

Abbreviated Narrative of the Career of JOHN C. AVISE

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John C. Avise is Distinguished Professor of Ecology and Evolution at the University of California, Irvine. He came to UCI in 2005 after a 30-year career at the University of Georgia where he rose through the academic ranks to Distinguished Professor of Genetics.

Born in Grand Rapids, Michigan, Avise received a Bachelors degree in Natural Resources from the University of Michigan, a Master's degree in Zoology from the University of Texas, and a PhD in Genetics from the University of California at Davis. He has published more than 350 scientific articles plus 30 books. The books include *Sketches of Nature* (2015), *Essential Readings in Evolutionary Biology* (2014), *Conceptual Breakthroughs in Evolutionary Genetics* (2014), *Evolutionary Perspectives on Pregnancy* (2013), *Hermaphroditism* (2011), *Molecular Ecology and Evolution* (2010), *Inside the Human Genome* (2010), *Clonality* (2008), *On Evolution* (2007), *Evolutionary Pathways in Nature* (2006), *The Hope, Hype and Reality of Genetic Engineering* (2004), *Genetics in the Wild* (2002), *Captivating Life* (2001), *Phylogeography* (2000), *The Genetic Gods* (1998), *Conservation Genetics* (1996), and *Molecular Markers, Natural History, and Evolution* (1994 and 2004 editions). Several of his books have also been translated and published in foreign languages including Arabic, Indonesian, Japanese, Polish, Portuguese, and Spanish.

He is an elected Fellow of the American Association for the Advancement of Science, the American Academy of Arts and Sciences, the American Ornithological Union, the Pew Program in Marine Conservation, the National Academy of Sciences, and the American Philosophical Society. He has served as President of the American Genetic Association (2000), vice-President (1987) and President (1994) of the Society for the Study of Evolution, President of the Society for Molecular Biology and Evolution (2004), the Board on Biology of the National Research Council (1994-1997), editorial boards of 15 scientific journals, and in numerous other advisory capacities.

Avise has received the Lamar Dodd Award from the University of Georgia, a Sloan Foundation Fellowship, the Earle Greene Award from the Georgia Ornithological Society, the William Brewster Memorial Award from the American Ornithologists' Union, the Wilhelmine Key Award from the American Genetic Association, the Caesar Kleberg Medal from the Kleberg Foundation, the Molecular Ecology Prize from the journal *Molecular Ecology*, the Alfred Russel Wallace Award from the International Biogeography Society, a Hall of Excellence Award from the American Fisheries Society, and a Distinguished Faculty Award from the University of California at Irvine.

Avise has lectured in all 50 U.S. states and many other locations including Argentina, Ascension Island, Australia, Austria, Belgium, Brazil, British Virgin Islands, Canada, Ecuador, England, Finland, Germany, Greece, Holland, India, Ireland, Israel, Italy, Jamaica, Japan, Luxembourg, Mexico, New Zealand, Northern Ireland, Norway, Panama, People's Republic of China, Poland, Portugal, Puerto Rico, Russia, Scotland, South Africa, Spain, Sweden, Switzerland, the U.S. Virgin Islands, and Washington D.C.

Scientific Accomplishments

Much research in the Avise laboratory entails the use of molecular markers to analyze ecological, behavioral, and evolutionary processes in nature. It covers a broad spectrum of topics: genetic parentage, reproductive modes, population structure, speciation, hybridization, introgression, phylogeography, systematics, and phylogenetics. Avise has conducted research on diverse animal taxa ranging from corals and sponges to representatives of all the major vertebrate groups.

In 1972, Avise published the first multi-locus allozyme analysis in any fish species, and uncovered for the first time a profound effect of genetic drift in nature. During the 1970s and 1980s, his protein-electrophoretic work on many fishes, mammals, and birds demonstrated not only that natural populations are genetically highly polymorphic, but also that molecular markers can be utilized to address many natural-history topics that previously had been analyzed solely from phenotypic data. He was thus a pioneer in the fields of molecular ecology and molecular evolution. In 1994, he published the first edition of *Molecular Markers, Natural History and Evolution*, which today remains one of the primary textbooks (now in its second edition) on the application of molecular genetic markers in ecological, behavioral, and evolutionary contexts.

In the late 1970s, Avise was among the first to introduce mitochondrial (mt) DNA to population biology. This seminal work laid the foundation for phylogeography, a field for which he is recognized as the founding father. In 2000, Avise published *Phylogeography: The History and Formation of Species*, which remains the field's major textbook. Among many phylogeographic applications for which students in Avise's laboratory paved the way were genetic assessments of marine and freshwater turtles, catadromous eels, unisexual fishes, and regional assemblages of birds, fishes, mammals, herps, and marine invertebrates.

In the 1990s, Avise was among the first to capitalize upon highly polymorphic microsatellite loci to analyze animal mating systems in nature, on creatures ranging from sea spiders and snails to polyembryonic armadillos to numerous fishes, including male-pregnant pipefishes and seahorses, and hermaphroditic killifishes. This line of inquiry eventuated in many articles and also a trilogy of books authored by Avise dealing with evolutionary perspectives on *Clonality* (2008), *Hermaphroditism* (2011), and *Pregnancy* (2013).

In addition to research in molecular ecology and evolution, Avise has published on the relevance of evolutionary genetics to human affairs ranging from religious beliefs, to the human genome, to genetically modified organisms, to the history and philosophy of science. This effort has included several authored books, such as *The Genetic Gods: Evolution and Belief in Human Affairs* (1998), *The Hope, Hype and Reality of Genetic Engineering* (2004), *Inside the Human Genome* (2010), and *Conceptual Breakthroughs in Evolutionary Genetics* (2014), among others.

In 2006, Avise joined with Francisco Ayala to inaugurate a series of annual Sackler colloquia, sponsored by the National Academy of Sciences, entitled *In the Light of Evolution* (ILE). Each ILE installment highlights a topic that can be informed by evolutionary thought and has broader societal relevance. Proceedings of ten ILE colloquia were published in PNAS, and most also have appeared as edited books from the National Academies Press.

Avise has served as major advisor to 26 graduate students and 10 postdocs. He has taught undergraduate and graduate courses ranging from Introductory Biology, Ornithology, Genetic Engineering, and Conservation to advanced Ecological Genetics and Evolutionary Theory.