

Keynes and Darwin

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When I reviewed Geoffrey Hodgson's *Economics and Evolution* in the *History of Economics Review* a couple of years ago (Laurent 1995) I did not mention Keynes. This was partly because Hodgson does not have all that much to say about him in the book in question (he does mention one or two authors who have noticed an "organicism" way of thinking in *The General Theory*¹), and partly because I was not very sure myself at that time of how to think about Keynes in the context of evolutionary models. Since writing that review, I have investigated this subject further, and have arrived at the conclusion that not only was evolutionary thinking indeed very important for Keynes, but also that *Darwinian* evolution, specifically, and especially insofar as it applies to the human condition, lies in the background of much that Keynes wrote and in ways that have been mostly overlooked by economists.

I stress 'Darwinian' evolution because, notwithstanding 'organicism' elements in the *General Theory*, Keynes would not have been really very interested, I would argue, in the kind of 'evolutionary economics' that has spawned so much literature of late (i.e., since about 1980), and which is mainly founded upon mere *analogy* with biological processes. As an illustration of the liberties that some of this literature has taken with Darwin's theories, one could mention the various uses to which the term 'species' has been put. To Darwin this was a straightforward enough concept: a biological being that bred with its own kind. Yet in 'evolutionary economics' a species could be a new product (Boulding, 1981), an "invention that transforms economic possibilities" (Mokyr 1990, cited in Nightingale, 1993), or an industry (Hirshleifer, 1977). Actually, as far as biological or 'organicism' language in the *General Theory* is concerned, I have searched the book carefully and have found few and only mild examples. The closest that Keynes comes to such terminology is to speak of "the community as a whole", or "the social structure", or "the more or less permanent social structure of the community", or perhaps, in the book's last paragraph, "the evolution of political society" (Keynes 1936, pp. 110, 245, 321, 383). It is true, however, that Keynes *does* use biological metaphor more extensively in earlier writing. In his first book, *Indian Currency and Finance* (Keynes 1913, p.101), for instance, Keynes refers to the "economic organism", and in *A Revision of the Treaty* nations are "vast organic units" (Keynes 1922, p.10). In *A Tract on Monetary Reform* Keynes (1923, pp.65, 68) speaks of the "body politic" and of the State as a "sovereign body", and in some lecture notes for a course given by Keynes on 'The Relation of Economics to Ethics' from around 1910 he gives as one model of society "The hive or community".²

The latter conception of society was of course a common one in socialist circles in the late nineteenth and early twentieth centuries³, and this may provide one clue as to where Keynes might have picked up this kind of language. Athol Fitzgibbons (1988, ch.10) has drawn attention to Keynes's socialist sympathies, at least in the earlier part of his life, and while these certainly should not be exaggerated (see Skidelsky 1983, pp.239-41), they provided an influence, anyway. Specifically, the Webbs' Fabian socialism, which emphasized an "organic growth" (Tawney 1953, p.10) of the kind of society they envisaged, can be seen as influential;⁴ and in any case, this could have been via Marshall. Marshall's "small 's'" socialism has been discussed by Henry (1995), among others, and when one peruses addresses by Marshall like that to the 1889 Co-operative Congress, one finds them peppered with

references to the "whole body" of co-operators (Marshall 1889, p.9). In his *Memoir* of Marshall (Keynes 1924), Keynes notes Marshall's invitations to prominent trade unionists like Tom Mann and Ben Tillett to spend weekends with him, and there is no question about the deep interest of both these men - and other Labour leaders of the time (1890s) - in evolutionary and 'organistic' theories of society.⁵

But as Keynes emphasizes in his *Memoir*, Marshall was also profoundly influenced by Herbert Spencer (1820-1903), the originator (at least in an evolutionary sense) of phrases like 'the social organism', or sometimes 'super-organism'⁶, and whose ideas were very widely discussed in both England and America from the 1860s onwards. Readers of the present paper will not need to be told about Marshall's fascination with biological metaphor, but what some economists might be surprised to know is that very little of Marshall's writing in this area has anything to do with Darwin, and that there are in fact more than twice as many references to Spencer in the *Principles* than to Darwin.

One does not need to look very hard to find this Spencerian influence in *Principles of Economics*. Early in the book Marshall explains that "[i]n the later Middle Ages a rough beginning was made of the study of the industrial organism", and that each "successive generation has made further growths of that organism." Elsewhere he talks about the "social organism", and towards the end of the book Marshall observes that "[t]he growing prominence of what has been called the biological view...has tended...to be applied to the living and ever-changing economic organism" (Marshall 1922, pp.46, 241, 769). The similarity - indeed identity in some cases (e.g. "economic organism") - with some of Keynes's earlier 'organistic' language is obvious. What I am suggesting here is that while Keynes may have imbibed some of Marshall's enthusiasm for biological and organic analogy - the kind of thing that has in recent years been taken up so enthusiastically by 'evolutionary' economists - he had largely grown out of this by the time he wrote *The General Theory*. This is not to say that Keynes had abandoned an interest in evolution. On the contrary, it was *because*, I would argue, of his interest in and knowledge of *Darwinian* evolution that Spencerian notions had ceased to have any appeal.⁷

In my review of Hodgson's *Economics and Evolution* I mentioned Marshall's deepening interest towards the end of his life in what might be loosely called 'human nature' (as in his last book, *Money, Credit and Commerce* [Marshall 1923, p.260], in which he writes that "economic institutions are the products of human nature and cannot change much faster than human nature changes"). It may well be that Keynes's interest in this subject further stimulated Marshall's interest. In early 1922, after receiving from Keynes an advance copy of *A Revision of the Treaty*, with its compelling psychological studies of some of the main players in European economic affairs, Marshall wrote back that he was "inclined to think that the mixture of good and evil...is universal in human nature."⁸ Whatever the case, it is certain that by 1922 Keynes was using expressions like "deep...psychological causes which are not easily disturbed" (in an article on 'The Stabilisation of the European Exchanges' in the *Manchester Guardian Commercial*, 20 April 1922), and similar phrases appear in *The General Theory*. On page 97 of the latter, for example, Keynes refers to "habits", as distinct from "more permanent psychological propensities", and elsewhere he refers to "human nature" and the "natural man" (pp.96, 250, 350). On page 91 Keynes writes of "those psychological characteristics of human nature...which...are unlikely to undergo a material change over a short period of time." It is such expressions, I suggest, that provide a major pointer to the importance of Darwinian evolutionary concepts for Keynes, and which lie behind *this* kind of language rather than the biological metaphor.

