Lucretius on Creation and Evolution: A Commentary on De rerum natura *5.772–1104* by Gordon Campbell

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If survival of the fittest is a principle as relevant to ideas as it is to species, Darwinism has proved to be a hardy breed, especially if we judge provocation to be a sign of life. Last November alone, voters in Pennsylvania ousted school board members who had instated policies that gave Intelligent Design a hearing alongside Darwin in ninth-grade biology, while the Kansas Board of Education removed obstacles to teaching both perspectives. The Austrian Cardinal Christoph Schoenborn felt obliged to go on the record once again about the Church's views on the debate over evolution in America. And an ambitious exhibition simply entitled 'Darwin' opened at the American Museum of Natural History in New York. One reviewer [Rothstein 2005], citing an 1844 letter in which Darwin says that writing about his ideas was 'like confessing a murder', takes the curator to task for domesticating a 'bizarre' and 'shocking' idea. What is so unnerving about Darwinism? The Cardinal is blunt: 'It's all about materialism, that's the key issue' [Heneghan 2005]. It is the idea that matter is the only reality.

Epicureanism is Antiquity's most infamous promoter of materialism, as well as the attendant horrors outlined by the Kansan Board—secular humanism, atheism, and the idea that life is accidental, both in the everyday and in its genesis.[1] Nowhere, perhaps, is the defense of these tenets more vivid and calculated than in the fifth book of Lucretius' *De rerum natura*, in which our gaze is shifted from the *primordia rerum*, the imperishable first-beginnings of things, to

[1] Of course, strictly speaking, the Epicureans are not atheists; but their gods inhabit another world and care not a whit for humankind, which is to say that their brand of humanism is aggressively secular.

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the contingent origins of our mortal cosmos and the organisms that inhabit it. Lucretius has an axe to grind in this book with Antiquity's teleologists—the Platonists, the Aristotelians, and, most of all, the Stoics. His stated aim is to disabuse his reader of the idea that the nature of the universe is owed to any demiurgic blueprint. From the outset, the most visible cost of this disenchantment—which for Lucretius, of course, is its greatest gain—is the uncoupling of the human from any cosmic master plan. The critique of teleology is, then, at its heart, a critique of the idea that the world was created *hominum causa*, for the sake of people: cosmology for Epicurus and his followers always entails a payoff for ethics.

Human exceptionalism is, in fact, recast as the particular hostility of the earth towards these creatures. This is best represented by the helplessness of the human infant, which is contrasted to the ease with which the other animals are at home in the world. Of course, birth trauma also matters to a teleologist like Plato. But whereas the *Timaeus* sees education as a realignment of our true nature with the divine order of the universe, in Epicureanism, human development is a history of creating defenses, good and bad, of which philosophy is the most noble and effective. This phylogenesis is then restaged, at least in part, as ontogenesis. The second half of book 5 of *De rer. nat.* takes up the task of accounting for human nature in a cosmos short on divine solicitude and partial to all the other animals, by investigating how anthropogony parts ways with zoogony under the force of circumstances. That is, it sets out to explain how the human (*scil.* us) is produced in time through the interaction of organism and environment, rather than to describe the pet project of a benevolent creator.

Lucretius' is a complex story in book 5: he tries to explain the spontaneous generation of life, speculates about human prehistory, gives a description of early communities that includes laconic explanations of the origins of justice and language, and traces the development of cities and civilization. For years, the mixture of apparently dystopic and utopic elements at both the early and the late stages of this story puzzled scholars, who split on whether Lucretius was a 'Primitivist' or a 'Progressivist,' i.e., whether he idealized the past or the present. The past few decades, however, have seen an increasing dissatisfaction with this either/or opposition and an attempt to

engage more carefully with the text and its competing movements.[2] This trend has opened up a space for a new set of questions for readers of book 5: What constitutes the distance between humans and other creatures—viable life forms and monsters? What is the relationship between human vulnerability and the pursuit of *ars*? What is the role of necessity in producing the human, and where or when does it give way to a form of self-fashioning? What ensures the survival of humans in a quasi-Darwinian world of species competition? How do the stories that Lucretius tells about the spontaneous origins of life or human exceptionalism relate to our own dominant, albeit hotly contested, evolutionary narrative?

Lucretius on Creation and Evolution, Gordon Campbell's new commentary on some of the most interesting lines in Lucretius' story (5.772–1104), stakes out the ground of some of these issues. Campbell has written a thoughtful and timely reassessment of Lucretius' engagement with his teleological opponents, as well as with Presocratic zoogony—good use is made of the recently published Strasbourg fragments of Empedocles—Golden Age myths, and, of course, the elusive master text of Epicurus himself. Yet, if all roads lead to Lucretius, they approach him both from the periods prior to the poem and from our own recent, and sometimes very recent past. Lucretius' poem was one of the most prominent explanations of the creation of life in mechanistic and non-teleological terms from the early Renaissance until the publication of *The Origin of the Species* in 1859, and Darwin's theories bear some striking similarities to those found in the ancient tradition of thinking about the beginnings of life. Besides pursuing its natural task of *Quellenforschung*, then, Campbell's commentary wagers that *De rer. nat.* 5 intersects with our present set of questions and anxieties about evolution in interesting ways, and sets out to map these points of intersection. 'Map' may be the wrong word here, however, since it is in his joining of past and present that Campbell is at his most creative.

