism.

Nevertheless, a small number of astute thinkers followed Darwin to consider the possibility that Darwinian mechanisms—in the sense described above—might apply to the evolution of societies, cultures, and ideas. Walter Bagehot (1872) wrote of inheritance and natural selection in the social sphere and considered the natural selection of ideas in human learning and in the development of science. William James (1880, 441) opened a path-breaking essay with the observation of a “remarkable parallel . . . between the facts of social evolution on the one hand, and of zoölogical evolution as expounded by Mr. Darwin on the other.” Subsequently Samuel Alexander (1892) and Benjamin Kidd (1894) wrote on the natural selection of ethical principles. Finally, and in the most sophisticated presentation so far, David Ritchie (1896, 171) considered “a ‘natural selection’ of ideas, customs, institutions, irrespective of the natural selection of individuals and of races.” The scene was set for Veblen’s crucial innovations.

Veblen and Post-Darwinian Economics

This section summarizes the way in which Veblen applied Darwinian ideas to economics. First, Veblen understood and endorsed the principles of causality that were fundamental to Darwinism. For Veblen, the Darwinian rejection of teleology became the necessary basis of a scientific and “post-Darwinian” approach to economics and social science. There is abundant evidence that Veblen understood Darwinism most fundamentally in terms of a commitment to detailed and sequential causal analysis. He saw Darwinism not merely as a biological but also as a philosophical creed, with at its center an approach to the problem of causality. Veblen rightly interpreted Darwinism as essentially a causal analysis of process: “in the Darwinian scheme of thought, the continuity sought in and imputed to the facts is a continuity of cause and effect” (1919, 436). Veblen also wrote:

Any evolutionary science . . . is a close-knit body of theory. It is a theory of a process, of an unfolding sequence . . . of cumulative causation. The great deserts of the evolutionist leaders . . . lie . . . in their having shown how this colorless impersonal sequence of cause and effect can be made use of for theory proper, by virtue of its cumulative character. (1919, 58–61)

This insistence on explanation in terms of a cumulative causal sequence was repeated in several works (Veblen 1919, 14, 15, 37, 61, 64, 68, 155, 176, 235, 237–43, 269, 314, 436, 438, 441; 1904, 67, 313, 314, 365). In some passages, Veblen linked explicitly this idea with Darwin:

[Darwin's] inquiry characteristically confines itself to the process of cumulative change. His results, as well as his specific determination of the factors at work in this process of cumulative change, have been questioned; perhaps they are open to all the criticisms levelled against them as well as a few more not thought of; but the scope and method given to scientific enquiry by Darwin and the generation whose spokesman he is has substantially not been questioned, except by that diminishing contingent of the faithful. (1904, 370)

For Veblen, Darwin's underlying philosophy was even more important than his theory. As Veblen wrote:

[I]n the Darwinian scheme of thought, the continuity sought in and imputed to the facts is a continuity of cause and effect. It is a scheme of blindly cumulative causation, in which there is no trend, no final term, no consummation. (1919, 436)

Veblen visited this theme persistently:

The characteristic feature by which post-Darwinian science is contrasted with what went before is a new distribution of emphasis, whereby the process of causation, the interval of instability and transition between initial cause and definitive effect, has come to take the first place in the inquiry; instead of that consummation in which causal effect was once presumed to come to rest. This change in point of view was, of course, not abrupt or catastrophic. But it has latterly gone so far that modern science is becoming substantially a theory of the process of consecutive change, realized to be self-continuing or self-propagating and to have no final term. (1919, 37)

A few commentators on Veblen have recognized this crucial Darwinian focus on causal processes in Veblen's writings. As Karl Anderson (1933, 602) put it, modern science for Veblen "demands an explanation of things in terms of cause and effect, and postulates that the causal relationship has neither starting-point nor stopping-point but runs in an endless sequence." Similarly, Idus Murphree (1959, 312) remarked that Veblen "thought of the Darwinian method as one that revealed the impersonal sequence of mechanical cause and effect and dispensed with a search for universal purposes and belief in a 'natural order.'"

Veblen understood that the process of Darwinian evolution had three important aspects. First, there must be sustained variation among the members of a species or population. Second, there must be some principle of heredity or continuity, through which offspring have to resemble their parents more than they resemble other members of their species. Third, natural selection itself operates either because better-adapted organisms leave increased numbers of offspring or because the variations or gene combinations that are preserved are those bestowing advantage in struggling to survive.² Consider these three features in turn, as they appear in Veblen's work.

