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*What do you think about the actual status of group selection inside the structure of evolutionary theory?*

I think it's an important concept. It was widely rejected in the 1960s, and since 1970s there has been a growing movement among evolutionary biologists, philosophers and social scientists to try to develop group selection into a scientifically respectable concept. I'm part of this idea and movement. We all reject naïve group selection – one should not simply assume that traits evolve because they are good of the group. But it's a legitimate hypothesis when you state how to test and possibly support it. So we think it's an important addition in the mix of ideas that evolutionary biology uses in understanding nature. Testing is important, and rejection in the 1960s were based on fallacious arguments. There was an attack on naïve group selection, but that is not the same thing as described in real group selection.

*But, if I understood well, Michael Ruse doesn't agree with you. Why?*

Well, let's see. There are several elements behind it. I think he sometimes believes that people who are defending group selection are defending the idea of *species* selection, and that's really not the main idea at all. There are some people who are sympathetic to that: Steve Gould tried to develop and defend the idea of species-level selection. But when David Wilson and I and many other people talk about group selection, it's selection *within* a single species, where different groups of conspecific organisms are in competition with each other. And this is the tradition, this is what Darwin was talking about when he talked about the evolution of morality: that was human tribes competing with other human tribes. So that's what we mean by group selection. It's not species selection.

*And species selection for you is not a legitimate hypothesis?*

No, no, I personally think that – the way Steve Gould and Niles Eldredge developed – it's an interesting hypothesis. I think it's actually very different from group selection, and now the only question is: can we show good data to support arguments that species selection has distinct characteristics? And so to me the question is: what's the empirical evidence for the role of species selection in different characteristics?

*But it's a different question from the one about group selection.*

Yeah, absolutely.

*So, do you want to add something about the relationship between group selection and multi-level selection, which is recalled often in evolutionary biology today?*

Yeah, the view that David Wilson and I endorse – he's really the author of this idea – is the idea that selection can occur and does occur at many levels. It's not only individual selection, it's not only group selection, it's not only intragenomic conflict, but all of these processes can occur. Many characteristics are involved in different selection processes simultaneously, and affected by such processes.

There's one detail I think I should add, which is another thing that separates Michael Ruse's position from my own: it is the status of kin selection. Ok, this is something that Hamilton changed his mind about. Initially he thought of kin selection as a kind of individual selection, and then in the 1970s he came to see that it was a kind of group selection. The key requirement for group selection to cause an altruistic characteristic to evolve is for altruists interacting with each other preferentially. Altruists interact with altruists, selfish individuals with selfish individuals, to the degree that makes it possible for an altruistic characteristic to evolve. One important way (though not the only way) to get altruists interacting preferentially with other altruists is that *relatives* interact with each other. So this is why David Wilson and I think of kin selection as a variety, a kind of group selection. Kin selection is just group selection where the individuals in a group are genetically related to each other. But it doesn't change the basic structure of the argument: you have multiple kin groups in competition with each other. It's group selection. That's what I think about it.

*And is it necessary for the individual to be capable to distinguish altruist from selfish individuals?*

No, that's not necessary. It can play a role in some cases. The example that Hamilton first developed is a very nice example, where an insect lays a bunch of eggs, the eggs hatch, and many individuals interact with each other because they are living next to each other in a single nest. They don't have to recognize each other, they just interact with the individuals they live with. They haven't to be siblings. So you have kin selection without any kin recognition. It's not a condition that's required.

*And what do you think about the proposal of a new evolutionary synthesis? Many authors (such as Massimo Pigliucci) now bring forth the idea of a new synthesis with more processes and more factors entering evolutionary theory. Do you think that multi-level selection can play a role in this?*

Yeah, I think that MLS is a very important: to me it is the central organizing element for thinking about natural selection. You cannot think about individual selection only, or group selection only, or genic selection only: you have to think about a chorality of kinds of selection processes. Then there are more dimensions in addition to what we may call biological evolution: there's cultural evolution, where the notions of reproduction and success are redefined, but cultures compete with cultures in human society, and it's not about having babies, it's about having ideas spread. That's a selection process too.

*Your last book is about evidence in biological sciences and Intelligent Design. Do you want to say something about that?*

The criticisms I have against Intelligent Design and creationism do not connect really with whether you believe in MLS or individual selection: to me that approach is the old argument from design, it's hundreds of years old, with new examples. But it's the same old argument, and it was bad before Darwin, and it's an even worse argument now. Richard Dawkins should agree with me on this, because you can disagree with me about MLS theory and yet agree that there's something very wrong about ID theory.

*So your book is dedicated to a boundary between science and not-science, because other debates are inside science and inside evolutionary theory.*

The first chapter is about the concept of evidence, as it's understood in different areas of statistics and probability, as they can be applied, and there has been a debate in the last 90 years *in* statistics, about the right way to think about probability and inference and evidence, so the first chapter is about that. Second chapter is about ID and creationism, the third chapter is about natural selection, the fourth about common ancestry, and the last three chapters are applications of the ideas about the evidence that are developed in the first chapter. That's how the book was organized.