It is easy to establish that Keynes was familiar with Darwinian theory, and that this is reflected in his writing. Firstly, with respect to competition, Keynes, in the *General Theory*

and elsewhere, shows that he was as fully alive as the most unforgiving economic rationalist to the reality of the Darwinian 'struggle for existence.' In the *General Theory* Keynes argues that it "accords with our experience of human nature" that the "struggle for [relative] money wages" is likely to be "intensified in each individual case" as the bargaining position of workers is improved under full employment; while at the same time towards the end of the book, he defends his case for a "new system" (domestic policies of full employment achieved through the "socialisation of investment") partly on the grounds that this would be more favourable to world peace since a principal cause of war was "the pressure of population and the competitive struggle for markets." International trade under such a system, Keynes insists, would "cease to be what it is," namely a "desperate expedient to maintain full employment at home by forcing sales on foreign markets," which merely shifts the problem of unemployment to the neighbour who is "worsted in the struggle" (Keynes 1936, pp.252-3, 381-3). And the Darwinian basis of this side of human nature is fully revealed in Keynes's earlier essay, 'Economic Possibilities for Our Grandchildren' (Keynes 1930, p.96):

[I]f, instead of looking into the future, we look into the past, we find that the economic problem, the struggle for subsistence, always has been hitherto the primary, most pressing problem of the human race - not only of the human race, but the whole of the biological kingdom from the beginnings of life in its most primitive forms.

Thus we have been expressly evolved by nature - with all our impulses and deepest instincts - for the purpose of solving the economic problem. If the economic problem is solved, mankind will be deprived of its traditional purpose.

So Keynes was fully conscious of the familiar Darwinian argument concerning the 'survival of the fittest' in the struggle for scarce resources which is said to apply to humans as well as other species. That he was aware of Darwin's writing is clear, in any case, from his letters, both published and unpublished. Roy Harrod (1951) quotes a 1908 letter from Keynes to his friend from Eton days, Bernard Swithinbank, in which Keynes writes: "Really the most substantial joys I get are from the perception of logical arguments, and, oh, from reading Darwin's life. How superb it is"; and in Keynes's papers at King's College there is a letter from his brother, Geoffrey, from the same year in which the latter says that he has "just finished the first Darwin volume and find that your praise was not displaced."⁹ Francis Darwin's three-volume *Life and Letters* of his father is catalogued in Keynes's library, and though it is unfortunately missing, we know that Keynes read it from the fourteen pages of notes transcribed from it among his notes from his reading for his Fellowship dissertation from September 1905 to November 1907. And in connection with Keynes's attitude to Herbert Spencer (whose *First Principles*, in any case, Keynes describes in his *Memoir on Marshall* as "unreadable"), it is interesting that included in these transcriptions are two letters, one from Darwin to fellow-naturalist (and co-discoverer of natural selection) A.R. Wallace, and another to the philosopher and historian John Fiske, in which Darwin expresses reservations about Spencer's method of reasoning. To Fiske, Darwin wrote: "I cannot appreciate deductive reasoning...this may be very narrow-minded; but the result is that such parts of H. Spencer as I have read with care impress my mind with the idea of his inexhaustible wealth of suggestion, but never convince me."¹⁰

Also in Keynes's library is a first edition of *The Origin of Species*, and there is a large autographed photographic portrait of Darwin amongst his papers; but whatever the importance of such apparent Darwinian interests, Keynes could hardly have helped knowing something

about Darwin's ideas, given his connections with the Darwin family (many of whom lived in Cambridge) from an early age. Keynes had frequent contacts with two of Charles Darwin's sons - the astronomer and mathematician, Sir George Darwin, who had wide interests, including Egyptology (Darwin 1909), and with whom Keynes had conversations from at least 1899 (and whose "hands certainly looked as if he might be descended from an ape"¹¹); and Sir Horace Darwin, an engineer and designer of scientific instruments, whose son Erasmus was a fellow-undergraduate and associate of Keynes at Cambridge, and also secretary of the Social Discussion Society (Marshall was president), which debated such topics as 'Heredity and Social Progress' (in Erasmus Darwin's rooms at Trinity in December 1904¹²). In 1917 Keynes's brother Geoffrey (later an eminent surgeon and bibliographer) married Sir George Darwin's daughter, Margaret, whom he had known from at least 1908.¹³

Keynes also had some contact with another of Charles Darwin's sons, Leonard Darwin, a Major in the Royal Engineers, but perhaps better known as president of the Eugenics Society (from 1911 to 1928) and author of books like *What is Eugenics?* (Darwin 1928). Keynes read an *economic* text by Leonard Darwin - *Bimetallism* (1897) - as early as 1906¹⁴, and this may well have facilitated an interest in the author's eugenic views as well. Leonard Darwin also took a deep interest in his father's theories, publishing, for example, a work on *Organic Evolution* (Darwin 1921) in defence of the main tenets of *The Origin of Species*. In April 1909 Leonard Darwin spoke at a public meeting in the Guildhall, Cambridge, on 'Free Trade' under the auspices of the Cambridge University Free Trade Association, of which Keynes was secretary at the time, and Horace Darwin was chairman.¹⁵

Keynes's interest in eugenics is rarely mentioned by Keynesians, especially those on the Left, and for understandable reasons. After Nazism, few people would want to argue for eugenics as a social policy. Yet it is remarkable just how pervasive eugenicist views were in the decades before the Second World War, including among people on the Left. The enthusiasm of people like H.G. Wells and G.B. Shaw for eugenics has been well documented (see, e.g., Carey 1992), and to their names could be added lesser known identities such as the biologist and Communist J.B.S. Haldane, author of books like *The Inequality of Man* (Haldane 1932). A paper on 'Economics over Eugenics' by a Dr. H.J. Muller in a journal called *Fact*, in 1939, and whose 'contributing editors' included Wells, Margaret Cole and Labour Party leader George Lansbury, approvingly cites some of Haldane's genetic research in a case made for "[t]he social direction of human evolution [which] can only occur under a socially directed economic system" (Muller 1939, p.61).

The debate on 'Heredity and Social Progress' in Erasmus Darwin's rooms in 1904 mentioned above was probably about eugenics, and in any case, Keynes's interest in the subject at this time has been alluded to in passing by one or two authors (e.g. Kevles 1985). This interest persisted, it has to be said, until the end of Keynes's life - at least until February 1946, when he presented the Eugenics Society's Gold Medal to Sir Alexander Carr-Saunders (see below), and undoubtedly it is an important element in his interest in Darwinism. In 1923 Keynes's name was among a list of vice-presidents of Marie Stopes's Society for Constructive Birth Control and Racial Progress, and in July 1927 Keynes chaired a dinner commemorating the fiftieth anniversary of the Bradlaugh-Besant trial (in which the noted atheist Charles Bradlaugh and his then partner, Annie Besant, were prosecuted for publishing a pamphlet on contraception) and the subsequent foundation of the Malthusian League. Toasts were proposed by both Keynes and H.G. Wells, and responded to by special guest Annie Besant.¹⁶ In September that year Keynes was on the 'advisory council' for a World Population Conference in Geneva, in which he was associated with J.B.S. Haldane. A printed brochure for this conference in Keynes's papers explains that addresses were to be given on such topics

as the 'Results of Differential Birth Rate in Germany', and an outline of the conference's concerns in the brochure reads in part as follows:

The work of Malthus, scarcely more than a century ago, first made the world think seriously about the problem which the growth of population was preparing for humanity. The rapid growth of wealth consequent upon the industrial revolution caused his forebodings to be largely forgotten, but the last thirty or forty years has once again brought before men's minds the spectre of a world which is rapidly being filled up with people....

