Putting Life into Economics?

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Geoffrey M. Hodgson, *Economics and Evolution: Bringing Life Back into Economics*, Cambridge, U.K., Polity Press, 1994, xi, 381 pp. ISBN 0-7456-1470-1 .

A few years ago I reviewed a book called *Evolutionary Economics* by Kenneth Boulding (Laurent, 1987), which I described as an exasperating book. This was because although Boulding was prepared to acknowledge that there were "of course important differences between social and biological evolution," and that "human genes have changed very little in 50,000 years," he nevertheless was willing to maintain that we should expect "economic life... to follow the general principles which govern the evolution of humans and human society." This ultimate *failure* to differentiate between human biological evolution (a thing of tens, even hundreds, of millenia), and social evolution (i.e history, that which we see taking place around us all the time) was, it seemed to me at the time, a major problem with Boulding's volume. Indeed, it led him at times to slip into mere evolutionary *analogy*, as in his contention that "mutation in economic goods consists of the constant invention of new ones," and so forth. Economists, I concluded, are apparently out of their depth when attempting to utilize evolutionary theory in their explanations.

It was with some scepticism, then, that I opened this new volume on the evolution theme by Geoffrey Hodgson, Lecturer in Economics at the Judge Institute for Management Studies at Cambridge University. A glance at the contents page was not reassuring either, with chapter titles like 'Economic Evolution: A Preliminary Taxonomy', 'Revolutionary Evolution: Karl Marx and Frederick Engels', 'Carl Menger and The Evolution of Money', and 'The Evolution of Friedrich Hayek'. Here we go again, I thought, more playing with words. Then again, there were other chapter titles such as 'On Mechanistic and Biological Metaphors', 'Political Economy and the Darwinian Revolutions' and 'The Problem of Reductionism in Biology and Economics', and there was also listed an Appendix on 'Group Selection in Modern Biology', a topic of special interest to me. And on looking into some of these even more dubious - sounding chapters I quickly became aware that this was a very different kind of book from Boulding's. Hodgson was clearly well aware of the often facile use of words like 'evolution' by economists, and its frequent use as a mere metaphor (as one of his chapter titles suggested). Moreover, Hodgson's appendix on group selection not only demonstrated a thorough grasp of the biological issues involved but was in fact one of the best treatments of the subject I have read anywhere. Furthermore, the chapter 'Political Economy and the Darwinian Revolution' provided an extremely useful survey of not only the state of economic theory before Darwin, but also of biology (or 'natural history', as it was then called), and Darwin's acknowledged intellectual debt to certain economists, notably Adam Smith and Malthus (a topic about which, I suspect, most economists have only haziest notion) is well covered. On top of all of this, Hodgson's *95 pages* of Notes and Bibliography (c.1500 entries!) are by far the most helpful I have yet seen concerning possible links between economics and evolution.

Having said this, I still have some problems with this book. Hodgson's main thesis is that economic theories based on mechanistic and mathematical conceptions of 'economic units' are bound to have their limitations and fail to take into account the richness of, and

unpredictable element in, human nature. As he puts it on page 24, "After all, the economy involves living human beings, not merely particles, forces and energy. The appropriation of ideas from biology portends considerable improvement for economic science". Hear, hear! Yet, dismayingly, twenty-two pages further on, under the promising-sounding subheading 'Phylogenetic Evolution: Some Elaborations', Hodgson writes: "The application of the *metaphor* of natural selection to economics must be on the basis of *analogous principles*. Arguably, the units of selection in economic evolution can be individuals, routines, institutions or systems" (my emphases). Just why Hodgson reverts to this level of argument is not at all clear, especially when, in between these quoted sentences, he can justify his study on the basis that "mainstream economics traditionally proscribes discussion of the psychological or social foundations of individual purposes and preferences as being beyond the bounds of the subject"(p.33). Hodgson claims, in other words, to take as his point of departure the subject of 'human nature', some notion of which must surely underlie any economic theory, whether recognised or not. This impression is strengthened further on in the book, in a chapter on Veblen, in whom Hodgson finds a kindred spirit for his (Veblen's) complaint that most economics appeared to be based on a "faulty conception of human nature" (i.e. a narrow, hedonistic one).

