Modern studies of Aristotle’s logical works have been deeply informed by modern logical theory. Beginning with Łukasiewicz and Scholz, historians of logic have used the methods of symbolic logic to interpret Aristotle’s logical theories, and with rich results. One consequence of these studies is a general conviction among scholars in the field that, prior to the creation of modern formal logic that began with the work of Frege and others, an adequate frame of reference for understanding Aristotle’s logical theory simply did not exist. Paradoxically, that is partly because the rise of modern logical theory carried with it the displacement of the traditional logic (based largely on Aristotle’s works) that had been taken for granted as the correct theory for centuries. In the early decades of the twentieth century, that displacement took the form of a genuine controversy, with partisans of traditional logic contending that theirs was the true account of argument, or at any rate of actual human reasoning. Today, however, virtually all logicians would agree that the content of traditional logic can be completely represented within predicate logic and that the latter is a vastly richer and more powerful theory than the former. Indeed, a main purpose of Frege’s in developing his logical system was to show that traditional logic, with its thesis that all propositions can be analyzed into subject-predicate form, simply cannot explain the actual structures of the propositions required for basic mathematics, and very few logicians would now dispute that he was successful in that purpose. That very success has enabled modern logicians to take a fresh look at Aristotle’s logical works from the perspective of modern logic, with an aim not of engaging in controversy about


whose logic is the correct one but rather of understanding just what Aristotle thought he was doing. What they discovered is an Aristotle who built logical theories in a manner reminiscent of modern formal logic.

George Grote, who died in 1871, eight years prior to the publication of Frege's *Begriffsschrift*, could hardly have imagined the revolution in logical theory that was about to occur. For him, Aristotle's importance as a logician was precisely as the founder of the only theory of logic he and his contemporaries knew. However, Grote's picture of Aristotle's logic—and indeed his picture of logic itself—is heavily influenced by a separate issue going back at least to Francis Bacon. When Bacon wrote his *Novum Organum*, his goal was to promote a method for the advancement of knowledge, that is, for the discovery of new truths about nature. He deliberately contrasted his “new instrument” with the Aristotelian model of science he had learned from his contemporaries. In that model, science was a matter of demonstration from self-evident principles, known to be true on the basis of reason alone, and science progressed by the deduction of further consequences from these principles. The method of science, so conceived, was essentially argumentation, and new knowledge was acquired by deducing it from knowledge already obtained. For Bacon and his contemporaries, this picture of scientific knowledge was contained in Aristotle's logical works, which were traditionally called the *Organon* (“instrument”). In Bacon's view, it was an ineffective instrument for the increase of knowledge, valuable only as a tool for debating contests. In its place, he proposed a “new instrument,” a *novum organum* for the expansion and improvement of knowledge, that gave pride of place to empirical observation.

A critical element of this picture is that it regards logic as fundamentally a means for the discovery of new truths. Deduction from known principles contributes to the expansion of our knowledge just insofar as it leads to a genuine expansion of our knowledge. However, by that standard, deduction can never be of much value at all, according to an argument advanced by John Stuart Mill. Consider the simple inference “All humans are rational; Socrates is human; therefore, Socrates is rational.” If I know the first premise, Mill objects, then that knowledge must already include the knowledge that Socrates is rational, since Socrates is one of the humans. Therefore, my knowledge that the conclusion “Socrates is rational” is true already contains my knowledge

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