Meanwhile, another problem of population has obtruded itself upon the world - that of quality. The pioneer in drawing attention to this was Sir Francis Galton [Charles Darwin's cousin - see below]. To-day, a great volume of scientific work has been devoted to a study of the alarming fertility of some stocks and classes, the alarmingly slow reproduction of others, to the question of the inheritance of mental and physical defects, and, in brief, to discovering whether the quality of the national stock is deteriorating, and if so, what steps could be taken to stem the process.¹⁷

The name of Malthus, and the earlier mention of the Malthusian League, provides an important clue to why Keynes was willing to associate himself with these kinds of endeavours, and adds a further dimension to his interest in Darwin. As readers will know, Keynes had a long-standing interest in Malthus - as expressed, for example, in *The Economic Consequences of the Peace* (Keynes 1919), where he argued, citing Malthus, that a major factor leading to the outbreak of the First World War had been population pressure in Germany (see pp.8 to 13 of this volume). Actually, in early May 1914 - three months before the outbreak of war - Keynes warned about the dangers of over-population in a paper read to the Political Philosophy and Science Club (Cox 1995, p.33); and in some notes for a course on 'Principles of Economics' given in Michaelmas term 1911, Keynes made the further link with Darwin, being aware of Darwin's claim that the idea of natural selection dawned on him after reading Malthus¹⁸. Thus Keynes has in his lecture notes the following points:

If Malthusian ideas originally stimulated Darwin's ideas, the latter now lead us to modify the former.

There is a marked process of selection at work in favour of the element which we regard as least good.

In a given country it is the poorest and least intelligent part of the population which reproduce itself most rapidly; and it is in the most civilised countries that the birth rate is falling off fastest.

We are faced by a dilemma. The Malthusian Law of Population, when it is in operation, maintains the lower classes of the population in a condition of perpetual misery. But it is the engine of evolutionary progress, and those classes of society, or portions of the world, for which its operation is suspended, are liable to be overwhelmed by the rest.¹⁹

This is fairly clearly unvarnished eugenics. At the same time, Keynes's further notes for this lecture course moderate his stance somewhat, at least on the international plane, and point to his later admirable stand on the dangers of international rivalry in *The Economic Consequences of the Peace* and *A Revision of the Treaty*, and as seen earlier, in *The General Theory*. Keynes goes on to note as follows:

The struggle between different races and countries is, at the present time as it has been at other times, confusedly reflected in national prejudices and policy - alien acts, military strength, imperialism, yellow peril, South African, Australian and American feeling against coloured immigration. In these times the primitive instinct for the preservation of one's own race, whatever it may be, now shows itself.

On the other hand we have policies and sympathies dictated by leaders who have freed themselves from or who are less susceptible to this primitive instinct.

They feel sympathy with the anxieties of other and very alien races; they are pleased by the existence of varied civilisations and would assist weaker nationalities; they are less convinced than the former that their own race contains within itself all that there is in this world most desirable; they are open to the charge of being cosmopolitan; and they are occupied by the task of improving the moral and material conditions of their own and other races....

My own sympathies are with the cosmopolitans, but it is necessary for a cosmopolitan never to forget the struggle for survival of races and classes which the progress of civilisation has done very little to weaken.²⁰

So while Keynes is well aware of the Darwinian principle of the 'struggle for existence' - which can be seen to apply to rivalries between races and nations (at least when men allow themselves to be ruled by their passions) - he also sees no reason why the operation of this principle cannot be mitigated by a nobler side of human nature. And Keynes knew that he could be reassured in this belief from another aspect of Darwin's writing - an aspect which is little known to those who enthuse about the 'survival of the fittest' but who have not actually read Darwin.

In his copy of *The Origin of Species* Keynes could read, in chapter 3 - 'The Struggle for Existence': "I should premise that I use the term Struggle for Existence in a large and metaphorical sense, including dependence of one being on another" (Darwin 1911, p.58); and as Keynes would have known from Darwin's *Life and Letters*, this caution is expanded upon by Darwin in *The Descent of Man*. In a chapter on 'The Moral Sense' in the second edition of the latter, Darwin assumes that the commonly observed tendency for various species of animals to congregate together must have some selective advantage, and he suggests that this consisted in the numerous benefits that such an arrangement brings for the animal *group* (and thus for the individuals comprising it) as a whole. Among the benefits from such an arrangement Darwin lists the following, based on his own observations and those of various other naturalists:

Animals...render...important services to one another: thus wolves and some other beasts of prey hunt in packs, and aid one another in attacking their victims. Pelicans fish in concert. The Hamadryas baboons turn over stones to find insects, etc.; and when they come to a large one, as many as can stand round, turn it over together and share the booty. Social animals mutually defend each other. Bull bisons in North America, where there is danger, drive the cows and calves into the middle of the herd, whilst they defend the outside (Darwin 1875, p.101).

Darwin goes on to argue that such mutually beneficial behaviours would tend to be preserved and passed on to offspring through natural selection operating at the group or "community" level, and that the behaviours involved are very likely based on instincts for "sympathy" or "affection" between members of the group, and might evolve from parental instincts. As Darwin puts it, "those communities which included the greatest number of the

most sympathetic members would flourish best and rear the greatest number of offspring" (p.107). And this principle, according to Darwin, has probably been operating in human evolutionary history also, since "[e]very one will admit that man is a social being." He summarizes his argument as follows:

The social animals which stand at the bottom of the [evolutionary] scale are guided almost exclusively, and those which stand highest in the scale are largely guided, by special instincts in the aid which they give to the members of the same community...Although man...has no special instincts to tell him how to aid his fellow-men, he still has the impulse, and with his improved intellectual faculties would naturally be much guided in this respect by reason and experience (Darwin 1875, p.109).

Moreover, in Darwin's view, with 'man' it is conceivable that "reason and experience", coupled with sympathy, could overcome the enmity between groups that competition between them might entail - even at the level of nation or race:

As man advances in civilisation, and small tribes are united into larger communities, the simplest reason would tell each individual that he ought to extend his social instincts and sympathies to all the members of the same nation, though personally unknown to him. This point being once reached, there is only an artificial barrier to prevent his sympathies extending to the men of all nations and races (Darwin 1875, p.122).

One is reminded of the penultimate paragraph in *The Economic Consequences of the Peace* (Keynes 1919, p.219), where Keynes speaks of "the universal element in the soul of man."