Hodgson's seeming unclearness in his own mind as to what he wants to do with evolutionary theory affects his treatment of the views of some other major economists noted for their interest in the subject too. Among these, of course, is Alfred Marshall (whose use of biological language readers of this journal will in any case know from John Nightingale's excellent discussion in the Summer 1993 issue). There is no doubt, as Hodgson shows, that notwithstanding Marshall's declaration, in *Principles of Economics*, that economics "is a branch of biology, broadly interpreted" (quoted p.99), most of this writer's argument in this sphere remains largely at the level of analogy - as Marshall himself acknowledges in an article in the *Economic Journal* in 1898: "In the later stages of economics, when we are approaching nearly to the conditions of life, biological analogies are to be preferred to the mechanical, other things being equal" (quoted p.106). There are, nevertheless, occasional suggestions in Marshall's writing which show a level of thinking above mere argumentative device, such as in the following sentence, quoted by Hodgson (p.104) from a later edition of *Principles*: "The struggle for existence causes in the long run those races of men to survive in which the individual is most willing to sacrifice himself for the benefit of those around him; and which are consequently the best adapted collectively to make use of the environment." As Hodgson shows in his admirable appendix on group selection, Marshall's conception of a role for 'altruism' and collective fitness in evolution, while perhaps, today, appearing a little naïve and overstated (the heredity of altruists would be lost unless some compensatory mechanism, such as a common gene pool, was in operation), does indeed find support in current biological theory.

Yet Hodgson's chapter on Marshall would have been more complete had he taken a closer look at some of Marshall's more reflective late work, such as *Money Credit and Commerce* (1923), in which the author shows evidence of deep thinking about 'human nature'. "Economic institutions are the products of human nature", Marshall writes, "and cannot change much faster than human nature changes" (Marshall, 1923, p.260). And elsewhere in the same volume: "Egyptian bas-reliefs suggest that the *individual* (Marshall's emphasis) man of the present time is not much more capable, physically and intellectually, than were many of his ancestors thousands of years ago" (p.264). And that *Marshall*, at any rate, had clearly differentiated in his own mind between (1) evolutionary theory as illuminating human nature, and (2) the use of evolutionary *metaphor* to describe economic activity, is clear at another point in this same volume where Marshall is discussing the apparent operation of a kind of "natural selection" principle (Marshall's inverted commas) in equalizing wages for a

given level of "efficiency" by prompting "able men" to move to "progressive" districts, thus preventing a disproportionate rise in wages in those districts (pp. 4-5).

Another important figure with some interest in evolution and 'human nature', but who receives insufficient attention from Hodgson (he is mentioned - including for his view that business cycles were driven by sunspot activity - but none of his works are listed in the Bibliography) is William Stanley Jevons. While Jevons is perhaps a more marginal figure in the present context, he nevertheless had a deep interest in science generally, and in any case, in books like *The State in Relation to Labour* (specifically, in a section on 'The Evolutionist Doctrine of Freedom,' which must be one of the earliest rebuttals of *laissez-faire*, so-called Social Darwinism), Jevons shows that he is well aware of Darwin's actual concept of human nature (as in chapter 4, on 'The Moral Sense,' in *Descent of Man*). In the said section of the book in question, Jevons makes the point that, notwithstanding naïve progressivist views (of Herbert Spencer and others) concerning the virtues of unfettered *laissez-faire* and the 'survival of the fittest' (Spencer's phrase, not Darwin's) in economic life, "Evolution has had time to work its full effects; *we see it accomplished, not in progress*"(Jevons, 1894, pp.15-16, my emphasis). Jevons adds: "Evolution is doubtless at work, but the question arises whether the...legislation which we are about to consider is not the *manifestation* [my emphasis] of evolution." In other words, as I read Jevons, State 'interference' in the workings of the labour market, based on humanitarian considerations (the subject of Jevons' book) may be one expression of 'human nature', which is a product of evolution.

