

Denne publikasjonen finnes bare som nedlastningsbar fil.

Arbeidsnotat nr. 1021/08  
ISSN-nr.:0804-1873  
Antall sider: 18

Prosjekt nr:  
Prosjekt tittel:  
Oppdragsgiver:

Pris :  
kr. 50,-

***NATURALISM IN THE SOCIAL SCIENCES:  
THE CASE OF VEBLENIAN EVOLUTIONARY  
AND  
INSTITUTIONAL ECONOMICS***

*by*

***Roar Samuelsen***

Nordlandsforskning utgir tre skriftserier, rapporter, arbeidsnotat og artikler/foredrag. Rapporter er hovedrapport for et avsluttet prosjekt, eller et avgrenset tema. Arbeidsnotat kan være foreløpige resultater fra prosjekter, statusrapporter og mindre utredninger og notat. Artikkel/foredragsserien kan inneholde foredrag, seminarpaper, artikler og innlegg som ikke er underlagt copyrightrettigheter.

## FOREWORD

Based on master thesis in economic geography, University of Oslo (1994): *Selv-organisering: et evolusjonært perspektiv på relasjoner mellom læring og kontekst. (Self-organisation: an evolutionary approach to relations between learning and context).*

**CONTENTS**

**FOREWORD..... 1**

**1 INTRODUCTION..... 3**

**2 ONTOLOGY ..... 4**

**3 EPISTEMOLOGY ..... 7**

**4 METHODOLOGY..... 9**

**5 INSTITUTIONAL ECONOMICS AS A REALIST EVOLUTIONARY SCIENCE ..... 11**

**6 SUMMING-UP..... 14**

**REFERENCES..... 15**

# 1 INTRODUCTION

The present condition of creative development of knowledge inside traditional economics is criticised by, among others, Tony Lawson, who argues that

«the methods and techniques that prevail in economics are usually inadequate, and that they are preserved because they are believed to have been successful in certain spheres of natural science» (Lawson 1994c: 19).

This is the reason for searching for and establishing an alternative perspective. Critical realism, which contains ontological, epistemological and methodological implications, does not legitimate any specific, substantial theories. What it does is to legitimize generally that the goal of economic science is to understand and to identify given, and the evolution of new structures, mechanisms or social practices that direct economic phenomena and activities. Moreover, the explanation of the concrete manifestation of these phenomena occupies a central place. In the latter years there have been several arguments for combining critical realism with modern institutional and evolutionary economics (Caldwell 1992, 1993, Foster 1993, 1994b, Hodgson 1988, 1993, C. Lawson 1994, T. Lawson 1989, 1993, 1994a, b, c).

In this connection critical realism is seen as a set of methodological tools that can support more specific perspectives on the nature and understanding of the economy and the society at large. The justification for choosing this theoretical perspective is that evolutionary and institutional economics is basically an empirical science which aims at theoretical reconstructions of the real mechanisms of economic evolution. This means that economic models must be examined and developed in interaction with clearly delineated areas of empirical research. This is the foundation for a dialogue between contemporary, theoretically oriented evolutionary economics, and older, empirically oriented approaches, which can promote a modern evolutionary economic synthesis. A basic requirement that should be met by a theoretical frame of analysis which goal is to elucidate relations between learning and contexts is that its ontological and epistemological foundations makes it possible to analyse, understand and explain these types of qualitative aspects, and change in such aspects, of social actors. The goal must be to find methods, techniques and ways of thinking that is suitable for the task in light of what we know about the nature of our objects of study, i.e. the social phenomena we study. This requires special attention to ontological questions.

## 2 ONTOLOGY

One of the strongest arguments for establishing a connection between evolutionary institutional theory and critical realism is that the philosophical foundations of both these perspectives are based on attempts to formulate a sophisticated naturalism as an alternative to Cartesian dualism. The two positions can be represented by, respectively, the American philosopher Charles Sanders Peirce, the founder of pragmatism, the philosophical foundation of classical institutional economics, and the British philosopher Roy Bhaskar, who has developed a critical realist philosophy of science. According to Bhaskar naturalism is the thesis that there is or could be an essential or fundamental unity in methodology between natural and social science. As in all forms of naturalism, a single natural order covers the objects of enquiry for the natural and social sciences. Thus an anti-naturalistic distinction between a natural and social reality is redundant. But it is important to acknowledge that the social sciences differ ontologically from the natural sciences because of the different characteristics of the structures and mechanisms that work in the social sphere. So even if the argument is primarily methodological in nature it is based on some common conception of ontology. This argument has been put forward by, among others, Geoffrey Hodgson (1993).

The possibility for such a combination is, on the other hand, not particularly clear in the argument of William Outhwaite (1987). One of the reasons for this is that his argument seems to be based on the convention, probably due to Richard Rorty, that pragmatism is the legitimate opposite to realism. This is justifiable only with regard to the relativistic, bordering on nihilistic, neo-pragmatism developed by Rorty in the last two decades. Historically, there was a significant place for metaphysical realism in pragmatism, namely in the original work of Peirce. In this connection Haack (1992) argues for a useful distinction, as a diagnostic tool both historically and philosophically, between two broad styles of pragmatism; reformist and revolutionary respectively. It can be used as a framework for understanding something of the shifts within pragmatism from Peirce through William James and John Dewey to Ferdinand Schiller and Rorty (among many others). The point in this connection is that the internal differences between all those identified as pragmatists are as profound as the similarities between them.

