



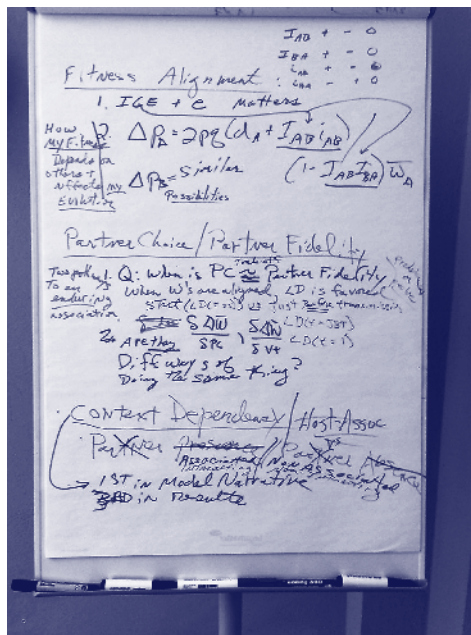
NATURE, NURTURE, AND THE NURTURERS
MICHAEL J. WADE

Michael J. Wade is a Distinguished Professor of Biology at Indiana University and an affiliated faculty member of the Center for the Integrative Study of Animal Behavior, the Cognitive Science Program, and the Department of History and Philosophy of Science. He received his Ph.D. in Theoretical Biology from the University of Chicago in 1975, under the joint tutelage of the ecologist, Thomas Park, and the theoretical population geneticist, Montgomery Slatkin. Wade was hired by the University in 1975, tenured in 1981, and later chaired the Chicago's Committee on Evolutionary Biology for two years and the Department of Ecology and Evolution for seven. He joined Indiana University in 1998. He has received several teaching awards, including Chicago's Quantrell Award. In 2009, he received the American Society of Naturalists' 2009 Sewall Wright Award and, in 2008, was elected to the American Academy of Arts and Sciences. He has served on several editorial boards, including *Evolution* and *The American Naturalist*, and written more than 260 articles. He has authored or edited three books, *Epistasis and the Evolutionary Process* (with J. B. Wolf and E. D. Brodie III, 2000); *Mating Systems and Strategies* (with S. M. Shuster, 2003); and *Adaptation in Metapopulations: How Interaction Changes Evolution* (2016). – Address: Department of Biology, Indiana University, 1001 East 3rd St., Bloomington, IN 47405, USA. E-mail: mjwade@indiana.edu.

For my sabbatical project at the Wissenschaftskolleg, I proposed to write a monograph about the origin and evolution of mutual dependencies between different species and to address some of the open conceptual questions on this topic in a series of shorter papers. The central problem of interest to me is the following. Within any species, each individual

shapes its life from a torrent of information. Some of that life-shaping information comes in the form of genes inherited from the individual's parents, some from its environment, some from its social partners, and some from its microbes. As an individual is developing, it is also shaping others; for it too can be a parent, an environment, a social partner, or a microbe in the life of another. How does this reciprocal interaction between individuals of different species, this evolutionary analog of sociological "double contingency" (Vanderstraeten 2002), result in the biological regularities of mutualistic communities instead of a solipsistic community riddled with conflict and infinite indeterminacy?

Between September 2018 and June 2019, these initial questions were enriched by the knowledge, ideas, and additional questions of three other Wiko Fellows who formed our working group, Judie Bronstein, Jason Wolf, and Tim Linksvayer. And my thinking was profoundly shaped by the torrent of information about art, journalism, history, democracy, the rule of law, civil war, political science, anthropology, sociology, literature, and philosophy streaming from the Tuesday and Thursday Colloquia, as well as the research of and dinner conversations with my fellow Wiko Fellows and their partners.



The photo records the birth of our model of the intersection of the evolutionary genetics of conflict and cooperation in species interactions. There are three manuscripts currently in progress, developing special concepts related to this model in more detail and for more ecologically specialized audiences. In addition, I have compiled an outline of topics and results for the book originally proposed.