Veblen knew that a Darwinian science must address “the conditions of variational growth” (1919, 167). He thus saw a “Darwinistic account” in economics as addressing “the origin, growth, persistence, and variation of institutions” (1919, 265). Veblen did not provide a single and substantive account of the sources of variation of social institutions, but he did offer several hints and insights. For instance, he wrote: “The growth of culture is a cumulative sequence of habituation” but “each new move creates a new situation which induces a further new variation in the habitual manner of response” and “each new situation is a variation of what has gone before and embodies as causal factors all that has been effected by what went before” (1919, 241). In other words, variations between units can originate through responses to new configurations and as a result the path dependence of the evolution of each unit. For Veblen, the “instinctive propensity” of “idle curiosity” was also a major ongoing source of variety and invention. “This instinctive curiosity” may “accelerate the gain in technological insight” as well as “persistently disturbing the habitual body of knowledge” (Veblen 1914, 87).

Veblen also repeatedly used the metaphor of mutation, applying it to social and economic institutions. Veblen wrote of “business capital and its mutations” (1904, 149), “effects of these institutions and of the mutations they undergo,” and “growth and mutations of the institutional fabric” (1919, 240–3).

We now turn to the second Darwinian principle, the question of inheritance. It is clear from *The Leisure Class* that the institution was regarded as the unit of relative stability and continuity through time, ensuring that much of the pattern and variety is passed on from one period to the next. Veblen wrote:

Institutions are products of the past process, are adapted to past circumstances, and are therefore never in full accord with the requirements of the present. . . . These institutions which have so been handed down, these habits of thought, points of view, mental attitudes and aptitudes, or what not, are therefore themselves a conservative factor. This is the factor of social inertia, psychological inertia, conservatism. (1899, 191)

This relative stability and durability of institutions made them, for Veblen, key objects of evolutionary selection in the socio-economic sphere.

Third, now turning to the principle of selection, Veblen poignantly but infrequently applied the specific phrase “natural selection” to habits of thought or social institutions (1934, 79; 1899, 188, 207; 1919, 149, 170). Nevertheless, the concept of selection is repeated frequently and persistently in his works. Words such as *select*, *selection*, and *selective*, used in the Darwinian sense of a process of sifting and preservation of fortuitous adaptations, are used with conspicuous frequency. I have counted well over a hundred appearances. A large subset of these appearances concerns the selection of institutions, customs, or shared habits of thought. Confining ourselves to *The Leisure Class* (Veblen 1899) alone, the following examples are but a mere subset:

In whatever way usages and customs and methods of expenditure arise, they are all subject to the selective action of this norm of reputability; and the degree in which they conform to its requirements is a test of their fitness to survive in the competition with other similar usages and canons. (166)

There is a cumulative growth of customs and habits of thought; a selective adaptation of conventions and methods of life. (208)

This and much other textual evidence, along with Veblen's understanding of the importance of variation and inheritance in the Darwinian theory, decisively favors an interpretation of Veblen's work as one in which Darwinian principles are applied to the analysis of social evolution. It must again be emphasized that Veblen's Darwinian economics did not involve the assertion that economic evolution can or must be reduced substantially to biological terms. Furthermore, Veblen's use of Darwinian terminology was not confined to metaphor. Veblen made it abundantly clear that he believed that socio-economic systems actually evolved in a manner consistent with the Darwinian principles of variation, inheritance, and selection. Veblen did not believe that the application of Darwinian theory was confined to nature. In his social theory, his use of Darwinian theory was much more than mere wordplay. The difference between natural and social evolution was in the units of selection and in the details of the evolutionary processes, not in the exclusion of variation, inheritance, or selection from the social sphere. Variation, inheritance, and selection are present and real in both the social and the natural context.³

The relatively infrequent appearance of the phrase "natural selection" does not undermine the claim that Veblen was an evolutionary economist in a Darwinian genre. As mentioned above, he used the concept of selection frequently. But it does remain to consider why Veblen did not often choose to attach the adjective *natural* to the abundant instances of *selection* or *selection process* in his work. We may guess why. First, and most obviously, Veblen was concerned with the evolution of society and not of the non-human, natural world. As his attention was directed at society rather than nature, the term *natural* was dropped. Second, the "natural selection" of institutions could be misinterpreted by the reader in terms of "nature" doing the selecting or that the selection was taking place according to "natural" rather than economic or other social criteria. Dropping the word *natural* would help to avoid such a misconception. Third, Veblen may have avoided using the phrase *natural selection* because it would have linked his theory of socio-economic evolution to those like Spencer who would reduce social evolution to natural and biological factors alone. Fourth, economists and others who advocated a "natural" order, or "natural rights," were the persistent objects of Veblen's devastating criticism (1914, 1919). Resistance to the likely interpretations of the word *natural* as *normal* or *predestined* could have led to the rejection of the term, especially when the word *selection* on its own would do. There are thus several possible reasons why Veblen more frequently used the word *selection* rather than *natural selection*. As a result, the marginalization of the word *natural* in his writing should not be taken to imply that Veblen lost any of his Darwinian inspiration.