In fact, it would have been helpful if a better map of Campbell's own work had been made available to the reader. No attempt is made in the introduction to integrate the lines chosen into the poem as a whole or book 5. Ready familiarity with more general

[2] E.g., recently, Blickman 1989, Nussbaum 1994, Asmis 1996, and Holmes 2005.

questions of background and context for the poem is assumed, as is a strong grounding in Epicureanism. Most of the Greek is translated, while, unsurprisingly, the Latin is not, although Campbell offers, in addition to the Latin text, a lucid translation of his excerpt.[3] Still, a reader working in translation on key topics, such as the origins of language or failed species, could glean much from the series of section introductions which form the backbone of the commentary proper. These range from brief transitioning remarks to condensed versions of working papers that Campbell has published elsewhere [2002a, 2002b]. Campbell has also added two long appendices—a 'Table of Themes in Accounts of Creation, Zoogony, and Anthropogony' and a 'Table of Themes in Prehistories and Accounts of the Golden Age' (including Isles of the Blessed, Ideal States, Noble Savages, and so forth)—which, while not exhaustive, offer a wealth of data. The index itself is unfortunately short and rather arbitrary. But despite limitations on the text's accessibility to non-specialists, both students of Epicureanism and those interested in the history of thinking about the origins of life and the human in the Western tradition now have a stimulating guide to what is fascinating, if difficult, Lucretian terrain.

The luxury of painstaking attention to the text is the great joy of a commentary. Such attentiveness in a commentary like this one, where it is combined with a deep sensitivity to larger issues, often rewards. For centuries, scholars have debated the complex relationship between poetry and science in the epic masterpiece of a philosophical tradition ostensibly hostile to myth and poetry. One of the strengths of Campbell's commentary is its deft negotiation of Lucretius' poetic and philosophical strategies, which allows one to observe the details of this dynamic. Lucretius has recourse to atoms and void as explanatory mechanisms in book 5 less often than elsewhere in the poem. This is not to say that we lose sight of the atomic underpinnings of the visible world, but we do spend more time at the macrophysical level. As a result, book 5 is rich in *topoi* on the formation of life, accounts of the Golden Age, and the development of human civilization, making it an excellent place to observe Lucretius' 'remorseless appropriation and recontextualization' [138] of his non-Epicurean predecessors in action.

[3] On Campbell's text, see Volk 2004.

Central to Campbell's treatment of Lucretius' strategy is his use of Richard Dawkins' theory of memes. Memes are described as

> the sort of generally accepted background ideas whose origins are untraceable. . . that tend to exist and evolve as if they have a life of their own independent of any writer. [180–181]

Campbell speaks, for example, of the 'Darwin meme', later corrected to 'the pack of memes surrounding Darwinism that make up our *Bildungsgut* of prehistory' [183]. More commonly, however, memes are not attached to a proper name. This presumably justifies Campbell's decision to introduce them only *ad lin.* 925–1010, i.e., over halfway through the commentary, rather than in the context of his discussion of the Presocratic background to Lucretius' zoogony. What appears key to the definition of a meme, then, is that it is a critically unexamined concept which travels easily beyond its initial context: the meme 'survival of the fittest', whose peregrination in the 19th and 20th centuries has been problematic, is an excellent example. Thus, it makes sense that Campbell appropriates memes for his discussion of how Lucretius integrates material from other sources and shapes it to suit his purposes, all the while working, whether actively or more subtly, to head his reader off from the kinds of incorrect inferences to which those sources fell prey. Memes, for Dawkins and Campbell, function like viruses against which one may need to be 'vaccinated', although they may still be useful.

Campbell sees the Golden Age 'as an integral part of Lucretius' prehistory, and as the very material out of which he builds it. Certain themes', he claims, 'are rationalized and debunked, while others are allowed to remain untouched and to do their work of vaccination simply by their recontextualization in Lucretius' account' [184]. Analyzing a descriptive passage on the streams that satisfied the thirst of early humans, Campbell argues, for example, that Lucretius appropriates pastoral poetry in order to advance the principle of 'cultural gradualism' against the myth of divine beneficence. He then goes on to suggest that Lucretius also uses this idyllic picture 'to both legitimate and illustrate Epicurean ethics' [206], by showing that the body's necessary and natural needs are easily met in a world still uncontaminated by luxury goods. The utility of an intermediary stage of village life between the *erramento ferino* (wandering in the wild) and the formation of cities, which is unique to Epicurean prehistory,

thus becomes clear. For it offers a picture of a simpler time when Epicurean justice could emerge in rudimentary form, without, for all that, resorting to a Golden Age: 'in prehistory we find the Epicurean theory at its most powerful, stripped of the accretions of culture and civilization, saving the human race itself from extinction' [254]. Much of the Golden Age imagery that one does find in the account of spontaneous generation, when people were born from great wombs rooted to the earth, can be seen as helping Lucretius answer the question of how these beings survived without mothers or *τέχναι* (*artes*): although the image of the Earth as mother, with its overtones of Stoic allegory, has him 'skating on thin ideological ice' [60], he needs the Earth to give forth a milk-like juice if these first creatures are to be nourished. Campbell's attention to Lucretius' tendency to stress positive or negative aspects of early human life according to what he is trying to do at a given moment places him firmly within the trend of moving beyond the Primitivist-Progressivist opposition.