The works of Peirce and Rorty could probably be identified with the opposite positions on a continuum from reformism to revolutionism in pragmatist philosophy. The same points could be made for Peirce's reformist philosophical and scientific project as Outhwaite does for the work Marx. Outhwaite (1987: 3) argues that Marx's own largely implicit philosophy of science could best be understood as a form of realism, and that his conception of scientific practice has strong affinities with that of modern realists. It could be shown that Peirce's *explicit* philosophy of science likewise can be well understood in a realist framework and as a form of realism. Consequently, Peirce's conception of scientific practice, which evolves around the concept of abduction or retroduction (later to be rediscovered by N. R. Hanson and R. Bhaskar), could be shown to be an anticipation of many aspects relevant to modern realism (see Mirowski 1988, 1994b and Hoover 1994). It is of some significance in this connection that Peirce in 1905, to distinguish it from what he considered as William James's unsound development of pragmatism in revolutionary direction, renamed his philosophy. Because James, and subsequent pragmatists, e.g. Rorty, failed to see the necessity of defending realism, Peirce thought that it was «time to kiss his child good-bye» and «to announce the birth of 'pragmaticism', which is ugly enough to be safe from kidnappers (Peirce 1931-58: 5.414).

Peirce is known for his pragmatist principle or maxim which is a rule of logic to be employed in clarifying our concepts and ideas. It holds that listing the conditional expectations that we associate with applications of a concept provides a complete clarification of the concept. In his later writings Peirce urged that this pragmatist principle could only be plausible to someone who accepted metaphysical realism. It requires that «would-be's» are objective and real. The principle was intended to discriminate the illegitimate, the pragmatically meaningless, from scientific metaphysics, which uses the method of the sciences, observation and reasoning. The method of science has three components, abduction (or retroduction), deduction and induction. Indeed much of Peirce's later work is concerned with developing a «scientific metaphysics» which vindicates his metaphysical realism. In

this connection, the thesis he called «scholastic realism», plays an important role. This is the thesis that there are natural kinds and laws, «generals» as Peirce calls them, which are real, i.e. independent of how we think about or characterize the world. There is a pattern of generals, natural kinds and laws, underlying the particular facts and events we observe, which is independent of how any number of people think. He contrasted this thesis with nominalism, by which he meant the idea that generals are «figments», i.e. dependent on how we think about or describe thing.

The metaphysics of Peirce comprise the foundation for institutionalisms organic perspective on ontology, where both the physical, the biological and the social world is seen as differentiated in a hierarchical order. Organicism entails

«all those ontologies which assumes relations are internal, meaning by this that an ultimate component's essential qualities are the outcome of its relations and that the component is itself a quality, an adjective, of its situation» (Winslow 1994: 12).

This perspective represents an alternative to atomistic conceptions of society that manifests themselves in methodological individualism, i.e. that one tries to understand the society from the point of view of the single, detached individuals' interests and actions. In economic research this ontological perspective is specified to social systems where an organic view implies that individuals both constitute, and is constituted by, society. Individuals can not be treated as autonomous, unchangeable elements in the analysis. On the contrary one takes the view that society can not exist without individuals while individuals, on their side, can not exist prior to the social reality. A Peircean, organic perspective does not deny that society consists of individuals, but insists that individuality in itself is a social phenomenon (Hodgson 1993). One can say that individuality as such is socially and culturally constructed. Further, an organic perspective allows that an individual is endowed with real agency. Internal relations can be seen as to make individual self-determination a possibility, by just conditioning, and not totally determining what is possible. The potentials of actors are not determined, but they are changed when the internal relations that create the potentials are changed (Winslow 1994).

Critical realism implies that the world is constituted by open systems in the sense that social phenomena are a result of, or governed by, several deep structures and mechanisms. An important point in the variant of realism pursued here is that the structures and mechanisms that constitute systems that generate phenomena is intransitive, meaning that they exist and function independently of whether they are identified by researchers or social actors or not. The causes of phenomena that are identified at a given level must be searched for at a lower or deeper level. In this way the ontology of critical realism constitute the basis for a stratified or layered conception of reality (Bhaskar 1994a). Bhaskar has developed what he calls a «Trans-formational Model of Social Activity» that can catch the essential differences between the different levels in the hierarchy. The two central features of this model are

«the definition of human intentional agency as critical for the social, as distinct from the purely natural sphere; and the characterisation of the ontological structure of human activity or praxis as essentially transformative or poetic, as consisting of the transformation of pre-given material (natural and social) causes by efficient (intentional) human agency» (Bhaskar 1986: 122)

According to Bhaskar humans and society are mutually dependent ontologically. But it can be established analytical distinctions between two aspects of human practice and two aspects of social structure; «the duality of praxis» and «the duality of structure», respectively (Bhaskar 1979: 34-5). These are characterized by the features that

«(s)ociety is both the ever-present *condition* (material cause) and the continually reproduced *outcome* of human agency. And praxis is both work, that is, conscious *production*, and (normally unconscious) *reproduction* of the conditions of production, that is society» (Bhaskar 1979: 34-5. Emphasis in original).

A realist account of social activities therefore implies that the existence of social structures is a necessary but often unacknowledged precondition for individual actions. These structures are at the same time often an unintended but unavoidable result of the sum of individual actions in a society. This means that

«these conditions are *activity dependent* or auto-poietic, *conceptualized* (concept-dependent but not concept-exhausted) and *geo-historically dependent* (and thus themselves possible objects of transformation)» (Bhaskar 1994a: 93. Emphasis in original)

They therefore constitute the non-created, but reproduced and transformed, conditions for our daily economic, social and cultural practices (Lawson 1994c).