Darwinism Abandoned by Institutionalism

For a number of reasons, around the time of World War I several leading social scientists began to react against the use of Darwinian, evolutionary, or biological ideas in the social sciences (Bannister 1979, 239–41; Degler 1991; Hodgson 1999). This intellectual shift was combined with a rejection of James' instinct-habit psychology and the adoption of behaviorism.

This drift of opinion profoundly affected institutional economics. Little effort was made to follow Veblen's idea that Darwinian ideas should be applied to economic evolution. Exceptionally among institutionalists, Morris Copeland (1931) continued to incorporate ideas from evolutionary biology, but he too was an enthusiast of behaviorist psychology.

When Paul Homan (1932, 10) argued that the criteria by which the "institutionalist" label should be applied to one economist rather than another were entirely unclear and that the "differentiating characteristics of an institutional economics are hard to find," he also noted its abandonment of Darwinian evolutionism. Homan observed that "Veblen's attempt to make of economics an evolutionary science has been little developed by other economists."

Likewise, Wesley Mitchell (1936, xlix) eventually lost all confidence in both Darwinism and instinct-habit psychology as foundations for institutionalism: "The Darwinian viewpoint is due to be superseded in men's minds: the instinct-habit psychology will yield to some other conception of human nature."

John R. Commons had generally insisted that Darwinism was inappropriate for the understanding of socio-economic evolution. Commons (1924, 376) wrote: "Economic phenomena . . . are the result of artificial selection and not of natural selection." Commons (1934, 45, 120, 636–8, 657–8, 713) persisted in his view that economic evolution involved "artificial selection" rather than "natural selection."

However, Darwin did not suggest that "artificial" and "natural" selection were mutually exclusive. Instead, examples of the former were used to support the idea of the latter. As Darwin's friend George Romanes (1893, 296) wrote in explaining Darwin's theory, "In a word, the proved capabilities of artificial selection furnish, in its best conceivable form, what is called an argument a fortiori in favour of natural selection."

I have criticized Commons' rejection of Darwinism elsewhere (Hodgson 2002a, 2003). In particular, it is simply mistaken to assert that Darwinism excludes intentionality; it merely insists that intentions too are caused and have to be explained. At the time, Copeland (1936, 343–4) pointed out that Commons' "artificial selection" of institutions depended on the prior "natural selection" of the guiding ethical or other principles that were used in the selecting process. Copeland's valid point was that the evolution of the criteria used in any artificial selection must also be explained. Copeland thus identified the same weakness in Commons' theory that is identified above: Commons lacked even a rudimentary theory of what causes human motivation, action, or choice. Hence Commons could not explain the causal mechanisms behind the artifi-

cial selections made by the breeder of animals or plants. For Commons, any backward-in-time, sequential explanation of effect and cause comes to an abrupt stop when it comes to the human will.

Of all the rejections of Darwinism by post-Veblenian leading institutionalists, the most dramatic and ironic was by Clarence Ayres. Ayres was one of the two or three most influential American institutionalists after 1945. In his book on Huxley, Ayres wrote:

[S]ince the opening of this century . . . all of Darwin's "particular views" have gone down wind: variation, survival of the fittest, natural selection, sexual selection, and all the rest. Darwin is very nearly, if not quite, as outmoded today as Lamarck. (1932, 95)

Ayres explained the primary significance of Darwin's *Origin of Species* in these terms:

All mythology, all superstition, all theology turn upon the assumption of the uniqueness of the human species, its absolute fixity as the lord of the earth, created in the image of God. That is why *The Origin of Species* raised a storm of protest. No one cares about variation or sexual selection. But *The Origin of Species* by implication challenged Genesis, that is to say, the cultural foundation of Christendom. That is why it became "the gorilla book," and that is why the infiltration of the idea of evolution is certainly revolutionizing the treatment of morals, politics, and religion. (1932, 96)

According to Ayres (1932, 96–7), "Darwin's book (*The Descent of Man*) is quaint, an outmoded classic" whereas Huxley's *Man's Place in Nature* "is exciting reading today." Ayres saw Huxley as making a much greater contribution to the dethronement of religion and the "revolutionization" of morality. Furthermore, Ayres rejected Darwin's central arguments.

