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Charles Kingsley and the Theological Interpretation of Natural Selection

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Synopsis: This paper questions the common view that Darwinian biology is a straighforward extension of classical political economy. Our analysis contrasts the economists' classification scheme – whereby all humans were presumed natural kinds, to be equally competent for economic and political decision making – with the post-Darwinian classification scheme that developed. When the tools of political economy were imported into biology, the presumption of homogeneity of competence was denied. Charles Kingsley played a significant role in the transition from one sort of classificatory scheme to another, in the overthrow of the economists' notion that humans are the same in their capacity for trade and moral judgment. Darwin sent Kingsley a presentation copy of *Origin of Species* and quoted him in the second edition as the 'celebrated author and divine' who had sketched a theology in which Providence used natural selection in the creation process. The economists' doctrine that all people form a natural kind had many opponents. Biologists agreed with economists that, whatever differences existed between races of people, none put a person outside the protection of law. Other opponents, e.g., Thomas Carlyle, criticized both the economists' premise *and* their conclusion regarding protection under the law. Kingsley moved from a Carlylean to a Darwinian opposition to natural kinds.

Key words: Classical political economy, Charles Darwin, Charles Kingsley, natural kinds, natural theology, classification, great man theory of history, little man theory of history

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1. Introduction: Classical political economy and Darwinian biology

> A celebrated author and divine has written to me that 'he had gradually learnt to see it is just as noble a conception of the Deity to believe that He created a few original forms capable of self-development into other and needful forms, as to believe that He required a fresh act of creation to supply the voids caused by the action of His laws.' Darwin (1860, p. 481)

> The late Mr. John Stuart Mill in his 'Autobiography' laments that 'those who reject revelation very generally take refuge in an optimistic deism, a worship of the order of nature and the supposed course of providence, *at least* as full of

> contradictions and perverting to the moral sentiments as any of the forms of Christianity, if only it is completely realized.' Mivart (1876, p. 155)

This paper addresses a key aspect of the relationship between classical political economy and Darwinian biology. Classical economists presumed homogeneity at least on an 'as if' basis. Such a presumption was not based on observed similarity. In fact, the political economists argued that people who looked quite different were nonetheless equally competent. Nor was it necessarily a religious view. Instead, at heart, it seems to have been a conviction associated with the common ability to imagine, to place one's self in another's shoes, with Smith's 'impartial spectator'. Whatever similarities or differences they or their readers may have observed, for the purposes of economic analysis Classical economists presupposed enough similarity so that all humans were said to be able to participate in and benefit from trade. So, they favored the creation and extension of institutions that promoted mutual trust and reciprocity – trade and democracy – across the globe.

But when the tools of economics were imported into biology, the presumption of homogeneity was denied.[1] Our analysis contrasts the economists' classification scheme – whereby all humans were presumed to be equally competent for economic and political decision making – with the post-Darwinian classification scheme that developed. Before Darwin, classifications grouped organisms according to physical features and location, whereas common lines of descent came to form the basis of classificatory schemes after Darwin (McCarthy 2005, pp. 275, 278). On our reading, Classical political economists, in line with the pre-Darwinians, affirmed that humans are naturally alike, a 'natural kind'.[2] That argument was, however, successfully attacked and eroded in the latter half of the century. We argue that Charles Kingsley played a significant role in the transition from one sort of classificatory scheme to another, in the overthrow of the economists' notion that humans are the same in their capacity for trade and moral judgment.

Kingsley also played a role in bridging two types of classification, 'scientific' and 'folk'. Whereas the scientific classifications of interest in our period were constructed by anthropologists and biologists, folk classifications have long been used by the public. Landa & Ghiselin (2005, Ghiselin & Landa 2005; see McCarthy 2005) argue that folk and scientific classifications have much in common, including efficiency properties. Since we study the influence of a writer who had wide access both to the reading public as well as the scientific community, our interest extends to the interrelationships between the two types of classification.

We also consider how supposedly scientific classification was manipulated in our period to support similarity where no real similarity existed. Consider the classification offered in McCarthy (2005, p. 281), applied to a set comprising a lion, a tiger and a zebra. A classification based on 'the presence or absence of stripes' would obtain the 'logical' but 'ridiculous' result that tigers and zebras are closer together than lions and tigers. Our work has also encountered sets with

three elements: an ape; a Irishman who believed in self-rule (a Fenian); and an Anglo-Saxon. A classification based only on 'the perceived shape of the jaw' would yield the logical result that apes and Fenians are closer together than are Fenians and Anglo-Saxons. In the period we study, this result was not said to be 'ridiculous'. Instead, it was said to be 'scientific' and the popular press contained pictures designed to confirm that the jaw of an Irishman protruded. At the same time, scientific classifications were designed (Peart & Levy 2005c) to measure the negro-like shape of the Irishman. Biased estimates of this or any other sort might be privately useful (Levy & Peart 2007). The simianized Fenian was a common image offered to justify British control of Ireland (Peart & Levy 2005c), since such ape-like creatures could not be trusted to govern themselves.

The economists' doctrine that all people form a natural kind had many opponents.[3] Biologists agreed with economists that, whatever differences existed between races of people, none put a person outside the protection of law. Other opponents, like Thomas Carlyle and Charles Kingsley, criticized both the economists' premise *and* their conclusion regarding protection under the law (Levy 2001, Peart & Levy 2005c). What makes Charles Kingsley of great interest to us is that he moved from a Carlylean to a Darwinian opposition to natural kinds.[4]

Since Kingsley no longer enjoys the stature he once had, we begin with a brief comment on his importance. Charles Darwin (1993, p. 554) thought highly enough of Kingsley to send him a presentation copy of *Origin of Species*. Darwin's (1991, p. 379) insight that Kingsley's opinion might matter is ratified when we see Kingsley's portrait facing his letter to Darwin thanking him for the presentation copy. It was Kingsley to whom Darwin referred in the second and all later editions as the 'celebrated author and divine' who had sketched a theology in which Providence used natural selection in the creation process.[5]

Darwin was correct that Kingsley was celebrated.[6] 'Kingsley', he appears 2961 times in the *Oxford English Dictionary*; 'Kingsley, C.', and he gains another 95. Nonetheless, it might not be immediately obvious to readers who he was. Kingsley's opinions of blacks, Irish and Jews are in line (Levy 2001, Brantlinger 2003, Peart & Levy 2005c) with those of Thomas Carlyle. Unlike Carlyle, however, Kingsley had the misfortune to engage in a religious controversy with Cardinal Newman whose *Apologia Pro Vita Sua* sent him to oblivion.[7]

2. Charles Kingsley as anti-economist

How do we explain the course of history? This was the hard problem that Charles Kingsley set out to answer in his Regis lectures. In so doing, he sought to place the explanation for the broad sweep of human history on a 'scientific' footing. Understandably, it proved easier to pose than to answer the question. Kingsley's answer had two parts. The methodological answer – a great man theory of history – directly repudiated the leading social science of his time. Ultimately,

however, he recognized that the great man theory provided an inadequate explanation of human progress. To fill the gap, Kingsley merged the biological science of his time with history, positing that human (social and biological) history was the result of a 'natural' or providential order.[8] Kingsley developed a normative interpretation of the law of natural selection: surviving races were 'favored', blessed by God, while those who perished were not.

