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The Parasite-Stress Theory of Values and Sociality: Infectious Disease, History and Human Values Worldwide. By Randy Thornhill and Corey L. Fincher. 449 pp. New York: Springer. 2014. \$209.00 (cloth), \$159.00 (e-book).

Parasites can impact their hosts in diverse and spectacular ways, making Ridley Scott's *Alien* seem tame. Randy Thornhill and Corey Fincher (hereafter TF) expand the purview of parasitic effects on hosts to include almost every aspect of human values and social behavior. However, the effects are elicited as the host's evolved defenses. The crux of their theory is simple and parsimonious: the threat of infection from pathogens led to the evolution of a behavioral analogue of classical immunity. This "behavioral" immune system is the suite of values and beliefs that help favor ingroups with similar pathogen exposure and shared immunity and avoid or discriminate against outgroups who carry different pathogens of high risk. Therefore, in high pathogen environments, people are expected to display traditional, collectivist/conservative values such as nepotism, limited dispersal, xenophobia, neophobia, and ethnocentrism, whereas those under low pathogen stress should display progressive, individualistic/liberal values, including outgroup tolerance and generosity. TF claim that variation in pathogen stress is one of the most critical factors to explain country-wide (and often state-wide) variation in an impressive range of disparate behavioral and cultural patterns, including family values, political ideology, gender inequality, warfare, crime, intelligence, creative innovations, personality, language diversity, and sexual restriction. The logic connecting their theory to these effects rests on the idea that the tradition-prone, conservative, and cautious aspects of collectivist culture help prevent or minimize parasite exposure.

To support their theory, much of the book focuses on reporting the substantial correlations between their indicators of parasite burden and (usually) survey-based measures of each of the variables they link to parasites. Indeed, TF report an impressive number of partial correlations showing that pathogen stress is related to the many aspects of human culture listed above. Their empirical research program provides a solid start to test their ideas, but TF argue forcefully that their findings are instead defensible as both start and finish. The book aims to be a *tour de force* whose goal is to "reduce synthetically many fields of inquiry to a small number of causal variables" (p. 327). It is largely a rehash of over a dozen papers published by TF and colleagues over the

past decade. As a monograph, its audience is academic but meant to be broad. Its organization is at times confusing and frustrating; 10 of the 14 chapters focus on the separate cultural domains that parasite stress can explain. However, because these chapters are written as stand-alone, the book reads like an edited volume where each chapter is written by the same authors; it is heavily repetitive, and so its pricey 449 page length could easily have been crunched to a more readable (and affordable) 250 pages. Adding pictures and more figures would also have provided more flavor.

Yet despite its cumbersome length, the book does not offer much more than the sum of the original papers, and it ignores several basic concerns that should be in a book on the topic. The most obvious is under what conditions is behavioral immunity even needed to complement the actual immune system? At the individual level, what primes the behavioral immune system? Is it the direct action of parasites on the host, host immune activation or regulation, or more general sensory inputs from living in a high pathogen area? If host infection is not required for expression of certain behaviors, then what are the mechanisms by which pathogen exposure (or intensity) motivates defensive behaviors? Why is behavioral immunity focused only on novel pathogen risk? Outgroups might loom as large, if not larger, threats of violence or exploitation. On the other hand, outgroups provide opportunities for trade and mate exchange, especially in areas of high parasite stress. The nuance of navigating costs and benefits of outgroup interactions is lost by TF's repeated claims that outgroups should simply be avoided in high pathogen areas. TF also never clarify what constitutes an outgroup nor the extent to which morbidity from infection is due to ingroup versus outgroup exposure. Attention to these details could provide insight into *whose* pathogen burden is most relevant and the mechanics of how behavioral immunity develops and functions.

TF defend a number of views that many will find problematic. First, they firmly believe that correlation does reflect causation, and in observational or survey-based cross-sectional data—as long as appropriate confounders are controlled in multiple regressions. Aside from this not being true, confounders are not controlled in many of the correlations they report (e.g., parasite stress and personality, language diversity, and sociosexuality), or they are inconsistently controlled in others. TF also eliminate confounders from their models when parasite stress correlates with both the confounders and the particular outcome of interest. Given limitations of the data and the extent of confounding among their variables, it is surprising that TF never employ structural equation modeling or other techniques to test the direct and indirect pathways by which parasite stress might relate to outcomes. Second, they deny Galton's problem about the non-independence (autocorrelation) of countries or U.S. states because they believe culture is maintained through strategic decision-making. They do not believe that choice is constrained, nor that cultural legacies may lag, and so they rarely employ the types of phylogenetic controls that are so common in comparative analyses where the units of analysis have shared history. Third, most of the evidence in the book relies on macro-level correlations, with very little experimental evidence to support many of the book's arguments (apart from others' experiments linking disgust sensitivity and xenophobia).

