There is a lot to like about Jerome Kagan’s new book. More so than in any of his other books, *The Temperamental Thread: How Genes, Culture, Time, and Luck Make Us Who We Are* is full of thought-provoking and research-generating observations, interpretations, and speculations. Although one may disagree with some of his interpretations of findings or find some of the issues raised in this book controversial, Kagan has an uncanny knack for making people think about science in a deeper way, and he inspires scientists to ask new research questions and keep moving forward. It is striking how he can take evidence from across very diverse disciplines—although at times the details of this research are not fully explained—to shape his view and make a strong case for the variety of influences on temperamental variation. He was interdisciplinary before it was the norm in psychological science.
The Temperamental Thread is full of results, including his influential longitudinal studies of high-reactive/inhibited and low-reactive/uninhibited children. Kagan also goes well beyond his own work to create an eloquent revision of his model about the causes and consequences of temperamental differences. He begins the book with descriptions of two girls, Margorie and Lisa, who represent the inhibited and uninhibited temperament types, respectively. He weaves their stories throughout the book discussing influences, some supported by the literature (e.g., parenting styles that are adaptive for inhibited children) and some that are more speculative (e.g., social class and ethnicity), that shape the trajectories of children with these types of temperaments.

Kagan reminds us that we have evolved as scientists in the past 50 years, and will continue to do so, in our thinking about what influences individual variation in behavior. Specifically, 50 years ago most scientists would not have believed that the brain and biological processes had any influence on temperament. However, Kagan suggests that perhaps the pendulum has swung too far toward biology and we need to get to a point where there is a balance between these influences. He repeats this point throughout the book but also includes a touch of personal history of how he came to realize that temperamental variation is biologically based and that behavior is not entirely shaped by the environment.

There are a number of topics covered in his other writings that are repeated in this book—including making a strong case for observational methods over self-report, the necessity of incorporating multiple measurement approaches, the distinction between temperament and personality, and temperament versus attachment.

However, if you are in search of a comprehensive review of Kagan’s program of research, this is not the book, even though there is some overview of those studies in the foundational chapters and some examples throughout the more speculative chapters. But more interestingly, there are several new ideas covering a broad range of topics such as gender, ethnicity, parental and familial influence, and mental illness.

One of the new intriguing ideas is the discussion in Chapter 1 that there are 23 biases (8 pleasant and 15 unpleasant) that form the bases for temperamental variation. These neurochemical and neuroanatomical profiles, Kagan argues, are the main factors in determining temperamental biases that are then shaped by several types of environmental influences across development to make us what we are.

This idea continues throughout the rest of the book, and he concludes by advocating for a set of eight temperamental types derived from three components: whether the characteristic is heritable, whether it is influenced by differences in neurochemical or neuroanatomical profiles, and whether the characteristic is affective and mediated by the limbic system or related to control and regulatory processes that are mediated by the frontal cortex.

A second intriguing idea is the persuasive argument in Chapter 6 that “the practice of pooling diseases with diverse causes into one diagnostic group will delay discovery of the unique biological characteristics and best therapy for each disease” (p. 165). This point ties
in with one of Kagan’s main take-home messages that I describe next—that these behaviors are influenced by a myriad of factors, with temperamental variation, biology, and experiences forming only part of the story. Thus, using the same labels for disorders that include a heterogeneous set of characteristics impedes progress.

A third notable idea (though it is not new) is a reminder that with each new scientific discovery, the passage of time, and the accumulation of scientific knowledge, the explanation(s) of the causes of psychopathology will change. I often joke with my students that if we knew for a fact that some behavioral/biological/environmental factor caused anxiety (or any other outcome), then we’d be out of a job.

Thus, as I was reading *The Temperamental Thread*, I found myself thinking about the challenge that we face as scientists in predicting future behavior. Instead of being discouraged, I found the book inspiring. The pursuit of these multifaceted explanations is constantly changing, and Kagan reminds us (even in the title of his book) that “genes, culture, time, and luck make us who we are.”

In the final chapter, Kagan leaves the reader with some thoughts about new questions that will inspire future directions for research as well as some suggestions for how we can communicate across disciplines. For instance, he argues that new scientific questions emerge from unexpected discoveries. Here I was reminded of his personal experience as a scientist working on the Fels Institute’s longitudinal study when he began to change his thinking about the etiology of behavioral differences. Kagan then touches on the field of epigenetics and its promise for adding to the accumulating evidence for the biological underpinnings of temperamental variation.

In addition, he says, we should move beyond examination of single traits and move toward the examination of patterns of behaviors that account for individual variation. Kagan ends the book with a reminder of the gap between our measurements in the brain (and, for that matter, in other biological systems) and psychological phenomena (thoughts, emotions, behaviors). He cautions neuroscientists against using the same terms for brain activity that psychologists use to describe the behavior. Thus a behavioral reaction that psychologists might label as *fear* should not be labeled as *fear* when measured as a neural response.

In conclusion, *The Temperamental Thread* is quite accessible to the educated layperson as well as appealing to behavioral scientists. It would also be of great value for scientists who are not temperament researchers but who are interested in learning about the impact of temperament and where the field might be going (should researchers heed Kagan’s advice). There is a select bibliography for each chapter that is a plus for those readers who will want to seek out more information on these topics. Kagan’s book covers a broad array of topics and, I believe, will inspire the current generation of temperament researchers to push the boundaries of what we think we know about the etiology and consequences of individual variation.