Kingsley's explanation for the course of human history entailed a theological interpretation of natural selection and a notion of inherent human difference. It attacked the very foundations of nineteenth century social science. Following Adam Smith, political economists held that humans were inherently the same (Peart & Levy 2005c), and observed differences in outcomes resulted from differences in luck, history and incentives. The role of the social scientist was then to observe human history, to find regularities and to develop a causal framework for those regularities. They eschewed great man accounts of history and they held that all are equally capable of improvement. Observed outcomes might reveal causal laws, but these did not obtain the stamp of providential approval. By contrast, Kingsley's account of human development held that observed heterogeneity was the result of natural differences among us, and natural differences were providentially so ordered.

Our study of Kingsley's theology of natural selection skirts the edge of a larger Darwinian controversy. How do organs such as wings, with discontinuous cost-benefit ratios, arise out of continuous optimization, as supposed by natural selection? St. George Mivart (1871, p. 35) made the case that they cannot, and then argued that, absent such discrete organs, we cannot induce a hierarchy from the material world in which natural selection applies.[9] This provides a context for the material we consider, because the Darwinians with whom Mivart argued, claimed that they had theoretical warrant to induce hierarchy.

A signature of this hierarchy is the gorilla – 'Highest of the apes–close ally of the Negro' (Mivart 1874, p. 4) – as the step right 'nearest' humanity.[10] That position was advanced in *Descent of Man*.[11]

We focus in what follows on the Cambridge Regis lectures[12] and *Water-Babies*. These culminated in his 1871/74 'Natural Theology of the Future', in turn an important contribution to what we call the 'theological interpretation of natural selection' in which the survival of 'favoured races' is the will of Providence.[13] This doctrine, which implied that racial perfection ought to trump consideration of human happiness (Peart & Levy 2005c), was largely triumphant in the argument against utilitarianism. Our reading of the period thus denies the common identification of classical economics with Darwin's understanding of 'natural selection'. Instead, we find Kingsley and Darwin share several key presuppositions that the political economists of the time opposed.

We shall deal first with the message of Kingsley's novel, *Water-Babies*. Despite its 'charming' features, *Water-Babies* reveals a world in which some are superior – and meant to rule – and others are not – and meant to obey. The fairy

creatures in the book help to carry the message of Divine will. The review in the *Times* declared that *Water-Babies* blended Carlylean tropes about the importance of obedience to one's superiors with Darwinian natural selection arguments.

Next, we present Kingsley's (1864) 'great man' theory of history, sketched in the inaugural lecture delivered at Cambridge, and published as the methodological preface to *The Roman and The Teuton*. That theory was presented in direct opposition to the social scientists of the time, specifically Charles Babbage. But in the closing pages of *The Roman and The Teuton*, Kingsley admitted that his great man account could not solve the announced problem of the lecture series – it failed to explain why the Teutonic race triumphed over the Roman. Kingsley now appealed to the hand of Providence guiding the destiny of races. This answer – which is also implicit in the later *Water-Babies* – became the 'natural theology of the future,' the survival of 'favoured races' and the extermination of the unfavored. Kingsley's justification of the extermination of such inferior races suggests that those who are so punished deserve their fate by choosing happiness and refusing obedience/improvement.

3. Kingsley's fairies: Racial myths as models of 'conquered races'

What is the role of fairies in Kingsley's writings and what are the relationships among his 1862/3 *Water-Babies*, his Regis lectures on history, and the 'Natural Theology of the Future'? *Water-Babies* is a children's story filled with imaginary creatures. Some of these, such as the water-babies themselves, Kingsley created. Some, like the fairies, are agents of the divine; these he drew from the common stock of folklore.

First published in 1863 and never thereafter out of print, Kingsley's story for children was arguably one of the most successful and long-lived critiques of classical political economy. It was reviewed both by the *Times* (26 January 1864) and the *Anthropological Review* (Hunt 1863). The story (1863, p. 226) contains the doctrine of the transformation of matter by spirit:[14] 'for you must know and believe that people's souls make their bodies, just as a snail makes its shell (I am not joking, my little man; I am in serious solemn earnest).'

One is transformed by following the recommendations of one's betters, by submitting to hierarchy. The telling episode in *Water-Babies* (1863, pp. 247–248), occurs in the sad tale of the now-extinct Doasyoulikes who exit hierarchy:[15] 'And in the next five hundred years they were all dead and gone, by bad food and wild beasts and hunters; all except one tremendous old fellow with jaws like a jack, who stood full seven feet high; and M. Du Chaillu came up to him, and shot him, as he stood roaring and thumping his breast. And he remembered that his ancestors had once been men, and tried to say, "Am I not a man and a brother?" but had forgotten how to use his tongue; and then he had tried to call for a doctor, but he had forgotten the word for one. So all he said was "Ubbobboo!" and died.'

In the midst of the American Civil War, no one would miss the reference to the abolitionist question – 'Am I not a man and a brother?'[16] The 'old fellow' shot by M. Du Chaillu is presumably a Gorilla, the step below humanity.[17]

In this episode about how the absence of compulsion causes racial devolution, Kingsley (1863, p. 244), makes an Irish reference to the jaw as a marker of the primitive:[18] "'Why," said Tom, "they are growing no better than savages." "And look how ugly they are all getting," said Ellie. "Yes; when people live on poor vegetables instead of roast beef and plum-pudding, their jaws grow large, and their lips grow coarse, like the poor Paddies who eat Potatoes."

The conjunction of Darwinian science, Carlyle, and the devolution thesis in Kingsley is explicated by the review in the *Times* (26 January 1864, p. 6): 'And if we should have never heard of Tom and Ellie but for the development of Marine Zoology, we may add that Master Tom's education would have been impossible had not Mr. Darwin published his book on the *Origin of Species*. Mr. Kingsley trips up the Darwinian theory, and asks us how we like its application when inverted. If an ascent in the order of life be possible, must not a degradation or movement downwards be equally possible? If beasts can be turned into men, must not men be liable to be turned into beasts? Here, indeed, Mr. Kingsley might have quoted the authority of one of his great masters, Mr Carlyle, who long ago warned us of the fate of the dwellers by the Dead Sea who refused to listen to the preaching of Moses. They became apes, poor wretches, and having once had souls they lost them.' Those who exit hierarchy, exit humanity.

