

## **CHAPTER TWO**

### **Ancient Secular Philosophy**

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#### **Hellenic Genius**

Ancient civilization in the Near East lay on a Fertile Crescent extending from the Nile River northward to the Levant, then eastward to the Tigris and Euphrates watershed that emptied into the Persian Gulf. At opposite tips of this crescent, Egypt and Mesopotamia hosted remarkable agrarian societies beginning as early as 4,000 B.C.E. Greece, on the other hand, was isolated from this region by the Aegean Sea, and Greek terrain was mountainous and relatively infertile. Its population endured a more primitive culture, and its coastline with endless bays, islands, and peninsulas seemed primarily useful to pirates. However, this country later proved even more useful to merchants dependent on harbors and port cities, and by the seventh century, B.C.E., Greece emerged from its backwardness to become the first major civilization able to compensate for its agrarian limitations by emphasizing trade, money, and financed colonization elsewhere in the Mediterranean region from the Black Sea as far west as Marseilles and the modern border of Spain. Today, all of Greece but in particular the ancient city of Athens are appropriately considered to have been the first and most remarkable epicenter in the entire history of western civilization. The achievements of Rome, Arab civilization, the Italian Renaissance and all that has followed can be traced back to the Hellenic genius of Greece.

As an unexpected effect of Greece's compensatory mercantile emphasis, ample wealth became available to a relatively large segment of its population additional to its aristocracy, and this in turn provided sufficient leisure to spur a flowering of cultural and intellectual attainment never matched before or since. There was unprecedented ingenuity in such endeavors as politics, philosophy, science, history, drama, architecture, and sculpture. Among the most important of Greece's innovations at this time, I want to suggest, was its substitution of doubt and reasoned inquiry for the unexamined adherence to traditional belief. Greek civilization might have begun with Homeric myth, as classical scholars insist, but it culminated with Aristotle and skeptical philosophy as summarized by Cicero three centuries later. This was an extraordinary epochal transition beyond the capability of all other societies in the ancient world. As already indicated, all previous civilizations were almost entirely agrarian, dependent on received patriarchal authority as well as the priesthood and ritual practices needed to enforce its prerogatives. Thanks to the economic and cultural innovations brought into play by Greece, all later civilizations that benefited from its example were able to feature a money economy, leisure, education, and, of pivotal importance, an essentially secular perspective. Of course religion continued to play its role, but this was relatively diminished, locked into dialectic exchange with more challenging alternatives. St. Augustine was only possible in response to Plato, St. Thomas Aquinas in

response to Aristotle, Kant in response to Hume, and Wittgenstein (a closet believer) in response to Bertrand Russell.

The Greek peninsula had first been occupied by a primitive tribe identified as the Pelasgians, who seem to have been unaffected by Egyptian and Mesopotamian advances in art and technology. Around the fifteenth century, Ionians, Achaeans, and other tribes invaded from the north to establish the Mycenaean civilization on mainland Greece. During the eleventh century, within a hundred years of the Trojan War, Dorians led a second major invasion from the north, routing the Myceneans (thereafter described as Ionians), forcing their migration elsewhere. During the so-called Dark Ages that followed, from the tenth through the eighth centuries, most of the Ionian population fled to islands on the Aegean Sea and various coastal enclaves on Turkey's shore, providing a string of settlements that eventually stretched northward into the Black Sea and westward to Massilia (later Marseilles) on the southern shore of France. Athens was the only mainland settlement that remained in Ionian hands. Its steep outcropping, the Acropolis, was defensible and had ready access to both the Aegean Sea and hillside wells that provided a sufficient fresh water supply. Sparta became the primary Dorian center in Greece, while Miletus, on the coast of Turkey at a latitude slightly south of Athens, became the dominant Ionian port city until it was sacked by Persian armies in 494, B.C.E. Thereupon the Ionian epicenter shifted to Athens, which has ever since been identified with the emergence of western civilization.

### **Homer**

Typical of defeated populations, Ionian refugees between the twelfth and sixth centuries, B.C.E., took nostalgic satisfaction in tales of their earlier successes. These mythical accounts were retained by a bardic tradition that featured the Trojan War, the final military triumph of Mycenaean civilization before its defeat by the Dorians. Over a span of three or four centuries, wandering bards, many of them blind like Homer, traveled from one Ionian settlement to the next reciting tales of bygone victorious combat to anybody willing to listen. During the eighth century, the two epic poets, Homer and Hesiod, culminated and standardized this tradition, Hesiod by transcribing a theogony that documented Greek history from the original creation of the world to the Trojan War, and Homer by inserting as many bardic tales as possible into his two grand Trojan epics, *The Iliad* and *The Odyssey*. For both authors the Trojan War served as the pinnacle of Greek achievement, so they depicted its every aspect with reverential specificity. In retrospect, their achievement provided a kind of Hellenic equivalent to the Biblical texts finally combined in the Torah during the sixth and fifth centuries, B.C.E.

Of course Homer's vision lacked the ethical urgency of the Bible, but it compensated for this deficiency by its remarkable visualization of the so-called Heroic Age in every particular. Everything could be both felt and seen--from dogs, shields, jewelry, and death wounds, to boat construction and the size and force of waves in a vibrant living universe. Even the gods lived and breathed. For example Athena in *The Odyssey* cajoled her father Zeus to take pity on Odysseus in Book I, and she later joined Odysseus in Book XIII on a secluded beach and helped him plot the destruction of the evil suitors. However, this eidetic immediacy turned out to be a major liability within the next hundred-fifty years, since its visible immediacy rendered Greek polytheistic religion more vulnerable to skeptical doubt. Its stories and episodes were certainly compelling, but its lifelike depiction of the gods and goddesses inspired little confidence in their

actual existence as compared to the more indistinct narrative of other ancient religions whose imprecision paradoxically lent them better credibility. As anthropomorphic depiction, for example, Greek mythology exaggerated tangible accuracy as opposed to the almighty God of Biblical tradition, who was at best a shadowy patriarchal figure that wandered the Garden of Eden (Genesis 3.8), or, a few centuries later, a disembodied supernatural voice from behind the clouds (Matthew 17.5). And it did not help that tricks, quarrels, and sexual escapades dominated the behavior of the Greek gods, both among themselves and in their treatment of human beings. All in all, they were too human to be superhuman, and superhuman gods seemed more deserving of worship. Because of their material depiction, Greek gods were far more susceptible to challenge than the supernatural, hence immaterial, gods.