Structures are seen as a set of *internal relations* that have characteristic ways of working. This means that they have causal powers and liabilities in virtue of what they are and that these relations therefore are necessary. In the social sciences the internal relations between *positions* have an especially important role to play. What we are talking about here is a system of relationally defined *practice-positions*, i.e. systems of positions with associated practices, responsibilities, authorities, etc. defined in relation to other positions of the same kind that people occupy. In a critical realist perspective all social structures or systems - firms, the economy, the state, international organisations, labour movements, households, etc. - is dependent upon, or presuppose internal social relations of this kind (Lawson 1994c based on Bhaskar 1979). Specific practices and *systems of social practice* for the relevant phenomena must therefore be discovered and understood. The actors' practices are often conditioned by unacknowledged circumstances and they are not always conscious about their own motives for these practices. Moreover are the actors' tacit knowledge often involved in the practices and this kind of unacknowledged conditions and unconscious motives is the source of unintended consequences that must be identified. Central in realist analysis, therefore, is the detailed examination of the relation between action and structure, a relation that is seen in such a way that none of the elements can be reduced to the other. Neither can the elements be explained totally in terms of or be identified with the other.

The power and liabilities inherent in social structures is realised through causal mechanisms. The effect of the powers is dependent on the presence of specific, contingently related conditions. This means that contextual or geo-historical matters play a decisive role in concrete research, i.e. in the examinations of the effects and unfolding of the causal powers. One important implication of social structures being geo-historically bounded or time and place dependent is that economic theory necessarily has to be geographical and historical in its character. This implies taking account of constraints in time and place when focusing on the history and spatial interactions of specific phenomena and aspects (Lawson 1994c). In a realist perspective therefore, the goal of science is to discover and analyse hidden patterns, underlying tendencies and causal relations that situate particular events within deeper mechanisms and structures in time and space. In this way realist science tries to establish connections between different dimensions in a stratified world by recreating ontological depth (Gregory 1994).

Central to this Peircian and realist perspective is the ideas of randomness, creativity, spontaneity, purpose and emergence in systems in general. On every level in the hierarchy the systems and sub-systems have a double character. They are both wholes in them selves and parts of other, larger wholes. When systems like these are constituted by their components new characteristics emerges from the new whole that could not be predicted from the knowledge of the single parts. A given system is influenced both from above and from below in the hierarchy that it is a part of, and through relations with other hierarchies or systems that they are interconnected with in overlapping networks (Hodgson 1993).

### 3 EPISTEMOLOGY

The evolutionary and institutional socioeconomic perspective has its philosophy of science roots in pragmatism, a philosophy that focuses on the construction of meaning through social practice and action. This implies a critique of modernist science the way it was developed based on Cartesian philosophy. The foundation of Cartesian philosophy is that the source of all knowledge is the rational, critical and reflective mind. The consciousness is seen as undivided and within it all thinking takes place at a single, undifferentiated level. The epistemological foundations of institutionalism in pragmatism are, contrary to this, based on a differentiated conception of mental activity and cognitive capacity. As Hodgson points out, the main American dissenters to Cartesianism are to be found in the pragmatist tradition of Charles Sanders Peirce, William James and John Dewey. Peirce, for instance,

«revolted against the Cartesian and Newtonian views of science, and rejected in particular their mechanical determinism. For this reason, he and the later pragmatists were attracted to Darwinism because it seemed to recognize the randomness, creativity and spontaneity in the universe» (Hodgson 1993: 9).

This point helps to remind us on the question of naturalism in economics and the larger issue of developing a critical naturalism as an alternative to the positivistic version of naturalism (i.e. Cartesian and Newtonian) that has dominated the natural sciences for several hundred years. In relation to this point it is important to acknowledge that the epistemology of the social sciences is liable to be more complex, reflexive and diverse than that of the natural sciences, as a reflection of the more complex objects of inquiry it has to cope with. Peirce's philosophical work – which is relevant for science in general – helped to transcend the dichotomy between empiricism and rationalism by making habit and custom (i.e. practice) instead of sensation and intellect the foundation of all science. This perspective, based on *science as a system of social practice*, can be seen as an alternative to theories of science based on rational choice or behaviourism. Following this line of thought Hodgson argues for the strengthening of a concept of purposeful behaviour by establishing habitual behaviour, i.e. behaviour that is not reflective, as its real and conceptual counterpart. This implies a hierarchy of levels of consciousness and intentionality that can not be reduced to a single level, i.e. there are different degrees of consciousness behind different kinds of actions (Hodgson 1993).

The view that meaning and belief is constructed through the social practices of humans has a central place in this Peircean philosophy of science. Learning and development of knowledge is thus considered as social processes. This means that the human and social sciences tries to understand a world that is preinterpreted by the involved actors and that one has to acknowledge that these preconceptions and interpretations are of fundamental importance for every attempt to explain. This hermeneutic aspect of institutional economics must therefore be made a part of the analysis of processes of learning in cognitive systems. In this understanding of science, based on naturalistic philosophy, questions of intentions, interpretations and values is central, and new discoveries is seen as products of interactive practices in scientific communities. The diffusion and generalization of these local bodies of knowledge must be seen in relation to aspects like hermeneutic, power, rhetoric and metaphors. Andrew Sayer is right, I think, in noting that

«(i)t is common to underestimate the extent to which our conceptual systems are constructed through metaphor» (Sayer 1992: 63).

