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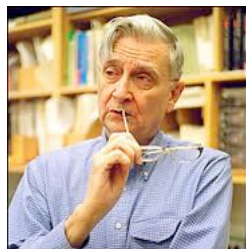
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Harvard Holism

March 30, 2011, 10:10 am

By [Michael Ruse](#)



On second thought . . .

There is a row about kin selection going on at the moment in the evolutionary community. Although there are earlier hints of the idea, even back in the first edition of the *Origin of Species*, the notion was first fully articulated by the late [William D. Hamilton](#) in a paper in 1964. The idea, like so many brilliant insights, is simple. The Darwinian evolutionary mechanism of natural selection puts everything on existence, or more precisely reproduction. The organism that out-reproduces its competitors passes on a higher percentage of its features, and over time this leads to change, to evolution. What is crucially important is that this change is not random but in the direction of improved efficiency, of adaptation. Organisms seem as if designed—the hand and the eye—but (even if you do happen to believe in a Designer) from the viewpoint of science everything is simply the working of blind law.

In more modern terms, one can express this in the language of genetics. What counts in evolution is getting a higher percentage of your genes than genes of your competitors into the next generations. But notice that strictly speaking it is not your genes as such that get passed on but copies of your genes. And it was here Hamilton had his insight. It doesn't really matter how this occurs so long as it occurs. But think. We all share copies of genes with others, most importantly with our close relatives. Siblings (in a normal sexual species like humans) share 50 percent of their genes. Cousins share 12½ percent of their genes. And so forth. Hamilton pointed out that if you, through the help that you offer, could get a sibling to reproduce more than twice as much as they normally would, then you yourself would be ahead of the game, even if you do not reproduce directly at all. Reproduction by proxy!

Hamilton offered a simple formula showing how this all works, and evolutionists—especially evolutionists looking at social behavior—were off and running. Over the years, more mechanisms and refinements were added, and some early applications corrected (particularly over the application of kin selection to social insects), but basically, to use that word, the evolution of social behavior—sociobiology—had got its paradigm. In 1975, the Harvard ant specialist Edward O Wilson wrote a massive overview, *Sociobiology: The New Synthesis*, and in 1976 the English biologist Richard Dawkins wrote his deservedly famous, popular account, *The Selfish Gene*.

Now Wilson wants to take it back. Writing (in *Nature*) with a couple of colleagues from Harvard, he argues that kin selection is a fundamentally flawed concept and should be rejected. He argues that it is way too atomistic and that we need a more integrative approach. Elsewhere he has endorsed the idea of the [superorganism](#), arguing that in some cases—for instance, some species of ant—the nest members are so tightly integrated within the whole that we should think of the biological individual as the nest itself rather than the separate ants. Natural selection therefore should be thought of as something acting on the nest as a whole rather than on the separate members of the group. In this sense, Wilson is a “holist,” to use a term invented by the South African statesman-philosopher, Jan Smuts.

Expectedly, the attack on kin selection has brought on reactions that put one in mind of fans and things hitting them. Recently in response, letters have appeared signed by well over a hundred evolutionists, and those the cream of the crop. Among other claims, one finds the expressed suspicion that this is all so awful, that had the kin selection attackers not been at [Harvard](#), no one would have taken any notice of them. They certainly would not have published in so prestigious a place as *Nature*.

Well, this may be so, and I want to make it very clear that, although Ed Wilson and I have a really close friendship going back over 30 years (and united in both having had scorn emptied on us for thinking that Darwinian biology applies to humankind), I am virtually a kin-selection groupie. I love the idea conceptually, and I think it has been (and continues to be) one of the most fruitful ideas of empirical science of the 20th century.

But I am not writing about this now, rather to point out that even if it is the case that Wilson and company are getting the attention because they are at Harvard, conceptually they are in a long tradition—a long Harvard tradition.

The split between evolutionists who think that selection is for and only for the individual, and those who think that the group often comes first and foremost, goes back to the [two men who discovered natural selection](#)—Charles Darwin and Alfred Russel Wallace. Darwin always thought in terms of individuals, even when it comes to humans (I have discovered a letter making this point very clear), and Wallace

always thought that often selection favors the group.

Without saying that the whole of science is a social construction – an epiphenomenon on the culture of the day—I don't think there is any doubt that the Darwin-Wallace dispute reflects different socio-political commitments. Darwin the child of industrialists (his maternal grandfather was Josiah Wedgwood the potter) favored competition at all levels. Wallace, an ardent socialist, always pushed for integrative thinking and solutions.

Another who favored an integrative approach—for all that he is usually portrayed as the paradigmatic nature-red-in-tooth-and-claw Social Darwinian—was [Herbert Spencer](#), about whom I have written before. And it was Spencer who had the big influence on early 20th-century American biology, not Darwin. Especially at Harvard, where there was a group of Spencerian holists, including the physiologist Walter B. Cannon, the father of the notion of “homeostasis,” the biochemist L.J. Henderson, who formulated an early version of the so-called anthropic principle, and most significantly the ant specialist William Wheeler. This last was ardent for group thinking and superorganisms.


Wilson is the direct intellectual grandson of Wheeler, for Wheeler's student was Frank Carpenter and his student was Edward O. Wilson. So whether he is right or whether he is wrong, I am not at all surprised at the turn that Ed Wilson has taken. I would have been surprised otherwise. I remember the first time I met him in his lab over 30 years ago. On his wall, right next to the picture of Darwin was a picture of Herbert Spencer. “My God, Professor Wilson,” I gasped, “Herbert Spencer! Herbert Spencer!” “Great man, Mike.” He replied. “Great man.”

And this story is why—and I cannot in this final line resist the temptation to point this out to all of the [New Atheists](#) who have been so nasty to my fellow Brainstormer Jacques Berlinerblau for [his suggestion](#) that they might profitably learn a little from the history of atheism—if you want to understand the present, you need to understand the past. The paradox is that one has to tell this to evolutionists, of all people.





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dpbarash 4 hours ago

Thank you, Michael, especially for your concluding point that we evolutionists need to be mindful of history, and for the implication - the horror! the horror! - that scientists, too, are human, and thus fallible. One example of the latter (and it is a trap into which I, too, have fallen) is your statement that "We all share copies of genes with others, most importantly with our close relatives. Siblings (in a normal sexual species like humans) share 50 percent of their genes. Cousins share 12½ percent of their genes. And so forth." In fact, the key point is not the overall percentage of shared genes but rather, the probability that an individual allele, present in one individual - the potential altruist - is also present in another, the potential recipient. Thus, I would restate the above as "an allele present in an individual has a 50% chance of co-occurring in a sibling, a 12.5% chance of co-occurring in a cousin," and so forth. Overall percentage of shared genes puts the emphasis on whole bodies (holism, as you suggest) whereas % of co-occurrence via descent puts the focus where I and most evolutionists think it belongs: on alleles.

In a sense, this is trivial, and in the great scheme of evolutionary biology, more of a distinction than a difference. It is a pleasure to be arguing with you about science, Michael, rather than religion, since you have long delighted me as being one of the very few philosophers of science who actually understands the science about which he professes.

Like

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