Exactly because of Homer's genius as a poet, his "blind" faith in the palpable certitude of Greek religion was accordingly far more vulnerable to skepticism than the relatively nebulous beliefs of other societies at the time. As a result, orthodox religion could be challenged as an unsuitable final answer to the riddle of universe. For the first time in the history of ancient civilization, religion could be demoted to literary status in the pursuit of better answers, first in oracular poetry, later in prose.

### **Pre-Socratic Materialism**

It should therefore be no surprise that ancient Greece first introduced philosophy to the ancient world as a substitute for religion. Nor should it be any surprise that the earliest Greek philosophers (*physikoi*) who proposed various theories of the universe lived in outlying Ionian colonies that remained somewhat exposed to Homeric myth, yet were located far enough from their motherland to be indifferent to its presumed truth. Undoubtedly bards visited to remind their compatriots abroad of traditional beliefs rendered in lively and unforgettable stories, and undoubtedly Odysseys' wanderings were of unique interest to those with their own memories of adventure in the Aegean region. Nevertheless, Hellenic tradition was probably less compelling at these outposts of Greek civilization, which primarily served as trade centers between Greek city states and agrarian societies that extended from France to the Black Sea, most of which subscribed to their own anthropomorphic religions. Moreover, the trade centers were primarily mercantile rather than agrarian, so orthodox belief was no longer needed to help sustain a rigid traditionalist hierarchy dedicated to successful harvests justified by fertility legends of one sort or another. Food was still important, of course, but the dominant social class did not consist of farmers, but of merchants who engaged in trade that brought grain and other foodstuffs from foreign lands to the Greek city states. Sailors, not field workers, were the primary source of labor; and merchants, not farmers, were their employers. If anything, belief in a fixed theogony that was specifically relevant to Greek tradition could only be an impediment to cross-cultural trade whose emphasis on profitability also enlarged possibilities in social as well as geographical mobility. It was actually profitable not to be quite so orthodox in one's religious belief while dealing with friendly nearby societies. No longer essential as an inducement to subservience and the performance of menial tasks, religion could finally be judged relevant to its credibility alone. When Xenophanes denounced Homer and Hesiod for having "attributed to the gods all things that are shameful and a reproach among mankind," and when Heraclitus asserted, "Homer deserves to be flung out of the contests and given a beating," it may be assumed that they were

speaking for at least three generations of Greek philosophers who sought a better version of the truth in light of their improved sophistication.

With Homeric mythology effectively nullified, philosophers could minimize the vision of gods as anthropomorphic projection by resorting to either pantheism or exotic and necessarily primitive versions of monotheism. The philosopher Thales, for example, offered an explanation both animistic and pantheistic: "The world is animate and full of divinities." Anaximander was more obviously pantheistic in having identified the world's basic stuff (*apeiron*) as *to theion* (the "divine"), whereas Heraclitus proposed broad categories, "God is day-night, winter-summer, war-peace, satiety-famine . . . [but] . . . changes like (fire) which when it mingles with the smoke of incense, is named according to each man's pleasure." With vivid originality, Parmenides suggested a sex goddess encircled by concentric rings of fire, and Empedocles proposed the minimalist alternative, "a rounded sphere enjoying a circular solitude."<sup>1</sup> Finally, Anaxagoras identified godhead with spiritual essence (*nous*) imbedded in everything that exists. On one hand his depiction was pantheistic, as with Anaximander's earlier proposal, but on the other it suggested a spiritual whole that was later useful to Platonism as well as the notion of a Holy Ghost important for Christianity. All of these suggestions gave god(s) some kind of a role to play, but quite different from that suggested by orthodox Greek polytheism of earlier times. Obviously, the standard Pantheon of deities no longer sufficed, and an alternative explanation was sought that unavoidably emphasized a more or less self-sufficient physical universe additional to the primary relationship between god(s) and mankind.

In the simplest terms, materialist theory began with the speculative contributions of the Ionian philosophers Thales, Anaximander, and Anaximenes, who lived in Miletus during the mid-sixth century, B.C.E. Miletus, on the coast of Turkey, was first settled by Achaeans many centuries earlier and might have been close enough to both Lydia and the Phoenician port cities of Tyre and Sidon to benefit from substantial cultural diffusion. This was certainly the case in science and mathematics and possibly in the realm of philosophical speculation. The major pre-Socratic philosophers who followed the Milesians included Heraclitus from the port city of Ephesus, located north of Miletus; Xenophanes, Parmenides and Zeno of the port city of Elia, located on the coast of Italy northwest of Rome; Pythagoras of Crotona, also on the western shore of Italy; Empedocles of Sicily; and, still later, Leucippus, Democritus, and Protagoras of the port city of Abdera, located on the northern shore of the Aegean near the Dardanelles. These philosophers indeed lived far apart, scattered among Greek trade routes at the time, but they shared the same language and cultural tradition rooted in Homeric legend, whose cosmic and ethical assumptions they uniformly rejected except as literature. Athens played a relatively minor role at the time. Only Anaxagoras among these pre-Socratic philosophers was Athenian, and he lived a couple generations later during the Age of Pericles. Democritus visited Athens at the same time, but soon departed because his talent was ignored.

