



THE INTERNATIONAL INSTITUTE OF ISLAMIC THOUGHT AND
CIVILIZATION (ISTAC)

THE GENESIS OF GREEK PHILOSOPHY AND SCIENCE
AN OUTLINE OF THE CASE FOR THE REVISIONIST VIEWPOINT

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Dedicated to
ISTAC and its mission

بِسْمِ اللّٰهِ تَعَالٰی

وَصَلَاتِهِ وَسَلَامِهِ عَلٰی مَنْ اَصْطَفٰی

وَعَلٰی آلِهِ وَصَحْبِهِ نَجْمِ الْهُدٰی

وَإِيَّاهُ نَسْتَعِينُ عَلٰی أُمُورِ الدُّنْيَا وَالْآخِرَةِ

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وَقُلْ جَاءَ الْحَقُّ وَزَهَقَ الْبَاطِلُ

إِنَّ الْبَاطِلَ كَانَ زَهُوقًا

(الإسرى: ٨١)

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PREFACE

I had never considered the idea that Greek philosophy and science could have antecedents until I attended a lecture by Associate Professor Dr. Baharuddin Ahmad of ISTAC a few years ago when I was a second-year undergraduate at the International Islamic University, Malaysia (IIUM). His talk touched--among other things--on the orientalizing influence in the genesis of Greek religious and scientific consciousness. Later on, I have had the opportunity to develop further this notion of the orientalizing influence on Greek thought in brief assignments written for my philosophical courses at IIUM, and later at ISTAC, basing myself hurriedly on some rather inadequate references.

The stimulating discussions in Professor Dr. Alparslan Acikgenc's class on *History of Greek Thought and the Rise of Scholasticism* during my first year at ISTAC finally convinced me that the orientalizing notion should be explicated earnestly with compelling argumentative rigour. Soon I came across two very important books in IIUM library which convincingly transformed the notion into a sophisticated alternative model of the rise of Greek thought in history. The two books, *Stolen Legacy* and *Black Athena* by George G. M. James and Martin Bernal respectively, present an account of the Greek intellectual achievement that is far more coherent and plausible than the presently dominant Eurocentric one.

Later on I was also able to obtain other important references at ISTAC, IIUM and the University of Malaya (UM) dealing with the history of Greek culture and of the ancient Mediterranean world--especially that of Egypt and the Levant--as a civilizational unity. These, together with references on comparative history of philosophy and science lent further support to the revisionist viewpoint expounded in the first two books. I also have had opportunity to consult directly, if briefly, a number of classical sources such as Diogenes Laertius' *Life of Eminent Philosophers* and Herodotus' *Histories* to verify the general, somewhat poorly documented claims in James' book.

While initially greatly indebted to the first two books mentioned, I have tried to articulate complementary arguments from comparative history of science and philosophy, from the history of the rise of Islāmic and Western science, and by drawing on the recent works of prominent world systemists such as A. G. Frank, B. K. Gills and Samir Amin. All these diverse arguments are then summarized and integrated into a synthetic whole which I think can serve as a sufficiently strong conceptual and empirical base for a comprehensive explanatory framework to account for the rise of Greek rational thought in antiquity. I call this explanatory framework the *World System Model*.

Admittedly this thesis is not directly related to Islāmic Science which is my major field of study, but I feel that understanding the rise of Islāmic science would be incomplete without also understanding the rise of Greek science. This is especially so considering the fact that much of the informative content of the former was acquired from the latter even though the two sciences did not share the same worldview or cultural outlook. Eventually of course we will have to be brought to the question of the rise of science *in general*, but that will be quite another story. Since I drew much of my inspiration for the world system approach toward tackling the problem of the rise of Greek science from my study of Islāmic science, perhaps I have not drifted too far afield after all.

This thesis took shape originally as a hastily prepared formal academic paper for the aforementioned course presented to Professor Dr. Alparslan Acikgenc in June, 1997. At that time I had no intention whatsoever of expanding it into a Master's thesis. I thought it was much more worthwhile to do a textual study on the physics of Fakhr al-Dīn al-Rāzī, the celebrated and prolific *mufasssir-mutakallim-faqih-hakim* of the 6th century AH/12th century CE. Eventually, due to positive feedback from some professors and fellow-students who have read the paper in whole or in parts, I finally decided to refine it sufficiently into a respectable Master's thesis. As for al-Fakhr al-Rāzī, I have since become convinced that a full-fledged doctoral dissertation would do more justice to the profundity and erudition of his scientific attainments. To the

professors and fellow-students of ISTAC who have directly or indirectly convinced and/or assisted me to pursue this thesis, I can only express my appreciation by putting on record their specific contribution (in chronological order).

Associate Professor Dr. Baharuddin Ahmad can be said to have "evoked" (to borrow Chomsky's phrase) in my mind the idea of the oriental genesis of Greek thought, which then persistently agitated my intellectual conscience until I finally decided to attempt this work. Professor Dr. Alparslan Acikgenc's intellectual generosity accomodated my many questions and comments in his class. The many insights generated through this process of spirited intellectual engagement have proven crucial to the formulation of the conceptual framework of my thesis. His articulation of the worldview as being the "mental environment" for the rise of science in civilizations has been especially fruitful to me in tackling the question of the cognitive transformation of the Greek cultural outlook. My brother, friend and fellow student, Muḥammad Riḍā Ameer (who recently received his Master's from ISTAC), engaged me in many hours of stimulating discussions in our little cabin amidst the hills, thus reinforcing the sense of importance I felt for this work. Professor Dr. Wan Mohd. Nor Wan Daud, now Deputy Director of ISTAC, graciously took the time and trouble to read my original paper, and he was the first to suggest to me (informally) that it could be expanded into a Master's thesis. My friend, colleague and bitter-sweet intellectual agigator, Zaidi Ismail, a research fellow at ISTAC, surprised me by remarking that the paper was already "half a Master's thesis."

