Bacon and Aristotle —— Analysis To Two Giants’ Philosophical Distinction

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Francis Bacon, one of the most prestigious philosophers, is regarded as the farther of the scientific method, which contributes a lot to his theory of natural and scientific philosophy. As for Aristotle, the brilliant star in the night sky of Ancient Greek, is well known for his thought-breaking theory and vision on philosophy. The time distance between two philosophers is already over 1900 years, but analyzing the thought distinctions between two is going to inspiring and significant. To better analyze the difference between the core of these two philosophers’ natural and scientific theory, it is also of great necessity to dig into the ways these theories were formed and deducted, for the formation of the theory shall be taken as the core of the scientific philosophy as well. In this paper, I will first discuss about the distinctions between two great man’s deduction logic, and then induct the difference between two philosophy.

Bacon is well known for his theory of empiricism, but in contrast, Aristotle's natural philosophy relies heavily on deductive reasoning and qualitative observations. Aristotle's thesis, such as *Physics*, illustrate a comprehensive framework for understanding the natural world, grounded in the principle of the famous teleology. At the beginning of *Aristotle Physics* BookⅡchapter 1, from the statement “Some things are due to nature; for others there are other causes.” **1**, it is easy to see that Aristotle highly emphasize on the theory of teleology and try to explain the movement and the formation of this universe through using teleology together with the theory of “matter and form” which can be concluded as *notion of essential forms* **2**.

Central to Aristotle's methodology is the concept of the four causes: material, formal, efficient, and final**3**. According to Aristotle, these causes provide a comprehensive explanation for the existence and behavior of natural phenomena. He prioritizes teleology, asserting that all natural entities are trying to reach the ultimate goal. Just like what he said, “every natural body has a proper place, assigned to it as its natural end” **3**.

Furthermore, Aristotle's methodology involves categorizing and classifying natural objects based on their essential properties. Through thorough observations and logical analysis, Aristotle pursues the principles governing the natural world. His emphasis on classification and teleology reflects the belief in the existence of order and purpose in the universe. Presented in the official website of Stanford Encyclopedia of Philosophy, “Natural science is concerned with things that change, and Aristotle divides changes into two main types: there are accidental changes, which involve concrete particulars, or 'substances' (ousiai) in Aristotle’s terminology, gaining or losing a property.” **4** is a vivid demonstration.

Moreover, Aristotle's natural philosophy encompasses a broad range of disciplines, including physics, biology, and metaphysics, interconnected by overarching principles. His holistic approach emphasizes the unity of knowledge and the interconnectedness of all natural phenomena. Aristotle's influence permeated medieval thought, shaping the intellectual landscape for centuries to come.

The dichotomy between Baconian and Aristotelian natural science stems from their differing methodologies, epistemologies, and ontological assumptions. Bacon prioritizes empirical observation and experimentation, advocating for a bottom-up approach to scientific inquiry. In contrast, Aristotle emphasizes deductive reasoning and qualitative analysis, viewing nature through a teleological lens.

Bacon's empiricism represents a paradigm shift towards a more dynamic and experimental mode of inquiry, challenging the authority of tradition and dogma. His emphasis on induction and systematic experimentation laid the foundation for the scientific method, enabling unprecedented advancements in natural philosophy.

On the other hand, Aristotle's teleological framework provided a comprehensive explanation for the natural world, rooted in essentialism and teleology. His holistic approach to knowledge encompassed diverse disciplines, fostering a unified understanding of nature.

In conclusion, the disparity between Baconian and Aristotelian natural science reflects contrasting philosophical paradigms and methodologies. Bacon's empiricism revolutionized scientific inquiry, advocating for systematic experimentation and empirical observation. In contrast, Aristotle's teleological framework emphasized deductive reasoning and qualitative analysis. While both approaches have contributed significantly to our understanding of the natural world, Bacon's emphasis on empiricism and experimentation marked a pivotal moment in the history of science, paving the way for modern scientific inquiry.

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**1** Aristotle, *Physics*, Translated by J.Lakrill and Lindsay Judson. Oxford: Clarendon Press 1970, p. 23.

**2** Stanford Encyclopedia of Philosophy, https://plato.stanford.edu/entries/form-matter/, “Form vs. Matter”

3 William F. McDonald, *The Concept of Cause*, Issues in Criminology, Vol. 3, No. 2, pp. 129-145

4 Stanford Encyclopedia of Philosophy, https://plato.stanford.edu/entries/form-matter/, “Form vs. Matter”