All these philosophers effectively minimized the role of gods by emphasizing the substance (or "stuff") of the universe, the basic matter that provides a substratum for everything else. The particular phenomena they proposed both singly and in combination--earth, air, fire, water, etc.--might seem absurd by today's scientific standards, but the concept of a universal element was a fundamental breakthrough in intellectual history, and the featured qualities--wet, hot, solid, etc.--suggested principles that are still important today relevant to the field of physics. True, water

had already been featured in Greek mythology by the role of Poseidon, earth by the role of Uranus, and both fire and air by the role of Zeus, but these depictions hardly anticipated the reductionist audacity of these philosophers in their willingness both to divest these elements of anthropomorphic identity and to conjecture about their potential importance as the primary source of all matter. In each instance, raw matter supplanted godhead as philosophy's primary consideration, later to be replaced by the Sophist obsession with doubt and the Platonic conception of mind.

Born about 640 B.C.E., Thales, the first of these materialist philosophers, was honored as the most eminent of the ancient world's seven wise men. Among his many accomplishments listed by Diogenes Laertius, he supposedly introduced to the Greek world the geometry and astronomy he encountered while in Egypt. He also successfully predicted an eclipse, determined the sun's annual course from solstice to solstice, established the size of the month at thirty days, proposed the immortality of the soul, used the magnet to attribute soul (or life) to inanimate objects, figured out how to inscribe a right-angled triangle in a circle, and served as an advisor to his friend Thrasybulus, tyrant of Miletus. Additionally, Thales was said to have obtained a small fortune in financial speculation by buying up all the available oil mills during a good season in the harvest of olives. Six centuries before Christ, he was also said to have proposed his own version of the Golden Rule, that we should refrain from doing what we blame in others. When asked what is most difficult in life, he replied, "To know oneself." Asked what is easy, he replied, "To give advice to another." Asked what is the divine, he replied, "That which has neither beginning nor end."<sup>2</sup>

By far Thales's most important contribution was his monist proposal that water provides the universal substratum of the universe. Thus water as a fluid medium took on the status of the single most basic element, not merely wet liquid that splashes in the seas and lakes dominated by particular gods, for example Tiamet, Oceanus, Poseidon, and Neptune as explained by various ancient religions. According to Thales, everything that exists is composed of water in one manifestation or another. Just as ice and steam derive from water, so does all life and indeed all that exists in the world about us. Of course Thales' hypothesis turns out to have been incorrect, but more important than his choice of water as a single basic element for the entire universe was his willingness to explain this universe in monistic terms independent of anthropomorphic mythology. Whatever the primary element might consist of, Thales' proposal expressed for the first time the awareness of an impersonal universe distinct from human destiny, and in fact the single element he chose to emphasize effectively bridged the animate and inanimate realms of the universe.

Thales's protégé, Anaximander, proposed an evolutionary theory that humanity evolved from fish-like animals, a remarkable anticipation of the Darwinian theory of evolution. More important he also proposed, as Thales had already suggested, that there exists a single substance that can be identified as *arche* (or starting point) beyond which nothing more basic exists. However, he doubted it could be identified with a particular known element such as water. A universal stuff was indeed at the bottom of the perceived universe, but it was not possible at that time to identify it with absolute assurance. Instead, he argued, it consists of an unknown universal substratum (*apeiron*) that is necessarily in motion and both spatially and temporally unlimited. Greek materialists tried to identify this undefinable stuff with a variety of concepts

and natural substances, many of which anticipated modern theories of physics that emphasize the various aspects of an energy field. In doing so, however, all of them, including modern cosmologists, have simply replicated Thales' effort by proposing their own particular candidates for the most basic element explicable in terms proposed by Anaximander.

Anaximenes, for example, identified *apeiron* as air (i.e., a rarified medium), and his follower Diogenes of Apollonia, extended this principle to human breath and by extension the human soul and the soul of the universe. Heraclitus chose fire (i.e., energy), Xenophanes preferred earth (i.e., matter), Parmenides wholeness (i.e., a total universe), and Empedocles the combination of earth, air, fire, and water brought together by the principles of love and hatred (i.e., magnetic and gravitational forces). Leucippus and Democritus proposed a medium of tiny microscopic particles described as atoms (exactly the term used today), Pythagoras proposed mathematical precision (i.e., phenomena definable by equations), and Anaxagoras proposed a combination of elements (comparable to Mendeleev's Periodic Table of Elements), all of which interpenetrate (i.e. by an interaction among sub-atomic particles) through the influence of *nous*, his own concept of soul imbedded in the physical universe. The word *nous* suggested nothing more than the life force, but Plato extended its definition to describe a transcendent realm of existence, and it was still later modified as the concept of the Holy Ghost important to Catholic theology. All these pre-Socratic theories were pantheistic in their limitation of godhead to the universe itself, and they identified *apeiron* with reference to particular ideas and phenomena accessible to direct experience, but their relevance to the basic natural forces still under investigation today was remarkable.<sup>3</sup>

Today the textual evidence of these theories is necessarily fragmentary and is based on their quotation by later authors such as Plato, Aristotle, Cicero, Sextus Empiricus, and Diogenes Laertius. Many passages can be treated as early Hellenic poetry, but they also convey unusual speculative freedom, and with intriguing implications that have challenged modern philosophers such as Hegel and Heidegger. Heraclitus, for example, extended the principle of fire to explain *logos*, or human intelligence (for in fact the metabolism of brain cells does involve oxidization similar to fire), and he linked this principle with the incessant conflict between opposites that he found at the root of all existence, *logos* included. It was this use of the word *logos* by Heraclitus that later provided the unifying core of Plato's idealism and anticipated the opening sentence of John's Testament: "In the beginning was *logos* [translated "the Word"], and *logos* was with God, and *logos* was God." On the other hand, Empedocles explained differences among all visible phenomena by the variation in balance among the four basic elements already featured. Unlike Heraclitus, Empedocles considered blood to be the source of intelligence. Today, however, there is no difficulty in connecting their theories, since red blood corpuscles deliver air to brain cells in order to produce metabolism, a slow-motion biological equivalent to fire that takes place while thought occurs.