This can be seen in the disregard for metaphors and picture-carrying expressions among some scientists and philosophers, as pointed out by Harrè (1961). Sayer then goes on to acknowledge that

«(m)etaphors and analogies play an important but often misunderstood role in the process of conceptual development in social science. Sometimes the displacement [i.e. abduction R.S.] of a concept to a new object of reference leaves the concept relatively intact, but in more interesting cases the displacement changes the meaning of the 'root' concept....New concepts can only be developed from pre-existing ones. We generally try to explain the unfamiliar by reference to the familiar. It is therefore not surprising that closer examination of our

vocabulary shows it to be rich in metaphor and understandable that we rarely coin new terms which are not related to existing ones in some way» (Sayer 1992: 62-3).

Such changes in systems of meaning obviously have connections to changes in systems of social practice. In the pragmatic perspective it is emphasized that knowledge and action are undividable and that there is no logical boundary between, on the one hand, *facts*, i.e. our understanding of the world based on how we perceive it, and, on the other hand, *values*, i.e. our actions to achieve a world that is the way we would like it to be. This legitimates a relatively high degree of intervention in social processes compared to other philosophies. A normative aspect is central, and the search for truth and values are part of the same process of inquiry. As a parallel to Bhaskar's transformational model of social (scientific) activity one can say that Peirce developed a model that more explicitly emphasized the interpretive and interactive aspects of social (scientific) activity, slightly more in line with a modern sociology of knowledge perspective.

## 4 METHODOLOGY

As should be clear by now naturalism is the thesis that there is or could be an essential or fundamental unity in methodology between natural and social science. Two alternative models of a process of scientific inquiry that could fill this function has been alluded to in the fore-going; Bhaskar's transformational model of the social activity called science and Peirce's model of science as a social system of practice and meaning. It is approximately 100 years between these two models (1870's and onwards vs. 1970's and onwards) which, in my opinion, can be fruitfully combined to accommodate a modern, critical naturalism. This could transcend the traditional dichotomy between, on the one hand, a positivistic naturalism, modelled on classical physics and influencing all natural science plus some of the social sciences, notably economics, and, on the other hand, an anti-naturalistic, interpretive approach to the humanities that accepts the received view in natural science. Such transcendence could provide a new type of naturalism/realism adapted for the social sciences, envisaging a reality existing independently of the act of investigation but simultaneously recognizing the differences between natural and social sciences.

Methodology is basically about scientific practice; how to proceed to acquire new knowledge. Based on the writings of Bhaskar and Peirce on the philosophy of science it is possible to explicate their respective systems of science as social practice (see Bhaskar 1994a, Mirowski 1988, 1994b, Hoover 1994). With regard to development of knowledge based on social practice Peirce argued that

«there occurs in science and in everyday life a distinct pattern of reasoning wherein explanatory hypotheses are formed and accepted. He called this kind of reasoning 'abduction', a form of inference that goes from data describing something to a hypothesis that best explains or accounts for the data. Thus abduction is a kind of theory-forming or interpretive inference» (Josephson and Tanner 1994: 5)

Abduction, often based on the transfer or displacement of metaphors from one discourse to another, can thus be regarded as an important source of creativity, both in science and in everyday life. Abduction gives us the possibility of making completely new theoretical combinations and thereby creates theoretical innovations. Abduction is related to induction in that inductive reasoning test hypothesis against experience: typically we derive predictions from hypotheses and establish whether they are satisfied. An account of induction leaves unanswered to prior questions: How do we arrive at the hypotheses in the first place? And on what basis do we decide which hypotheses are worth testing? These questions concern the logic of discovery, or in Peirce's terminology, the logic of abduction. The logic of abduction investigates the norms employed in deciding whether a hypothesis is worth testing at a given stage of inquiry, and the norms influencing how we should retain the key insights of rejected theories in formulating their successors. Peirce shows the constraints of both empiricist research and research based on formalistic mathematics. He was more concerned about the question of the sources of creativity and innovation in science than the static analytic structure of existing theories. He also identified the key role of metaphors and thus showed that the combination of two different frames of reference is an important source of creativity in science.

In a critical realist perspective, the criteria for evaluating the development of theory and knowledge are first and foremost its explanation power. It is also important to take into consideration its potential contribution to the transformation of the structured contexts of social actors. In other words, the contribution of the new knowledge to identify and analyse deeper structures that direct, constrain and enable humans' and other social actors' possibilities and actions. The practical point of departure consists in isolating partial aspects of the object of study through abstraction. These aspects are abstracted from the often complex whole of aspects that together constitute concrete objects. Through retroduction or abduction elements from different sets of theories are put together. This constitute the ground for developing concepts and analytic tools that can catch the concrete objects genuine characteristics by using them to look «backwards» to explain what it is with these objects that generates specific, concrete phenomena, events and states of affairs. By using these metaphors, tool,

concepts, models etc. one can identify the necessary causal powers and liabilities of specific objects and structures that are realized under specific, contingent conditions.

In addition to the key role of metaphors I would like to deal in some detail with another important tool, namely models, which can be seen as «possible or hypothetical descriptions of an unknown but knowable reality» (Bhaskar 1994b: 388). Two interrelated types of models that can be useful in a critical naturalist science are distinguished by their sources. The source of *homeomorph* models is the same as the object, i.e. they are modelled over the object itself and can be classified as scale models, class representatives, idealizations and abstractions. Bhaskar's transformative model of social activity can be seen as a homoeomorph model. The source of *paramorph* models, on the other hand, is different from the object of study itself. The reason for this is that

«it is clearly paramorph model-building, that is the construction of a model utilizing antecedently available cognitive resources...for an unknown subject (whose reality can be eventually empirically ascertained), which is most important in creative, knowledge-extending science. Such models may be based on one, more than one or just aspects of a source, that is singly connected, multiply connected or semi-connected paramorphs respectively» (Bhaskar 1994b: 388).

