



WHAT SHOULD A SCHOLAR WORK ON? JOANNA MASEL

Joanna Masel was born in 1974 in Melbourne, Australia. She studied genetics, mathematics and the history and philosophy of science at the University of Melbourne and completed a D. Phil. in Zoology at Oxford University in 2000 with Lord Robert May. She then did postdoctoral training at Stanford University with Marc Feldman before taking a position at the University of Arizona in 2004. She has worked in a range of fields, including the mechanism of prion replication, the psychology behind human cooperation and within-host HIV dynamics. Since 2002, her research has focused on evolutionary theory. Within this field, her main interests are the robustness and evolvability of biological systems. – Address: Department of Ecology & Evolutionary Biology, University of Arizona, 1041 E Lowell St, Tucson, AZ 85721, USA. E-mail: masel@email.arizona.edu

Knowledge is a wonderful thing for its own sake. But there are an infinite number of things about which one might acquire knowledge. Which path should a scholar follow? The “useful” or the “interesting”?

I began my scientific career trying to do something useful by figuring out how prions, the nasty agents behind mad cow disease, multiply in our brains, and of course how to stop them. In this corner of science, you can find big money and big egos. Who is right can unfortunately take precedence over what is right. I discovered new knowledge, but I came to believe that neither this nor I could make a difference in the face of more powerful forces.

Eventually I found my way to arcane but foundational questions in evolutionary theory instead. My new disciplinary colleagues, working in relative obscurity, are driven by the desire to know the truth. We communicate with one another in the precise language of

mathematics, a habit that helps us resolve surprisingly many disagreements, or at least gain insight into their true nature. It is a wonderful discipline in which to be an intellectual.

Over the years, however, my scruples about the practical uselessness of my adopted field grew louder. I had just begun planning a new project about how relative arms races among competitors interact during evolution with selection on absolute fitness assessed against an external standard. This project attuned me to whether statements were true at the level of individuals or at the level of groups. Once attuned, I heard discordant statements everywhere, including places that really matter.

“Everybody should go to college” is great advice for most individuals, but economists have long realized that things are not so simple for the group. Many benefits of college can be explained by “costly signaling theory”. Even if a good student learns nothing in college of any use, employers still want to hire him, because people who do well in college tend to be good employees, too. His college degree is a signal of his quality. Exclusive social networks are another good reason for an individual to go to a name-brand university, but it is of course impossible for everybody to be in the in-club, just as it is impossible for everybody to signal that their abilities are above average. Many economists know this, but struggle to get the message out to the public and to policy makers.

“Everybody should save more money for their retirement” is also good advice for most individuals, but not for the world. You can’t eat piles of saved money; what we need to save is wealth. Saved dollars are used to buy assets, whether shares, bonds, or other kinds of property or loans. For everybody buying such an asset, somebody must be selling it. Not everybody can buy at the same time; if they try, prices will go up until somebody weakens and sells. If we want to provide for the baby boomers’ retirement, we need to do work today to create new assets that will generate a stream of concrete benefits in the future. These new assets do not magically appear on their own, despite the negative real interest rates available today. Somebody needs to make them, not just buy them.

The two issues are related. The biggest opportunities today to create new assets are in human capital. At the end of the day, somebody will need to feed, shelter, and nurse the old, who will soon make up a much larger fraction of the population than ever before. The more skills we give our young people now, the better they will run the future economy when there are so few of them left of working age.

I felt the seesaw pulling me away from the esoteric equations of theoretical population genetics and towards the need to be useful by writing about this problem and informing

people about solutions. The more people I could reach, the better; so a popular book about the difference between money and wealth suggested itself.

This book project began as no more than a fantasy. The world of science is competitive, and what “counts”, sometimes quite literally, are grant dollars, journal articles, and citations. A popular economics book will bring me none of these. My colleagues will not understand. They won’t hold the book against me as a negative, but they will see a hole in my career, as though the time I spent writing it was a very long vacation. We are, at heart, social creatures. I couldn’t write this book at home, seeing, every day, people who placed no value on the project.

Then my husband insisted that we spend our sabbatical year in Berlin. I found out more about the Wissenschaftskolleg and realized that I could live out my fantasy there. At the Wiko, writing a book is normal. Indeed, whatever I choose to do here is accepted and assumed to be valuable. This is perhaps the greatest and most liberating gift that the Wiko gives. It is up to me to make the best use of it. It is up to me to decide how best to be a scholar, what is really important, and where to apply my mind and limited time.

We all struggle with the tension between becoming a specialized expert in one field and having the broad general knowledge that allows creative and productive cross-fertilization and sometimes leads us into another field altogether. Many people are surprised that an evolutionary biologist would venture fearlessly into economics, even after they hear that I have published in economics before. But interestingly, none of those skeptics are economists or evolutionary biologists. These two are actually sister disciplines, far closer than people think. Both study competition, both study cooperation, both study honest costly signals or “handicaps”. The science of evolution, ecology, and behavior applies just as well to humans as it does to other animals. My forays from biology into economics were no larger leaps than other career jumps I have made within biology. The much larger, more difficult jump has been that from technical journals to a popular book.

Despite circumstances as good as I could possibly hope for, I was not able to leave the world of science completely behind this year. I shut my research group down to one lone student, but past lab members still had papers in the pipeline to be completed and revised, and I needed to write grant applications to fund my future group. And I am still junior enough to perceive, perhaps mistakenly, some conferences and other scientific travel as indispensable to my career. None of these distractions from my book project were wasted. Indeed in my last month, which I spent exclusively on one new grant application, I made

what I think are profound breakthroughs in the very biological questions that first led me to this book project. But all this was work I could have done at home.

I left my old world 50 % behind this year, and that 50 % was enough to write 2/3 of my book. My more habitually book-writing Wiko colleagues (and now friends) tell me this is good, and as a social animal, this reassurance means a lot to me. Now my challenge is to take some of the Wiko-world back home with me, maybe 25 %, so that I complete the book in the next year. The Wiko helped me pursue what I believe to be important, sheltering me from negative judgment while I took my first steps. Now I need only the faith to continue along that path, whose end is already coming into view. And once this is done, to ask myself again, without boundaries, what is the best question for me to ask next.