The primary assumptions of materialism that have persisted since ancient times derive from the theory of atomism first proposed by Leucippus as late as 430, which was later refined and elaborated by Democritus, who lived into old age as a contemporary of Plato. As explained by Democritus, the entire universe consists of infinitesimal particles too small to be observed that are suspended in empty space (nature's void) except for their various concentrations providing the elements we know. These particles, he argued, are identical except that some are less well

packed and therefore contain within themselves more of the void than others (e.g., wood as compared to iron). They also have different sizes and shapes, and are organized in different ways in a variety of larger structures. Atoms themselves, Leucippus and Democritus argued, are indestructible and therefore eternal, perpetually in motion "hitting and knocking against each other." However, some cling together for a while, and compounds are produced when they become "entangled in virtue of the relation of their shapes, sizes, positions, and arrangements."<sup>4</sup> The entire universe consists of an unlimited field of atoms suspended in an even more inclusive void, and everything that happens somehow manifests the interaction among these atoms, thus justifying a deterministic vision of "blind necessity" that is dominant at every level of existence inclusive of human affairs. As Leucippus explained in his one sentence that survives today, "No thing happens at random but all things as a result of a reason and by necessity."<sup>5</sup> Transcendent intelligence was not implied here, but an intricate concatenation of atoms in a vast indifferent whole with life and human intelligence life's highest achievement.

### **Athenian Democracy**

The next major step in the advancement of Greek philosophy must be understood in light of socio-economic trends in Greece during the late fifth century, B.C.E. The Ionian center of gravity shifted to Athens after Persians sacked Miletus in 494. This was followed in 483, eleven years later, by the unexpected victory of Greece over both Persian troops led by Xerxes at Thermopylae and by the Persian navy at Salamis, which mostly consisted of Phoenician ships. Resulting from the latter victory, Greece replaced the Phoenicians as the dominant mercantile society in the eastern Mediterranean region, and Athens (four miles from its port city of Piraeus) became the epicenter of the Delian League with a central role in maritime relations. Because of its nearby silver mines, Athens provided both coinage and excellent banking resources, and the anchorage at Piraeus was large enough to accommodate all ships in the region, which were obliged by navigation laws to embark and disembark from this site wherever they traveled. The result was the first advanced mercantile society in western tradition, international trade under the leadership of Athens having increased to the highest levels in world history outside China up until the European Middle Ages.<sup>6</sup> As the epicenter of the eastern Mediterranean region, Athens became highly cosmopolitan and went on to enjoy unprecedented power and prosperity until the beginning of the Peloponnesian War in 431. This war turned out to be disastrous to Athens, culminating in defeat in 404, almost three decades later, by the Peloponnesian League led by Sparta. Athens recovered within a few years, but without regaining its central role, and it later declined in importance, first eclipsed by Alexandria in trade, science, and philology, later by Rome as the regnant epicenter of the ancient world. Nevertheless, Athens' half-century of hegemonic dominance was unprecedented. Just as British imperialism thrived in modern times because the English navy ruled the world's oceans, Athens' so-called thalassocracy sustained its imperial supremacy for less than a century, but this, it turns out, was all it took to launch western civilization.

Most of this period in the mid-fifth century, the so-called Age of Pericles, has been celebrated for its unprecedented achievements. In 432, just before the Peloponnesian War that brought to an end this extraordinary period of affluence, the population of Athens and its surrounding countryside is estimated to have been unusually large for the time--between 215,000 and 300,000, including between 35,000 and 45,000 citizens inclusive of their families, and

perhaps a hundred thousand slaves, most of them probably from the Black Sea region.<sup>7</sup> Slaves who worked in the silver mines did not live very long, but other slaves fared better, two former slaves, for example, having become bankers and the wealthiest inhabitants of Athens. Also important in Athens were the Metics, a large foreign subpopulation who lacked citizenship and could not own land, but played a substantial role in trade, banking, medicine, philosophy, and the arts. Many of Athens' most famous citizens were Metics. Besides Protagoras from Abdera, Metics included Herodotus from Halicarnassus, Aristotle from Stagira, Theophrastus from Eresus, Gorgias from Leontini, Diogenes from Sinope, and Zeno from Citium. What happened was simple enough to explain. As the cultural magnet and melting pot of the region, Athens attracted and provided inspiration to numerous talented foreigners identified as Metics, giving the city unprecedented "critical mass" in intellectual matters that bore a profound influence on culture and philosophy ever since in Western Civilization.

What explains Athens' remarkable success compared to sister cities such as Corinth and Thebes? Many variables must be taken into account in addition to Athens' naval dominance, some of which might be less obvious than others. The silver mines were important, as was the defensible situation in Athens. Also, the farm economy of Attica was relatively sparse even by Greek standards. Its hot and dry climate compounded by poor soil, thus necessitated the pursuit of foreign trade to supplement its agriculture. And trade turned out to be more lucrative than farming, at least partly resulting from the recent invention of money by Lydians. Unlike earlier ancient civilizations, Athens was accordingly populated by merchants and bankers rather than farmers. Of course the nearby Phoenicians were also mercantile, but they seem to have fallen short of Athenians in not having so quickly adopted coinage and the relatively sophisticated financial practices that this made possible. Loans, for example, came into vogue, as well as insurance and other such financial innovations. As a result, wealth accrued and a more affluent lifestyle became prevalent as well as exposure to alternative belief systems from a variety of foreign cultures. Unfortunately, most of Athens' housing was cramped, but this too turned out to be advantageous. Public sites such as the *agora* (or marketplace), shrines, the theater, and the Acropolis were spacious and attractive, so large numbers of relatively affluent citizens and Metics were drawn almost daily to these sites, where they could join in public debate and extended conversation. Whatever its impact on agriculture, the dry climate mitigated by sea breezes actually encouraged public discourse, fertile turf for the inception of philosophy. Later, various philosophical schools were located nearby: Zeno's *Stoa Poikile* adjacent to the *Agora*, Aristotle's *Lyceum* a kilometer to the west, the Epicurean gardens a kilometer toward Piraeus, and Plato's Academy slightly farther in that direction.