When the knowledge of specific phenomena, processes or objects in certain contexts or systems are inadequate the knowledge of similar phenomena, processes and objects in other contexts or systems can be the basis for constructing paramorph models in a creative formulation of new hypotheses.<sup>1</sup> This abductive method can be justified on the grounds that

«multiply connected paramorphs must lead to the postulation of new kinds of entities or processes. But imaginative model-building, so essential in science, is always subject to rigorous empirical test» (Bhaskar 1994b: 388).

Through knowledge development, in combinations of theoretical and empirical work, this kind of scientific procedure can constitute the basis for interpreting and reformulating as homoeomorphs those models that were first constructed as paramorphs.

---

<sup>1</sup> An example here is innovation in economic systems and evolution in biological systems. Is there enough resemblance to justify the potentially fruitful transfer of analogies and metaphors from biology to economics (ref. paramorph modelling) or are these two phenomena more specific manifestations of the same underlying, abstract principles of evolution in complex systems (ref. homeomorph modelling)?

## 5 INSTITUTIONAL ECONOMICS AS A REALIST EVOLUTIONARY SCIENCE

As mentioned in part 3, Peirce and the later pragmatists were attracted to Darwinism because it seemed to recognize the randomness, creativity and spontaneity in the universe. This orientation towards an evolutionary – in contrast to a mechanic – worldview in American philosophy in the latter part of the 19th. century is mirrored in Thorstein Veblen's famous article from 1898, «Why is economics not an evolutionary science ?». Institutionalism in its origins blended a sensitivity to culture with a desire to be scientific. This is a constant feature of the economic and methodological writings of Veblen. He was clearly awake to the sociology of knowledge and the interpretative qualities of social science, features that were largely neglected in mainstream economics. Simultaneously he stressed the scientific character of economics and hence, implicitly, was adopting a sophisticated, culturally informed version of naturalism and realism.

According to Rick Tilman (1993), when Veblen demanded an «evolutionary» economic science, what he wanted was one that would be a science of collective welfare: that is, a means of advancing the instrumental adaptive powers in the entire community to ceaseless change. Rather than emphasizing the capitalization of intangible assets for personal gain he valued high the industrial arts as a community possession. In a properly developing society workmanship, parenthood and idle curiosity would flourish – community qualities wherein Veblen found embedded some transcultural set of values. This was the foundations for Veblen's development of an alternative theory of value to both neoclassicism and classical Marxism which he was critical of. When, in his evolutionary, i.e. Darwinian, mode of analysis, he wrote of the «generic ends» of life «impersonally considered» and of «fullness of life», the existence of some such transcultural value set was implied. In his critique of neoclassical economics he labelled the deficiencies «pre-Darwinian», i.e. rooted in a pre-evolutionary mind-set which had not yet come to terms with the scientific revolution for which Charles Darwin was the chief catalyst (Tilman 1993).

The critique of Veblen for not developing a systematic theory is, according to Tilman, a misunderstanding that could have been avoided if his critics had been more cognizant of the significant influence on his theoretical system by Charles Darwin and the Darwinian revolution in Western thought. Darwinism is the most important in grasping the essentials of Veblen's naturalistic theory. It is important to point out that it was not the conservative «social Darwinism» of a. o. Herbert Spencer he appropriated. On the other hand

«Veblen took from Darwin *the essential scientific method*, which studies humanity in its process of continuous adaptation to both its social and natural environment and which sees the conditions of human existence as subject to ceaseless change. Although he was not always consistent in his use of Darwinian principles, it is impossible to appreciate the systematic nature of his theory without grasping its Darwinian origins» (Tilman 1993: xxvi. My emphasis).

This is in line with Mirowski's argument, noted above. When we look at the histories of economic and biological thought, we discover a remarkable cross-fertilization of ideas. As noted above, in Peircean terminology this can be seen as abductions between different contexts. As John Foster points out,

«(e)conomic imagery was attractive to biologists because, from Adam Smith onwards, it could be viewed as 'scientific' in the sense that there was a metaphorical link with the physics of Newton» (Foster 1994a: 23).

In light of these intellectual roots, and the set of values and processes Veblen emphasized, his notorious question can, and should, be repeated anew on the basis of Lawson's argument that

«recent developments in the philosophy of science systematized under the heading of realism or, more accurately, critical realism and more consistent with the institutionalist writings of,

say, Veblen, provide an alternative conception of economics as a science» ( T. Lawson 1994a: 70).

In this alternative conception, the formulation of which is a still ongoing process, economics must be seen as a realist evolutionary science based on a sophisticated form of naturalism. This reconstruction of the work of Veblen can be based on the philosophies of Peirce and Bhaskar. Moreover, it should be supplemented with a parallel reconstruction of the work of John Commons, which, as in the case of Veblen, contains much theoretical stuff that could be of significant interest to contemporary heterodox economics.