Whether or not Keynes read *The Descent of Man* directly, he would have at least read about its arguments on the moral sense in Darwin's *Life and Letters* (Darwin 1887, vol.3, pp.131-50 *passim*), and in any case, that he would have been fully cognizant with the book's central arguments from as early as January 1906 can be assumed from his notebooks of his reading, which list among other titles, L.T. Hobhouse's *Morals in Evolution*²¹, which is substantially dependent on Darwin's work (even if the author is sparing in his acknowledgment), as is evident from such lines as: "Historically, both the fundamental requirements of the social order and the more occasional requirements of a given stage in social evolution have deeply influenced ethical growth", and "Instinct...is bound in the main to subserve and not to hinder the needs of the living animal [and to shape] the moral judgement, for if the standard of conduct were so perversely formed as to favour actions tending to the dissolution of the social bond, it would in the end be self-destructive" (Hobhouse 1925 [first published 1906], pp.16-17).

In later years Keynes's familiarity with this 'collective' side of Darwin's thinking would have been reinforced from his reading of, for example, H.G. Wells's *The World of William Clissold*, which Keynes warmly reviewed in *The Nation and Athenaeum* (2 January 1927). As Keynes notes in his review, the novel is not primarily a work of art; ideas (in the form of Clissold's musings) are its focus; and while Wells's 'organic' view of society may not have been altogether to Keynes's taste (as in his reference to the "social brain", below), passages like the following must surely have caught Keynes's attention:

The peculiarity of the mammal, which the bird shows to a certain extent, is its continuing contact and fellowship with its young. Wisdom no longer perished with

the individual. Quite early in their ascendancy the mammals began to educate. A wolf or a dog is elaborately educated morally and in the tactics of hunting; a young monkey has a powerful impulse to imitate and learn. With man came an ever swifter process towards a mental continuum. In a few score thousand years he developed speech, picture-writing, writing, a distribution of documents, printing. In archives and literature he began a social brain (Wells 1926, p.87).

Following Darwin, Wells (as Clissold) argues that man's "habits" were "more social and co-operative than those of any other animal" - the "emotions of...maternal and even paternal love as the ape knew them hav[ing]...been seized upon by nature and broadened and utilised for social ends." There is in 'man' a "desire to serve", a "pleasure in and a craving for co-operation and associated action." From being a "prowler", man has become a "hunter in packs", and in the last few thousand years has taken to agriculture, becoming "the first of the mammals to be economic as well as social" (Wells 1926, pp.89-90, 503). One can only speculate as to how much all this influenced Keynes's thinking, but we at least know that Keynes read Wells's three-volume work closely and appreciatively, perhaps finding in the author a kindred spirit of sorts.

It is perhaps also worth mentioning in the present context Keynes's interest in the ideas of the pacifist (and later Labour MP) Norman Angell, whom Keynes invited to speak to students at a meeting of the Political Economy Club in Cambridge in early 1912.²² As Moggridge (1995) has noted, Angell's *The Great Illusion*, first published in 1910, had a considerable influence on British public opinion in the years before the First World War, and it is interesting to see that Angell, too, cites Darwin's arguments concerning the importance of collective fitness in evolution. In a later edition of the book, Angell again puts Darwin's and Wells's case, while at the same time pointing to a fallacy in militaristic so-called 'Social Darwinism':

If the human pack is riven by internecine struggle, then his fight is much less effective. 'Dog does not eat dog'. The pack which survives is the pack that has, on the whole, the greatest cohesion in facing its prey or its enemy....

It is true that there are still scientists who argue that war is a process by which the fit survive. Yet what plainly is its selective process? The two sides carefully choose their best biological specimens and send them to kill each other off on the battlefield, the second best and third best being left to carry the race. To call this 'the survival of the fit' is to play with words (Angell 1933, pp.160-1).

It is worth keeping in mind, then, that Keynes was at least aware of these kinds of ideas (in October 1937 he wrote to his sister-in-law Margaret thanking her for an article by Angell which he described as "good and interesting"²³) when he lectured to the Eugenics Society on 'Some Economic Consequences of a Declining Population', in February 1937. This was an odd lecture, and perhaps a not very successful one, but I'm afraid I can't agree with Robert Skidelsky's assessment of it that it marked for Keynes "his break with his own neo-Malthusian past and the last vestige of Adam Smith's 'parsimony' theory of wealth creation" (Skidelsky 1992, p.620). The printed version of the lecture in the *Collected Writings* (XIV, pp.124-33) leaves much out, but even in that portion of it given Keynes says plainly enough: "[I]f there are any old Malthusians here present let them not suppose that I am rejecting their essential argument", and "I do not depart from the old Malthusian conclusion."²⁴ What Keynes appears to be trying to do in the lecture is juggle an opportunity to publicize his recently published views on effective demand, with an identification with the

Society's concerns about a *differential* decline in birth rate (as expressed in the World Population Conference brochure cited above). That this is a valid interpretation is surely supported by Keynes's caution at one point that listeners should note that he is assuming "no drastic change in the distribution of wealth" (p.129).

In February 1946 - only two months before his death - Keynes presided at the presentation of the Eugenics Society's Gold Medal to Sir Alexander Carr-Saunders (an economist who had originally studied zoology). In his short opening speech Keynes said he wished to express a few words "of piety and remembrance to Francis Galton", whose books Keynes had become "fascinated and amused with...very early in life." Galton's "various and peculiar genius - so different from that of his kinsman Charles Darwin" lay not so much in following a single idea to its logical and experimental conclusion as in "striking out sparks in every direction", including in his founding of "the most important, significant and...*genuine* branch of sociology which exists, namely eugenics" (Keynes 1946, pp.39-40).

So what I am suggesting here is that Keynes's interest in eugenics was genuine enough, and persisted until the end of his life and needs to be recognized. An interest in the subject seems to have followed from an acknowledgment of the importance of the competitive side of human nature for a healthy economy. At the same time, there is ample evidence that Keynes was aware of other dimensions of Darwin's thought, as in Wells's and Angell's writing, and this allowed him to have a more balanced understanding of Darwin than was the case with many people on either the Right or the Left of the ideological spectrum, who emphasised either one side of Darwin's writing or another - as befitted an economist whose views are often seen as falling somewhere between market ('Right') and socialist ('Left') economics.

Another way in which market and socialist economics are often distinguished is to speak of competitive versus co-operative systems. Clearly this would fit neatly with what I have been describing as two sides of Darwin's writing, both of which Keynes was able to accommodate intellectually. And I would suggest that part of the explanation for how he was able to do this related to the broadness of the intellectual base that Keynes was able to bring to a reading of Darwin. In *The End of Laissez-Faire* Keynes (1926) wrote that "we should not, I fancy, think as we do, if Hobbes, Locke, Hume, Rousseau, Paley, Adam Smith, Bentham, and Miss Martineau had not thought and written as they did," and that "[a] study of the history of opinion is a necessary preliminary to the emancipation of the mind" (pp.15-16). Books by all of these authors except Harriet Martineau are in Keynes's library, and to judge, also, by the lists of books purchased, annotated dealers' catalogues, and notebooks recording his reading in Keynes's papers, works by these and other seminal writers in the history of thought were extremely important for Keynes, as of course has been noticed by an increasing number of Keynes scholars in recent years, including Fitzgibbons (1988), O'Donnell (1989), Bateman and Davis (1991) and Dostaler (1996). What has received less attention, however, is the relationship, if any, of the above and other authors' ideas to Darwin's writing, and what bearing this might have had on Keynes's thinking.