Ayres later adjusted his views on Darwinism, principally by retracting its dismissal (1961, 71–4). But even in his later works, Ayres saw the impact of Darwinism as principally to do with human descent from apes, and he largely ignored Darwin's mechanism of natural selection. Lamar Jones (1995, 419) has rightly observed that "Ayres simply failed to come to effective grips with Darwin's work."

Ayres was nevertheless entitled to describe his position as "evolutionary." As in the case of Joseph Schumpeter, evolution does not necessarily connote any reference to biology. There is no Darwinian or other copyright on the word "evolution." Despite his differences with Darwinism, Ayres preferred the term "evolutionary" to "institutionalist" as a description of his own approach.

Uneasiness with both of the alternative labels of *evolutionary* and *institutionalism* persisted within post-war American institutionalism. The Ayresian wing disliked the term *institutionalism* because they saw institutions in a negative light. Others objected to the term *evolutionary* because they saw Darwinism as obsolete and spurned any connection between the social sciences and biology. Ayres' view prevailed when the Association for Evolutionary Economics was formed and chose its title in 1966. The "evolutionary"

label was adopted, but only by ridding it of any of its former and Veblenian connections with Darwinism and by interpreting it in the broad and banal sense of “change.” No connection with Darwinism was adopted or promoted. Less than forty years after the death of the father of American institutionalism, Veblen’s Darwinism was virtually forgotten, and the American institutionalists abandoned Veblen’s research program to create a “post-Darwinian” economics.

Hamilton—Darwinism Revisited

It is in this context that Hamilton’s work (1953) shines like a beacon. Part of its exceptional significance is its attempt to place Darwin back on the institutionalist agenda. Hamilton noted the rejection of “evolutionism” by social scientists and the beginnings of its revival in anthropology and elsewhere. Hamilton wrote: “Where classicism was developed out of eighteenth-century Newtonianism, institutionalism is a product of the Darwinian revolution of the nineteenth century” (1953, 14).

Hamilton began by emphasizing that “the study of economics is the study of process” and that institutional economics is characterized by its radical emphasis on change (1953, 27). He wrote:

Whereas formerly social structure had been conceived by the Newtonians as something fixed in the natural universe, those influenced by the Darwinian revolution saw social structure as something arrived at through a process of cumulative change and as something undergoing further change. (35)

This, for Hamilton, was a key difference between the Darwinian and the Newtonian paradigm. Furthermore, while “the Newtonian concept of change . . . is essentially animistic and teleological . . . Darwinian change, on the other hand, is a non-teleological process of cumulative growth.” By “non-teleological” Hamilton meant that the economic process had no natural “right or good end” (1953, 38).

Hamilton followed the institutionalist trend at that time to reject instinct-habit psychology and embrace behaviorism (1953, 62). However, in contrast to Ayres and others, he saw behaviorism as compatible with Darwinism and promoted a Darwinian viewpoint. Nevertheless, any accommodation to behaviorism carries the danger of underplaying the concept of human intentionality or will. Hamilton saw Commons’ “volitional psychology” as “akin to behaviorism” but noted that any such emphasis on human will would be “looked at with some skepticism by modern psychologists” (1953, 63). Hamilton was right to note that Commons had adopted some (but not all) behaviorist ideas (Hodgson 2003) but was uncritical of the behaviorist rejection of consciousness and will. Commons should have been applauded for retaining an emphasis on volition.

The bulk of Hamilton’s book is a critical examination of the ideas of other economists. By emphasizing the theme of dynamism and change, he criticized the natu-

ral-order view of classical and neoclassical theory. Hamilton understood that Darwinism too involves an approach to the analysis of change that can address the evolution of structures and forms and is not confined to mere equilibration within an existing structural arrangement.

The influence of Ayres is clearly evident in Hamilton's book, and in his acknowledgements in the volume Hamilton generously thanked Ayres "for the time and insight he gave me in the organization and presentation of this inquiry." In retrospect, however, we can discover an important aspect of disagreement. While Ayres (1932) had dropped Darwinism as a philosophical and analytical doctrine, Hamilton followed Veblen to begin to regain and reestablish its importance for social science. While Ayres had originally seen Darwinism as "outmoded" in biology as well as in social science, Hamilton saw Darwinism as the foremost symbol of institutionalism as a doctrine. Although Hamilton did not recover all the meanings and value that Veblen had discovered in Darwinism, in the context Hamilton had made a major step toward its rehabilitation within the institutionalist tradition.