Water-Babies is a novel, and so one might be inclined to dismiss the racial devolution message as 'story telling' and nothing more. But there is evidence that Kingsley believed myths about extinct races provided biological information about them. In 1862, he suggested to Charles Darwin (Kingsley in Darwin 1997, p. 63) that myths about fairy people might in fact provide the missing link between the ape and man: 'I want now to bore you on another matter. This great gulf between the quadrumana & man; & the absence of any record of species intermediate between man & the ape. It has come home to me with much force, that while *we* deny the existence of any such, the legends of most nations are full of them. Fauns, Satyrs, Inui, Elves, Dwarfs – we call them one minute mythological personages, the next conquered races—& ignore the broad fact, that they are always represented as more bestial than man, & of violent sexual passion.' 'The mythology of every white race, as far as I know, contains these creatures, & I (who believe that every myth has an original nucleus of truth) think the fact very important.'

Here, Kingsley singled out stories about 'Elves Fairies & Dwarfs' for particular attention, 'the 2 first being represented, originally, as of great beauty, the Elves *dark*, & the Fairies *fair*; & the Dwarfs as cunning magicians, & workers in metal.' These, he argues, 'may really be conquered aborigines.' The conclusion, for Kingsley (in Darwin 1997, pp. 63–64), is an obvious application of natural selection: 'that they should have died out, by simple natural selection, before the superior white race, you & I can easily understand.'

In response to this letter, Darwin (1997, p. 71) acknowledged the importance of Kingsley's question and suggested that one might be able to obtain a glimpse at evolutionary time by examining a cross section of civilizations: 'That is a grand & almost awful question on the genealogy of man to which you allude. It is not so awful & difficult to me, as it seems to be most, partly from familiarity & partly, I think, from having seen a good many Barbarians. I declare the thought, when I first saw in T. del Fuego a naked painted, shivering, hideous savage, that my ancestors must have been somewhat similar beings, was at that time as revolting to me, nay more revolting than my present belief that an incomparably more remote ancestor was a hairy beast.' To the question of whether racial myths offer evidence on the capacity for survival, Darwin deferred to Kingsley's expertise. He (1997, p. 72) accepted Kingsley's suggestion that extermination of the lowly raises the 'Human race' as a whole: 'It is a very curious subject, that of the old myths; but you naturally with your classical & old-world knowledge lay more stress on such beliefs, than I do with all my profound ignorance. Very odd those accounts in India of the little hairy men! It is very true what you say about the higher races of men, when high enough, replacing & clearing off the lower races. In 500 years how the Anglo-saxon race will have spread & exterminated whole nations; & in consequence how much the Human race, viewed as a unit, will have risen in rank.'

4. Great men as racial myth

While *Water-Babies* was hugely successful, history has not been kind to Kingsley's (1864) *Roman and Teuton*.[19] The conjunction of the historical material in the lectures with Kingsley's saga of 'forest children', 'troll gardens' and 'fairy gold' is somewhat incredible and critics across a century and more find the lectures 'strange'.[20] E. A. Freeman's (1864, p. 446) *Saturday Review*[21] argued that Kingsley did not know the difference between writing history and a novel, a criticism made long before by W. R. Greg:[22] 'He cannot understand that history is a grave matter to be dealt with in a grave fashion. We cannot understand that nations, their rulers, and their destinies, are to be treated of in a different sort from water-babies and discontented tailors. The very title of the book is enough – "The Roman and the Teuton" – anybody would take it for the title of a novel, or at most of a flashy book of travels. And the titles of the Lectures are of the same sort, just like the titles of the chapters in a sensation novel. "The Forest Children", "The Dying Empire", "The Human Deluge", "The Nemesis of the Goths", "The Strategy of Providence" . . . '

Whereas Freeman (1864) and others have refused to take the lectures seriously, however, we suggest that Kingsley's purpose was to present an alternative to economic/statistical accounts of history.[23] He begins the lectures with a 'great man' account of history. Then, recognizing the failure of his enterprise, Kingsley concludes the lectures with a sketch of the theological interpretation of natural selection.

The Roman and the Teuton (Kingsley 1864, p. 1) announces its substantial problem in the first sentence of Lecture 1, 'to give you some general conception of the causes which urged our Teutonic race to attack and destroy Rome.' Kingsley (1864, p. 1) then explains his procedure, which, not unsurprisingly in the light of the foregoing, relies on myth: 'And I shall begin, if you will allow me, by a parable, a myth, a saga, such as the men of whom I am going to tell you loved; and if it seems to any of you childish, bear in mind that what is childish need not therefore be shallow.'

Kingsley's (1860) methodological preface to the lectures contrasted the great man theory of history with the 'little man' theory put forward by political economists.[24] Political economists content themselves with ordinary experience and, having found regularities among observations, posit law-like behavior.[25] Such a procedure (1864, p. xxxvii; 1860, pp. 42–43) rules out the possibility of 'unexpected' results generated by 'deeper law':[26] 'Like Mr Babbage's calculating machine, human nature gives millions of orderly respectable common-place results, which any statistician can classify, and enables hasty philosophers to say—It always has gone on thus; it must go on thus always; when behold, after many millions of orderly results, there turns up a seemingly disorderly, a certainly unexpected, result, and the law seems broken (being really superseded by some deeper law) for that once, and perhaps never again for centuries.'

Perhaps more important, averages, being common, are uninspiring 'standards of human character', whereas, for Kingsley, science must inspire. Not surprisingly, he (1864, p. xli; 1860, pp. 49–50) finds inspiration in myths of perfection – in this case, in Apollo and Theseus: 'And why ? Because (so at least I think) the new science of little men can be no science at all: because the average man is not the normal man, and never yet has been; because the great man is rather the normal man, as approaching more nearly than his fellows to the true "norma" and standard of a complete human character; and therefore to pass him by as a mere irregular sport of nature, an accidental giant with six fingers and six toes, and to turn to the mob for your theory of humanity, is (I think) about as wise as to ignore the Apollo and the Theseus, and to determine the proportions of the human figure from a crowd of dwarfs and cripples.'

While Kingsley acknowledged that observed outcomes are generated by causal relationships, he (1864, p. xxxvii; 1860, pp. 43–44) maintained that such laws are 'beyond us', outside the limited scope of human understanding. Even more serious, such accounts ignore the influence of great men, leaders, who operate outside the chain of known cause and effect and who alter the course of history:[27] 'Laws there are, doubt it not; but they are beyond us and let our induction be as wide as it may, they will baffle it; and great nature, just as we fancy we have found out her secret, will smile in our faces as she brings into the world a man, the like of whom we have never seen, and cannot explain, define, classify—in one word, a genius. Such do, as a fact, become leaders of men into quite new and unexpected paths, and for good or evil, leave their stamp upon whole generations and races.