An important point to be emphasized in this connection is that both Darwin and Keynes were born into a common intellectual and religious milieu in Britain, one in which Christianity had become mixed to a greater or lesser extent with the secular philosophies of people like Hobbes and Hume. Darwin and Keynes both read Christian theology (Darwin with a view to taking Anglican orders - see Desmond and Moore [1991], and Keynes at Eton: his Greek *Gospel According to Luke* seems to contain about as many notes in his own hand as printed text²³), and arguably this helped provide a framework for their ideas. In an essay on 'Time and Change' read to a meeting of the King's College Parrhesiasts Society in May 1903 (Skidelsky 1983; Cox 1995) Keynes noted that "The Christian regards things as working, in

Time, to a definite end" (which is more amenable to evolutionary thought than Greek and Eastern cyclical views of time), and among Keynes's books is the earliest printed edition of St. Augustine's *De Civitate Dei* (Augustine 1468), which contains profound and important speculations on the nature of Time, and interestingly, the view that "He [God] created some creatures that love to be alone...as eagles, kites, lions...and others that had rather live in flocks and companies, as doves, stars, stags, hinds and suchlike...[T]here is nothing in the world so sociable by nature...as man is" (*Everyman's Library* translation, 1945, Vol.1, pp.366, 370).

Hobbes, with his *bellum omnium contra omnes* - the 'war of all against all' - is of course the very paradigm of the Malthusian and Darwinian struggle for existence, and both Darwin (Desmond and Moore 1991, p.485) and Keynes were keenly aware of this. As might be expected, Keynes has a first edition of *Leviathan* (Hobbes 1651) amongst his books, as well as a number of other Hobbesian titles, and they were some of his most treasured possessions. In a letter in June 1940 to a colleague at Amherst College, Massachusetts, who had sent Keynes a paper on Hobbes, Keynes wrote: "The events of the modern world are surely a dreadful confirmation of Hobbes's diagnosis of human nature...Our age forces us to return to that pessimistic view which the horrors of the seventeenth century [the Thirty Years War] impressed on Hobbes." At the same time, Keynes agreed with his correspondent that Hobbes, for all his pessimism, was "a passionate lover of his fellow men."²⁶

As indicated, Keynes also knew Hume's writing (as did Darwin, who cites Hume in his chapter on 'The Moral Sense') with its somewhat different view of 'human nature'. It is true that, as Fitzgibbons (1988) explains, Keynes, in *A Treatise on Probability*, disagrees with Hume's sceptical view of induction and probability, but Hume also provided for Keynes ground well prepared for the reception of Darwin's ideas in *The Descent of Man*. In *A Treatise of Human Nature* (Hume 1739) - Keynes's copy of which I am quoting - Hume writes as follows:

'Tis evident, that sympathy, or the communication of passions, takes place amongst animals, no less than among men. Fear, Anger, Courage and other affections are frequently communicated from one animal to another, without their knowledge of that cause...Every one has observed how much more dogs are animated when they hunt in a pack, than when they pursue their game apart; and 'tis evident this can proceed from nothing but from sympathy (vol.2, pp.214-5).

But whatever Keynes's direct debt to Hobbes, Hume and others, there is no doubt about his exposure to Darwinian ideas - albeit, perhaps, inadvertently - in his philosophical training under G.E. Moore. As Keynes explained years later, in his 'My Early Beliefs' paper (Keynes 1938), Moore was an intuitionist, for whom "[n]othing mattered, except states of mind...chiefly our own." Materialist explanations, then, were of little interest to Moore, as is reflected in Keynes's lecture notes from Moore's course on Modern Ethics, which Keynes took in Lent term 1903. Keynes jotted down: "What is origin of moral sentiments and moral judgements? wholly irrelevant;" and "Belongs to genetic psychology mainly." Further down the page, in an evident summary of the 'naturalistic fallacy', with which Moore's name was later to become prominently associated, Keynes recorded:

Evolutionists - all Hedonistic....

Evolutionists, even when they hold pleasure to be only good, think this done by increase in life (H. Spencer) or preservation of society (L. Stephen)...The Evolutionists confused the ethical judgement with the judgement of fact [by] holding that the q. whether a thing leads to a good result is exactly the same as whether the thing tends

towards the preservation of the [race] or the preservation of society...Consequently they hold that you can ascertain empirically whether the consequences are good. Hedonists tend to confuse with Psychology. The Evolutionists with Sociology, Biology etc.²⁷

Just what Keynes would have made of this at the time is uncertain - he does not refer to the 'naturalistic fallacy' in his letters from this time, or in 'My Early Beliefs'. But while there is little doubt that he and the other Apostles (the Cambridge society to which Keynes was elected in 1903) were much taken with Moore, this does not have to mean that Keynes accepted all that Moore had to say, and in any case, there was much that Moore said that made a great deal of sense. In this connection, it is interesting that in his copy of Moore's textbook, *Principia Ethica* (Moore 1903), Keynes has his heaviest marginal scoring against the following passage:

Spencer...constantly uses 'more evolved' as equivalent to 'higher'. But it is to be noted that this forms no part of Darwin's scientific theory...The survival of the fittest does *not* mean, as one might suppose, the survival of what is fittest to fulfil a good purpose - best adapted to a good end: at the last, it means merely the survival of the fittest to survive; and the value of the scientific theory, and it is a theory of great value, just consists in showing what are the causes which produce certain biological effects. Whether these effects are good or bad, it cannot pretend to judge (Moore 1903, pp.47-8).

Did Moore then, actually help *provoke* Keynes into looking into Darwin more closely? We don't know, but it is perhaps not unrelated that within three years Keynes was not only purchasing volumes by Leslie Stephen (author of *The Science of Ethics*, with its chapter on the 'Theory of Social Evolution'), as well as Hobhouse's *Morals in Evolution*, but also selling "three Herbert Spencers."²⁸ It is also perhaps worth noticing that in an essay for Moore on 'Morality' in Keynes's papers, where Keynes is discussing the 'internal sanction' - "those actions which bring their own punishment with them" - Keynes's words "either psychically or by means of the feeling of sympathy" have a red-pencilled line drawn through them by Moore, with a large NO added.²⁹ Is Keynes, perhaps unconsciously, alluding to Darwin's argument concerning the origin of morality, possibly picked up from Moore himself, but which, as noted, Moore somehow considered "irrelevant" to the study of ethics?