This sensitivity to Lucretius' strategies extends from Campbell's handling of broad themes to his comments on single words and phrases. He is alert to how Lucretius manipulates language so as to downplay external agency (e.g., on *exclusae*, *ad* 802 [71]), or conversely, how it slips into a teleological idiom (e.g., on *crerint*, *ad* 782 [47]). This makes him an ideal reader of Lucretius, that is, someone whom it is ideal to read with. In this sense, Campbell's is a more satisfying commentary than Costa 1984, which covers book 5 in its entirety. The two commentaries, in fact, work nicely together, since Costa attends more to questions of grammar, but is more reticent and conservative vis-à-vis the big issues.

But despite the benefits of working with the text in this format, it is precisely the strength and cohesiveness of Campbell's interpretation that makes one begin to wonder why he chose to prepare a commentary rather than a monograph. *Lucretius on Creation and Evolution* occasionally feels like one of the hybrid creatures that Lucretius describes in the zoogony. It can seem as though an argument is being carried on in footnotes [see below]. On the other hand, while individual *lemmata* often give rise to wide-ranging and imaginative discussions, the commentary can begin to resemble a cabinet of curiosities. It is at these moments that one especially feels that the format allows Campbell to accumulate information without properly sorting it out, or simply to wander off. Commentaries, it is true,

are built through the accretion of *comparanda*. But sometimes this parataxis can be confusing, if not misleading, especially given that Lucretius' dense blend of argumentation and never-innocent illustration requires careful untangling.

Take, for example, Campbell's treatment of Lucretius' denial of the existence of Centaurs. Lucretius moves from the argument that men and horses age differently to pointing out that they neither 'burn with the same passion of Venus, nor come together with a single lifestyle, nor find the same things pleasant for the bodies' [*De rer. nat.* 897–898, Campbell's translation]. This last claim opens onto the observation that hemlock is great for goats, poisonous to humans. Lucretius is building on the theory of perception outlined in book 4 whereby different bodies have different pores that determine what they experience as painful or pleasurable. In his notes on this [154], Campbell responds to this shift from sexual desire to food with an excursus on the association between food and sex in Lucretius, which he claims is underwritten by Greek biological thinking on human seed.

Now it is perfectly true, as Campbell explains, that Aristotle and probably earlier Presocratic writers understood seed as a residue of concocted food, and that elsewhere Lucretius directly relates diet to the quality of seed [*De rer. nat.* 4.1260ff]. Yet this has little relevance here, where Lucretius' easy transition from sexual desire to food hinges on the word *iucunda* (pleasures). As Campbell points out *ad* 897, Lucretius thinks that seed is stimulated through seeing, and that the only catalytic objects of vision are members of one's own species. In a similar way, certain species gain pleasure from certain foods, although it should be said that those whose bodies are incompatible with the food in question may be harmed by it, whereas the seed of a person looking at Black Beauty is presumably simply indifferent to equine loveliness. It is not that Campbell is wrong about ancient ideas about the role of food in the production of seed. But his digression on this topic obscures what really matters here, namely, the Epicurean lock-and-key perception theories that can explain both species-specific desire and some species' pleasure in foods that are poison for other species. As it stands, the notes on food and seed seem better suited to the material on diet and seed in book 4, or, even better, to the discussion of food (*pabula*) on p. 117, where, in fact, they would have been quite helpful. It is not that valuable information is missing: the relevant comments on

seed—that there is no viable means of reproduction without visual stimulation—are made *ad* 897, while the explanation of the lock-and-key theory of perception is available *ad* 899–900. It is simply that there is so much unorganized information that the notes no longer clarify Lucretius' argument. I should say that Campbell's notes are chock-full of interesting information, and that they are occasionally very funny. Indeed, one is often content just to wander with him. It is simply that at times the line between *erramento* and error seems a bit too fine.

While, in principle, Campbell is looking backwards and forwards equally, from Lucretius' predecessors to his *Nachlëben* and our own conceptual habits, in practice, the fact that these habits are shaped by modern evolutionary biology means that they have a special claim to truth. As a result, the motivation for introducing modern evidence is often ambiguous. Here again one feels that the commentary format is problematic in that it allows Campbell to remain less than forthcoming about his own agenda, especially vis-à-vis Lucretius' anthropology. Campbell reasonably argues that clarifying our own, heavily Darwinian ideas about what an anti-teleological story of the creation of the animate world should look like enables us to understand better the specific mechanisms of Lucretius' system. Lucretius, for example, does not accept mutation at the genetic level and seems to accommodate the inheritance of acquired characteristics, at least in humans [7–8]. At the same time, Lucretius' difference from Darwin sometimes seems presented in such a way as to make him seem more cutting-edge: his view of species as fixed and bounded entities, for example, allies him with post-Darwinian notions of species stasis [124–125]. In such a context, the use of modern parallels appears to be less about crystallizing our own preconceptions and more about vindicating Lucretius. On page 221, for example, Neolithic archeology is enlisted as support for Lucretius' picture of moderate violence among early humans over and against Moschion's more lurid account of cannibalism. Ancient bones again work to bolster Campbell's reading of the role of cooperation in human evolution [280–281] ('L. is quite correct to place pity for the weak in prehistory'), although it should perhaps be noted that the solidity of the bones cannot be extended to the inferences drawn from them that are used to prove Lucretius correct. Different things appear to be at stake in different comparisons undertaken either casually or at some length in the

commentary, without these stakes always being made clear. Moreover, the interest in showing that Lucretius anticipated the work of modern science can dull Campbell's often incisive readings of the dense nodes of myth, Epicurean philosophy and rhetoric that are so characteristic of book 5.