Veblen regarded the economy, and its institutions and structures, as an inherently dynamic process; social structures can not be taken as given and static. That is why there is always movement and flux in Veblen's perspective. Even if social structures are seemingly reproduced relatively intact in areas confined in time and space, this is always done on the basis of immanent dynamic, and potentially transformational, human practice. Relative change and relative continuity is fundamental in social life. That is why institutions, structures and systems of human practice and social interaction have to be regarded as processes in constant evolution and constant reproduction. These changes do not come as a result of external or exogenous shocks, but as an integrated part of what the actual system or phenomena is in and of itself. The great challenge for Veblen and for institutional economics after him is therefore «the economic life process still in great measure awaiting theoretical formulation» (Veblen 1919: 70). Two of his characteristic formulations give the essential aspects of reality that should be taken as a basis for such theorizing. There must be developed a

«theory of a process of cultural growth as determined by the economic interest, a theory of a cumulative sequence of economic institutions stated in terms of the process itself» (Veblen 1919: 77).

According to another typical formulation of his, such a theory is

«substantially a theory of the process of consecutive change, which is taken as a sequence of cumulative change, realized to be self-continuing or self-propagating and to have no final term» (Veblen 1919: 37).

The flavour of these formulations is unmistakably Darwinian, and it is from such a conception of evolution that Veblen derived at his important concept of cumulative causation. For Veblen

«the Darwinian scheme of thought 'is a scheme of blindly cumulative causation, in which there is no trend, no consummation'. Evolution was thus seen, as it was for both Malthus and Darwin, as a continuing and endless process without finality or goal» (Veblen 1919: 436, in Hodgson 1994: 128).

This combined naturalist and evolutionary perspective can constitute a point of departure for the working out of a theoretical framework for analysis of complex concrete phenomena like innovation, taking place in interaction and relations between social actors, their learning and knowledge development and the socioeconomic contexts processes like these are embedded within.

A relevant point of departure for this kind of work is the fact that Veblen, as early as the beginning of this century, argued that the accumulated knowledge of a population is the most important capital in a community. This knowledge has evolved from the practical needs connected to the maintenance of and the continuity of the life process. His emphasis on the general underlying preconceptions of this knowledge points towards the existence of objective truth which content is not influenced by the practical needs of the knower. Such truth is only perceived because of its usefulness, because correct perceptions are more useful than wrong ones in the life process. Veblen focused on the importance and discourse forming role of preconceived meanings in economic and other thinking. He argued that

«(the) ultimate term or ground of knowledge is always of a metaphysical character. It is something of a preconception, accepted uncritically, but applied in criticism and demonstration of all else...» (Veblen 1919: 149).

According to Warren Samuels Veblen was one of the earliest writers on the sociology of knowledge. He was concerned with the social construction of meaning rather than absolute categories of truth and with the formation of knowledge or beliefs, or both, as a product of group or community life in particular institutional and cultural contexts (Samuels 1990). Veblen's coupling of concepts about objective truth and knowledge is closely connected to his concept of cumulative causality and to human actors understanding and utilization of the connection between causes and effects, both in nature and society. He considered this collective knowledge to be far more important than its embodiment or appearance in physical capital. This can be illustrated with regard to his view on the industrial arts or skills of nations;

«the industrial skill of a nation consists of a set of relevant habits, acquired over a long time, widely dispersed through the employable workforce, reflective of its culture and deeply embedded in its practices» (Veblen 1914, in Hodgson 1993: 133).

In this classical or «old» institutional perspective one can say that the essential core in evolutionary economics hinges upon the concepts of process and change. Accordingly technology has been considered as a, if not *the*, fundamental dynamic power in economic, social and cultural transformation. Technology has thus played a significant role in evolutionary thought since the days of Veblen. The transformational power and practice of the industrial community was the main point of departure in Veblen's perspective;

«The active material in which the economic process goes on is the human material of the industrial community. For the purpose of economic science the process of cumulative change that is to be accounted for is the sequence of change in the methods of doing things - the method of dealing with the material means of life» (Veblen 1898: 384).

In this perspective technology is, first and foremost, and in a wide sense, human ideas and their embodiments in artefacts connected to problem definitions and problem solutions developed in a wider framework that can be named culture. Within such cultural and institutional frameworks there takes place a continuous consideration and evaluation of values according to a community's social and political goals (Jennings and Waller 1994).

## 6 SUMMING-UP

A challenge for evolutionary economic theories consists in explaining the *endogenous* transformations of the knowledge used in economic systems. Among other things this amounts to explaining the continuous changes, adaptations and diversities in the decisions rules, products, production methods and organizational forms that we find in economic practices. A basic evolutionary process that is interesting in this connection is one involving

«agents who can change their behaviour in an irreversible manner through a self-generated process» (Andersen 1994: 15).

An endogenous explanation of such phenomena must necessarily focus on the *mechanisms* and *tendencies* in the evolutionary process. Given the result of a supposedly evolutionary process one must try to identify the mechanisms and tendencies that have generated this result or outcome. An approach to explanation based on underlying mechanisms and tendencies is due to the fact that innovation and its sources play a significant role in evolutionary processes. When one studies an object that changes, something about that object has to be unchanged, an essence that makes it possible for us to identify that which changes. Through abduction one has to go from the empirical result of a supposedly evolutionary process and try to identify and analyse the specific systems of social practice that realize the potentials that are the underlying source of the results. We must try to discover a tendency or a fundamental principle that makes it possible to develop explanations. The synthetic character of evolutionary economic studies is, to a large degree, due to the fact that

«the mechanism underlying economic evolution is very complex; this mechanism should be thought of as a synthesis between different (sub)mechanisms rather than as a single mechanism whose parts can be considered as black-boxes. A basic task is to show how an evolutionary process can be synthesised from these individual mechanisms» (Andersen 1994: 14).

