BFA SEMINAR SERIES No. 34

Philosophy and the Concept of Species

Bas Jongeling

Held at Girl's College, Bulawayo on Friday 28 January 2005.

In recent years more and more species concepts have been proposed. A few of these ideas are discussed.

The idea that species are individuals and not classes has been defended for a long time by Michael Ghiselin and David Hull. I show that the idea that species are "philosophical" individuals is mistaken. Logical categories are irrelevant when we try to find out what species are (Walter Bock).

The traditional 'biological'' species concept (BSC) was formulated by Ernst Mayr: a species is a group of populations that actually or potentially interbreed with each other. Mayr seems to have had two ideas in mind: on the one hand species are characterised by well-integrated genomes, on the other hand they are defined by reproductive isolation. He must have thought that the two approaches amounted to the same thing. Taxa interbreeding in a stable, narrow hybrid zone show that this is not the case. The idea of species maintaining their identity in evolutionary processes seems the more important of the two.

Wiley's version of Simpson's evolutionary species concept leads to a proliferation of species, even species that are morphologically indistinguishable.

Joel Cracraft defines species on the basis of being diagnosably distinct (phylogenetic species concept). He assumes that the fact that his species concept is, at least in principle, clear-cut is a guarantee that it picks out the 'real' species. I argue (in the wake of Mayr) that speciation is often a gradual process and that therefore the concept of species must be fuzzy. To represent a fuzzy situation in the real world by a clear-cut concept is a misrepresentation. Cracraft also defends his species concept on the ground that it is in line with the practice of museum-based taxonomists. This pragmatic argument undermines his ontological argument.

I suggest that species be defined as lineages that maintain their identity in evolutionary processes. This recognizes as different species taxa that interbreed in a stable, narrow hybrid zone.

Finally, I discuss several phenomena that will be awkward to categorize under any species concept: parallel speciation of sticklebacks in Canadian lakes, and de-speciation and re-speciation of cichlids in East African lakes (George Turner).