Notorious as this may be, it is just, I think, what most modern theories of human progress ignore. They take the actions and the tendencies of the average many, and from them construct their scheme: a method not perhaps quite safe were they dealing with plants or animals.' The *true* history of mankind is not a history of empirical regularities, but consists instead of the discontinuous and largely unpredictable influence of 'great men' (1864, p. xxxviii; 1860, p. 44): 'So that instead of saying that the history of mankind is the history of the masses, it would be much more true to say, that the history of mankind is the history of its great men; and that a true philosophy of history ought to declare the laws— call them physical, spiritual, biological, or what we choose—by which great minds have been produced into the world, as necessary results, each in his place and time.'[28]

As his lectures conclude, Kingsley acknowledged that he was unable to solve his stated problem – to find 'the causes which urged our Teutonic race to attack and destroy Rome' – with his great man account. He could not explain why 'our Teutonic race' actually survived the expected Roman counter-attack. The problem for a great man account is that Kingsley can come up with no great men. In the absence of known great leaders, Kingsley resorts to providential order. The lecture series concludes with the suggestion that *God* willed the survival of the Teuton (1864, pp. 339–340): 'But while I believe that not a stone or a handful of mud gravitates into its place without the will of God; that it was ordained, ages since, into what particular spot each grain of gold should be washed down from an Australian quartz reef, that a certain man might find it at a certain moment and crisis of his life;—if I be superstitious enough, (as thank God I am)-to hold that creed, shall I not believe that though this great war had no general upon earth, it may have had a general in Heaven? and that in spite of all their sins, the hosts of our forefathers were the hosts of God?' So, racial survival marks the will of God.

What of the destruction of life attendant to this providential order? Earlier in the lectures, Kingsley (1864, pp. 234–235) informs his audience about what would later be called the eugenic properties of war:[29] 'In times of war and anarchy, when every one is shifting for himself, only the strongest and shrewdest can stand. Woe to those who cannot take care of themselves. The fools and cowards, the weakly and sickly, are killed, starved, neglected, or in other ways brought to grief.'[30]

In modern times, people come to look after their sick, so human sympathy for one another interferes with this process. Kingsley (1864, pp. 234–235) finds this to be a good outcome: 'I do not say that this is wrong, Heaven forbid! I only state the fact. A government is quite right in defending all alike from the brute competition of nature, whose motto is—Woe to the weak. To the Church of the middle age is due the preaching and the practice of the great Christian doctrine, that society is bound to protect the weak. So far the middle age saw: but no further. For our own times has been reserved the higher and deeper doctrine, that it is the duty of society to make the weak strong; to reform, to cure, and above all, to prevent by education, by sanitary science, by all and every means, the necessity of reforming and of curing.'

But what if people resist being reformed, the 'curing'? In the case of the Irish, Kingsley (1863, p. 207) insists that they shall be looked after, 'for they could not look after themselves', and we should have not regret for this outcome: 'If any man shall regret that such an event happened to any savages on this earth, I am, I confess, sorry for him.' Just as we need not mourn the passing of the vanquished dwarfs, we ought not to mourn overly a vanished Irishman who prefers whisky to curing. These voids in creation fulfill the providential order.[31]

5. Theological interpretation of natural selection

Close to a decade before Kingsley wrote his 'Natural Theology of the Future', the pieces were in place for a theological interpretation of the law of natural selection. In particular, Kingsley endorsed the notion of racial variation and 'progress' and the survival of the 'favored' race (or individual) in both *Water-Babies* and *The Roman and the Teuton*, where God served as 'general' for the highest race. Kingsley's 1871/1874 lecture presented his most deliberate statement of a theology of racial survival.

'Natural Theology' was a serious treatment of human understanding of the nature of God.[32] It was inspired by Asa Gray's 1861 'Natural Selection not Inconsistent with Natural Theology', the title of which seems to have been Charles Darwin's indirect contribution.[33] The starting point for the lecture (1871, p. 370) was the emergent 'popular war' between reason and theology that had resulted from Darwinian science. Kingsley (1871, p. 369) framed the debate as a way to learn something about the nature of God: 'I wish to speak, be it remembered, not on natural religion, but on natural Theology. By the first, I understand what can be learned from the physical universe of man's duty to God and to his neighbour; by the latter, I understand, what can be learned concerning God Himself.' Far from 'proving' that God did not exist, Kingsley (1871, p. 375) countered, evolutionary science affirmed purpose.[34] Order and progression confirmed God's existence: 'wherever there is arrangement, there must be an arranger; wherever there is adaptation of means to an end, there must be an adapter; wherever an organization, there must be an organizer.'[35]

The theology of the future must take account – as must science – of the 'awful problem' demonstrated by such 'facts in nature' as 'premature death, pestilence, famine' (1871, p. 373, 372). Kingsley (1871, p. 374) held that scripture, with its emphasis on the struggles and wars of 'races favoured and races rejected' and 'hereditary tendencies', proved consistent with the science of his time.

He (1871, p. 373) agreed with Darwin that science had 'proven' a common origin of man: 'Next, as to Race. Some persons now have a nervous fear of that word, and of allowing any importance to difference of races. Some dislike it, because they think that it endangers the modern notions of democratic equality. Others because they fear that it may be proved that the Negro is not a man and

a brother. I think the fears of both parties groundless. As for the Negro, I not only believe him to be of the same race as myself, but that—if Mr Darwin's theories are true—science has proved that he must be such. I should have thought, as a humble student of such questions, that the one fact of the unique distribution of the hair in all races of human beings, was full moral proof that they had all had one common ancestor.'

For Kingsley, evolutionary theory not only served to confirm God's *existence*, but also revealed much about God's will and his intentions for the human race.[36] For the science of heredity proved the importance of hereditary factors in survival, and revealed those who were favored by God: 'Physical science is proving more and more the immense importance of Race; the importance of hereditary powers, hereditary organs, hereditary habits, in all organized beings, from the lowest plant to the highest animal. She is proving more and more the omnipresent action of the differences between races: how the more "favoured" race—she cannot avoid using the epithet – exterminates the less favoured; or at least expels it, and forces it, under penalty of death, to adapt itself to new circumstances; and, in a word, that competition between every race and every individual of that race, and reward according to deserts, is, as far as we can see, in universal law of living things. And she says—for the facts of History prove it— that as it is among the races of plants and animals, so it has been unto this day among the races of men' (Kingsley 1871, p. 373).[37] Biological science reveals that God's intentions for man are good. From this we also conclude that what we observe – natural selection – is God's will. Those who do not survive are destined *by God* not to survive, and those of us who are favored need not try to save the unfavored. Those who are not favored simply reap what they have sown. They are, for Kingsley, alternatively subhuman, dark elfin creatures with whom we need not sympathize, or disobedient and disorderly types who fail to change their ways.