In the second half of this review, I want to take a look at the most ambitious part of Campbell's interpretation of Lucretius' evolutionary narrative. Campbell argues that Lucretius' claims that humans are the only species to have evolved; that they evolved into cooperative beings; and that, in doing so, they ensured the survival of the species and the definitive break between the human and the animal. How does this work?

Lucretius' account at 5.1011–1027 of the 'softening' of human nature and the formation of the first communities is notoriously elliptical. In recent years, much attention has been paid to how his apparent citation of the principle of Epicurean justice—neither to harm nor be harmed (*nec laedere nec violari*)—participates in the story being told here. Campbell sees the entire passage as a turning point in the evolution of the species: whatever changes human nature undergoes here are, henceforth, passed down as inherited characteristics, making Lucretius a Lamarckian. Yet, in part because Campbell's argument is carried on disjointedly across *lemmata*, it is unclear how the external environment provokes these changes to human nature and what these changes are. Some of this vagueness is due to Lucretius himself. At 5.1011, without obvious motivation, Lucretius introduces a new stage of human development in which humans have houses, clothing, fire, and nuclear families. From this point on, they begin to soften (*mollescere*). Spending time indoors, their bodies can no longer bear exposure to the elements. Venus has a hand in this softening, and children break the arrogant natures of their parents with their 'winning ways'. Somehow this process creates the conditions for humans to establish pacts with one another neither to harm nor to be harmed, and to set up the principle of pitying the weak, which Campbell calls altruism. It is this 'somehow', of course, that matters. Also of crucial importance is how we understand what has been gained in this development.

Campbell knows what he wants to show, namely, that 'instead of being a woolly-minded pipedream, the Epicurean theory is the most

pragmatic and realistic approach to justice' [281], and that Lucretius anticipates post-Darwinian work on the evolutionary benefits of co-operation: 'our co-operative ability is thus the feature that defines our humanity, and enables us to survive' [262]. Lucretius' presentation of the Epicurean theory, as Campbell understands it, accords with recent refinements to the model of the prisoner's dilemma which was first analyzed in an Epicurean context by Nicholas Denyer [1983]. The basic form of the prisoner's dilemma takes two prisoners charged with the same offense. Each is offered a deal by the police chief: if both cooperate, they each get a year in jail; if one defects by confessing and betraying the other, he gets off scot-free, while his counterpart (the sucker) receives ten years.[4] Conventional wisdom once held that the rational choice would be defection. When the dilemma was translated into Darwinian terms, it became hard to see how any form of cooperation could be plausible in the theater of 'survival of the fittest'. As a result, cooperation could only be explained as self-sacrifice for the good of the community. Campbell introduces the challenges to these assumptions posed by the research of Robert Axelrod, who worked with computer models of the prisoner's dilemma in the 1980s. Axelrod's research revealed that it is not competition but cooperation that proves more advantageous when the game is repeated. More specifically, a strategy called 'tit-for-tat', which always reciprocates the behavior of its opponents—it betrays when betrayed, cooperates with those who have cooperated with it—emerged as the strongest. Moreover, after some time playing with tit-for-tat, the 'suckers' began to thrive and the defectors became nearly extinct. Campbell uses these results to reformulate Denyer's conclusions: 'the Epicurean model would achieve the best result both for the individual and for the group, and the individual gives up no direct advantage by sticking to the friendship/non-aggression/mutual aid pacts of the Epicurean theory, but receives a direct personal advantage by doing so' [258]. This appears a valid application of Axelrod's work. In casting early humans' negotiation of non-aggression pacts (*amicitia*) in a utilitarian light, Campbell keeps Lucretius firmly in the realm of Epicureanism, where 'natural' action is always motivated by a desire to secure the individual's pleasure.

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[4] Campbell omits a third *scenario* in which both defect and receive five years apiece.

However, there are two problems with what Campbell does from here. First, after applying Axelrod's work to Epicurean mutual non-aggression pacts, Campbell immediately rephrases his claim thus: 'it is a powerful individual survival strategy that all should pity the weak' [258]. He presents such pity as 'learned behavior' and gives it pride of place in human evolution: 'now that the human race has evolved, they are able to make the conceptual leap from their previous conviction [i.e., aggressive competition was the only survival technique] to "it is fair that all pity the weak".' But is this pity the same thing as *amicitia*? What I find troubling about this easy conflation of the two ideas is that the prisoner's dilemma assumes a community of equals; the tit-for-tat strategy relies on the opportunity for future retribution in the case of defection. If it is just a question of the weaker *versus* the stronger from the outset, game theory seems irrelevant: we would seem to be in the world of Plato's *Gorgias*, where the only answer to Callicles' law of the stronger would be the one that Plato gives, namely, that doing injustice is worse than suffering it. Campbell might claim that in a community which includes defectors, the weak (i.e., the suckers), and tit-for-tat players, altruism (always cooperating) still emerges as the second-best strategy. Indeed, he seems to suggest this on pages 277 and 280. But even if a player is programmed to cooperate always within the game, the rules of the game still assume the conditions of total reciprocity, that is, that the weak, at least in theory, have the power, say, to lessen my prison sentence. In any kind of pragmatic situation, if a player is by definition weaker, the stronger has no reason not to cooperate with his equals and dominate the weaker.[5] Thus, asserting that the principle 'pity the weak' is strictly utilitarian hardly seems valid. I stress this because, although Campbell acknowledges that 'there does seem to be a huge conceptual gap between the pacts "neither to harm nor be harmed" and "it is fair that all pity the weak"' [277], he nevertheless groups *amicitia* and pity for the weak together as cooperation. To classify pity for the weak as cooperation is a bold move, since coop-