Professor Dr. Paul Lettinck, my thesis supervisor and teacher in Islamic Science, was initially quite ambivalent about supervising my thesis (since my topic was somewhat peripheral to his focus of academic research, which is Islamic science). Four consecutive intensive semesters with him have certainly enhanced my intellectual appreciation of and emotional "feel" for the workings of Islamic Science. He quite frankly told me that the language of my first draft was "too rhetorical," and pointedly directed me to cut down on the use of "tendentious" adjectives. To him most definitely goes the credit for ensuring that I pay due attention to factual substantiation, and

maintain a respectable degree of scholarly detachment. He also generously allowed me the use of many important books in his personal collection, and directed me to a few other relevant references, all of which substantially enhanced the critical value of the thesis. Obviously he is not responsible for any shortcomings thereafter remaining. Professor Dr. Aref Ali Nayed (formerly of ISTAC) was warm-hearted and intellectually eclectic enough to show interest in many of my immature papers, among which was the original *Genesis*, and to suggest that the latter had sufficient argumentative merit to be expanded into a formal academic thesis. His bringing to my notice Peter Lipton's lucid monograph on *Inference to the Best Explanation* (London and New York: Routledge, 1993), has greatly helped me to provide conceptual depth to the world system model proposed here.

All I needed after this was the personal approval of YM Professor Dr. Syed Muhammad Naquib al-Attas, Founder-Director of ISTAC, which I unexpectedly received when he summoned me to his office in January 1998 to discuss my academic role at ISTAC. During our unexpectedly long meeting which lasted more than two hours, and which I shall always cherish, we discussed at length, among other topics, the issue of the seemingly sudden and spectacular emergence of Greek philosophical speculation, for he himself has used to point out in some of his talks and lectures that the Greeks borrowed their moral and ethical ideas from the oriental religions. So it was quite heartening to me to know firsthand that he affirmed the importance of my thesis. His encouragement and advice given in that meeting were decisive in convincing me to put on hold all other major academic engagements so as to concentrate instead on completing this thesis within reasonable time to the best of my ability.

I also need to mention my friend, Mehmet from Turkey, a recent graduate of IIUM, and my colleague, Puan Azimah of ISTAC's administrative office, who diligently and reliably typed the initial handwritten drafts of the thesis on computer, thus facilitating its eventual completion in standard academic format. Ugi Suharto (research fellow) and Dr. Muhammad Ismail Marcinkowski (senior research fellow), with the assistance of Zaidi Ismail (research fellow), all of ISTAC, gave some timely

advice on certain technical intricacies of ISTAC's standard format for academic papers. Finally, but certainly not least, I feel indebted to my friends, Azmi Nahayan and Shaharool Nizam who introduced me to their Intellectual Discourse Club (IDC) while we were all fellow-students at IIUM, and so exposed me to the profound intellectual mission of ISTAC.

Notwithstanding the positive comments and encouragement regarding the value of this thesis, I must frankly and honestly say that it is only an integrative synthesis of a number of compelling arguments culled from many related and not-so-related scholarly disciplines that call for serious reconsideration of the problem of the apparently sudden blossoming of Greek philosophy and science in history. All these lines of argumentation provide a strong foundation for building a comprehensive world system model of the rise of Greek rational thought that should be able to compete with, and eventually replace, the presently dominant Hellenocentric model. Therefore I disclaim all originality except perhaps that of pursuing as consistently as possible to its logical conclusion, a viewpoint which I believe, and so do many others, to be correct and thus deserving of rigorous scholarly assessment.

من يفعل الخير لا يعدم جوازيه
لا يذهب العرف بين الله والناس*



وما توفيتي إلا بالله العلي العظيم

* A well-known classical Arabic poem.

ABSTRACT

Mainstream academic account of the origins and rise of philosophy and science in Greek civilization emphasises explanations in terms of internal components and causal factors, despite glaring inconsistencies with generally known and accepted facts of Greek intellectual and cultural history. These inconsistencies expose the explanatory inadequacy of the mainstream account, and thus demand an intellectually more satisfying one.

In this regard, the purpose of this dissertation is to articulate lucidly an outline of the arguments for the *revisionist* viewpoint which gives due credit to both internal and external causal factors, and thus draws a much more coherent and plausible picture of the beginnings of rational inquiry in the intellectual adventure of Greek civilization.

Specifically, the revisionist viewpoint is articulated within the analytical framework provided by the *world system* model which serves to suggest the most plausible explanation for the abrupt blossoming of Greek philosophy and science by reference to cultural and intellectual changes brought about through dynamic intercivilizational or transcultural interactions over long periods of time. Given the archaeological and documentary data of Greek history accepted as such by mainstream *and* revisionist scholars, the world system model then proceeds to demonstrate its explanatory superiority by the method of *inference to the best explanation*. By this method, the conclusion reached is that all things considered, the best explanation of the data is that ancient Egyptian and Levantine learning was initially acquired by the Greeks who then proceeded to preserve and enhance it through their own creative contribution. In other words, the world system model argues that the data point to it and tend to confirm it as a more plausible explanation than the mainstream *hellenocentric* model.

As a scientific hypothesis, the world system model opens new, empirically fruitful avenues of research into uncovering the origins of Greek philosophy and science that should not be overlooked by any interested scholars and students of world intellectual history.

INTRODUCTION

Overview of the Issue

The fundamental issue this thesis is attempting to address satisfactorily has to do with the way we should approach and understand the history and historiography of Greek philosophy and science. "We" refers to civilizations, especially Islamic and Western, which have been and are still being attracted to and engaged by the conceptual and factual richness of Greek speculative thought. I should think that no particular civilization or intellectual culture can lay claim to a privileged right and acumen to interpret Greek intellectual history, which, to all intents and purposes, has now become an integral component of world intellectual history. The fact that Muslims became master interpreters of Greek rational thought centuries before much of it was learned and acquired through them by medieval Latin Europe bears this point out. Any Eurocentric claim to privileged understanding¹ becomes acutely untenable if it repeatedly fails to remove our puzzlement concerning many important but largely overlooked features of the rise of Greek intellectuality in history.