The views of Herbert Spencer just alluded to *do* receive better coverage in Hodgson. It was Spencer, not Darwin, too, who popularised the term 'evolution' in the first place (Darwin not adopting it until the sixth edition of *The Origin of Species*, as Hodgson rightly points out), but as Hodgson notes, Spencer had a very idiosyncratic understanding of the term and one which had very little to do with Darwin's conception. Darwin's great contribution to the history of thought was, of course, his theory of *natural selection* - a concept which Spencer appears to have had only the most rudimentary understanding of, or at last preferred to ignore (notwithstanding his coining the phrase 'survival of the fittest') in favour of his own theory. The latter, summarised in Spencer's oft-quoted assertion, "[t]here is gradually taking place a transition from something homogeneous and general to something heterogeneous and special" (quoted Hodgson, p.82) was almost totally metaphorical. Spencer believed, or at least argued, that his principle applied to all levels of existence, from molecular through biological to social; but it was his theory of social evolution that was taken up by economists and (more often) political theorists, on both the Right and Left of the ideological spectrum. Interestingly, possibly the first *economist* to embrace Spencer's idea was Melbourne University's first Professor of Political Economy, William Edward Hearn, in a book called *Plutology*, published in Melbourne as early as 1863 (as I noted in a previous article in this journal - see Laurent, 1991). Spencer's plainly metaphorical, or analogical, conception of the evolution of human society - which he compares to a kind of super-organism - is accurately summarised by Hearn as follows:

> The social germ, like the individual germ, has a simple and uniform origin...It too presents with every increase in bulk an increase in complexity; and continually substitutes for a single indefinite and homogeneous structure a series of well defined and mutually dependent organs... Each organ is related to the whole organism, and to every other organ; and depends for its efficiency upon their cooperation. Society therefore, like the individual organism, tends to become more complex and its parts consequently become more closely interdependent.

None of this has anything to do with Darwin's theory, and Spencer's 'survival of the fittest' is in any case little more than a caricature of the theory - Darwin himself cautioning,

under the heading 'Struggle for Existence' in *The Origin of Species*, that "I should premise that I use this term in a large ... sense, including dependence of one being on another" (Darwin, n.d., p.52). Hearn is missing from Hodgson's Bibliography, which is surprising, since even if Hearn had said little more about 'evolution' than to summarise Spencer's views his volume would surely merit a place there. But, in fact, Hearn also appears to be the first economist to use Darwin extensively. This is all the more remarkable in view of the fact that Darwin had yet to write *Descent of Man* (1871), and has nothing to say about human evolution in *The Origin of Species* apart from the one line on the second last page, "Much light will be thrown on the origin of man and his history" (Darwin, n.d., p.373). All of Hearn's citations of Darwin have to do with fecundity in nature and the relentless 'struggle for existence', but remarkably, Hearn also *anticipates* Darwin (in *Descent of Man*) in his view of 'human nature'. In chapters on the 'Nature of Co-operation' and 'Industrial Evolution of Society' Hearn notes that "Man is not merely a gregarious, but a political animal" with a "tendency towards association" - American Indians, for example, displaying "in their hunting and their military expeditions considerable associative ability"(Hearn, 1863, pp.406, 409).

Also not listed in Hodgson's Bibliography is Walter Bagehots' *Physics and Politics, or, Thoughts on the Application of the Principles of 'Natural Selection' and 'Inheritance' to Political Society* (1869). Bagehot, long-time editor of *The Economist*, attracted considerable interest for a time with his book, including indeed that of Darwin himself, and, too, can be seen to have anticipated Darwin somewhat on the importance of cooperation in the evolution of human societies.

In stating the latter, I am *not* confusing biological and social evolution (as in Spencers' bewildering formulation). One of the strengths of Hodgson's book is his conceptual separation of the two, notwithstanding the author's apparent uncertainty as to what level of 'evolution' he considers most relevant to economics. As Hodgson succinctly expresses it in an examination of some of Friedrich Hayek's mistakes when referring to evolution (where Hayek wants to postulate cultural rules as an analogue for genes): "In biological evolution, the genes of a given organism do not change; they endure as long as that organism remains alive, and may even be passed on to its offspring" (hence the stability of 'human nature' over millenia). "This is clearly not the case with the rule in socioeconomic evolution," Hodgson continues, "both individual and groups can change rules...these 'vehicles' [a term Hodgson borrows from the biologist Richard Dawkins] can alter the replicating material they are carrying"(p.168).