Moore can also be seen as important in Keynes's understanding of the term 'intuition'. This term is made much of by Davis (1994) but, I believe, wrongly. According to Davis, Keynes's philosophical development can largely be regarded as an eventual rejection by Keynes of Moore's concept of intuition which, Davis says, was an irreducible capacity humans possessed simply by virtue of their being human, and its replacement with a different understanding. Thus, with regard to intuitions of 'the good', Davis quotes these lines from *Principia Ethica* as a summary of Moore's position:

[I]t follows from the meaning of good and bad, that such propositions are all of them, in Kant's phrase, 'synthetic': they all must rest in the end upon some proposition which must be simply accepted or rejected, which cannot be logically deduced from any other proposition. This result...may be otherwise expressed by saying that the fundamental principles of Ethics must be self-evident (Moore 1903, quoted Davis 1994, p.14).

Davis argues that, to judge by early Apostles papers by Keynes, such as 'Ethics in Relation to Conduct' (1904?) and 'Miscellanea Ethica' (1905), Keynes largely accepted Moore's position and, moreover, that firm indications are given in these papers of a later 'intuitive' understanding of *probability* by Keynes in Moore's terms, as contained in his Fellowship dissertation (Keynes 1908) and *A Treatise on Probability*. Davis has no trouble finding statements by Keynes in *Probability*, such as "A definition of probability is not possible", since "We cannot analyse the probability-relation in terms of simpler ideas" (Keynes 1921, quoted Davis 1994, p.19), in support of his claim.

Eventually however, as noted, Keynes abandoned Moore's concept, according to Davis, and this was in favour of a 'conventionalist' understanding of intuition, whereby the latter acquired a "social dimension" (p.70), becoming a psychological skill dependant upon language conventions, as in the later Wittgenstein (see Wittgenstein 1958). Davis here cites sentences from the *General Theory* such as that where Keynes describes the successful investor on the stock exchange as one whose energies and skill are almost entirely devoted to "foreseeing changes in the conventional basis of valuation a short time ahead of the general public" (Keynes 1936, quoted Davis 1994, pp.126-7).

There is something in Davis's argument, but clearly it does not exhaust all possibilities relating to Keynes's understanding of intuition and psychology - specifically, it leaves out Keynes's *own* account of a Darwinian dimension. I noted earlier that Keynes had been using expressions such as "deep psychological causes which are not easily disturbed" from at least 1922, and that these carried over into the language of the *General Theory* (where he spoke of "those psychological characteristics of human nature", etc.); and I suggested at that point that such expressions indicated the importance of evolutionary concepts for Keynes. This can now be elaborated. Fitzgibbons (1988, p.87) has said that for Keynes there were good "evolutionary reasons" for our thinking the way we do, and the passage of Keynes's writing that Fitzgibbons has in mind²⁰ leaves little doubt as to the validity of this claim. The passage in question occurs in a review by Keynes of the mathematician Frank Ramsey's posthumous *Foundations of Mathematics and other Logical Essays* (Ramsey 1931, pp.160-6), in which Ramsey, in an essay on 'Truth and Probability', criticises Keynes's argument in *A Treatise on Probability* that there existed a level of objective reality in our probability estimations. Such a claim, Ramsey wrote, confuses probability relations, which are arrived at subjectively, with "necessary" logical relations. In response, Keynes wrote that he agreed with Ramsey that there was an element of subjectivity involved, but that nevertheless "the basis of our degrees of belief - or the *a priori* probabilities, as they used to be called - is *part of our human outfit, perhaps given to us by natural selection*, [and] analogous to our perceptions and our memories rather than to formal logic" (CW, X, pp.338-9, my emphasis).

Keynes is here stating the evolutionary epistemological argument: that we think as we do about the world around us because there have been strong evolutionary pressures to do so - any radical mismatch between the way we think and the way the world is would be rapidly 'selected out'. For Keynes, "those psychological characteristics of human nature" were at least partly the result of evolutionary processes; and I would suggest that his understanding of 'intuition' took into consideration this Darwinian dimension. In *Probability* Keynes sometimes uses the phrase 'direct knowledge' for intuition, and while this undoubtedly derived something from Moore's understanding, Keynes clearly also has in mind a more mundane conception, such as outlined in L.T. Hobhouse's chapter on 'Simple Apprehension' in *The Theory of Knowledge* (Hobhouse 1896), which is in the Bibliography of the *Treatise* and which we know Keynes read around the same time (1906-7) that he read Hobhouse's *Morals in Evolution*.²¹ In 'Simple Apprehension', Hobhouse argues for the primacy of sense data and certain innate capacities of the human brain to organise the same, and this could surely partly

underlie such statements by Keynes (1921, p.14) as "About our own existence, our own sense data, some logical ideas, and some logical relations, it is usually agreed that we have direct knowledge."

Other sentences in *Probability*, such as "Inductive processes have formed, of course, at all times a vital, habitual part of the mind's machinery", and "[I]t is not easy to draw the line between conscious memory, unconscious memory or habit, and pure instinct" - or, perhaps, "[O]ur ordinary methods of procedure in inductive argument [tend to] justify common sense" (Keynes 1921, pp.14, 217, 261) support, I suggest, this interpretation, and also help illuminate the allusions to psychology by Keynes already quoted, as well as instances of the same in *Probability* such as "[J]udgements of probability, upon which we depend for almost all our beliefs in matters of experience, undoubtedly depend on a strong psychological propensity in us to consider objects in a particular light" (p.52), and such later instances as in *The Means to Prosperity* (Keynes 1933, p.7), where Keynes appeals to his readers to consider whether his proposals agree "with the instinctive promptings of...commonsense." In answer to Ramsey, Keynes could have referred to some more lines in *A Treatise on Probability*, where he argues "...the fact that we ultimately depend upon an intuition need not lead us to suppose that our conclusions have, therefore, no basis in reason, or that they are as subjective in validity as they are in origin" (Keynes 1921, p.70). Our intuitions are 'subjective' in that they are the product of our own minds, but their match with objective reality has been ensured through aeons of evolution.

Strangely, in what he claims is evidence in support of his case that the early Keynes's understanding of 'intuition' was basically Moore's, Davis quotes the following lines from 'Miscellanea Ethica':

Assuming the approximate uniformity of human organs [my emphasis], we can often - if not near enough - say what, apart from peculiar circumstances, a man ought to think and feel:- not indeed what he can think and feel - that will always depend upon his nature and his pa[s]t. In accordance, therefore, with what has gone before - those objects, which normally produce sensations in correspondence to which, in normal cases, a good state of mind potentially exists, are fit. It will be seen that such a scheme altogether lacks the precision which a metaphysician would desire. Subjective and relative elements are introduced. But I trust it will not conflict with its sole basis - the testimony of actual intuition and experience (Keynes 1905, quoted Davis 1995, pp.80-1).