Specifically this fundamental issue can be succinctly expressed in the form of a general intellectual puzzle awaiting our attempts at solving it. The puzzle goes like this: *How did it come about that the classical Greek thinkers within the relatively very short period of 263 years² between Thales, the so-called "first philosopher-scientist," and Aristotle, the epitome of Greek rationality, managed to erect such a formidable intellectual edifice that has since never failed to engage the devoted*

¹ Anthony Preus argues that "ancient Greek philosophy occurred *before* Western Civilization occurred" and that it is a "*Near Eastern* cultural phenomenon" belonging to the "same larger culture as ancient Egypt, the Hebrews of the Bible, Phoenicia and Carthage, Babylonia[n] and Chaldaean astronomy, and the Persian Magi;" see his "Greek Philosophy: Egyptian Origins," *Research Papers on the Humanities and Social Sciences* 3 (Binghamton, N.Y.: Institute of Global Cultural Studies, Binghamton University, 1992-93), 14-15, henceforth cited as "Egyptians Origins." Professor Dr. Aref Ali Nayef directed me to this paper which was in Professor Dr. Bilal Kuspinar's possession; my gratitude to them both.

² According to the chronological table provided by G. E. R. Lloyd at the beginning of his book *Early Greek Science: Thales to Aristotle* (New York: W. W. Norton, 1970), henceforth cited as *Early Greek Science*, Thales died in 585 BC and Aristotle in 322 BC, thus a relatively short period of 263 years separates between the two.

attention of the best minds of Hellenistic, Roman, Byzantine, Islāmic, Latin-Christian and Modern-Western civilizations?

A detailed comprehensive solution of this big puzzle would be dependent upon specific solutions to numerous sub-puzzles pertaining to various aspects of Greek socio-cultural, political-economic and intellectual history that are largely overlooked in mainstream academic discourse. For instance, what were the specific features characterizing the educational setting of classical Greek philosophy and science? What was the specific nature of the socio-intellectual interactions between the Greeks and neighbouring Egyptian and Levantine³ civilizations? What was the nature of the socio-cultural transformation occurring towards the end of the Dark Ages⁴ and in the Archaic Age⁵ that eventually set the stage for the efflorescence of philosophical inquiry in classical Greece? How did the classical Greeks manage to acquire the complex conceptual and informational content of their encyclopaedic outlook? More specifically, how did it come about that Democritus (a mere 175 years following Thales)⁶ was able to acquire the intellectual confidence to produce such a rich and diversified corpus of scientific and technical writings? The general contention here is that mainstream historiography of classical Greek thought fails to answer these and similar questions convincingly; and as a matter of fact, in most cases, such questions are not even raised.⁷

³ Levantine civilizations are those that arose in the eastern part of the Mediterranean, including the Syrian and Anatolian littoral. For a splendidly accessible collection of authoritative essays on the ancient civilizations of the eastern Mediterranean, see J. M. Sasson, ed. in chief, *Civilizations of the Ancient Near East* 4 vols (New York, Scribner's, 1995), henceforth cited as *Civilizations*

⁴ The Greek "Dark Ages" refers to the period in Greek history after the fall of the Mycenaean palaces in the 12th century BC and before the rise of Archaic Greece in the 8th, during which Bronze Age Greek civilization crumbled. Greek culture revived 300 years later in the Iron Age. For a detailed analysis of the factors leading to this prolonged discription in Greek cultural life, see N. K. Sandars, *The Sea Peoples. Warriors of the Ancient, Mediterranean*, revised ed. (London: Thames and Hudson, 1987). See also J. B. Bury and Russell Meiggs, eds., *A History of Greece to the Death of Alexander* (London: Macmillan, 1991), 53-54.

⁵ Greece from the 8th to the 6th century BC, during which, the Greek cities or *poleis*, and a social structure founded on slavery, were established. For an introduction to this period, see, for example, George Forrest, "Greece: The History of the Archaic Period," in *The Oxford History of the Classical World*, eds. John Boardman, Jasper Griffin and Oswyn Murray (Oxford University Press, 1986), 19-49, henceforth cited as *Classical World*

⁶ Democritus died in 410 BC, see Lloyd, "Chronological Tables," in his *Early Greek Science*

⁷ Neither in the standard text-books nor in class instruction; the Greek "brilliance" is simply assumed

It is granted that a scientific puzzle is not independent of the intellectual outlook within which it finds its place and is recognised as such. Upholders of the Hellenocentric outlook have postulated all kinds of internal contributory factors to account for the apparently abrupt emergence of Presocratic "theoretic consciousness." Possible external cultural influence as a significant constituent factor can be passed over in silence or simply dismissed with a few words when Homer and Hesiod are already conveniently at hand to be invoked to provide the "educational" catalyst for this transformation of the Greek mental outlook.⁸ By and large, Hellenocentrists view the beginnings of philosophy-science with Thales and the other Presocratics as axiomatic. That they were *the* "fathers of rational thought"⁹ is the dogmatic *hard core*¹⁰ around which the whole programme of research into Greek philosophy and science must be conducted. Obvious puzzles to revisionists are to Hellenocentrists self-evident givens.