Perhaps one of the reasons why Hamilton hesitated to develop the connections between institutionalism and Darwinism any further, and perhaps one of the reasons why he was eventually to change the title of his book, was his concern that institutionalism should not be associated with what was described as "social Darwinism." Richard Hofstadter's attack (1944) on social Darwinism was widely read and respected. It was published at the time of the Holocaust and of the racist abuse of pseudo-biology by the Nazis. Notably, Hamilton quoted from Hofstadter's work (1953, 35–36).

However, Darwin could not be blamed for the Holocaust any more than Christ could be blamed for the Spanish Inquisition or Marx for the Stalinist purges. Robert Bannister (1979) has systematically challenged Hofstadter's thesis. In America there were relatively few instances when Darwinism was used to support capitalism, imperialism, racism, or war. A more prominent ideological use of Darwinism in the 1880–1940 period was as a justification of progressive reform rather than conservative reaction.

Veblen was not the only political radical to apply Darwinian ideas to the analysis of human society. Henry Drummond (1894), Petr Kropotkin (1902), and several others used Darwinism to argue for human cooperation or a welfare state. Hofstadter lumped together all sorts of views under the vaguely defined label "social Darwinism" and failed to note the crucial differences in both analysis and political orientation between Darwinism and Spencerism. It was Herbert Spencer, not Darwin, who coined the term "survival of the fittest." Several alleged social Darwinists were in fact Spencerian. It is notable that modern commentators have not yet agreed on a common definition and meaning of the term "social Darwinism." While racism, sexism, and imperialism should of course be criticized, the term "social Darwinism" should be used with much caution.

Both Veblen and Hamilton had realism that the importance of Darwinism was not confined to biology and it had enormous relevance for social science. Other social scien-

tists, including many institutionalists, had not appreciated this fact. Part of Hamilton's achievement was to remind institutionalists of their Veblenian and Darwinian roots.

Conclusion

Malcolm Rutherford (1998) has rightly described Veblen's evolutionary and post-Darwinian research program as "a promise unfulfilled." Veblen himself incorporated key Darwinian ideas into economics but did not build them up into a systematic theoretical approach. For example, although he hinted at institutions as units of selection, he did not specify this or the criteria of selection adequately. A full, multiple-level selection theory, with an explicit concept of emergent properties and multiple ontological levels, was not properly formulated. After Veblen died, the project of cementing economics with Darwinism in this sophisticated way was abandoned, partly through fear that any such union would place economics on a slippery slope to reductionism. Yet when Veblen (1899a, 188) wrote of the "natural selection of institutions" and insisted on the irreducibility of human culture to biology, he was pointing precisely to the judicious avoidance of such reductionism.

Despite a change in climate in the social sciences in the last few decades, forms of biological reductionism, such as within sociobiology, continue to discourage any dialogue between Darwinism and institutional economics. Hostility to all biological ideas still prevails within the discipline of sociology (van den Berghe 1990). Yet with important developments in the theory and philosophy of Darwinism in the last few years, questions of its relevance to the social sciences will be unavoidable. These questions are even more likely to arise among social scientists that are fond of the "evolutionary" label, whatever they themselves may mean by the term. It is ironic that while American institutionalists such as Ayres adopted the label while rejecting Darwinism, the latter has proved to be much more durable than they expected. As a consequence, Darwinism returns to haunt them and places the Veblenian research project once again on the agenda. It is to Hamilton's great credit that he made an important step in this direction over fifty years ago.

Notes

1. See, for example, Brandon and Burian 1984, Eldredge 1985, and Sober and Wilson 1998.
2. Petr Kropotkin argued convincingly that Darwin's "struggle for existence" had been wrongly invested by some with a particular and overly narrow meaning (1902, 22, 72). Kropotkin saw this "struggle for existence" as broadly and generally "a struggle against adverse circumstances." Kropotkin argued at length that "natural selection continually seeks out the ways precisely for avoiding competition as much as possible." See Dugger 1984 for a discussion of Veblen and Kropotkin.
3. For elaborations of the Darwinian character of Veblen's work see Harris 1934; Daugert 1950; Hill 1958; Murphree 1959; Russett 1976; Dugger 1984; Edgell and Tilman 1989; Hodgson

1992, 1998, and forthcoming); Tilman 1992 and 1996, and many others. See Jennings and Waller 1998 for a contrary but unconvincing view.

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