Thus, Davis goes on to clarify, although what an individual thinks and feels in a particular situation depends to a large extent upon that individual's particular nature and past experiences, because of the "approximate uniformity of human organs" it was possible to say what an individual 'ought' to think in a situation when he or she is thinking "normally", i.e. "rationally" (to use Davis's term); and further, that the objects of thought were "fit" to be categorized as they normally would be categorized.³²

I almost entirely concur with Professor Davis's understanding of Keynes's words here, but whereas he sees them as confirmation of Keynes's belief at that time (July-September 1905) in Moore's mysterious intuition into 'self-evident' truth, I take them as suggesting at least some interest by Keynes in psychological theories of human perception, including Darwinian aspects. My interpretation is strengthened, I would argue, by the fact that Keynes was that year reading psychology for the Civil Service Examination, and amongst his notes from the same are subheadings like 'The Mental Life of Lower Animals', and points recorded such as "All science goes to show that psychical activity is uniformly accompanied by

physical (nervous) activity"; "Perception is probably aided from the first by definite inherited tendencies"; "Many of our judgements are arrived at *intuitively* [my emphasis], and apart from a process of reasoning," etc. Previous examination questions with these notes include 'Discuss different theories of the origin and evolution of purposive action' (1898), and 'Does the principle of biological evolution seem to you to throw any informative light on the main problems of philosophy?' (1902)³³

One last piece of Keynes's writing where he refers to Darwinism should now be looked at. In *The End of Laissez-Faire*, Keynes writes at one stage: "The principle of the Survival of the Fittest could be regarded as a vast generalisation of the Ricardian economics", and "The parallelism between economic *laissez-faire* and Darwinianism, already briefly noted, is now seen, as Herbert Spencer was foremost to recognise, to be very close indeed" (Keynes 1926, pp.14, 31). To the objection that these words constitute a *rejection* of Darwinism by Keynes, two points can be made. Firstly, Keynes's reference to "the economic problem, the struggle for subsistence", as cited earlier in this paper from 'Economic Possibilities for Our Grandchildren', should leave no doubt as to Keynes's firm belief in the essential truth of the Darwinian theory. Secondly, I would suggest that Keynes's words here are chosen carefully. It will be noticed in the first sentence that Keynes says that the principle of the *Survival of the Fittest* could be regarded as a generalisation of Ricardian economics. This phrase is *not* in fact Darwin's, but Herbert Spencer's, Darwin only adopting it in later editions of *The Origin of Species* - as Keynes would have known from his reading of Darwin's *Life and Letters*.³⁴ Also, as can be seen, Keynes explicitly refers to *Spencer's* association with *laissez-faire* economics, not Darwin's, restricting himself to the generalised 'Darwinianism'.

Keynes is fairly obviously here criticizing *laissez-faire Social Darwinism*, a creation of Herbert Spencer's, and having little to do with Darwin's writing (see, e.g., Jones 1980). That this is so is surely indicated on the next page of *The End of Laissez-Faire*, where Keynes describes the theory he is criticizing as one depending on "a variety of unreal assumptions" and following "not from the actual facts, but from an incomplete hypothesis introduced for the sake of simplicity" (Keynes 1926, p.32). Just what a contrast Keynes saw between this method, and Darwin's, is clear from page 5 of a *Treatise on Probability*, where Keynes (in his first reference to *any* authority) writes as follows: "When we argue that Darwin gives valid grounds for our accepting his theory of natural selection, we do not simply mean that we are psychologically inclined to agree with him; it is certain that we also intend to convey our belief that we are acting rationally in regarding his theory as probable. We believe that there is some real objective relation between Darwin's evidence and his conclusions, which is independent of the mere fact of our belief."

From a perusal of Keynes's published writing, then, his interest in Darwin's ideas becomes obvious, and this is confirmed by a study of his lesser-known writing in newspaper articles and elsewhere, and from an examination of his unpublished material. But Keynes had little or no interest, this paper has argued, in the kind of 'evolutionary economics' which seems to want to treat the 'economy' as an autonomous entity, moving under its own laws independently of the human agents which comprise it. Keynes was interested in *people*, and what Darwin had to say about what motivates us to behave in the way that we do: only then can we begin to understand the overall workings of human interaction in the business of making a living. Keynes would *not* have been sympathetic, I suggest, with the approach taken, for example, in a review of a book called *A Replicative Perspective on Evolutionary Dynamics* in the journal *Evolutionary Economics* in recent years (Foster 1993), in which the reviewer appears disappointed that the book displays a "leaning towards sociology", with its emphasis on "human beings [as] catalysts of change", rather than taking a "full-blown economic perspective."

Of course there is much more in Keynes's writing besides an interest in Darwin - notably a deep attachment to the 'liberal' tradition in British political philosophy, as in the writings of Edmund Burke, and which no doubt had some influence on Keynes's thinking about Darwin as well as other writers.³⁵ But what this paper has sought to do is to at least draw attention to the Darwinian element, which has, perhaps, been unduly neglected.

- * School of Science, Griffith University, Nathan Qld. 4111. Much of the research for this paper was undertaken while a Visiting Academic at Kings College, Cambridge in 1997, for which I am grateful to Griffith University for granting me study leave, and to King's Vice-Provost, Dr. Barber, to his Secretary, Sally Hames and to other College staff for making my stay such a pleasant and rewarding one. I also wish to express my gratitude to King's Modern Archivist, Jacky Cox, and to the Librarian, Peter Jones, for all their help, and to Robert Skidelsky, Richard Darwin Keynes, Athol Fitzgibbons, John Nightingale, Peter Healy, Geoff Hodgson, Paul Twomey, Jim Moore, Heinrich Bortis, Darryl Doessel, Maggie Wong and Robin and Laurie Neill for helpful discussions and comments. Thanks, too, to Phillip McDonald and Spencer Routh, Librarians at Griffith University and the University of Queensland; to Ruth Millington, Library Assistant at the Co-operative College, Stanford Hall, Loughborough, for sending me a copy of Marshall's address to the 21st Co-operative Congress, and to two of the referees for helpful suggestions.

Abbreviations

KCKP refers to King's College Keynes Papers. (The catalogue numbers refer to Cox 1995.)

CW refers to the *Collected Writings of John Maynard Keynes*, published by the Royal Economic Society, 1970-1989.