We sustained our Working Group productivity with mutual respect for one another's ideas and contributions, despite different research backgrounds. We also shared an inordinate love of cooking, which carried our discussions out of the office and off the Villa Jaffé terrace and into *unsere Wohnungen in der Villa Walther*. We often stopped talking science in favor of dining together (with memorable pear and gooseberry pies by Tim Linksvayer).

A geneticist might say that interaction among disciplines is part of the DNA of Wiko. My first excursion out of the comfort of Science and into the Humanities came in early September, when I asked Bhrigupati Singh if he would be willing to introduce me at my Colloquium. Bhrigu agreed to reach across the conceptual divide, and he (along with thoughtful comments from the artist Patrick Chamberlain) helped me improve my presentation for the broader audience. Our initial meetings focused on the Colloquium led to an ongoing discussion of the meanings of interaction, contingency (including "double contingency"), and context dependence in the Humanities and the Biological Sciences, supplemented by timely and welcomed suggestions for my reading made by Wiko Academic Coordinator, Daniel Schönplüg.

During the fall term, a young, vibrant group of Life Sciences Fellows, including Mandi Gibson, Hassan Salem, Siobhán O'Brien (and partner, Alex Duff), Kirsten Traynor, and Arunas Radzvilavicius formed the core of our "Breakfast at Dunia's" group. We thrived on croissants, conversation, and the gubbins of the daily Wiko "weather report" in the early morning and excursions to visit the wonders of Berlin in the evenings. We discovered that Berlin's cuisine includes *Currywurst*, the occasional startling combination of white wine and *Bratwurst*, and, from the vantage point of the Americas, an appalling scarcity of jalapeño peppers.

In the fall term, I also enjoyed reading *Revisiting Race in a Genomic Age* by Sarah Richardson, as well as in-progress chapters from her forthcoming book, *Maternal Imprint*. The ensuing discussions enriched my understanding of the role of "indirect genetic effects" in evolutionary theory, a topic central to my own book project. Moreover, Sarah's work enlightened me on the continuous rotation and exchange of concepts between science and culture. It is no exaggeration to say that, in some areas of research, the scientific and the social are inseparable. The use of metaphors in evolutionary biology tends to invite

the more egregious distortions of meaning into our research and into the interpretation of experimental studies. More epistemological vigilance would serve evolutionary biologists well, especially in areas concerning sex and gender. Sarah's work at Wiko reveals how the gendered structure of the social enterprise of science affects the objects scientists choose to study. In addition, it affects the evidence they gather, the findings they infer from those studies, the reception of those findings within science and society, and the nuances embedded in the scientific knowledge of our species. It was my genuine pleasure in the winter term to introduce Sarah's Colloquium, entitled *Sex Contextualism*.

I borrowed freely from the Wiko library to read several books by Fellows and former Fellows. These not only prepared me in advance with background for Colloquia, but also provided glimmers of light in the winter nights of Berlin. In addition to the books by Sarah Richardson mentioned above, these included:

The Art of Social Theory, by Richard Swedberg; *Genetics in the Madhouse: The Unknown History of Human Heredity*, by Theodore Porter;
The Impossible Revolution: Making Sense of the Syrian Tragedy, by Yassin al-Haj Saleh;
Peace in Ireland: The War of Ideas, by Richard Bourke;
Poverty and the Quest for Life – Spiritual and Material Striving in Rural India, by Bhrigupati Singh;
The Dragonfly Sea, by Yvonne A. Owuor;
The Holobiont Imperative: Perspectives from Early Emerging Animals, by David J. Miller and Thomas C. G. Bosch;
Zeichen der Zerstörung, by Heidi Tagliavini;
Civil Wars: A History in Ideas, by David Armitage;
The Politics of Welfare State Reform in Continental Europe: Modernization in Hard Times, by Silja Häusermann;
Mutualism, edited by Judith L. Bronstein;
Stories for Posthuman Readers, by Michela A. Betta.

The Wissenschaftskolleg has afforded me the time to explore a different culture, to think, to reflect about my research and career, to make substantive contact with academics across an exceedingly wide variety of disciplines, to plan for my future life both in the short and in the longer term, and to enjoy a diverse group of people, young and old. Most importantly, I was able to share this time and these activities with my life's partner, Debra Lynn Rush-Wade.