So what, in the final analysis, is the importance of *Darwinian* (biological) evolution, and an understanding of 'human nature', for economics? This is where Hodgson is at his best, and, I believe, makes an important contribution to economic thought (since the point that he makes seems to be so little known to economists). Hodgson's contribution consists in his drawing attention to the dimension of *emergent properties* in evolution, and specifically, to capacities of human beings which represent a quantum leap in evolutionary processes and which make possible all sorts of adaptive strategies not available to other species. Obvious in this context is language, which not only facilitates co-operative action but which also enables the operation of a new kind of 'genetic' code. That is to say, the repertoire of behaviours available to humans is no longer restricted to that coded in their DNA (or 'germ plasm', as it would have been called in Darwin's day), but can be extended enormously by information transmitted from one generation to the next in another way - a language, consisting of thought-forms which, as Hodgson notes, Richard Dawkins has termed 'memes'. (Though Dawkins is not the first to do this - as long ago as 1927, in a supplementary chapter on 'Instinct and Intelligence' in a book on termites, the Belgian playwright and entomologist Maurice Maeterlinck [1927, p.198] spoke of "engrammata [memory traces] upon the individual meme".] But of course, language itself has only been made possible by prior aeons of evolution favouring the development of intelligence, that is, more flexible ways of dealing

with the environment and for learning and remembering the same - something of obvious selective advantage even *without* language and which is manifestly present in advanced non-human species such as the other primates.

This principle of emergence, Hodgson argues, forces us to recognise the limitations of subjects like physics in attempting to understand the workings of the economy, or indeed any branch of human activity or even that of any complex biological organism. Emergence demonstrates the fallacy of *reductionism*, in Hodgson's view, and he cites the biologist Ernst Mayr in support: "By the time we have dissected an organism down to atoms and elementary particles we have lost everything that is characteristic of a living system" (p.247). Curiously, though, notwithstanding a whole chapter on Marx and Engels Hodgson overlooks what is possibly the earliest statement of the emergence principle, in volume 1 of *Capital*, where Marx argues, on the basis of the work of the chemists A. Laurent and G.F. Gerhardt, that "merely quantitative differences beyond a certain point pass into qualitative changes" (Marx, 1983, p.292). This *general* principle has possibly most fully been stated by the Marxist biologist and historian of science, Joseph Needham (based, interestingly, not only on Marx but also on the writings of the Christian author, Henry Drummond, in books such as *Natural Law in the Spiritual World* [1899]):

> At the level of life itself, this doctrine [of emergence] is not vitalism, any more than it is 'crystalism' to demonstrate the special laws which govern the behaviour of liquid and solid crystals. Similarly, in the associations of highly cerebrated apelike organisms which are studied by sociology, new principles apply, principles which are meaningless when mentioned in connection with lower levels, principles which have manifestations familiar to us by quite other names, such as purpose, the good life, social cohesiveness, love, etc. (Needham, 1986, p.160).

Disappointingly, notwithstanding Hodgson's substantive treatment of emergent properties in his penultimate chapter, titled 'The problem of Reductionism', his concluding chapter - 'Bringing Life Back into Economics' - reverts to a renewed discussion of evolutionary analogy, suggesting, for example, that economic *institutions* might be compared to genes, as in this passage: "Institutions...may change, and they have nothing like the degree of permanence of the gene What is important is to stress the *relative* [Hodgson's emphasis] invariance and self-reinforcing character of institutions: to see socioeconomic development as periods of crisis and more rapid development" (p.254). Hodgson compares this process to Niles Eldridge's and Stephen Jay Gould's theory of 'punctuated equilibrium' in evolution. Also in his final chapter, Hodgson brings up the currently fashionable notion of chaos and 'nonlinearity' in physical and biological systems, suggesting that (as in the writing of the economist Antony Lawson), "to the extent that any meaningful phenomenom appears to reveal some degree of uniformity, generality, or persistency,...it would seem to provide a prima facie case for supposing that some enduring generative mechanisms are at work" (p.264). This may be, but certainly attempts to play the stock market using computer applications of chaos theory based on a "Darwinian, survival-of-the-fittest" method of portfolio selection have so far proved of limited success (see, eg., Shirreff, 1993). As Chris Doucouliagos has pointed out, while there are no doubt constraints on the cognitive capacities of *Homo Economicus*, attempts to predict his behaviour based on a one-dimensional conception of an "individual, atomistic, self-interested" decision-maker are bound to falter in the face of the complexities of the creature with which we are dealing.

Note

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