Notes

1. Hodgson (1993), p.11.
2. KCKP, UA/6/15.
3. I discuss some of these ideas in my Ph.D. thesis, 'Science Education, Evolution Theory, and the British Labour Movement, 1860-1910' (Griffith University, 1984).
4. See, especially, Webb (1890). In 1913 Keynes had lunch with Beatrice Webb at Newnham Hall, Cambridge, which he described as a "deep spiritual experience" (Skidelsky 1983, p.241), and sporadic contact continued. In 1918 Sidney Webb asked Keynes to stand as Labour Party candidate for Cambridge University (Webb to Keynes, 14 January 1918, KCKP, PP/45/340).
5. See J. Laurent (ed.), *Tom Mann's Social and Economic Writings* (Nottingham: Spokesman, 1988); and B. Tillet, *Environment and Character* (Christchurch, N.Z.: 'Lyttelton Times' Press, 1898).
6. As a metaphor of society the organic idea dates back at least to St. Paul and other early Christian writers (see, e.g., 1 Corinthians 12, and the Epistle of St. Clement to the Corinthians, pars. 38 and 46, in J.B. Lightfoot, *The Apostolic Fathers*, London: Macmillan, 1893). In his *Memoir of Marshall*, Keynes (1924) refers to a series of lectures by Marshall on Henry George (see also Henry 1995), whose *Progress and Poverty* draws much on Spencer.
7. One referee for this paper asked, "Why do Keynes's references to...organic wholes...imply Darwinism?" As I have tried to show, they suggest, rather, the *Spencerian* evolutionism of Marshall. The evolutionary notions that one frequently encounters in economic writing by no means necessarily entail a Darwinian understanding, as I am arguing here and have argued previously (see Laurent, 1995).
8. Marshall to Keynes, 14 Jan 1922. KCKP, RP/4/29.
9. G. Keynes to JMK, 2 Sept. 1908. KCKP, PP/45/167.
10. KCKP, TP/D/285. (The letter that Keynes transcribed is in Darwin [1887], vol.111, p.193).
11. Harrod (1951), p.18.
12. KCKP, OC/4.
13. See note 11; see also Harrod (1951), p.153, and also Hill and Keynes (1989), pp.134, 324. A fascinating paper on the Darwin and Keynes (and Huxley) families is Mike Knapton, 'The Cambridge Mafia', whose source I'm afraid I don't know. I am grateful to Dr. John Bekkers, of the John Curtin School of Medical

Research, Canberra, for sending me a photocopy of it. The photograph collection in the Darwin Archive, Cambridge University Library, was also helpful in sorting out who was who, and I must thank Jim Moore for guiding me to it.

14. R.D. Keynes to author, 29 May 1996; KCKP, UA/24.
15. KCKP, OC/2/13.
16. KCKP, OC/3/46.
17. KCKP, OC/2/185.
18. The relevant passage in Darwin's *Autobiography* (which was first printed in vol.1 of the *Life and Letters*, which Keynes read) reads as follows: "In October 1838...I happened to read Malthus on *Population*, and being well prepared to appreciate the struggle for existence which everywhere goes on from long-continued observation of the habits of animals and plants, it at once struck me that under these circumstances favourable variations would tend to be preserved, and unfavourable ones to be destroyed. The result of this would be the formation of a new species. Here, then, I had at last got a theory by which to work". For a discussion of this account by Darwin see Richard D. Keynes, 'Steps on the Path to the Origin of Species' (*Journal of Theoretical Biology*, in press). Professor Keynes makes the point that, while Darwin's reading of Malthus may have triggered his conception of the 'struggle for existence', the idea had been brewing in his mind for some time, as is evident from his *Beagle* diary, where he refers to, for example, the Fuegians "surrounded by hostile tribes" and for whom "warfare would appear to be the means of subsistence." For some more observations by Darwin of 'struggle' in nature, see M. Campbell and J. Laurent, *The Eye of Reason: Charles Darwin in Australasia* (Wollongong University Press, 1987). (One of the referees wanted to know why struggle suggests 'Darwinianism', and asked "Didn't pre-Darwinian writers use this concept, in economics, biology or elsewhere?" Indeed they did! - Malthus being the prime example.)
19. KCKP, UA/6/9/22-3.
20. *ibid.* (my emphasis).
21. KCKP, PP/55.
22. KCKP, OC/2/86.
23. KCKP, PP/45/167.
24. Lord Skidelsky has since rightly pointed out though, that the view that Keynes's interest in eugenics made him "a racist snob with no time for [the] working class" is ill-informed and overlooks Keynes's deep commitment to welfare concerns behind schemes to limit population growth of his time, as in his 1914 lecture to the Political Philosophy and Science Club. (See R. Skidelsky, 'Keynes and Political Correctness', *The Times*, 1 February 1997).
25. Annotated Greek *Gospel According to Luke* (title page with publisher's details missing). This is catalogued as 'Keynes MS208'; it has printed text alternating with originally blank pages for notes, nearly all of which are filled with JMK's script.
26. KCKP, PP/57/1.
27. KCKP, UA/1/1. Moore was also important in introducing Keynes to another concept, that of 'organic unity', which might appear to be relevant to this paper. However, Moore's concept - which deeply influenced Keynes (see Fitzgibbons 1988) - is only indirectly connected with the 'social organism' idea of Spencer and others. Just what Moore meant by the term is difficult to pin down, as it cut across metaphysics, science and ethics, but it fairly clearly anticipated something of the holistic versus reductionist (or 'atomistic') debate of more recent times, as can be gauged from the following extract from Keynes's discussion of the term in his Fellowship dissertation: "If the law of the Universe is organic we are placed in the same helpless position so far as prediction of any kind is concerned, as we are placed in the matter of knowing what we ought to do by ethical philosophers [Moore?] who argue that the goodness of the universe is organic. If different wholes are subject to different laws *quod* wholes and not simply an account of and in proportion to the differences of their parts, knowledge of a part cannot lead even to presumptive or probable knowledge of the behaviour of the whole:- just as, in the ethical theory referred to...knowledge of the goodness of a part is entirely irrelevant to the question of the goodness of the whole" (Keynes 1908, vol.2, pp.278-9).
28. KCKP, PP/57/1/1.
29. KCKP, UA/2.
30. Athol Fitzgibbons does not cite Keynes's review of Ramsey here, but he has told me that it was this piece of Keynes's writing that he was thinking about.
31. KCKP, TP/D.
32. Davis (1994), p.81. Davis has "part" where I have pa[s]t - I am assuming a typing error. On the "approximate uniformity of human organs", it is interesting that amongst Keynes's books is *The Golden*

- Book of St. John Chrysostom Concerning the Education of Children* (London: Printed for G. Bedel and T. Collins, 1659), which contains a homily on the words of Job 31.13, reading in part: "If ever I despised the cause of my manservant, or of my maid servant when they contended with me, what shall I do when God makes enquiry, and when He riseth, what shall I answer him? Are they not fashioned in the Womb as I am? For we are made in the same womb" (pp.67-8).
33. KCKP, UA/4/2.
34. Darwin (1887), vol.iii, pp.45-6.
35. In some notes for an undergraduate essay on 'The Political Doctrines of Edmund Burke' (KCKP, UA/20/1), Keynes quotes Burke as writing: "As to the right of men to act anywhere according to their pleasure, without any moral tie, no such spirit exists. Men are never in a state of total independence of each other. It is not the condition of our nature".

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