### **Sophists and their Enemies**

It was in Athens during the Age of Pericles when the intellectual revolution that had already begun with the invention of materialism underwent its second major transformation. Philosophy suddenly shifted from the vision of a material universe independent of the authority of the gods to a second and more revolutionary perspective that featured doubt and uncertainty relevant to every aspect of human experience, including the possible existence of both godhead and a material universe. The pursuit of a universal substratum that began more than a generation before the triumph of Athens was accordingly supplanted in Athens by two or three generations of intense skepticism by the so-called Sophists led by Protagoras, Gorgias, Hippias, and Critias,

as well as Socrates despite the best effort of Plato after his death to suggest otherwise. Instead of seeking answers about the physical universe, a task that eventually resulted in the invention of science, this new breed of philosophers asked what "truths" were really valid and how any theory or cosmology could be ascertained with genuine certitude, a task that inevitably led to the invention of epistemology. Arguably Athenian sophists inclusive of Socrates and Plato were the very first epistemologists in the history of western philosophy. By highlighting what they didn't know, they helped to explain what they knew and how they knew it.

It is to be conceded, however, that pre-Socratic materialists had already tested the possibilities of skepticism. Xenophanes, for example, argued, "Clear truth hath no man seen nor e'er shall know," and Empedocles argued, "all things are hidden and we perceive nothing, discern nothing, are utterly unable to discover the real nature of anything." Similarly, Democritus argued, "truth is sunk in an abyss, opinion and custom are all-prevailing, no place is left for truth, all things successively are wrapped in darkness."<sup>8</sup> However, these so-called *physicoi* for the most part limited their skepticism to their inability to understand the source and foundation of the material universe. It was Protagoras, the first of the Sophists during the Age of Pericles, who made skepticism the central tenet of his philosophy relevant to every sphere of experience. Ignorance was no longer a peripheral consideration, but instead became the primary issue in the determination of idea, perception, and all we think we know. Whereas the materialists did little more than concede their inability to grasp *arche* or to perceive *apeiron* as asked by Anaximander, Protagoras and most of the Sophists who followed emphasized the task of skepticism in and of itself as applied to all issues including religion and philosophy. Just as Homer's anthropomorphic vision of the gods had given place to a full-scale materialism pertinent to nature's substratum of elements, this materialist conception gave place to pure skepticism according to which both the gods and the possibility of a material universe free of their influence could be examined on a skeptical basis. Absolutely everything was susceptible to doubt.

Protagoras, the most eminent of the Sophists, seems to have been as versatile as Thales had been. He was the first to charge a fee for his lessons, thus for the first time giving teachers (identified as philosophers) comparable status and sustenance to that of priests. His text *Antilogic* first established dialectics as a double-entry methodology for weighing the positive and negative aspects of any idea worthy of discussion, and he apparently initiated the use of this system as an approach to pedagogy that was later adopted by Socrates for his own purposes. Protagoras also proposed a phenomenology to the effect that the "truth" pertaining to any event is in fact what seems to be true based on its perceived manifestation. Simply enough, what seems, is, at least to the extent that it seems. Protagoras also began the systematic analysis of grammar, anticipated Locke's thesis that the soul is nothing apart from its perceptions, and suggested the crucial distinction between *physis* (freedom) and *nomos* (traditional usage) in human society, anticipating the contributions of John Stuart Mill and many others in modern times. Finally, Protagoras is remembered for having invented a useful shoulder strap, and for having written a constitution for the colony of Thurii at the request of Pericles.<sup>9</sup>

When Protagoras published his agnostic text, *On the Gods*, his fellow citizens were so outraged that all his writings were gathered and burned on a large pyre in the center of Athens, and it was said that he fled for his life only to die in a storm at sea. As a result, just two of his sentences have survived, both of which remain important statements of his skeptical stance:

Of all things the measure is man--of the things that are, that they are, and of things that are not, that they are not.

About the gods, I am not able to know whether they exist or do not exist, nor what they are like in form; for the factors preventing knowledge are many: the obscurity of the subject, and the shortness of human life.<sup>10</sup>

Protagoras is said to have meant by the first of these statements that individual consciousness inescapably projects its own "truth" upon nature, thus explaining the diversity of opinion we encounter bearing upon most issues. However, the more inclusive (and more interesting) implication also seems plain: that human intelligence in general is bounded by the dynamics of human consciousness.<sup>11</sup> What we see consists of perception's organization of sensation projected upon a welter of sense data that otherwise makes no sense. Most people see a horse the same way because of the identical construction of their eyeballs and brain centers, quite aside from individual variations that must also be taken into account. And thus the universality of human consciousness as the "measure" of reality. Granted, the mind finds all its truths in nature, but, as later emphasized by Kant, its truths obtained in this fashion are both shaped and limited by its conscious-perceptual apparatus common to the species. The broad implications of the final prepositional construction, "of things that are, that they are, and of things that are not, that they are not," would suggest this more generic intention having been emphasized by Protagoras. Also, the agnostic implications of this interpretation seem plain--that these truths are the product of human consciousness, not of divine intervention as described by Homer or any principle of intelligence imbedded in nature as explained by Anaxagoras and later elaborated by Plato.