This means that contributions from different theoretical fields, that can (potentially) deepen and elucidate different mechanisms or different aspects of mechanisms, have to be synthesised on a unitary methodological ground to develop insight in evolutionary processes. This should be based on the unitary ground of a modern, critical naturalism on which elements from different theoretical fields can contribute. This is in line with the point stated earlier that critical realism as such do not legitimate any specific substantial theories and perspectives. Rather than focusing one-sidedly and detailed on the individual mechanisms, it is the *syntheses* between the different theories that are the core of evolutionary economics.

## REFERENCES

- Andersen, E. S. (1994). *Evolutionary Economics. Post-Schumpeterian Contributions*. Pinter Publishers, London.
- Backhouse, R. E. (ed.)(1994a). *New Directions in Economic Methodology*. Routledge, London, New York.
- Backhouse, R. E. (1994b). 'Introduction: New Directions in Economic Methodology', in Backhouse, R. E. (ed.). *New Directions in Economic Methodology*. Routledge, London, New York.
- Bhaskar, R. (1978). *A Realist Theory of Science*. Harvester, Brighton.
- Bhaskar, R. (1979). *The Possibility of Naturalism: A Philosophic Critique of the Contemporary Human Sciences*. Harvester, Brighton.
- Bhaskar, R. (1986). *Scientific Realism and Human Emancipation*. Verso, London.
- Bhaskar, R. (1994). 'Model', in Outhwaite, W. & T. Bottomore (ed.). *The Blackwell Dictionary of Twentieth-Century Social Thought*, pp. 399. Blackwell, Oxford.
- Boyer, R. (1990). *The Regulation School. A Critical Introduction*. Columbia University Press, New York.
- Caldwell, B. (1992). 'Human Molecules: A Comment on Nelson', in De Marchi (ed.). *Post-Popperian Methodology in Economics*. Kluwer Academic, Boston.
- Caldwell, B. (1993). 'Economic Methodology. Rationale, Foundations, Prospects', in Mäki et al. (ed.). *Rationality, Institutions and Economic Methodology*. Routledge, London.
- Commons, J. R. (1934). *Institutional Economics. It's Place in Political Economy*. Originally published by Macmillan Company. New edition by Transaction Publishers, New Brunswick, London, 1990.
- Cramer, F. (1993). *Chaos and Order. The Complex Structures of Living Systems*. VCH Verlagsgesellschaft, Weinheim.
- Dugger, W. (1990). 'The New Institutionalism: New but not Institutionalist', in *Journal of Economic Issues*, Nr. 24, pp. 423-431.
- Fish, S. (1980). *Is There a Text in This Class ? The Authority of Interpretive Communities*. Cambridge University Press, Cambridge.
- Foster, J. (1993). 'The Impact of the Self-Organization Approach on Economic Science: Why Economic Theory and History Need no Longer be Mutually Exclusive Domains'. *Paper* presented at the 5th EAEPE-Conference, Barcelona, Spain, October.
- Foster, J. (1994). 'The self-organizational perspective on economic processes: a unifying paradigm ?'. *Paper* presented at the 6th EAEPE-Conference, Copenhagen, Denmark, October.
- Gleick, J. (1987). *Chaos. Making a New Science*. Abacus, London.
- Gregory, D. (1994). 'Realism', in Johnston, R. J., Gregory, D. and Smith, D. M. (ed.). *The Dictionary of Human Geography*, 3. Ed. pp. 499-503. Blackwell, Oxford.
- Gregory, D. and Urry, J. (ed.)(1985). *Social Relations and Spatial Structures*. Macmillan, London.

- Hanson, N. R. (1958). *Patterns of Discovery: An Enquiry into the Conceptual Foundations of Science*. Cambridge University Press, Cambridge.
- Harman, G. (1965). 'The Inference to the Best Explanation', in *Philosophical Review*, nr. 74, pp. 88-95.
- Harré, R. (1970). *The Principles of Scientific Thinking*. Macmillan, London.
- Hodgson, G. M. (1989). 'Institutional Economic Theory: the Old Versus the New', in *Review of Political Economy*, vol. 1, pp. 249-269.
- Hodgson, G. M. (1993). *Economics and Evolution. Bringing Life Back Into Economics*. Polity Press, Cambridge.
- Hoffmeyer, J. (1994). *Livets Tegn. Betydningens Naturhistorie*. Pax Forlag A/S, Oslo.
- Hoover, K. (1994). 'Pragmatism, Pragmaticism and Economics', in Backhouse, R. E. (ed.). *New Directions in Economic Methodology*. Routledge, London, New York.
- Josephson, J. R. & M. C. Tanner (1994). 'Conceptual analysis of abduction', i Josephson, J. R. & Josephson, S. G. (ed.). *Abductive Inference. Computation, Philosophy, Technology*. Cambridge University Press, New York.
- Josephson, J. R. & Josephson, S. G. (ed.)(1994). *Abductive Inference. Computation, Philosophy, Technology*. Cambridge University Press, New York.
- Kauffman, S. (1993). *The Origins of Order. Self-Organization and Selection in Evolution*. Oxford University Press, Oxford, New York.
- Kaye, B. (1993). *Chaos and Complexity. Discovering the Surprising Patterns of Science and Technology*. VCH Verlagsgesellschaft, Weinheim.
- Langlois, R. N. (1989). 'What was Wrong With the Old Institutional Economics (and What is Still Wrong With the New)', in *Review of Political Economy*, vol. 1, pp. 270-298.
- Lawson, C. (1994). 'The Transformational Model of Social Activity and Economic Analysis: A Reinterpretation of the Work of J. R. Commons', in *Review of Political Economy*, Vol 6, Nr. 2, pp. 186-204.
- Lawson, T. (1989). 'Abstraction, tendencies and stylised facts: a realist approach to economic analysis', in *Cambridge Journal of Economics*, 13, pp. 59-78.
- Lawson, T. (1993). 'Why are so many Economists so Opposed to Methodology ?', *Paper presented at the 5th EAEPE-Conference, Barcelona, Spain, October*.
- Lawson, T. (1994a). 'Methodology', in Hodgson et al. (ed.)(1994). *The Elgar Companion to Institutional and Evolutionary Economics*, Vol 2, pp. 67-72. Edward Elgar, Aldershot.
- Lawson, T. (1994b). 'Realism, Philosophical', in Hodgson et al. (ed.). *The Elgar Companion to Institutional and Evolutionary Economics*, Vol 2, pp. 219-225. Edward Elgar, Aldershot.
- Lawson, T. (1994c). 'A Realist Theory for Economics', in Backhouse (ed.). *New Directions in Economic Methodology*. Routledge, London, New York.
- Layder, D. (1981). *Structure, Interaction and Social Theory*. Routledge, London.

