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*For What It's Worth: Historical Financial Bubbles
and the Boundaries of Economic Rationality*

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Focus: Bounded Rationality and the History of Science

Introduction

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Abstract: Historians of science see knowledge and its claimants as constrained by myriad factors. These limitations range from the assumptions and commitments of scientific practitioners to the material and ideational contexts of their practice. The precise nature of such limits and the relations among them remains an open question in the history of science. The essays in this Focus section address this question by examining one influential portrayal of constraints—Herbert Simon’s theory of “bounded rationality”—as well as the responses to which it has given rise over the last half century.

With apologies to death and taxes, historians of science seem certain of only one thing: attempts at certitude inevitably encounter confounding limitations. In a sense, the history of science can be viewed as an exploration of the internal and external bounds that always constrain epistemological ambitions. This Focus section comprises a series of attempts to explore these constraints in light of Herbert Simon’s “bounded rationality,” a historical portrayal of the limitations inherent in human cognition.

Simon coined the phrase “bounded rationality” in 1957 as a counterweight to the then-dominant model of economic behavior—what Simon called “classical economic man”—which presumed that actors making decisions are perfectly and optimally rational.¹ In this

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¹ Herbert Simon, *Models of Man, Social and Rational: Mathematical Essays on Rational Human Behavior in a Social Setting* (New York: Wiley, 1957), p. 198.

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classical approach any constraints are *external*, such as fixed budgets or schedules within which people exercise complete rationality. In contrast, Simon insisted that cognition is “bounded” by *internal* limits as well. In a world with too much to know, the conceit of the perfectly rational actor processing all available and pertinent information is not just impracticable; it is impossible. As a corrective, Simon set up “bounded rationality” as an attempt to describe the simplified and incomplete tools people actually use to solve problems. This was not to say that people are irrational. Rather, acting rationally—which for Simon meant following rule-bound processes—includes countenancing the finite amount of information minds can bring to bear on their decisions.

Since it was first proposed, this principle has had a many-disciplined life. It was originally informed by Simon’s work in systems engineering, computing, and business administration, while also finding a home in debates about artificial intelligence. The concept thus stood at an intersection between the study of systems, machines, and the mind. Since the 1950s, the principle—and, often, the phrase—has been put to work across many fields, including political science, cognitive psychology, organization theory, and even economics, the discipline at first most antagonistic to Simon’s limited vision. More importantly for this Focus section, work on “bounded rationality” resonates with how historians of science explore the factors that have both constrained and enabled scientific work at particular moments. From ethnographies of practice to “the practice-ladenness of theory,” historians expose the roots and limits of scientific knowledge in ways that resonate—we think—with work on “bounded rationality” across the social sciences.

The essays that follow explore historical attempts to describe the limits of cognition in light of recent work in “bounded rationality.” Stephanie Dick examines the early history of Herbert Simon’s theory in the context of his work in modern digital computing and Artificial Intelligence in the 1950s. Henry Cowles suggests how the emergence of “trial and error” in the nineteenth century exhibited what the psychologist Gerd Gigerenzer has called the “tools-to-theory” heuristic. William Deringer’s paper argues that economic events of the eighteenth century, notably the South Sea Bubble, represented epistemological frontiers both at the time and in their subsequent use by economists. Colin Webster shows how a group of ancient physicians called the Methodists adopted a heuristic-style medicine, which proved practical but destabilized the concept of illness. In her concluding commentary, Lorraine Daston reminds us of the historical specificity of the idea of “rationality” itself. Together, these essays explore the historiographical possibilities inherent in a history of limits.