The subtitle of Darwin's 1859 *On the Origins of Species by Means of Natural Species* is *The Preservation of Favoured Races in The Struggle for Life*. Kingsley's use of vanished races as models of evolutionary human beings – dwarfs, elves, and fairies – has one advantage over Darwin's 'barbarians'. It might be more difficult to sympathize with mythical beings than with people who are in fact a man and a brother. As evidence of this property, we might reflect upon how Kingsley's (1863, p. 248) *Water-Babies* maintains its reputation of enchantment[38] in spite of the racial survivalism that it teaches: 'And that was the end of the great and jolly nation of the Doasyoulikes. And, when Tom and Ellie came to the end of the book, they looked very sad and solemn; and they had good reason so to do, for they really fancied that the men were apes, and never thought, in their simplicity, of asking whether the creatures had hippopotamus majors in their brains or not; in which case, as you have been told already, they could not possibly have been apes, though they were more apish than the apes of all aperies. "But could you not have saved them from becoming apes ?" said little Ellie, at last. "At first, my dear; if only they would have behaved like men, and set to work to do what they

did not like. But the longer they waited, and behaved like the dumb beasts, who only do what they like, the stupider and clumsier they grew; till at last they were past all cure, for they had thrown their own wits away. It is such things as this that help to make me so ugly, that I know not when I shall grow fair." "And where are they all now?" asked Ellie. "Exactly where they ought to be, my dear."'

6. Conclusion

Commentary on natural selection sometimes identifies it with classical economics. Gould (2002, p. 122), for instance, has advanced the claim 'that the theory of natural selection is, in essence, Adam Smith's economics transferred to nature.' Our account suggests, by contrast, that there was a key difference between the biologists and the political economists. Even when they worked with similar concepts, there were unappreciated differences. For instance, although Darwin celebrated the economists' division of labor, he moved a step beyond Adam Smith. For Smith, each of the parts in the division of labor was self-aware, worthy of consideration.[39] Darwin cites Milne-Edwards (1853) on the division of labor; Milne-Edwards was more interested in applying the division of labor concept to parts of the body, pieces without self-awareness. For him, what mattered was aggregate output.[40] In addition, T. R. Malthus' (1798) theory of population differed significantly from Darwin's theory of natural selection (Levy 1978, Waterman 1991, Hollander 1997) in that Malthus emphasized the importance of prudential restraint to marriage, considerations that served to delay the age of marriage by the foresight the consequences. Indeed, foresight is the defining characteristic of what Malthus called the 'preventive check' to population.[41] Darwin, by contrast, denied the operation of prudential controls to population in the operation of the law of natural selection. So, he (1859, p. 63) wrote: 'A Struggle for Existence inevitably follows from the high rate at which all organic beings tend to increase. Every being, which during its natural lifetime produces several eggs or seeds, must suffer destruction during some period of its life, and during some season or occasional year, otherwise, on the principle of geometrical increase, its numbers would quickly become so inordinately great that no country could support the product. Hence, as more individuals are produced than can possibly survive, there must in every case be a Struggle for Existence, either one individual with another of the same species, or with the individuals of distinct species, or with the physical conditions of life. It is the doctrine of Malthus applied with manifold force to the whole animal and vegetable kingdoms; *for in this case there can be no artificial increase of food, and no prudential restraint from marriage.*' (Emphasis added).

The examination above suggests that, starting with Adam Smith, political economists assumed people were essentially the same and self-aware, and they took as their goal the maximization of human happiness. For Darwin and Kingsley, the

goal became human perfection even at the cost of some human happiness; and humans were now presumed to differ.

One result of a doctrine of racial hierarchy is that if 'higher' beings replace 'lower' ones, then the world might be judged 'better' and 'progress' has occurred. In early neoclassical economics, 'higher' and 'lower' were formalized by F. Y. Edgeworth in terms of agents with differential capacity for happiness. Removing agents whose lifetime total utility is negative or zero was central to Edgeworth's utilitarianism (Peart & Levy 2005b). Much of the economics literature that immediately followed Edgeworth makes for unpleasant reading. Following the lead of biologists and statisticians, economists endorsed eugenic proposals (Peart & Levy 2003) ranging from subsidies on professors' children, to sterilization and immigration restrictions. Righting the wrong turn taken when ordinary people interfered with 'natural selection' by looking after their sickly and weak – or by having children – became the goal of the 'science' of eugenics.

This raises the anterior question: why would the science of 'natural selection' obtain normative standing in the first place? Science is presumably about 'is' and norms about 'ought' – how did we make the link from one to another? In Kingsley's seemingly odd discussion of 'natural theology', we see how the gap between 'is' and 'ought' was overcome and a Christian element was added to Darwinism.[42] Once we appreciate how science and theology merged in Kingsley's theology of natural selection, it might not be so surprising to find Darwin opposing contraception in the name of science. Self-aware agents, who worried about their children's happiness, might interfere with the process of natural selection (Peart & Levy 2005b).

With its theological interpretation, Kingsley-style 'science' attempts to prevent people from changing the world to make it a better place. While this might look like the doctrine of cosmic optimism parodied in *Candide*, it is in direct opposition to the views of greatest adherents of what we might call cosmic utilitarianism, the political economists of the time such as T. R. Malthus. For Malthus and other utilitarians, people were not to submit blindly to a 'natural' order defined and defended by a theologian or scientist. Instead, precisely because we are all part of that order, our choices are part of that order. As part of the process of creation we become, Adam Smith tells us, natural kinds of an another sort.[43]

We end with the words of the opponent of evolutionary hierarchy, St. George Mivart (1876, p. 155), friend of Cardinal Newman, as he quoted the great 19th political economist and advocate of birth control: 'The late Mr. John Stuart Mill in his "Autobiography" laments that "those who reject revelation very generally take refuge in an optimistic deism, a worship of the order of nature and the supposed course of providence, *at least* as full of contradictions and perverting to the moral sentiments as any of the forms of Christianity, if only it is completely realised."'[44]