This Hellenocentric approach toward understanding the rise of Greek philosophy and science is all very well provided that the assumptions underlying it are found to be grounded in historical and archaeological evidence which verifies, at least,

⁸ According to Herodotus, and followed by Marrou, Homer and Hesiod lived circa 850 BC, that is toward the end of the Dark Ages. If as Marrou says, the "secret" of Homer's education lies in projecting the "Hellenic moral ideal" as encapsulated in the "heroic example," and Hesiod supplemented this core with "such valuable ideas as Right, Justice and Truth," it is difficult to find in these general notions any clear support for Jaeger's assertion that "the Homeric epic contain the germs of *all* [emphasis added] Greek philosophy." See H. I. Marrou, *A History of Education in Antiquity*, trans. George Lanun (Madison, Wisconsin: University of Wisconsin Press, 1982), 3, 13, henceforth cited as *Education in Antiquity*; Werner Jaeger, *Paideia: the Ideals of Greek Culture*, trans. Gilbert Highet (New York: Oxford University Press, 1945), 55, henceforth cited as *Paideia*. R. D. McKirahan Jr., too, makes similar attempts to dig up Hesiodic premonitions of Greek philosophical thinking; see his *Philosophy Before Socrates: An Introduction with Texts and Commentary* (Indianapolis: Hackett, 1994), 7-19, henceforth cited as *Before Socrates*. Similar attempts to pinpoint the origins of Greek philosophy in Homer and Hesiod can also be seen in W. T. Jones, *A History of Western Philosophy*, vol. 1: *The Classical Mind* (New York: Harcourt Brace Jovanovich, 1980); but such attempts overlook the problem of *underdetermination* (see Chapter 5). The Homero-Hesiodic factor *in itself alone* is not sufficient. For general information on Homer and Hesiod, see for instance, J. C. Stobart, *The Glory that was Greece: A Survey of Hellenic Culture & Civilization* (London: Sidgwick & Jackson, 1911), 40-42, 61-64; see also Oliver Taplin, "Homer," and Jasper Griffin, "Greek Myth and Hesiod" in *Classical World*, eds. Boardman et al. (Oxford: Oxford University Press, 1982), 50-77, and 78-98, respectively.

⁹ Jonathan Barnes, *The Presocratic Philosophers* (London: Routledge, 1993), 3, henceforth cited as *Presocratics*.

¹⁰ The "hard core" is the fundamental assumptions of a viewpoint, or research programme; see Imre Lakatos, "Falsification and the Methodology of Scientific Research Programmes" in *Criticism and the Growth of Knowledge*, eds. Imre Lakatos and Alan Musgrave (Cambridge, U.K.: Cambridge University Press, 1970), 133, henceforth cited as "Falsification;" see also A. F. Chalmers, *What is this Thing Called Science: An Assessment of the Nature and Status of Science and Its Methods* (Open University Press, 1982), 81-87, henceforth cited as *Called Science*.

its major logical consequences.¹¹ In other words the choice of that approach and its justification must be founded upon consideration of factors internal to the concerns of the study and *not* external to them.¹² Failing this, anomalies are bound to crop up too often, and have to be resolved in an increasingly *ad hoc* fashion, thus threatening the consistency of the approach until it is eventually rendered untenable, at least to reasonably well informed and critically minded newcomers to the field who have little or no prior emotional or ideological investment in that approach.¹³ The point being made here is that if the historiography of Greek thought is to be considered as an objective, rational, and empirically rigorous discipline that demands squaring of knowledge claims with evidence, then the puzzles mentioned above are indeed puzzles causing wonderment and surprise¹⁴ that demand intellectually satisfying solutions. These are puzzles that cannot simply be ignored much less removed by convenient recourse to some *a priori* conceptual categories imposed on the body of evidence and then justified through tautological reasoning,¹⁵ or through the invoking of *ad hoc*

¹¹ For example, one of the major logical consequences of the Hellenocentric viewpoint is that if the Greek intellectual achievements in such a short period of time was due to indigenous contributory factors, then they presuppose an indigenous tradition of technological expertise and scientific education stretching back for at least a few centuries before Thales. But unfortunately such a tradition is not evident in the documentary and archaeological records. For further elaboration on this point, see chapter 5.

¹² This means that an approach of study in order to be scientifically valid, cannot be imposed *a priori* on the subject of study for external socio-political reasons. For more on this, see chapter 2.

¹³ In this regard, I tend to agree with Lakatos and Kuhn. For Lakatos, the protective belt of auxiliary hypotheses supplementing the basic assumptions or hard core of a scientific research programme is valid and permissible as long as they are not *ad hoc*, and are *independently testable*; see Lakatos, "Falsification," 91-196 *passim*, and Chalmers, *Called Science*, 80-85. As for Kuhn, he sees that a new approach or paradigm is usually "invented" by newcomers to the field of study concerned; see Thomas Kuhn, *The Structure of Scientific Revolutions*, 2d ed. (Chicago: University of Chicago Press, 1970), 90, henceforth cited as *Scientific Revolutions*.

¹⁴ For the notion of scientific questions and problems as "puzzles" causing "wonderment" that need to be solved or explained, I am especially indebted to J. P. Moreland in his "Introduction" to *The Creation Hypothesis: Scientific Evidence for an Intelligent Designer*, ed. J. P. Moreland (Downers Grove, Illinois: InterVarsity Press, 1994), 26-27, henceforth cited as *Creation Hypothesis*; see also Chalmers, *Called Science*, 91-92.

¹⁵ Terms such as "genius," "miracle," "inventiveness," "*logos*," "gift for abstraction," "theoretic consciousness," "creativity," "brilliance," etc. merely refer to some notable features of the Greek scientific legacy; they do not at all serve the required function of actually accounting for the existence of that legacy with all its notable features. Therefore, such terms are tautological; it is like saying that the Greek scientific legacy is due to the Greek "genius," and that this "genius" is constituted by its legacy. Vacuous terms like these can only serve to cover ignorance masquerading as knowledge; see note 16, below.

hypotheses couched in "know nothing"¹⁶ terms bereft of factual support which render such hypotheses *not independently testable* (i.e., not testable independent of the given facts or evidence to be explained).¹⁷