Protagoras argued in the second of his surviving sentences that the concept of godhead is one of the most elusive truths mankind projects on nature. The idea of god(s) might seem self-evident to the non-philosophical mind, but to Protagoras its actuality beyond its felt perception experienced as belief was almost impossible to establish. This was essentially the same version of agnosticism as the poet Simonides had already proposed with his confession, "Because the longer I think about it [the nature of the gods], the fainter become my hopes of an answer."<sup>12</sup> It also anticipated Thomas Huxley and Sir Leslie Stephens' explanations of agnosticism in the late nineteenth century. It was Protagoras, the most important of the Sophists, who first rendered central standing to this viewpoint, providing an ideological basis for all later skeptics willing to challenge orthodox religion. Significantly, his second sentence listed here played a significant role in obliging his flight from Athens and his death at sea.

Among the rest of the Sophists during the Age of Pericles, Cratylus argued that all acts of communication are likewise susceptible to challenge, and, more radical yet, Gorgias argued that nothing exists, and that if it did, it would be unknowable, and if it were knowable, it could not be communicated. Metrodorus of Chios took this argument to its limit:

I deny that we know whether we know something or know nothing, and even that we know the mere fact that we do not know (or do know), or know at all whether something exists or nothing exists.<sup>13</sup>

Last but not least, despite Plato's effort to revise his historic role, Socrates may be identified as a Sophist for having argued every issue with the conviction that he knew more than others simply because he knew that he did not know. Socrates' dialogues also contributed to the history of skepticism by having obliged listeners (and readers) to hold any final judgment in abeyance until all relevant arguments could be evaluated based on the assumption that intense brainstorming led to a more defensible opinion. Socrates' skepticism thus became little more than a pedagogical strategy inspired by the example of Protagoras, letting Plato advocate a transcendent knowledge of ideal forms with sufficient skill to prevent the recognition that this particular vision was at least as susceptible to doubt as all the rest.

Orthodox religion continued to be important among the masses during the Age of Pericles, supposedly one of the most skeptical periods in the history of western civilization. This regressive tenacity helps to explain the great popularity of tragedy at the time. Aeschylus and Sophocles repeatedly used the genre to demonstrate the necessity of religious faith. Aeschylus's *Prometheus Bound*, for example, told of a Titan who defied the wrath of Zeus by giving mankind fire (i.e., science and technology), and two of Sophocles' most successful tragedies emphasized the importance of religious belief, *Oedipus Tyrannus* by telling of the destruction of a tyrant who refused to believe in religious prophecies, and *Antigone* by telling of the destruction of a tyrant who refused to accept the religious obligation to bury the dead in an appropriate manner. The third major tragedian, Euripides, reputedly an atheist who was friendly with Pericles as well as Protagoras and Anaxagoras, reversed this theme by writing tragedies that challenged belief in the Greek gods. His celebrated tragedy *The Bacchae* would seem to have met Sophocles' goals by telling of a tyrant who refused to accept the existence of Dionysus as the son of Zeus. However, the play's more basic message, conveyed by Cadmus, the tyrant's grandfather, in the final scene, articulated an abhorrence of gods who imitate the passions of mortals by tricking them into committing infractions for which they can be punished with excessive severity. The comic dramatist Aristophanes was actually more in agreement with Sophocles than Euripides, whom he ridiculed. In *The Clouds*, Aristophanes took obvious relish in telling of Socrates having been pelted with lizard excrement when he gazed on the heavens, suggesting biology's revenge against excessive transcendent inquiry.

However, the dramatic vision of the gods was already old-fashioned. Godhead had been reformulated by Xenophanes, Heraclitus, Empedocles, and Anaxagoras's various theories of a monotheistic deity. Plato often concurred, most notably in his unscientific disquisition on science, *Timaeus*, and Socrates' disciple Antisthenes was celebrated for having proposed in his lost book *Physicus* the existence of a single dominant God that could not be depicted by any kind of an image.<sup>14</sup> On the other hand, there were a few outspoken atheists at the time, including Diagoras, Prodicus, Theodorus of Cyrene, and Plato's notorious cousin Critias, the author of a poetic fragment that described religion as a social invention to discourage criminal behavior through supernatural fear.<sup>15</sup> Critias played a positive role in Plato's dialogues, and he was admired for both his plays and his prose style, but today he is mostly remembered for having been one of the most bloodthirsty leaders of the thirty tyrants that subjugated Athens and executed 1,500 of its citizens at the end of the Peloponnesian War. Appropriately, Critias was killed in battle when the group was defeated and expelled from power. Diagoras, the most notorious atheist in Athens, began his life with deep religious convictions but turned to atheism when he felt abandoned by the gods in a personal tragedy. His only argument against the gods

on record today was uttered aboard ship during a storm (suggestive of Pericles' final experience), when he reflected that his chances of survival were identical to those of fellow passengers who were vigorously praying to the gods.

The intellectual contribution of these few Greeks willing to embrace atheism during the Age of Pericles was relatively minor, but they did serve to demonstrate the extent to which fifth-century philosophers could voice opinions unacceptable to the orthodox majority. As with the telltale canary in the mineshaft, their very existence, whatever difficulties they encountered, provided credible evidence they could express themselves, hence breathe (i.e., live), which does not seem to have been possible among secularists elsewhere in ancient world. And of course their religious doubts anticipated later trends in western civilization beginning with Strato and Carneades during the Hellenistic Age and resumed by Pomponazzi and Bruno during the Italian Renaissance.

Unfortunately, the Peloponnesian War brought the period of intense philosophical innovation typical of the Age of Pericles to a close. Pericles' adventuristic foreign policies as well as his increasingly autocratic reign were for the most part responsible for this turn of events, resulting in his loss of popularity among other city-states as well as Athenian citizens, especially aristocrats who sympathized with Sparta. When Athens fought Corinth for control of Corcyra and Potidaea, a Peloponnesian League of hostile Greek city-states joined Sparta in going to war against Athens. Soon hostile armies besieged Athens, and Pericles found it necessary to bring the outlying rural population into its city walls, producing overcrowded conditions. Within a couple of months, many of its defenders, Pericles included, died of a plague that broke out resulting from their confinement. By the time Athens was defeated in 404, its period of affluence and high civilization had ended, and orthodox compatriots offended by seven decades of extraordinary innovation treated the principal architects of Athenian achievement as enemies of the state.