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Notes

1. We do not deny that there were elements common to economics and biology at the time. Of these, perhaps the most important is the idea of the division of labor, so important to Adam Smith and then to Charles Darwin. We shall have more to say about this in our conclusion.
2. Ghiselin (1969, pp. 50–55), see also Hull (1971, pp. 67–71). Gould (2002) has argued that Darwinian biology opposed 'essentialism'. That term is not commonly used to describe the philosophies of Adam Smith, Charles Babbage or J. S. Mill. A more helpful term is 'natural kind'. David Hull (1973, p. 68) uses this to explain the contrast between Darwinian procedures and 'the empiricist philosophies of Herschel and Mill' that 'depend upon the existence of discrete natural kinds.' Adam Smith's (1759, V.1. §157) passage: 'But if subtleties and sophisms composed the greater part of the Metaphysics or Pneumatics of the schools, they composed the whole of this cobweb science of Ontology, which was likewise sometimes called Metaphysics', quoted in the *Oxford English Dictionary,* as the second English usage of the word seems unlikely to signal approval.
3. Some opponents, such as F. D. Maurice, took the doctrine of humanity as a natural kind for granted. Kingsley was linked with Maurice through their support of the short-lived Christian socialism. On the latter, see Waterman (2004, pp. 214–215).
4. We (Levy & Peart 2001/2) have written elsewhere on Kingsley's attacks on the *conclusions* of political economy. Here, what concerns us is his attack on its foundations.
5. Substantive changes are unusual in the second edition (Peckham 1959, p. 51): 'The second edition was little more than a reprint of the first. The third edition was largely corrected and added to.' Darwin did not ask nor did Kingsley offer permission to quote him by name; consequently, Darwin (1993, p. 444) was challenged on the authenticity of the letter.
6. Kingsley's connection with Darwinians would soon be grounds for further celebrity. The first chapter of his wife's collection of Kingsley's (1877, 1:4) correspondence is entitled 'Inherited Tastes.' In this we read "'We know, through the admirable labours of Mr. Galton," says Mr. Darwin in his "Descent of Man," "that genius which implies a wonderfully complex combination of high faculties tends to be inherited," and to prove this in the case of Charles Kingsley maybe not be altogether unimportant. "We are," he said himself, in 1865, when writing to Mr. Galton on his book on Hereditary Talent, where the Kingsley family are referred to . . .' Galton's (1877, 1:5) letter to Francis Eliza Kingsley is quoted at length.
7. The personal nature of the argument is evident in T. H. Huxley's (1900, 2:240) comment: 'I have been reading some of his works lately, and I understand now why Kingsley accused him of growing dishonesty. After an hour or two reading him I began to lose sight of the distinction between truth and falsehood.' The editor (Svaglic in Newman 1967, pp. xxxi–xxxiii), of the Oxford edition of *Apologia* conjectures that Kingsley's animus was rooted in opposition to the Catholic glorification of celibacy. Taking fecundity as norm would provide a link between his views of natural selection and celibacy.

8. Gould (2002, p. 99) : 'Darwin, I believe, sought to construct and defend a working method for the special subject matter of evolutionary inquiry–that is, for the *data of history*.'
9. The 'non-progressiveness' of animals is stressed in Mivart's (1871b, p. 76) *Quarterly Review* of *Descent of Man*. In a *Nature* note, Mivart (1871c), suggests that the gibbon is actually closer to man than either the Orang or the Gorilla / Chimpanzee. After a detailed examination of the apes, he (1874, pp. 172–3): concludes: 'man, the apes, and the Half-apes cannot be arranged in a single ascending series of which man is the term and culmination.' Mivart's position in questioning the anthropoid ape-human evolutionary pathway, is now widely accepted as an instance of parallel evolutionary pathways. See Straus (1949, p. 204), Hill (1950, p. 161), and Kottler (1974, pp. 160–161).
10. For the most simple-minded use of the gorilla as a racial stereotyping, one can point to *Punch's* imagery (Peart & Levy 2005c) or Kingsley's Regis lectures (1864, p. 207): 'The poor, savage, half-naked, and, I fear, on the authority of St Jerome and others, now and then cannibal Celts, with their saffron scarfs, and skenes, and darts, and glibs of long hair hanging over their hypo-gorillaceous visages . . . '
11. Darwin (1871, p. 162): 'At some future period, not very distant as measured by centuries, the civilized races of man will almost certainly exterminate, and replace, the savage races throughout the world. At the same time the anthropomorphous apes, as Professor Schaaffhausen has remarked, will no doubt be exterminated. The break between man and his nearest allies will then be wider, for it will intervene between man in a more civilized state, as we may hope, even than the Caucasian, and some ape as low as a baboon, instead of as now between the negro or Australian and the gorilla.' Straus (1949, pp. 203-4) emphasizes the importance of Arthur Keith in developing the 'anthropoid ape to human' account. Spencer (1990) argues that Keith played a role in the fabrication of the Piltdown 'ape-man'.
12. The lectures consist of an 1860 methodological piece, 'The Limits of the Exact Sciences as Applied to History,' and the subsequent lectures on history. These were subsequently combined into the 1864 *The Roman and the Teuton*.
13. In the *Works*, this essay is included in the volume, *Scientific Lectures and Essays*, Kingsley (1880, 19: 313–336). The editor (Svaglic in Newman 1864, p. xxxi of the Oxford edition of Cardinal Newman's *Apologia*) argued that by this time, Kingsley had 'come to look with increasing distaste on any but a natural or "scientific" theology, one which renewed much of the spirit of his earlier deism, ignored the Atonement, denied eternal punishment, and made sin hardly more than a matter of passing regret.'
14. Clark (1901, p. 115): 'The present writer very soon came to the opinion that the story had a deep, spiritual meaning, representing the inner life of man, in its various phases.' 'Tom is now the representative of the human soul brought into a right relation of God and man' (Clark 1901, p. 105). Clark reports that his interpretation, when originally published, obtained Kingsley's approval.
15. This idealization of extermination is not mentioned in Brantlinger (2003).
16. It was commented upon in the review in the *Anthropological Review*. The review (Hunt 1863, p. 472) adds to the information on the title page ('The Rev. Charles Kingsley') that the author is 'Honorary Fellow of the Anthropological Society of London, and Professor of Modern History in the University of Cambridge.'
17. Mivart (1874, p. 4): 'The Gorilla, if not the direct ancestor of man, is yet generally thought to be related with exceptional closeness to such direct ancestor, and so to constitute the one existing and visible bond between ourselves and the lower animals. Highest of the apes–close ally of the Negro–the Gorilla is by some supposed to surpass and excel the humbler and commoner apes, as man surpasses and excels the Gorilla.' Mivart (1874, p. 3) combats the myth that Du Chaillu was the first European to discover the gorilla.
18. Notions of 'race' were in some flux at this time. Discussion at the Anthropological Society focused on whether the Irish were a race apart, or not; and the President of the Society developed an index of nigrescence to measure how 'black' Irish individuals were. Peart & Levy (2005c) provides details. The key point was that group (racial, national or ethnic) were presumed to demonstrate some

hereditary factor. Curtis (1971, p. 100) remarks on 'Charles Kingsley's description of the poor peasants he saw in County Mayo and Connemera in 1860 as "white chimpanzees".'