Thus it is rather unfortunate for the cause of gaining insight into the factors contributing to the rise of Greek philosophy and science that mainstream scholarship in this area is heavily under the intellectual hegemony of Helleno-Eurocentrism which emphasises explanations in terms of "autochthonous"¹⁸ components and causal factors despite glaring inconsistencies with generally known and accepted facts of Greek intellectual and cultural history. This approach lazily and dogmatically takes the legend of Thales, the so-called "first philosopher-scientist,"¹⁹ as a convenient starting point, and thereafter proceeds to draw a bewitching picture of original rational ideas popping up rapidly from nihility into the minds of subsequent thinkers scattered all over the Greek archipelago. It would seem that this "theorizing consciousness"²⁰ initiated by Thales had a kind of "action at a distance effect" on the speculative thinking of other Presocratics, thus preempting any intellectual need for an indigenous scholarly tradition connecting them, or for alien stain on the pristine purity of the budding Hellenic minds. Philosophy, science, logic and rationality just simply hung heavily in the air one particular Milesian night, and on the following dawn all Greece naturally

¹⁶ J. D. Bernal complains of the tendency to study the scientific achievements of "great men" in isolation from their socio-cultural environment, and the consequent resort to "know nothing" words such as "inspiration" or "genius" to explain their discoveries; see his *Science in History*, 4 vols, illustrated ed. (Cambridge, Mass: M.I.T. Press, 1986), vol. I, *The Emergence of Science*, 45-46, henceforth cited as *Science in History*. In the case of the emergence of Greek philosophy and science, the dominant tendency is to study it in "splendid isolation" from the socio-intellectual milieu of the eastern Mediterranean as a cultural whole, thus the lazy appeal to "know-nothing" terms such as "intellectual courage" to fill in the explanatory gaps (or rather "gulfs") in Greek intellectual history.

¹⁷ See note 13, above.

¹⁸ From "autochthon," meaning original inhabitant, thus "autochthonous" means "indigenous." Martin Bernal takes the prominent Cambridge archaeologist, Colin Renfrew, to task for his ultra-Hellenocentric "Model of Autochthonous Origin;" see Martin Bernal, *Black Athena: The Afroasiatic Roots of Classical Civilization*, vol. I, *The Fabrication of Ancient Greece 1785-1985* (London: Vintage, 1991), 407-408, and vol. II, *The Archaeological and Documentary Evidence* (New Brunswick, N.J.: Rutgers University Press, 1993), 14-15, henceforth cited as *Black Athena I* and *II* respectively. See also chapter 2.

¹⁹ G. E. R. Lloyd, *Early Greek Science* 8.

²⁰ Julian Marias, *History of Philosophy* (New York: Dover Publications, 1967), 4.

witnessed the birth of "intellectual courage" for the first time in the "intellectual adventure of ancient man."²¹

Given such a mindset, it is hardly surprising that the intellectual achievements of the ancient Greeks are almost invariably attributed to their inherent "genius," innate curiosity and sense of wonder, favorable geographical conditions, and uncentralised religion and socio-political structures, with only passing, often derogatory, reference to external factors. As noted by Wedberg, for instance, such contributory factors "are usually credited to the political constitutions of the small Greek city-states, the peculiarities of the Greek popular religion, its lack of firm organization and doctrinal system, and the Greeks' bustling contacts through shipping and trade with the different cultures around the Mediterranean basin."²² Evidence pointing to extensive transcultural borrowings are either dismissed outright or belittled with little argumentative engagement. Quite plausible external influence is played down through such vacuous verbiage as that the Greeks were active acquirers not passive recipients.²³ Such parochial scholarship--which can very well be unintended by some authors such as William McNeill in his critically acclaimed *The Rise of the West*²⁴--serves to safeguard the purity of the European nature of the Greek achievement as the well-spring and epitome of the superior civilization of the West from any significant

21 Henri Frankfort, in concluding his useful survey of ancient near-eastern speculative thought, speaks at some length about the "peculiar intellectual courage" of the Greeks; see Henri Frankfort, H. A. Frankfort et al., *The Intellectual Adventure of Ancient Man: An Essay on Speculative Thought in the Ancient Near East* (Chicago: University of Chicago Press, 1977), 373, henceforth cited as *Intellectual Adventure*.

22 Anders Wedberg, *A History of Philosophy*, 3 vols. (New York: Oxford University Press, 1982), I: 11; see also McKirahan, *Before Socrates*, 20-22.

23 As in the case of the Greek appropriation of the Phoenician alphabet; see Bernal, *Black Athena*, 1:34-35, and also 393-399.

24 William H. McNeill, *The Rise of the West: A History of the Human Community* (Chicago & London: University of Chicago Press, 1963). For his candid reassessment of his popular book in the light of the work of world systemists, see his "The Rise of the West after Twenty-Five Years" in S. K. Sanderson, ed., *Civilizations and World Systems: Studying World-Historical Change* (London: Altamira Press, 1995), 313-318; see also his "Foreword" to A. G. Frank and B. K. Gills, eds., *The World System: Five Hundred Years or Five Thousand* (London & New York: Routledge, 1993), vii-xiii. The latter two books are henceforth cited as *World Systems*, and *World System*, respectively. Incidentally, it might also be interesting to mention that Marshall G. S. Hodgson's *Rethinking World History: Essays on Europe, Islam, and World History*, ed. E. Burke III (Cambridge & New York: Cambridge University Press, 1993) and *The Venture of Islam: History and Conscience in a World Civilization* (Chicago: University of Chicago Press, 1974) were written partly as an expression of conceptual dissatisfaction with the marginalization of the historical role of Islam in *The Rise of the West*.

intellectual indebtedness to any non-European civilizations, be they Egyptian, Levantine, Anatolian or Babylonian. Coplestone is not mincing words when he avers that "Greek philosophy remains one of the glories of European achievement," thus stressing exclusive European ownership. He is obviously echoing Stace who is blunt to the point of crudeness: "The whole character of Greek philosophy is European and unoriental *to the backbone*." Even a little bit of detached reflection will show that it is highly unlikely for those Greek geniuses of the past to have found reason enough to identify themselves with the barbaric Europeans of their northern frontiers. Their civilizational orientation was overwhelmingly to the south and east; Europe, much less "the West" was not a meaningful cultural concept to them. Indeed, as Stobart acknowledges: "The natural affinities of Greece are with Asia Minor and Egypt."²⁵ In short, the point that is put across whether tacitly or bluntly in such Eurocentric scholarship is that true philosophy, i.e., abstract theoretical thinking, and science, i.e., disinterested systematic investigation of natural phenomena, were the invention of the Greeks, and so, a distinctly European product and contribution to humanity; the rest of the world had no science or *even* thinking worthy of the name prior to the advent of the "brilliant" Hellenes.