- Leplin, J. (ed.) (1984). *Scientific Realism*. University of California Press, Berkeley.
- Leydersdorff, L. & van der Besselaar, P. (ed.) (1994). *Evolutionary Economics and Chaos Theory. New Directions in Technology Studies*. Pinter Publishers, London.
- Lipietz, A. (1992). 'The regulation approach and capitalist crisis: an alternative compromise for the 1990s', in Dunford, M. & Kafkalas, G. (ed.). *Cities and Regions in the New Europe. The Global-Local Interplay and Spatial Development Strategies*. Belhaven Press, London.
- McMullin (1984). 'A Case for Scientific Realism', in Leplin, J. (ed.). *Scientific Realism*. University of California Press, Berkeley.
- Mäki, U. (1993). 'Economics With Institutions: Agenda for Methodological Enquiry', in Mäki et al. (ed.). *Rationality, Institutions and Economic Methodology*. Routledge, London.
- Mäki, U., Gustafsson, B. & Knudsen, C. (ed.) (1993). *Rationality, Institutions and Economic Methodology*. Routledge, London.
- Masters, R. D. (1993). *Beyond Relativism. Science and Human Values*. University Press of New England, Hanover & London.
- Mini, P. (1994). 'Cartesianism in Economics', in Hodgson et al. (ed.). *The Elgar Companion to Institutional and Evolutionary Economics*, Vol 1, pp. 38-42. Edward Elgar, Aldershot.
- Mirowski, P. (1994). 'Peirce, Charles Sanders', in Hodgson et al. (ed.). *The Elgar Companion to Institutional and Evolutionary Economics*, Vol 2, pp. 149-152. Edward Elgar, Aldershot.
- Mitchell Waldrop, M. (1992). *Complexity. The Emerging Science at the Edge of Order and Chaos*. Viking, London.
- Nelson, R.R. & Winter, S.G. (1982). *An Evolutionary Theory of Economic Change*. Belknap, Harvard University Press, Cambridge, Massachusetts.
- Norris, C. (1991). *What's Wrong With Postmodernism. Critical Theory and the Ends of Philosophy*. Verso, London.
- Outhwaite, W. (1987). *New Philosophies of Social Science. Realism, Hermeneutics and Critical Theory*. St. Martin's Press, New York.
- Quine, W. van O. (1953). *From a Logical Point of View*. Harvard University Press, Cambridge, MA.
- Radzicki, M. J. (1994). 'Chaos Theory and Economics', in Hodgson et al. (ed.). *The Elgar Companion to Institutional and Evolutionary Economics*, Vol 1, pp. 42-50. Edward Elgar, Aldershot.
- Rorty, R. (1982). *The Consequences of Pragmatism. Essays 1972-80*. Harvester Press, Brighton.
- Rorty, R. (1989). *Contingency, Irony, and Solidarity*. Cambridge University Press, Cambridge.
- Samuels, W. J. (1990). 'Introduction to the Transaction Edition', in Veblen, T. B. (1919). *The Place of Science in Modern Civilization*. Originally published by Viking Press. New edition by Transaction Publishers, New Brunswick, London.
- Sayer, A. (1992). *Method in Social Science. A Realist Approach*. 2. ed. Routledge, London.

Tool, M. R. (1994). 'Instrumental Value Theory', in Hodgson et al. (ed.). *The Elgar Companion to Institutional and Evolutionary Economics*, Vol 1., pp. 406-412. Edward Elgar, Aldershot.

Veblen, T. B. (1898). 'Why Is Economics Not An Evolutionary Science ?', in *The Quarterly Journal of Economics*, Vol. xii, juli. Reprinted in Veblen (1919).

Veblen, T. B. (1919). *The Place of Science in Modern Civilization*. Originally published by Viking Press. New edition by Transaction Publishers, New Brunswick, London, 1990.

Winslow, (1994). 'Atomism and Organicism', in Hodgson et al. (ed.). *The Elgar Companion to Institutional and Evolutionary Economics*, Vol 1, pp. 11-16. Edward Elgar, Aldershot.