19. Here are Max Müller's (1877, pp. x–xi) comments from the preface to his reprint edition: 'I am not so blinded by my friendship for Kingsley as to say that these lectures are throughout what academical lectures ought to be. … It is easy to say what these lectures are not. They do not profess to contain the results of long continued original research. They are not based on a critical appreciation of the authorities which had to be consulted. They are not well arranged, systematic or complete. All this the suddenly elected professor of history at Cambridge would have been the first to grant.'
20. Freeman (1864, p. 464) remarks: '… the lectures, looked at as University Lectures, are surely the strangest composition to lay before an academical audience.' Horsman (1976, p. 409) writes of these: 'strange, impressionistic Cambridge lectures …' He describes the conclusion: 'Kingsley argued that God had fitted the Teutonic race to become the ruling race of the world, indeed 'the welfare of the Teutonic race is the welfare of the world' without asking whether Kingsley's conclusion follows from the proposed methodology.
21. We depend upon Parker (1981, p. 830) for the attribution.
22. Kingsley's use of the novel form to make an economic case was attacked by Greg (1851, p. 223) in the *Edinburgh Review* of 1851: 'The counts of our indictment against 'Alton Locke' are threefold. In the first place we object on principle to stories written with the purpose of illustrating an opinion or establishing a doctrine. We consider this an illegitimate use of fiction. Fiction may be rightfully employed to impress upon *the* public mind an acknowledged truth, or to revise and recall a forgotten one—never to prove a disputed one. Its appropriate aims are the delineation of life, the exhibition and analysis of character, the portraiture of passion, the description of nature. Polemics, whether religious, political, or metaphysical, lie wholly beyond its province. The soundness of this literary canon will be obvious if we reflect that the novelist *makes his facts* as well as his reasonings. He *coins* the premises from which his conclusions are deduced; and he may coin exactly what he wants.' The co-founder of eugenics, Greg is now largely forgotten although Toye's 'Greg Problem' might help people remember. Peart & Levy (2003, 2005c) discuss his influence on Darwin's *Descent of Man* as well on Walter Bagehot's career.
23. The connection between the 'Exact Science' and the *Roman and the Teuton* has since been obscured. Becker (1913), Wallace (1954), Soffer (1970), Parker (1983) discuss the former without connecting it to the latter. These four articles are what JSTOR (26 August 2004) recovers by searching on the full title of Kingsley (1860). McLachan's (1947, p. 80) study of the Cambridge Historical tripos refers to the inaugural lecture only as 'published as an appendix to C. Kingsley, *The Roman and the Teuton* (1884).' Freeman (1864, p. 446) makes an exception for the 'Inaugural Lecture.' This is singled out for special treatment in Chadwick's (1975, p. 309) 'Kingsley at Cambridge': 'But at bottom his lecture was a protest against deterministic history, and was widely regarded as a useful and necessary protest. People do matter; individuals choose. Yet Kingsley's protest was the more effective and acceptable because he recognized the value of the attempt to find laws of behaviour. Because the protest accepted what was right in the new historical insights with statistics and the environment, it was the more effective in its assertion that after all people matter, and matter very much.'
24. Peart & Levy (2005a) makes the case that classical political economics argued in terms of majority experience. This interpretation helps one appreciate the cogency of Kingsley's attack on 'little man' accounts, like Carlyle's persistent attack on the democratic consequences of political economy.
25. Kingsley focused here on Babbage's 'calculating machine' but the work of the Belgian statistician, who developed the probabilistic notion of 'average man' – l'homme moyen – was an implicit target. Quetelet and Babbage (along with Richard Jones and T. R. Malthus) worked to establish the statistical section of the British Association and the London Statistical Society, and Quetelet knew of Babbage's calculating machine. See Babbage 1989, vol. 3, pp. 12–15, vol. 5, pp. 178–179. Developed in 1831, Quetelet's average man applied Laplacian probability to a fixed population; his purpose was to define a probabilistic conception that facilitated comparisons, explanations of difference.

26. W. S. Jevons (1874, p. 465, 459) also concluded his *Principles of Science* by arguing that probabilistic reasoning failed to rule out the possibility of unexpected events or Divine intervention. Kingsley's 'Exact Science' is cited by Leslie (1861, pp. 597–598) in his essay on the methodology of classical political economy from the *Wealth of Nations* through *On Liberty*.
27. But Kingsley (1864, pp. 39–40) worries about this: 'There is, nevertheless, a side of truth in the constitutionalist view, which Mr Carlyle, I think, overlooks. A bad political constitution does produce poverty and weakness; but only in as far as it tends to produce moral evil; to make men bad.'
28. Kingsley (1864, pp. 231–232): 'The history of the masses cannot be written, while they have no history; and none will they have, as long as they remain a mass; ere their history begins, individuals, few at first, and more and more numerous as they progress, must rise out of the mass, and become persons, with fixed ideas, determination, conscience, more or less different from their fellows, and thereby leavening and elevating their fellows, that they too may become persons, and men indeed.'
29. This is worth stressing, because Richard Hofstadter (1944, pp. 47–48) asserts that *Roman and the Teuton* is devoid of biological elements: 'This same Anglo-Saxon dogma proved to be the chief element in American racism in the imperial era; but the *mystique* of Anglo-Saxonism, which for a time had a particularly powerful grip on American historians, had hardly been dependent upon Darwinism for its inception or development. It is doubtful that such monuments of the English Anglo-Saxon clique of historical writers as Edward Augustus Freeman's (1864) *History of the Norman Conquest of England* (1867–1879) or Charles Kingsley's (1864) *The Roman and the Teuton* owed much to biology; and certainly John Mitchell Kemble's (1849)*The Saxons in England* was not inspired by the survival of the fittest. Anglo-Saxonism, like other varieties of racism, was a product of modern nationalism and the romantic movement rather than biological science.'
30. Cf. 'in the rough education of the forest, only the strong and healthy children lived, while the weakly died off young, and so the labour-market, as we should say now, was never overstocked. This is the case with our own gipsies, and with many savage tribes—the Red Indians, for instance—and accounts for their general healthiness: the unhealthy being all dead, in the first struggle for existence. … On the other hand, we have, at least throughout the middle ages, accounts of such swarms of cripples, lepers, deformed, and other incapable persons, as to make some men believe that there were more of them, in proportion to the population, than there are now. And it may have been so. The strongest and healthiest men always going off to be killed in war, the weakliest only would be left at home to breed; and so an unhealthy population might spring up. And again—and this is a curious fact —as law and order enter a country, so will the proportion of incapables, in body and mind, increase.' This is unknown to Crook (1994), which opens the door to an appreciation of the anti-war evolutionary thinkers.
31. Kingsley (in Darwin 1991, p. 380) wrote about the need to 'supply the lacunas which he himself had made.' Darwin imprecisely quoted Kingsley on the 'the voids caused by the action of His laws' (Peckham 1959, p. 748).
32. The importance of this work is described by Kingsley's widow (Francis Eliza Kingsley 1877, 2:346): 'Extracts give a poor conception of the lecture, which made a profound impression, and, as private letters showed, gave hope and comfort to many among those who heard it delivered, or read it afterwards in the pages of 'Macmillan's Magazine;' and reprinting it, as he did, only a year before his death, it may be looked on as his last words on his favourite topic, and a last confession of his faith that, If the clergy would only play the great '*rôle'* which is before them, science and the creeds would one day shake hands.'
33. Dupree (1963, p. 72) gives the history of Gray's essays in the *Atlantic Monthly* and their British reprint: 'The English edition of 1861, which Darwin personally arranged and underwrote and which carried Gray's name, bore the title, "A Free Examination of Darwin's Treatise on the Origin of Species, and of its American Reviewers". Above the title on the title page stood the motto, "Natural Selection not inconsistent with Natural Theology".' Desmond & Moore (1991, p. 502) gives a similar account. The documentation for this is provided in Darwin (1994, pp. 393–397). Thanks to another presentation copy from Darwin, Kingsley encountered Gray's work in this edition. He wrote