Mob psychology mounted, and the most conspicuous beneficiaries of Pericles' generosity were prosecuted. Most notably, the remarkable sculptor Phidias, a good friend of Pericles, was convicted of atheism and sentenced to prison, where he died. Pericles' mistress Aspasia escaped this fate only because Pericles himself broke down in tears while defending her before her accusers. Diagoras was sentenced to death on the same charges and fled to Corinth, and the philosophers Protagoras and Anaxagoras, both friends of Pericles, were likewise charged with atheism and fled the city. As far as the populace was concerned, it did not matter that Protagoras was agnostic rather than atheistic when he confessed his inability to prove the existence of god(s), nor did it matter that Anaxagoras's pantheistic theory of *nous* later inspired the Platonic concept of God as well as the Christian notion of a holy ghost. What was important was the willingness of these figures to meddle with orthodox belief, and this was sufficient to oblige their elimination.

Charges were never pressed against Pericles himself, but his sympathy toward freethinkers were sufficient to have justified concerns about his orthodox faith. Sophocles obviously depicted him in his stories of tyrants punished for their *hubris* through religious disbelief, and the parallel was further brought to bear in the telling resemblance between Aspasia and Jocasta, Oedipus' dominant but misguided wife. If anything, public hostility against philosophers escalated upon

Athens' final defeat. Socrates was executed by being forced to drink hemlock after having been convicted of "denying the gods recognized by the state and introducing new divinities." He was also convicted of "corrupting the youth" by having indoctrinated them with his unacceptable religious beliefs. Later, even Aristotle was persecuted after the death of his eminent pupil, Alexander the Great, when Athenians, no longer fearful of Macedonian retaliation, charged him with atheism. Aristotle fled for his life to Chalcis in Euboea, where he lived in a cave until he died a year later.

### Plato and Aristotle

Plato and Aristotle became prominent after Athens recovered from its defeat, Plato as a disciple of Socrates who revised his skepticism to propose a theory of ideal forms, and Aristotle as Plato's favorite disciple who revised his concept of ideal forms to propose a new and more sophisticated version of materialism. As described here, the historic sequence may be grasped in dialectic terms, each successive level of philosophical insight having been formulated to reject the assumptions of its predecessor. Materialists inspired by Thales had challenged Homer's anthropomorphic naïveté, but then Sophists led by Protagoras had challenged both Homer and materialists on skeptical grounds. Next in sequence, Plato used Socrates' version of skepticism to propose a metaphysics whose transcendent forms superseded the secular assumptions of both the materialists and Sophists.<sup>16</sup> Also, however, he replaced the gods by a more sophisticated notion of godhead with obvious transcendent implications already suggested by Anaxagoras and others. As Plato's most talented disciple, Aristotle thereupon carried the dialectic one step further by restoring materialism that emphasized a methodology combining logic and acute observation to feature something akin to Plato's ideal forms in the context of nature itself. In effect he supplanted Plato's transcendental archetypes with empirical categories amenable to descriptive thoroughness. Aristotle also resurrected skepticism through his thorough assessment of alternative theories before launching into his own. Everything Aristotle addressed in the realm of nature (as opposed to ideal forms) was accordingly categorized and investigated on a systematic basis. Perhaps the most basic aspect of Aristotle's approach was his emphasis on persistent observation rather than speculative genius. In essence, transcendent form became an imminent system of categories, and speculative freedom was replaced by laborious empirical inquiry into the analysis of these categories.

Plato was able to feature the existence of transcendent universals (his own version of *arche*) impervious to skeptical doubt because they lay outside the physical universe. On the other hand, Aristotle devised science to demonstrate how structures suggestive of Plato's truths are imbedded in everything we see and understand. Instead of ideal forms to be grasped on a superior plane, Aristotle featured inductive categories to be extrapolated from nature itself by carefully sifting relevant data. The essence of things (*physis*), he explained, establishes their genus inclusive of their particulars, such that each of these particulars deserves to be investigated representative of its category. Science accordingly sifts specific evidence on the important but easily overlooked assumption that "classification and division are counterparts of the intrinsic order of nature."<sup>17</sup> It may be conceded that Aristotle excessively featured categorical analysis but his approach was more flexible than recognized, and his willingness to take exceptions into account anticipated modern science, as, for example, when he explained in a neglected passage upon the investigation of bees, "[The] facts, however, have not yet been sufficiently grasped; if

ever they are, then credit must be given rather to observation than to the theories, and to theories only if what they affirm agrees with the observed facts."<sup>18</sup> Here in the simplest words Aristotle fully conceded the empirical demands of modern science that were later formulated in reaction against Aristotelian categories.

Not surprisingly, Aristotle's analysis could eventually be interpreted to support Christian theology, as illustrated by the effort of medieval Christian theologians culminating with Saint Thomas Aquinas. However, it cannot be ignored that Aristotle limited his definition of God in *Physics* to a radically abstract status as an "unmoved mover," anticipating the impersonal god of the deist movement beginning in the seventeenth century.<sup>19</sup> Aristotle also proposed a continuous and limitless universe without an inner void (the space between atoms) or outer edge (a realm of darkness), and with neither a beginning nor an end, thus rejecting Democritus' notion of atomism as well as the Homeric gods and all other theories of a finite universe. Coincidentally, Aristotle remained ambivalent in *De Anima* whether the human soul survives death, suggesting in some contexts that it did, but in others that it did not. It should therefore be no surprise that, like Diagoras, Anaxagoras, and Protagoras, Aristotle was eventually prosecuted on the charges of atheism once his protector Alexander the Great had died. Indeed, Hellenic philosophy culminated with Aristotle, so it seems appropriate that he too was finally driven into exile by angry fellow citizens.