[5] It is worth pointing out that Axelrod seems only to admit strict altruism in cases of kin-relations, where self-sacrifice can be understood in terms of propagation of the gene pool [1984, 88–89 and 134–135]. At the same time, he does speculate that it is cooperation within kin groups that leads to the adoption of cooperative strategies outside of kin relationships, a move that Campbell reproduces [see above].

eration is the human trait that Campbell argues protects the species from extinction, but it does not appear justified by the argument.

Yet it is clear that there must be some connection between the softening of humans, the formation of friendship pacts, and pity for the weak. The second problem with Campbell's account is that he is not explicit about how this connection works in Lucretius. Nevertheless, with a little work, his reconstruction of Lucretius' argument can, I think, be discerned. Campbell recognizes that any evolutionary change must come from the environment. This means that the softening of human nature in response to key aspects of the domestic environment—the warmth of the fire, shelter, marriage, and childcare—enjoys some claim to priority as a cause for all future changes. What gives rise to this shift towards domesticity is not evident; Lucretius may be silently assuming that the vulnerability of humans to other beasts (or at least some humans to other beasts) could have driven them to extinction, had they not formed families and communities. In any case, Campbell argues that it is because men become softer in their relationships with their wives and their children that they behave favorably to their neighbors: 'the *amicitia* does not seem to arise from utility as in Vat. 23 but from a more spontaneous and more nearly altruistic motive. The results are pragmatic' [273]. Thus, he understands the softening of human nature as leading directly to the gain of reasoning (*λογισμός*): the argument would be that once the benefits of cooperation, initiated not for utilitarian reasons but as a result of the softening of human nature, were seen within the family, humans were then moved to forge relationships of *amicitia* with their neighbors. This would explain why family life is so important to the account of justice: it generates the conditions under which humans learn the benefits of cooperation, whatever we take these to be—again, Campbell is vague on this point, as well as on how these benefits map onto the benefits of cooperation within the prisoner's dilemma model. The final stage would be something that looked like altruism: the first humans 'are pictured extrapolating from the lessons they have learned at home, and applying the results to the women and children of other families in a positive development of the negative *nec laedere nec violari*' [277].

In this version of the argument, pity for non-kin weak thus gets a more complex explanation than Campbell puts forth in his original continuous version of the argument [see 252–261], where pity is regu-

larly just substituted for *amicitia*. Or rather, it gets two and perhaps even three explanations. On the one hand, Campbell recognizes the difficulties posed by his earlier inclusion of women and children in the prisoner's dilemma: 'the weak cannot strictly engage in the first part of the pact *nec laedere* (do not harm), and so this transcends the basic non-aggression pacts' [277]. His solution is to make the softening of human nature the cause of *both* the non-aggression pacts and pity for non-kin weak. In other words, pity for non-kin weak bears no direct connection to the non-aggression pacts, although both have their roots in the formation of nuclear families. Such a position makes Campbell 's vagueness about the 'lessons... learned at home' all the more troubling, since these lessons can no longer been seen as derived from the utilitarian benefits associated with the non-aggression pacts.

It seems likely that Campbell is close to the Lucretian position when he says that the softening of human nature 'is not strictly driven by utility, and the value of such a psychological change becomes clear only later' [272]. In fact, Campbell has not shown the place of utility at all at this stage of evolution: the utility associated with his re-reading of the prisoner's dilemma only becomes clear when non-aggression pacts are formed. What this means for his argument is that, first, some fundamental psychological change unrelated to the intellectual perception of benefit is the only explanation for the development of *amicitia* and any utilitarian justification comes later. It is thus unclear, if 'the first friendship pacts had to be learned intellectually' [278], what experience the first humans are learning from. Second, since at this stage of the argument Campbell no longer relates pity for non-kin weak directly to the non-aggression pacts and the benefits of cooperation that they reveal, the relationship between utilitarianism and altruism falls apart. Pity for non-kin weak may be an extension of intrafamilial cooperation, but we do not know what that is. We are left to conclude that pity is an acquired characteristic derived from the softening of human nature that never enters into the utilitarian calculus.