TF provide a humorous self-congratulatory nod when they cleverly state that parasite-stress theory explains itself: a novel, synthetic theory like theirs, they argue, could only be developed in a low pathogen environment by open-minded liberals like themselves. To their credit, critiques of their ideas (a summary of commentaries from TF's *Behavioral and Brain Sciences* paper) are discussed in the final chapter. However, they are quickly dismissed. Despite the shortcomings mentioned here, TF's bold claims about the role of parasite stress will no doubt stimulate further inquiry, and the final chapter begins to map out some future directions. They may indeed be on to something. But so far the theory seems underdeveloped, and the empiricism is largely correlational. It is premature to propose in the concluding chapter that eliminating pathogens will end civil conflict, spur scientific innovations, reduce discrimination and inequality, and spread egalitarianism. Those would be welcome byproducts for sure. It will be interesting to see whether more evidence for their ideas accumulates in the coming years.

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Do Fathers Matter? What Science Is Telling Us About the Parent We've Overlooked. By Paul Raeburn. 288 pp. New York: Scientific American / Farrar, Straus and Giroux. 2015. \$26.00 (cloth), \$15.00 (paper), \$9.99 (e-book).

In the first pages of *Do Fathers Matter? What Science Is Telling Us About the Parent We've Overlooked* author Paul Raeburn outlines the primary goal of his book, which is a slightly different take on his book's title. Specifically, he hopes his readers will feel they have far ranging answers to the question, "What is it, exactly, that fathers do for their children?" (p. 4). With the quickest of glances at Raeburn's biography on the book's inside cover, one can see that he has an extensive record as a US-based science journalist and is himself a father residing in New York City with his family (see the Introduction for his own motivations for writing the book). Given that this book is pitched to a popular audience, it would not be surprising if his approach to these questions was highly circumscribed to the world of Western dads, particularly as researched by developmental psychologists. While there is absolutely value in understanding those (less global) questions, it goes without saying that we (anthropologists) encourage our students, family, friends, colleagues in other disciplines (let's be honest, really anyone who makes eye contact with us) that to answer a *broad* question like "Do fathers matter?" we need a much more expansive toolkit that might include discussion of cultural institutions, political economic history, developmental plasticity, evolution, or physiology. I cannot say that Raeburn weights any of these perspec-

tives to the extent that he does research from development psychology and other family studies, which play a central role in his discussions of fathers' effects on children's social and cognitive development. Yet, many of these other perspectives make appearances in unexpected and enlightened ways, propelling Raeburn's nuanced, well-researched narrative on how fathers impact their children (from before conception to adolescence and beyond) as well as how fatherhood affects men.

Raeburn organizes his book in a manner that engages "time" and the life course at different analytical levels and, as a consequence of that approach, I think many of the chapters will pique the interest of JHB's readership. For example, he begins by exploring how invested fathers emerge through deep evolutionary time (Chapter 1). He then moves to more of a developmental biological chronology, discussing fathers' influence on offspring from conception, pregnancy, infancy, childhood, and through to adolescence (Chapters 2 to 7). He then shifts away from the *child's* developmental trajectory as an organizing principle and dedicates Chapter 8 to older fathers and the positives and negatives that children might experience as a consequence of having an older dad.

In Chapter 1, JHB readers might take the most umbrage with Raeburn's presentation and interpretation of lines of evidence—evolutionary, cross-species—that are core to our discipline(s). After succinctly introducing the reader to variation in paternal investment across vertebrate taxonomic lines, Raeburn makes a number of contestable or questionable claims about the nature of social and reproductive dynamics among Australopithecines, *Homo erectus* and early *Homo sapiens*, without the qualification and precision that appears throughout much of the rest of the book. Given the popular audience for this book, on a topic of great interest to the public, it is heartening to see Raeburn use evolutionary dynamics to help frame the book's subsequent exploration of dads' impacts. That recognition aside, the book should not get a "pass" for reductionist or inaccurate statements about human evolution (also see Chapter 9), even if they are but a small part of the text.

Raeburn's explorations of why fathers matter and through what mechanisms takes him to animal models and human evidence suggesting intergenerational (father-to-offspring and -grandoffspring) influences on stress and metabolic physiology, aging (telomere length), and mental health, including through epigenetic pathways (Chapters 1, 3, and 8). In discussing the importance of dads to conception and pregnancy (besides the obvious), Raeburn accessibly discusses imprinted genes, including touching on David Haig's models for maternal-fetal and maternal-paternal conflicts and Bernard Crespi's framework for understanding the role of imprinting errors and mental illness (Chapter 2). In numerous places, he also highlights indirect effects that fathers' behaviors and decision making (e.g. diet, smoking, work habits, etc.) can exert on offspring through influences on mothers (Chapters 3 and 6).

Throughout the book, Raeburn implicitly introduces the reader to a "family systems" perspective, in which fathers' impacts on their children are contingent, in part, on how men, themselves, are transformed by parenthood (both positively and negatively). This includes a focus on shifts in fathers' psychological well-being, various