to F. D. Maurice (1877, 2:171) on the impact of the new biology on his thinking. Kingsley: 'The state of the scientific mind is most curious; Darwin is conquering everywhere, and rushing in like a flood, by the mere force of truth and fact. The one or two who hold out are forced to try all sorts of subterfuges as to fact, or else by evoking the *odium theologicum*. ... But they find that now they have got rid of an interfering God—a master-magician, as I call it—they have to choose between the absolute empire of accident, and a living, immanent, ever-working God.' Kingsley (1877, 2:171) refers to Gray's work in this letter: 'But I ought to say, that by far the best forward step in Natural Theology has been made by an American, Dr. Asa Gray, who has said better than I can all that I want to say. I send you his pamphlet, entreating you to read it, especially pp. 28–49, which are in my eyes unanswerable.' Gray (in Dupree 1863, pp. 231–232) would later quote Kingsley (1874) with approval in 'What is Darwinism'. Gray's religious articles are discussed in the secondary literature, e.g., Mandelbaum (1958). Gray's correspondence with Darwin is studied by Gould (2002).

34. Kingsley was not alone in making this argument. Although the work contains an important criticism of Darwin, Gould (2002, pp. 1218–1222), the final chapter of Mivart's (1871, p. 305) *On the Genesis of the Species*, entitled 'Theology and Evolution,' affirms that 'That Divine action has concurred and concurs in these laws [Natural Selection] we know by deductions from our primary intuitions.' Kingsley (1871, p. 369) cites Mivart approvingly in his lecture, but the reference was omitted from the 1874 version. We have found no reference to Kingsley by Mivart. This is perhaps not surprising given Mivart's closeness to Newman. Jevons (1874, p. 464) speculated that natural selection did not rule out design: 'At some one or more points in past time there must have been arbitrary determinations which led to the production of things as they are.'
35. Kingsley (1871, p. 376): 'All, it seems to me, that the new doctrines of evolution demand is this. We all agree, for the fact is patent, that our own bodies, and indeed the body of every living creature, are evolved from a seemingly simple germ by natural laws, without visible action of any designing will or mind, into the full organization of a human or other creature. Yet we do not say, on that account – God did not create me: I only grew. We hold to our old idea, and say – If there be evolution, there must be an evolver.'
36. Compare this with Paley's (1809, pp. 454–455) natural theology: 'The proof of the *divine goodness* rests upon two propositions ... 'that the Deity has superadded *pleasure* to animal sensations, beyond what was necessary for any other purpose, or when the purpose, so far as it was necessary, might have been effected by the operation of pain." Paley's utilitarianism is read into the Divine plan at (1809, pp. 465ff).
37. Paley (1802, p. 474): 'In human sickness or infirmity, there is the assistance of man's rational fellow-creatures, if not to alleviate his pains, at least to minister to his necessities, and to supply the place of his own activity.'
38. Chadwick (1975, p. 314): 'This insight into enchanted nature has never been more enchantingly described than in the first chapters of *The Water Babies*. It is the only novel of Kingsley that is untouched by melancholy. ... But embedded into a book which now you can hardly read with pleasure all through, are glorious little nuggets of description; and the most glorious described what it felt like to live at the bottom of a freshwater stream. To achieve this formidable feat Kingsley needed his science, his sense of mystery and divinity underlying nature and his painfully acquired experience in literary expression; and since no one else has combined these qualities, the feat has never been repeated, ...'
39. This is the basis of the famous 'alienation' argument (Rosenberg 1965) in which specialization can corrupt the virtues necessary to human flourishing. McCloskey (2006) helpfully locates Smith's work in the 'virtue ethics' tradition.
40. See Darwin (1859, pp. 115–116), and Milne-Edwards (1853, p. 36). Milne-Edwards explicitly notes the corrupting effect of the division of labor for self-aware agents. This suggests knowledge of either the standard French edition of *Wealth of Nations* or J. B. Say's work in which the corrupting aspect of specialization is pressed (Levy 1968).

41. Malthus (1798, IV ¶7): 'An intimate view of the state of society in any one country in Europe, which may serve equally for all, will enable us to answer this question, and to say, that a foresight of the difficulties attending the rearing of a family acts as a preventive check; and the actual distresses of some of the lower classes, by which they are disabled from giving the proper food and attention to their children, act as a positive check, to the natural increase of population.'
42. The Cambridge Darwin Correspondence contains this summary of Darwin's (7 May 1879) letter to John Fordyce: 'Believes it absurd to doubt that a man may be an ardent theist and evolutionist; gives the examples of Kingsley and Asa Gray. As regards Darwin's own views, his judgement often fluctuates but 'I have never been an Atheist in the sense of denying the existence of God'. Thinks that 'generally (and more and more as I grow older)… an Agnostic would be the most correct description of my state of mind'.' Unlike Gray, Kingsley was both English and clerical. He was remembered by Leonard Darwin (in Keynes (1943, p. 440)) as one of the few men of religion who visited Darwin's home: 'I only remember 3 clergy coming to Down House, 2 local parsons and Kingsley. I do not believe Mendel would have thought it wise to get the reputation of having seen my father.'
43. Smith (1759, III.i.§106): 'The happiness of mankind, as well as of all other rational creatures, seems to have been the original purpose intended by the Author of nature, when he brought them into existence. No other end seems worthy of that supreme wisdom and divine benignity which we necessarily ascribe to him; and this opinion, which we are led to by the abstract consideration of his infinite perfections, is still more confirmed by the examination of the works of nature, which seem all intended to promote happiness, and to guard against misery. But by acting according to the dictates of our moral faculties, we necessarily pursue the most effectual means for promoting the happiness of mankind, and may therefore be said, in some sense, to co-operate with the Deity, and to advance as far as in our power the plan of Providence. By acting other ways, on the contrary, we seem to obstruct, in some measure, the scheme which the Author of nature has established for the happiness and perfection of the world, and to declare ourselves, if I may say so, in some measure the enemies of God. Hence we are naturally encouraged to hope for his extraordinary favour and reward in the one case, and to dread his vengeance and punishment in the other.'
44. Mivart (1876, p. 155). We (Levy & Peart 2003, Peart & Levy 2005c) examine the coalition between a different sort of Christian – evangelicals – and utilitarian economists..

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