But on the other hand, Campbell is clearly attached to the idea that altruism for Lucretius holds an evolutionary advantage and is an important part of the cooperation that saves the species. Having recognized that women and children are technically out of place in the prisoner's dilemma since they do not have the power to harm, he nevertheless reintroduces the prisoner's dilemma in an attempt

to reestablish the utilitarian pedigree of altruism. This return to the earlier arguments seems to offer an explanation of pity that is incompatible with the one in which altruism and *amicitia* are parallel developments arising from changes to the psychological makeup of human beings. It may be that Campbell understands both altruism and *amicitia* as independently revealing their utility over time. But then we are back where we started: how can we evaluate the utility of altruism if its benefits are not those derived from cooperation within a community of equals? If this utility lies elsewhere, why introduce the prisoner's dilemma to explain altruism?

There is still a third explanation of pity lurking in Campbell's text, one that suggests yet again the underlying problems with the utilitarian reading of altruism that he offers. On page 278, Campbell shifts gears and embeds altruism once again in the development of *amicitia*, rather than allowing it to develop directly from the nuclear family. On this view, pity is the extension of the non-aggression pacts to unequal power relationships with other men's women and children.[6] Here, it is as if having learned the benefits of cooperation in the quasi-political sphere, men no longer want to exploit their power advantage even when reciprocity is out of the question although, if domination is taken to be a good thing in itself, *pace* Plato, aggression would yield more gain than cooperation with the weaker. Campbell gets around the problem of why men stop dominating the weak even when there is no advantage in their restraint by reintroducing the theory of acquired characteristics. Cooperation is thus 'learned behavior' which is 'passed down to offspring as an instinctive response to women and children' [278]. That Campbell offers this interpretation would seem to be a tacit acknowledgement that it is difficult to construe pity for the weak in utilitarian terms, or at least utilitarianism as it appears within game theory. One also wonders whether pity is the result of a characteristic acquired during the process of domestication or if it comes after the development of *amicitia*. Most importantly, while the position that pity for non-kin weak is an 'instinctive response' solves the problem of fitting altruism into the prisoner's dilemma model, it moves decisively away from Lucretius' text, where *amicitia* and what Campbell calls altruism are closely

[6] This is sometimes called the 'associationist' argument, which is treated at length in the context of Epicurean friendship by Philip Mitsis [1988].

linked. As a result, altruism disappears from the species-saving cooperation that Campbell thinks is so important to Lucretius' concept of the human.

Campbell's overall argument has its merits, and one wishes it had been laid out more systematically at some point. His practice of referring the question of pity for the weak to Axelrod's work on the prisoner's dilemma seems to reflect his own desire to make Lucretius' definition of the human conform to what one suspects is his own. Unfortunately, his use of game theory distracts him from the text itself. It would seem that Lucretius is telling two stories in these lines. One certainly has to do with justice. Equally important, however, is the fixation on children, which cannot be fully explained by staying within the parameters of the debate about justice. As Campbell himself observes, when Lucretius talks about pity for the weak, he 'deliberately go[es] beyond what Epicurus would consider allowable in giving only one possible cause of justice' [276]. Excessive, too, is 5.1027, a verse on which Campbell is uncharacteristically silent. Lucretius asserts that the human race would have been destroyed without *concordia*, then adds that 'nor would the offspring have been able to prolong the race to this day.'

Another oddity is the expression '*muliebreque saeclum*' ('female race') at 5.1021, found nowhere else in Latin literature. Campbell insists that Lucretius does not see women as a separate race or species. He relates '*muliebreque saeclum*' to similar phrases (e.g., '*muliebre secus*') in other authors, although *ad* 853 he has a long note on '*saeclum*' where it, with '*genus*', is clearly Lucretius' word for species, whether human or animal [e.g., 5.791, 1169, 1238]. And '*muliebre genus*' is found at 5.1355, in a discussion of the first forms of clothing. Lucretius tells us there that *Natura* forced men to weave first, since the *genus virile* excelled in *ars* and was far more clever than the race of women. Not a separate species, then, but also, perhaps, not entirely at home in the *genus humanum*. One begins to wonder whether all the talk of human nature in both Lucretius and Campbell forgets a difference embedded in the text that needs to be acknowledged if these lines are to seem less opaque.

My own suspicion is that there is a bit of a conceptual *lacuna* in the *erramento ferino*, which exerts pressure on this subsequent phase. Lucretius goes to great pains, as we have seen, to account

for how the first humans survived by positing a surreally maternal earth. But this earth becomes hard and brutal after the early days of spontaneous generation. We know too that care of the young is a pressing object of concern for Lucretius: as I noted above, earlier in book 5, he argues against teleological cosmogonies by enumerating the earth's faults, foremost among which is its hostility to the human infant cast out from its mother's womb. So what is going on in the period when the earth has turned cruel but families have not yet formed? At 5.1011ff, children re-enter the picture because men and women join in marriage. A line is probably lost between 5.1012 and 1013, and it might have shed light on the implications of this move towards the nuclear family. It is intriguing that the manuscripts have *cognita sunt*—although Campbell accepts Lachmann's emendation (*coniubium*) and argues against the *lacuna*—which anticipates the intellectual act implied by the next words: 'and they saw the children created from them.' 'They', as Campbell rightly notes, must be the fathers, an indication that this 'human' story is, in fact, being told from the perspective of one sex, whose acquisition of reason may rely more on the inference of paternity than on the perception of any intrafamilial cooperation. For I think Campbell is right to understand the verb 'to see' (*videre*) to mean that the fathers realize that the children are their own, that is, that they are created *ex se* (from themselves). This recognition, combined with fire and love, prepares the way for *amicitia* and pity for the weak. But how?