So it is quite normal and unproblematic to guileless students to read in standard reference works and textbooks on the history of Western philosophy by writers such as Russell, Coplestone, Flew, Burnet, Guthrie, Marias, Jones, Stumpf and many others, statements that simply assert the indigenous beginnings of Greek philosophy without argumentatively engaging the question of external influences.²⁶ Marias is quite

²⁵ Frederick Coplestone, *A History of Philosophy*, 9 vols. (London: Search Press, 1946-75), vol. I, *Greece and Rome* (1946), 10, henceforth cited as *History of Philosophy*; W. T. Stace, *A Critical History of Greek Philosophy* (London: Macmillan, 1960), 17, emphasis added. Stace wrote much earlier before Coplestone. J. C. Stobart, *The Glory that was Greece: A Survey of Hellenic Culture and Civilization* (London: Sidgwick & Jackson, 1911), 5. Compare also the view of Preus in note 1, above.

²⁶ Bertrand Russell, *A History of Western Philosophy*, 2d. ed. (New York: Simon & Schuster, 1972), xiv, 3. Coplestone, *History of Philosophy*, 1: 14-16; W. K. C. Guthrie, *A History of Greek Philosophy*, 6 vols. (Cambridge University Press, 1992), 1:34-38, henceforth cited as *Greek Philosophy*; John Burnet, *Early Greek Philosophy*, 4th ed. (London: Adam & Charles Black, 1945), 15-24. Marias, *Philosophy*, 4, 9-10; W. T. Jones, *A History of Western Philosophy*, 1: 1-10; S. E. Stumpf, *Philosophy: History & Problems* (New York: Mc Graw Hill, 194), 3-4. Similar internalist approach to "The Background of Greek Science and Philosophy" can be clearly discerned in the otherwise useful and critical textbook on the philosophy of science by

forthright in asserting that abstract thinking was begun suddenly by the Greeks when he says that "this new human outlook [meaning theoretic outlook or theorizing consciousness] appears in Greece one day for *the first time* in history, and from that moment there is something *radically new* in the world, something which makes philosophy possible."²⁷ This is echoed almost verbatim by Barnes in his similarly unargued assertion that "the Presocratics were the fathers of rational thought ..they were the first men self-consciously to subordinate assertion to argument and dogma to logic"--quite an ironic statement in the light of his own unrelenting assertiveness.²⁸

In a more generous vein, Lloyd accepts the Egyptian and Mesopotamian background of Greek science, but then he says, "Yet despite the achievements of the Near Eastern peoples in the fields of medicine, mathematics and astronomy, it is still reasonable to argue that Thales was the first philosopher-scientist;"²⁹ we shall have space to examine his "reasonable" arguments in some detail later on. As for Flew, he emphasizes the argumentative nature of Western philosophy, and thus he belittles the philosophical value of Eastern works, such as the *Analects* of Confucius.³⁰ Stumpf begins his well-written textbook by saying quite simplistically that, "Philosophy began when humans' curiosity and wonder caused them to ask the questions: 'what are things really like?' and 'how can we explain the process of change in things?,'" and predictably he goes on to say that this novel mode of questioning began with Thales in Miletus.³¹

Marx W. Wartofsky, *Conceptual Foundations of Scientific Thought An Introduction to the Philosophy of Science* (New York: MacMillan and London: Collier MacMillan, 1968), 69-70

²⁷ Marias, *Philosophy*, 4, emphases added.

²⁸ Barnes, *The Presocratics*, 3, for the quotation, as for his unrelenting assertiveness, it is proudly expressed in his enthusiastic review of G E R Lloyd's relatively recent book, *The Revolutions of Wisdom: Studies in the Claims and Practices of Ancient Greek Science* (Berkeley & Los Angeles: University of California Press, 1987), in the *Times Literary Supplement* (London), 16-22 December, 1988, 1392, where he says. "It is unfashionable to speak of a greek 'miracle' But let the pendulum of fashion swing as it may, the Greeks invented science and philosophy," cited in Robert Palter, "Black Athena, Afrocentrism, and the History of Science," in *History of Science* 31 (1993): 287 n. 211, and in Mary R. Lefkowitz and Guy MacLean Rogers, eds, *Black Athena Revisited* (Chapel Hill & London: University of North Carolina Press, 1996), 266 n. 88 I am indebted to my supervisor, Professor Dr. Paul Lettink, for drawing my attention to the last book.

²⁹ Lloyd, *Early Greek Science*, 8

³⁰ Antony Flew, *An Introduction to Western Philosophy* (London: Thames and Hudson, 1988), 36.

³¹ Stumpf, *Philosophy*, 3.

While scholars such as Clark would not even bother to comment on the historicity or otherwise of Thales but simply starts by claiming that "... Thales may be credited with distinguishing Greek philosophy and science from the aimless observations and disjointed information of the Eastern white men;"³² others such as Lewes would admit that the life and works of Thales "are shrouded in mystery" and "belong to the domain of fable," but in the same breathe assert that "nevertheless he laid the foundation stone of Greek philosophy"³³--without of course coming into contact with non-Greek thought. Since, as Hegel says, "the name of Greece strikes home to the hearts of men of education in Europe,"³⁴ the European character of Greek philosophy must be stressed, and so Coplestone announces that "the Greek philosophers and writers know nothing" of Oriental and Egyptian influences, and therefore "Science and Thought, as distinct from mere practical calculation and astrological lore, were the result of the Greek genius and were due neither to the Egyptians nor the Babylonians."³⁵

In any case, the message that is imparted by such dogmatically negative attitude toward non-Greek contributions to philosophy and science is that all non-Greek philosophy and science are not truly so either by convention or definition, because, firstly, they were products of trial and error experience and not of abstract, rational and systematic thinking, and, secondly, they were products of a mythical outlook towards the world which did not distinguish between the natural and the supernatural. So the claim that is being put forward is that while ancient non-Greek civilizations might have chanced upon some aspects of science through blind, unreasoned groping (thus science by chance, therefore *not* Science), it was left to the Greeks to discover science through deliberate systematic thinking (thus science by design, therefore Science).

