

Jeffrey D. Sachs
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Christos Zerefos as Guide to Ancient Wisdom for Modern Solutions

This wonderful book on Aristotle's meteorology by Anastasios A. Tsonis and Christos Zerefos is an opportunity to express my admiration not only for this sterling work but also for the great erudition and humanism of Christos Zerefos's overall approach to science. Zerefos is a world-leading meteorologist and climatologist, who has made major scientific contributions to the study of solar-atmosphere interactions and dynamics of atmospheric ozone, among many topics. Yet he is also a polymath in the great tradition of the ancient Greek philosophers he so greatly appreciates, explicates, and emulates. Fittingly, he is the Secretary General of the Academy of Athens, Greece's great scientific institution that is the heir of Plato's famed Academy.

Let me illustrate Zerefos's remarkable breadth with three examples of his work and vision. First, this book on Aristotle's meteorology with fellow scientist Anastasios Tsonis epitomizes Zerefos's detailed attention to the history of scientific thought, with this fascinating explication of Aristotle's insights into climate and weather, and the limitations of those insights resulting from the underdeveloped state of the physical sciences and instrumentation in Aristotle's age. In the period of early modern science in Europe in the 16th century onward, it became fashionable for scientists and philosophers to harshly criticize Aristotle in order to break free of the stultifying grip of medieval scholastic tenets. Yet this rejection of Aristotle was utterly ahistorical and wrong-headed, as this wonderful book clearly shows. Aristotle was deeply committed to careful observation, rigorous logic, and the weight of evidence. He would have been the first among the early modern scientists to revise his physics in the face of the new evidence made possible by the inventions of the telescope, microscope, and other pathbreaking instrumentation.

Second, consider Zerefos's remarkable explication of the battle of Salamis in 480 BCE, the decisive sea battle in ancient Greece's war with Persia. As told by Herodotus in *The Histories*, the Greek triumph at Salamis occurred when the Athenian leader Themistocles lured the Persian fleet into the narrow Straits of Salamis. When the winds suddenly turned in mid-morning, the heavier Persian vessels were caught off guard, and the Greeks, with their lighter and more agile triremes, used the opportunity to ram the Persian vessels and cause their defeat. In a scintillating combination of climatology, history, textual exegesis, and imaginative reconstruction of events, Zerefos explains that the mid-morning change in wind direction on Salamis Bay is a predictable pattern of the local meteorology to this day. He surmises through textual analysis of both Herodotus and Aristophanes, and through his vivid and cogent imaginative reconstruction of events, that Themistocles knew full well about the local wind patterns and their matutinal tendency to change direction, and used that knowledge to lure the Persians into his cunning and world-changing trap.

Third, Zerefos is bringing his deep knowledge of climatology and his profound appreciation of ancient cultures together to guide a remarkable initiative of the Government of Greece to protect cultural and natural heritage sites around the world from the ravages of human-induced climate change and pollution, which are threatening the structural stability and physical integrity of countless heritage sites around the world. Our cultural heritage, and therefore the very fabric of our social lives, are now at dire risk. Greece, home to a cultural heritage of vital and irreplaceable significance to world civilization, is taking the global lead to help nations around the world to prevent and remediate these climate-related threats. Zerefos's leadership in this great Greek effort is exemplary and inspiring, both in the science of cultural preservation and in the humanistic motivation of the effort.

As Aristotle's meteorology reminds us, Aristotle's breadth and depth of knowledge, and capacity for insight and synthesis, have few if any peers in the history of thought. He not only wrote scintillating works across the span of human knowledge, from ethics, politics, and rhetoric to logic, physics, and metaphysics, but he essentially invented these fields as distinct and scientific areas for human inquiry. How fortunate we are to have an intellectual guide, explicator, innovator, and inspirer in Christos Zerefos to continue this holistic approach to knowledge and wellbeing.