In recent years, it has been argued [see van der Waerdt 1988] that later Epicureans modified Epicurus' denial that there could be any natural affection between humans—even between children and parents[7]—by adopting some version of the Stoic concept of οἰκείωσις, which Long and Sedley [1987 I.351] translate as 'affectionate ownership'. Campbell accepts these arguments in order to make οἰκείωσις a factor in the development of pity for non-kin weak [277–278] in the third explanation which I sketched above. Yet it would make more sense to locate οἰκείωσις at the moment when fathers recognize their children as their own and take on wives, especially since Stoic οἰκείωσις begins with, in addition to a desire for self-preservation, love of offspring.

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[7] Epicurus advised the sage to stay single, marriage being full of 'inconveniences'.

If we understand the protection of wives and children as now implicated in the well-being of the autonomous male individual [cf. Homer, *Od.* 9.114–115], we can see that pity for the weak may fall under the logic of a mutual non-aggression pact without being simply a knee-jerk extension of it or a parallel development. It is not completely clear whether the weak are threatened by wild beasts or other humans (already in the *erramento ferino*, sex is marked by either mutual desire or male violence, and perhaps by the idea, too, that women need to trade sex for food), or by both. If it is other humans that are the problem, men may entrust (*commendarunt*) women and children, presumably to one another, in these pacts on the basis of a shared vulnerability—I will not harm your family if you will not harm mine—thus restoring the conditions of reciprocity and the promise of retribution required by game theory. This may explain Lucretius' emphasis on the importance of man-to-man communication in the passage on altruism ('signing with cries and halting gestures that it is right for all to pity the weak'). But if we at least entertain the possibility that the danger lies with wild beasts, pity then encompassing a commitment to the protection of wives and children from these beasts, we might get a sense of why Lucretius' conclusion to this passage is so apocalyptic.

If Lucretius so readily groups the female race with children as *imbecilli* (the weak and the helpless), it is not just a question of how this 'race' ever survived, but how children managed to. For, presumably, women were solely responsible for childcare before. Acknowledging this tension between the need to offer protection to women in the first communities and the earlier assumption of gender-neutral self-sufficiency sheds some light on 5.1027, then, where the worry is not only that the human race will be wiped out, but that the offspring will not be able to lead the species (*saecla*) into the future: to reproduce, they have to survive their traumatic and vulnerable early years. There may be a sense here that in such a hostile world, women and children need men, that the future of the species required fathers once *Natura* herself turned cruel.

The Garden, Epicurus' philosophical school, was revolutionary in its acceptance of women, and Epicureanism may, as a philosophical system, leave more room for 'feminine principals', as Campbell's

mentor, the late Don Fowler [1996], has argued.[8] Campbell suggests that the very process of softening may be taken as the 'feminization' of the human race. But this only reminds us that what matters here is the evolution of men [see 267–268 *ad* 5.1014], whose softening creates the impetus for *ars*, undertaken on both their own behalf and that of a genus that is far less clever. Lucretius, it is clear, excludes the *saeclum muliebre* from justice and the political at the origins of these institutions, and, as I have suggested, inscribes the male protection of women and the paternal oversight of the family line into the order of necessity. This order of necessity becomes, for Campbell, the very conditions under which the 'human' emerges as such. At the very least, it is worth observing that when Campbell talks about the need for humans to learn cooperation to survive, he, like Lucretius, is talking about a community of men. Thus, the awareness of difference within the *genus humanum* is not just some politically correct orthodoxy. Nor does it mean that we have to reinstate a binary opposition, this time between Lucretius the misogynist and Lucretius the feminist; for like Primitivism and Progressivism, these terms conceal more than they reveal. Rather, it is a question of marking complications that seem to disrupt the text itself. In mimicking Lucretius' own conflation of human nature and male nature by reducing everything here to the prisoner's dilemma and equating political cooperation with what is human, Campbell's reading falls short of full engagement with a complex text.

In short, I rather like the idea that Lucretius could have submitted the winning entry in Axelrod's first iterated prisoner's dilemma competition. My concern is that if we focus on whether Lucretius' idea of human nature, and particularly that which makes us human, is validated by modern views of utilitarianism in an evolutionary context, we may miss how his story is implicated in the dynamics of the poem and its assumptions, something to which Campbell is sensitive at other points. Moreover, such a strategy fails to recognize that even if the conclusions of modern science and Lucretius coincide, it still matters how they arrived at those conclusions: surface similarities betray fundamental differences in the production of knowledge.

[8] While Campbell's citations are often extensive, in noting Fowler on the 'feminine principal', he fails to cite the article that sparked it, Nugent 1994, which presents a less positive picture of gender in Lucretius.

Finally, and perhaps most importantly, Campbell seems to take the evidence of science—evolutionary biology, game theory, prehistoric archaeology—as the gold standard for determining what it is that makes us human, that is, where it is that Lucretius gets it right. I want to stress that I find Campbell's revision of Denyer's account of Epicurean justice in many ways persuasive. It has changed my understanding of this passage and challenged me to rethink it; I have no doubt it will stimulate further discussion of these lines. Thus, it may seem perverse to want to restore sexual disequilibrium or a politics of dominance to a reading of Lucretian prehistory that celebrates the social utility of cooperation and the ethics of altruism. But it is precisely the use of modern sources to legitimate Lucretius' humanism (and, perhaps, *vice versa*) that makes a reading which recognizes the specificity of the *saeclum muliebre* end up looking like support for a socio-biological theory of sex roles and, more insidiously, like an endorsement of such a theory as a blueprint for defining the human. That is, the reading which I have adumbrated starts looking strangely prescriptive. And so, it is not just that I think that Campbell's fidelity to game theory sets an unnecessary limitation on his interpretation of these lines. I also find the resulting naturalization of Lucretius' story troubling.

