12-1993

Review of *Evolution and the Recognition Concept of Species: Collected Writings* by Hugh E. H. Paterson and Edited by Shane F. McEvey (Johns Hopkins University, 1993)

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Evolution and the Recognition Concept of Species: Collected Writings.

This volume reprints the primary articles about the Recognition Concept of Species, written by its formulator. Paterson's major contribution has been recognizing that cohesion may be more important in speciation than reinforcement or isolating mechanisms. Although his proposal sounds in part like the Biological Species Concept (BSC), it is very different.

He asserts that species diverge allopatrically from close relatives, marked by adaptation to novel environments peripheral to ancestral species distribution, and accompanied by evolution of novel specific mate recognition systems (SMRSs). Isolating mechanisms (the BSC is an "isolationist" concept) as adaptive responses minimizing the cost of hybridization do not evolve; reproductive isolation emerges as a by-product of species' adaptive response to novel environments. SMRSs are all aspects of an organism's biology involved with fertilization and reproduction, operating functionally, and evolving, as systems. Species are cohesive systems bound together by SMRSs.

Paterson's natural professional allies would seem to include people (1) interested in whether genetic drift would facilitate peripheral isolates speciation if SMRSs are functional units; (2) studying sexual selection in speciation and species cohesion; and (3) interested in comparative studies, particularly correlating the divergence of SMRSs, adaptive changes in habitat, and speciation modes. Paterson rejects drift because he rejects pleiotropic effects, but can SMRSs act as functional units without pleiotropy? He claims that the recognition concept is nonteological in contrast with the BSC, then states that species evolve particular SMRSs in order to adapt to new environments. He also fails to deal with sexual selection, admitting as much in introductory notes to one chapter, and rejects phylogenetics for shortcomings that are not true. Thus Paterson makes no professional alliances. Finally, there are no empirical tests or practical applications, only mathematical models designed to show that speciation by reinforcement is unlikely. A second book forthcoming from the same publisher promises to contain such information.

Paterson characterizes isolationist species concepts as negative and cohesive concepts as positive, but his writing tactics are isolationist. He rarely answers critics with more than a dogmatic dismissal. Will any members of Paterson's research group be able to form an effective professional network?

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