³² Garden H Clark, "The Beginnings of Greek Philosophy" in *A History of Philosophical Systems*, ed Ferm Vergilius (New York. The Philosophical Library, 1950), 70

³³ G. H. Lewes, *The Biographical History of Philosophy* (Farnborough, Hants Gregg International, 1970), 3.

³⁴ G. W. F. Hegel, *Lectures on the History of Philosophy*, trans. E. S. Haldane, 3 vols. (reprint, London. Routledge & Keegan Paul, and New York: Humanities Press, 1963), 1 149, also cited in Bernal, *Black Athena*, 1: 295, and in Coplestone, *History of Philosophy*, 1 10.

³⁵ Coplestone, *History of Philosophy*, 1: 14-16

In sum, the general tenor of many standard works on the history of Greek philosophy and science is that somehow Thales appeared miraculously on the stage of world intellectual history and started a novel and revolutionary method of thinking, the philosophico-scientific method. On the one hand, the background of the Greek achievement in older contemporaneous civilizations around the eastern Mediterranean basin is quickly glossed over and played down as of no real significance, while on the other hand, a lot of deceptive verbiage is weaved together to give some semblance of historical substance into the near legendary accounts of Thales and other Presocratic philosophers. As we shall see, in this process of rhetorical acrobatics, many internal and external inconsistencies are simply swept under the carpet through a string of speciously contrived conclusions serving as connected explanations that give the impression of being grounded in historical evidence.

On the one hand one can agree with Coplestone that "one must not assume *a priori* that every opinion of every thinker is borrowed from a predecessor,"³⁶ but on the other hand, one must also not assume *a priori* that the borrowing did not occur, or that non-Greeks had not preceded the Greeks, or were not *at least* contemporaneous with them in cultivating philosophy and science. His standpoint that "historical criticism must rest its conclusion on historical proofs and not deduce them from *a priori* assumptions, garnishing them with a pseudo-historical flavor"³⁷ is laudable, but paradoxically he fails to apply his self-chosen methodology to the question of the origins of Greek philosophy; for while he would demand burden of proof from those questioning Greek originality, he is less than forthcoming with proofs for establishing such originality and consequently the non-existence of external influence. The fact remains that standard histories of philosophy are heavily garnished with an Eurocentric pseudo-historical flavor tacitly serving to bring the non-European intellectual world to submit to the notion of the intellectual precedence and superiority of Europe.³⁸

36 Ibid., 1: 11

37 Ibid..

38 As is pointed out in elaborate detail by Bernal in the first volume of *Black Athena*, see chapter 2

In reaction against the shortcomings of such Eurocentric historiography, revisionist scholars such as George G. M. James, Martin Bernal, Benjamin Schwartz, Joseph Needham, Eric Cline, Michael Astour, Cyrus Gordon, Walter Burkert, Catherine Osborne and many others, have taken a fresh approach towards understanding Greek cultural and intellectual history, and have come out with a number of independent but related and complementary conclusions that can collectively be referred to as the *revisionist* viewpoint.³⁹ While James bases himself on a thorough perusal of the Greek classical sources, Bernal relies on studying afresh the documentary and archaeological evidence, and reviewing them within the context of socio-intellectual history. In a special study, Burkert produces evidence for Near Eastern influence on Greek culture in the early Archaic Age, and another by Osborne questions the usual methodology applied in understanding the Presocratic fragments, and exposes it as being seriously flawed. Similarly, Benjamin Schwartz's "world-historic" approach toward the study of ancient Chinese thought brings him to draw the conclusion that rational and logical thinking did not originate with the Greeks, for the Chinese and other "high" civilizations were at least contemporaneous with them.⁴⁰ Studies on science in history by scholars such as George Sarton, J. D. Bernal and Joseph Needham, conclusively render the case for the "splendid isolation" of classical Greece untenable.⁴¹ On the larger question about the rise of European civilization as a

³⁹ George G. M. James, *Stolen Legacy: Greek Philosophy is Stolen Egyptian Philosophy* (Trenton, N.J. Africa World Press, 1992), henceforth cited as *Stolen Legacy*, Jack Sasson, ed in chief. *Civilizations of the Ancient Near East* 4 vols. (New York: Scribner's, 1995), henceforth cited as *Civilizations*; Eric H. Cline, *Sailing the Wine-Dark Sea: International Trade and the Late Bronze Age Aegean* (Oxford: Tempus Reparatum, 1994), henceforth cited as *Sailing the Wine-Dark Sea*; Michael C. Astour, *Hellenosemitica: An Ethnic and Cultural Study in West Semitic Impact on Mycenaean Greece* (Leiden: Brill, 1967), Cyrus Gordon, *Before the Bible: The Common Background of Greek and Hebrew Civilizations* (New York: Harper & Row, 1962); Walter Burkert, *The Orientalizing Revolution: Near Eastern Influence on Greek Culture in the Early Archaic Age* (London: Harvard University Press, 1992) henceforth cited as *Orientalizing Revolution*, Catherine Osborne, *Rethinking Early Greek Philosophy* (London: Duckworth, 1987), henceforth cited as *Rethinking Philosophy*. The works by Astour and Gordon mentioned above are cited by Bernal, *Black Athena*, 1: xii-xiv, as among his most important references; but I myself have not been able to access them directly.