Lucretius on Creation and Evolution offers a bold and sophisticated attempt to come to terms with Lucretius' arguments on evolution in the spirit of the poem's most ambitious commentators. It deserves not only consultation but active perusal. I could not agree more with Campbell's commitment to putting Lucretius and Epicureanism into conversation with the present and with our own attempts to figure out where humans belong in a world of chance and impersonal necessity. But reading book 5, it seems to me, is an exercise in tracing the contingency of anthropologies and anthropogonies. We can locate its contemporary salience in the interaction visible within it between materialism and the stories which Lucretius tells of what nature 'forces' [e.g., 5.1028, 1354] us to be or become, and in Lucretius' interpretation of the imperatives which he believes he finds inscribed into us. As Benjamin writes, 'It is true that men (*Menschen*) as a species completed their evolution thousands of years ago; but mankind (*Menschheit*) as a species is just beginning his' [1996,

I.487].[9] In this chronology, the equation of mankind and humankind remains the least evolved thing of all.[10]

BIBLIOGRAPHY

Asmis, E. 1996. 'Lucretius on the Growth of Ideas'. See Giannantoni and Gigante 1996, 763–778.

Axelrod, R. 1984. *The Evolution of Co-operation*. New York.

Benjamin, W. 1996. 'Einbahnstraße'. Pp. 83–148 in T. Rexroth ed. *Walter Benjamin: Gesammelte Schriften* IV.1. Frankfurt am Main. See Jephcott 1996, 444–488.

Blickman, D. R. 1989. 'Lucretius, Epicurus and Prehistory'. *Harvard Studies in Classical Philology* 92:157–191.

Campbell, G. 2002a. 'Lucretius 5.1011–27: The Origins of Justice and the Prisoner's Dilemma'. *Leeds International Classical Studies* 1.3:1–12 (http://www.leeds.ac.uk/classics/lics/2002/200203.pdf).

———— 2002b. 'Lucretius and the Memes of Prehistory'. Discussion Paper 1, November 2002. *Leeds International Classical Studies* (http://www.leeds.ac.uk/classics/lics/discussion/2002dp1.pdf).

Costa, C. D. N. 1984. ed. *Lucretius: De rerum natura V*. Oxford.

Denyer, N. 1983. 'The Origins of Justice'. Pp. 133–152 in *ΣΥΖΗΤΗΣΙΣ*: *Studi sull' epicureismo Greco e romano offerti a Marcello Gigante*. Naples.

Fowler, D. 1996. 'The Feminine Principle: Gender in the *De rerum natura*'. See Giannantoni and Gigante 1996, 813–22. Reprinted in Fowler 2002, 444–452.

[9] If Benjamin's own *Menschheit*, like Lucretius' *genus humanum*, functions as the umbrella term of sexual difference in order to name a single species, there is a certain honesty to Edmund Jephcott's politically incorrect English translation, 'mankind,' which lays bare what is concealed by the ostensibly neutral German and Latin terms.

[10] Many thanks to Jim Porter, Gerry Passannante, and Miles Nelligan for helpful criticisms.

Fowler, D. 2002. *Lucretius on Atomic Motion: A Commentary on Lucretius,* De rerum natura *2:1–332*. Oxford.

Giannantoni, G. and Gigante, M. edd. *Epicureismo Greco e romano: Atti del Congresso Internazionale, Napoli 19–26 maggio 1993*. Naples.

Heneghan, T. 2005. 'Vienna Cardinal Draws Lines in Intelligent Design Row.' *New York Times* Nov 20.

Holmes, B. 2005. '*Daedala Lingua*: Crafted Speech in *De Rerum Natura*'. *American Journal of Philology* 126:527–585.

Jephcott, E. 1996. 'One-Way Street'. Pp. 444–488 in M. Bullock and M. W. Jennings edd. *Walter Benjamin: Selected Writings. Vol. 1: 1913–1926*. Cambridge.

Long, A. A. and Sedley, D. N. 1987. *The Hellenistic Philosophers.* 2 vols. Cambridge.

Mitsis, P. 1988. *Epicurus' Ethical Theory: The Pleasures of Invulnerability*. Ithaca, NY.

Nugent, S. G. 1994. 'Master Matters: The Female in Lucretius' *De rerum natura*'. *Colby Quarterly* 30:179–205

Nussbaum, M. 1994. *Therapy of Desire*. Princeton.

Rothstein, E. 2005. 'Enough to Make an Iguana Turn Green: Darwin's Ideas'. *New York Times* Nov 18.

van der Waerdt, P. A. 1988. 'Hermarchus and the Epicurean Genealogy of Morals'. *Transactions of the American Philological Association* 118:87–106.

Volk, K. 2004. rev. Campbell 2003. *Bryn Mawr Classical Review* 2005.06.26.