



WEDDING BIOLOGY TO

BY JULIE REHMEYER

LAURA FORTUNATO WAS BORN INTO AN OLD ITALIAN FAMILY, with traditions and customs dating back centuries. But the strong hand of modernity has been pressing against those customs, sometimes extinguishing them (such as the extravagant dowries brides' families used to pay) and sometimes adapting them to new times (such as the ongoing but lessening squabbles over land and inheritance).

Fortunato accepted these changes as the natural way of the world, as children do—until she studied biology in college. Long-term studies of the mating strategies of deer, for example, led her to ask similar questions about the mating strategies in her family. Why, she began to wonder, had they paid those dowries? Why do some societies have very different customs? How had all these variations come about? Her professors didn't seem to

have the answers, and she was struck: "We understand more about deer than we do about people!"

When she became an anthropologist in graduate school at University College London, the mystery—and the sense of scientific missed opportunity—deepened. By historical, international standards, Europe was *strange*. In 83 percent of the world's societies, men are permitted to have multiple wives at once, a shocking custom by European standards (though adultery barely raises an eyebrow in some quarters). Furthermore, in other parts of the world new couples typically joined either the husband's or the wife's family household rather than forming their own, as had been the practice for hundreds of years in many European societies. Why was Europe different?

There were certainly some theories. For example, anthropologists have commonly argued that monogamy came about because of Christianity.

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But Fortunato found this explanation wanting, since a Babylonian legal document restricted polygyny 2,000 years before Christianity. Evolutionary biologists had their own story: For any individual fellow, they've said, it's always better to have multiple wives, because he'll have more kids. But if one guy has lots of wives, other men will inevitably end up with none—and might not like that much. The strife that goes along with this kind of competition is damaging to society as a whole. So as societies became bigger and required more cooperation, the biologists have argued, monogamy became more common.

“I wasn't very happy with those explanations,” Fortunato says. “For one thing, no one has tested them. And this whole theory is based on whether a mating strategy is good for men only. Women are treated as completely passive.”

So Fortunato, now an Omidyar Fellow at SFI, set out to bring some careful science to these questions. First, given all the extra-marital fooling around that can happen in monogamous societies, she knew that marriage and mating just aren't the same thing. So the first question was, how does marriage affect evolution? The key, she thought, was inheritance: the legitimate children are the ones who get the goods when a man dies.

And for inheritance, the number of wives a man has matters, since his property will have to be split between each of his families. In Europe, where people have traditionally farmed small plots of land intensively, a polygynous man's children could end up with too little land to support themselves—a big evolutionary problem. But in Africa, where land was historically plentiful, inherited land was inessential and polygyny worked out fine.

ANTHROPOLOGY





Monogamous, neolocal societies (purple) cluster together on the evolutionary tree, while monogamous, dowry-giving societies (red) are scattered. This means the monogamous, neolocal societies have a common ancestor from which both practices originate. Thus the practices might not be inherently related, instead just happening to occur together because they were both adopted by a common ancestor.

But of course, a man has to be pretty sure that his wife's kids are really, genetically, his for it to make evolutionary sense for him to hand his property down to them. Fortunato realized that this means both spouses may be acting strategically: Men are more willing to transmit their property to their wives' children if they're confident she's been faithful, and women are more willing to be faithful if they believe it will lead their husbands to leave property to their own children. Indeed in some societies, men will

sometimes transfer their property to their sisters' children—and those societies tend to be ones in which women are more promiscuous.

Fortunato and Marco Archetti of Oxford University coded these insights into a game-theoretic model and found that these forces were sufficient to make monogamy a good strategy for both parties. "Evolutionary anthropologists tend to think that males always have a great advantage in having multiple wives," Fortunato says, "but our model shows that monogamy can be good for both males and females."

Fortunato then wondered why dowries (a gift from the bride's family to her) and neolocality (the custom that a newly wedded couple establishes their own household) were common in monogamous societies but rare in polygynous ones. Anthropologists had assumed that those customs

ILLUSTRATION: PAULIA EASTWOOD

cause each other in some way, but she wondered if they were part of a historical accident instead: Societies that were both monogamous and gave dowries or both monogamous and established their own households might have been the ones that spread, taking both practices with them even though they weren't inherently related.

Since customs like monogamy don't leave a trace in the fossil record, she could only use the traces of the past in the present. Language is one such trace: People who descended from common ancestors tended to have related languages. So Fortunato built evolutionary trees of societies based on their languages and tracked which societies were monogamous, gave dowries, and were neolocal.

A statistical pattern jumped out: The monogamous, neolocal societies clumped together on the evolutionary tree, whereas the monogamous,

dowry-giving societies were scattered all around. That meant that the monogamous, neolocal societies had a common ancestor who they probably got both practices from. So the practices might not be inherently related, instead just happening to pop up together because they had both been adopted by this common ancestor.

But since dowries and monogamy occur together even in distantly related societies, it seems likely that they're deeply connected in some way and evolve together.

This has the remarkable implication that the nuclear family itself may not have been an evolutionary inevitability, Fortunato says. History might have played out differently, with monogamous couples joining one of their parents' households, for example. "That means it's possible that things could change," she says, "and families could organize themselves quite differently."

Fortunato hopes to do more than just understand marriage. She wants to transform anthropology into a science. "Anthropology lacks the sound, systematic theoretical framework that biology has through evolutionary thinking," Fortunato says. She believes that the evolutionary perspective can allow anthropologists to assemble diverse bits of knowledge into a compelling whole. Others are becoming convinced that it could happen, too.

"These methods have the potential to revolutionize anthropology," says Stephen Shennan, who helped supervise Fortunato's PhD at University College London. "Anthropologists have been asking about things like monogamy and dowries since the 19th century. We finally have the possibility of getting real answers." ◀



In some cultures, especially in places with plenty of land, polygyny—here depicted as a harem—works as a marriage strategy.

Julie Rehmeyer is a freelance math and science writer based in Berkeley, CA, and Santa Fe, NM, who writes regularly for Wired Magazine and Science News. She is a former mathematician and tutor at St. John's College. She was SFI's first undergraduate intern.