⁴⁰ Benjamin I. Schwartz, *The World of Thought in Ancient China* (London: Harvard University Press, 1985), henceforth cited as *Thought in Ancient China*; see chapter 4.

⁴¹ George Sarton, *A History of Science through the Golden Age of Greece* (Cambridge, Mass: Harvard University Press), henceforth cited as *History of Science*, Joseph Needham, *Science and Civilization in China*, 7 vols continuing (Cambridge: Cambridge University Press, 1954-),

whole, scholars of civilizational studies, such as J. M. Blaut⁴² and Janet L. Abu Lughod⁴³ have applied, with some conceptual modifications, Wallerstein's world-system theory⁴⁴ to convincingly debunk the myth of "inherent ethnic superiority" as lying behind the ascendancy of Europe and its dominance in the modern world system.

As can be seen, the term "revisionist viewpoint" is used here in the generic sense to refer to a variety of alternative approaches to the study of the rise of European civilization in history, such as approaches from the world-historical, world systemic and world civilizational frames of analysis, as well as from social-intellectual history, comparative history of thought, philosophy and science, reexamination of the classical sources, and reinterpretation of the archaeological evidence. All these (autonomous) approaches converge on the general conclusion that the Hellenic and European intellectual, cultural, political and economic hegemony in ancient and modern history respectively can only be adequately accounted for in terms of a combination of autochthonous contributory factors and cross-continental influences coming from far reaching developments occurring in neighbouring civilizations, and so explanations in terms of some internal European "miracle," "genius" or "propensity," are in reality vacuous, "know nothing" verbiage.

In view of the explanatory inadequacy of the mainstream Helleno-Eurocentric model briefly surveyed above, the purpose of this thesis is to present as lucidly and as rigorously as possible, an outline of the main lines of argumentation for the revisionist viewpoint which gives due credit to both internal and external contributory factors, and thus draws a more coherent, consistent, and hence, more plausible picture of the

especially vols. I and III, henceforth cited as *Science in China*; Bernal, *Science in History*, especially I: 144; see also chapter 3.

⁴² He gives a concise and excellent summary of revisionist arguments in the ongoing debate between the eurocentrist and revisionist view of European history within the context of world history; see his "Fourteen Ninety-two," in J. M. Blaut et al., *1492: The Debate on Colonialism, Eurocentrism, and History* (Trenton, N.J.: Africa World Press, 1992), 1-64, henceforth cited as *1492*.

⁴³ Janet L. Abu Lughod, *Before European Hegemony: The World System: A.D. 1250-1350* (New York: Oxford University Press, 1989), henceforth cited as *Before European Hegemony*.

⁴⁴ I. Wallerstein, *The Modern World-System*, 3 vols. (New York and San Diego: Academic Press, 1974-89), esp. vol. 1; henceforth cited as *Modern World-System*. Post-Wallersteinian world systemists omits the hyphen in the original concept for conceptual reasons not elaborated here, but see the debate in Frank and Gills, eds., *World System*, 3, 201-2, 292-6.

beginnings of rational thinking in Greek civilization. Specifically, the revisionist viewpoint is articulated within the analytical framework provided by the *world system* model which serves to suggest the most plausible explanations for the abrupt blossoming of Greek philosophy and science by reference to cultural and intellectual changes brought about by dynamic intercivilizational or transcultural interactions over long periods of time.⁴⁵ Given the archaeological and documentary data of Greek history accepted as such by mainstream *and* revisionist scholars, the world system model then proceeds to demonstrate its explanatory superiority by the method of *inference to the best explanation*.⁴⁶ By this method, the conclusion arrived at is thus: *all things considered, the best explanation is that ancient Egyptian and Levantine learning was initially acquired by the Greeks who then proceeded to preserve and enhance it through their own creative contribution*. In short, the world system model argues that the data point to it and tend to confirm it as a more plausible explanation than the mainstream hellenocentric model. As a scientific hypothesis, the world system model opens new, empirically fruitful avenues of research into uncovering the origins of Greek philosophy and science that should not be overlooked by any interested scholars and students of intellectual history.

The first two chapters of the paper outline the arguments of James and Bernal, including complementary arguments by scholars such as Preus, Burkert, Cline and Osborne, and counter-arguments by Lefkowitz, Palter, Rogers and others, while the

⁴⁵ The model is elaborated in some detail in Chapters 5 and 7.

⁴⁶ The method of "inference to the best explanation" is also called *abductive* or *retroductive* inference formally articulated by the outstanding, though little studied, American philosopher, C. S. Peirce. Basically, this method attempts to infer a past event from a present fact or clue. Abductive inferences are retroductive, because the nature of a past relatively obscure or unknown event, e.g. the genesis of Greek philosophy and science, is inferred from extant documentary and other evidence of Greek philosophy and science, and from what is known about the rise of sciences in more recent civilizations such as Islam and the West. I am indebted for the practical use of this method to J. P. Moreland, "Introduction," and Stephen C. Meyer, "The Methodological Equivalence of Design and Descent: Can there be a Scientific 'Theory' of Creation?," both in J. P. Moreland, ed., *The Creation Hypothesis*, 26-27, and 88-98 respectively. On C. S. Peirce's logic of abduction, see his "Abduction and Induction," in *The Philosophy of Peirce*, ed. J. Buchler (London: Routledge, 1965), 150-56, and C. S. Peirce, *Collected Papers*, eds. C. Hartshorne and P. Weiss, 6 vols. (Cambridge, Mass: Harvard University Press, 1931), 2: 375; see also K. T. Fann, *Peirce's Theory of Abduction* (The Hague: Martinus Nijhoff, 1970), 33. For an excellent monograph on this method, see Peter Lipton, *Inference to the Best Explanation*, paperback ed. (London and New York: Routledge, 1993), henceforth cited as *Inference*. I am indebted to my teacher, Professor Dr. Aref Ali Nayed, formerly of ISTAC, for bringing my attention to this book. For more details on my use of this method, see Chapters 5, 6 and 7; see also note 14, above.