Altogether, five important new fields of inquiry came to the fore over the relatively brief duration of two centuries in ancient Greece: the materialism first proposed by Thales and Anaximander; the skepticism first proposed by Protagoras; the metaphysics first proposed by Plato; and both the logic and empirical science as first proposed by Aristotle. This was a remarkable collective accomplishment totally unmatched in the world's history of civilization either before or since. Just about everything said in the Bible is irrelevant to this extraordinary achievement beyond the simplistic concepts of monotheism and the function of the soul. Nor do Chinese or Indian philosophy have much to say beside it. Read their texts--then turn to Plato, Aristotle, and the rest of the Greek authors that have survived in fragments. The difference is remarkable--in fact sufficient to explain the advantage of Western Civilization once modern scientists and philosophers beginning in the Renaissance were able to resurrect its level of analytic sophistication.

### **Hellenistic Genius**

Scholars and intellectual historians tend to dismiss the history of Greek thought after Aristotle as a kind of intellectual falling off that must be paid its due, if without exploring it in any depth. This, I think, has been a mistake. In fact, the so-called Hellenistic contribution to philosophy has also been substantial, providing the essential core of assumptions needed for the resurrection of empirical inquiry during both the Arab Middle Ages and Italian Renaissance. Unfortunately, the writings of such major authors as Epicurus, Strato, and Clitomachus (the protégé and workaholic amanuensis of Carneades) were indeed lost--the latter two without any text whatsoever having survived. However, the number and variety of their lost publications was enormous, actually far more extensive than Plato's works in their entirety or, for that matter, the fifth of Aristotle's works that remain available today. Moreover, all three of these post-Aristotelian figures, along with Carneades (who, like Socrates, did not bother to transcribe his

ideas), were arguably freethinkers, if not hard-core atheists hostile to religion--hence very likely the victims of purposeful neglect by Christian scribes and copyists at a later time. Fortunately, Cicero and two second-century Greek scholars, Sextus Empiricus and Diogenes Laertius, took the trouble to summarize and quote from their arguments, giving the three of them, Cicero included, a central role during the Renaissance as secondary sources, the only sources available to fifteenth and sixteenth century secularists inspired by an ancient viewpoint both useful and directly relevant to their own. In their writings these secularists expressed their debt to all three of these scholars, but, whether they knew it or not, they were primarily inspired by the radical assumptions of Strato, Epicurus, and Carneades, earlier figures these scholars saved from extinction, and of them only Cicero was sympathetic with the ideas he summarized.

Contemporary scholars and historians of western civilization have persistently ignored early Hellenistic theory that links science with atheism well in advance of the achievements of Jean Buridan and others during the fourteenth century. This omission has been misguided, since it suggests the pivotal importance of medieval science rooted in the tenets of Catholicism both preceding and setting the stage the secularization of empirical inquiry during the Renaissance. Very decidedly, however, science has not been the invention of medieval Christianity. Instead, the admittedly commendable scientific pursuits of the fourteenth century can and ought to be treated as having been a useful interlude in a more inclusive history of science that has otherwise been devoid of Christian inspiration. Specifically, Cicero's historical perspective that emerges in his dialogues examined in light of Sextus and Diogenes Laertius' scholarship two centuries later suggests the Hellenistic influence of such figures as Strato, the many scientists who benefited from his teachings in Alexandria, and the principal figures of Academic skepticism, Arcesilaus and Carneades. Three centuries of Arab scientific achievement a thousand years later was inspired by these early figures, and this in turn helped to inspire the achievement of Buridan and his contemporary. And finally the scientific revolution of the sixteenth and seventeenth centuries occurred in response to all three of these periods, but ancient science, the first of them, most of all resulting from the rediscovery of its early texts as well as its impact on Arab science and more indirectly the fourteenth century. This obviously pre-Christian scientific inspiration cannot be denied once examined in sufficient depth, as seems to have been the task undertaken by such Renaissance authors as Montaigne, Bacon, and Gassendi, all of whom sought to resurrect the secularization of inquiry despite the sustained effort of orthodox Christian scribes and copyists to demolish its record as much as possible. Paradoxically, the singular distinction of Hellenistic secularism is best indicated by the effort to eradicate its record during the Dark and Middle Ages, and later, as anticipated by its annihilators, to be studiously ignored for lack of sufficient textual evidence in later centuries.

Once Cicero's relevant texts are reexamined in this light, however, the crucial missing link is restored and the secularist "inner" history of science can be traced from Aristotle to Strato and Carneades, both of them atheists, then to Cicero's more or less agnostic assessment, and finally, through Cicero, to Copernicus, Bacon, Gassendi, and everybody who followed a full millennium later. So it was Cicero as much as anybody who bridged the gap from ancient secularism to modern science. Nobody denies the seemingly inexplicable popularity of Cicero's writings during the Renaissance, and this linkage, almost totally neglected today, was at least partially the reason why. The Renaissance thus began and ended with the resurrection of Cicero--from Petrarch to Gassendi--and it was not the seemingly effortless cadence of Cicero's prose that

stirred this popularity, but his effort to provide an enduring record of Hellenistic philosophy with special emphasis on its skeptical trends linked with the so-called Academic school. Other historians who dealt with Hellenistic philosophy--Sextus Empiricus and Diogenes Laertius--lived two hundred years later and felt no kinship with skeptical trends that culminated with Cicero--trends just as important for almost three full centuries as the skepticism of Protagoras and the other Sophists of a briefer period during the fifth century, B.C. Again, it is to be emphasized that the skepticism featured by Sextus and Diogenes Laertius--of the so-called Pyrrhonian school--featured the use of disbelief to justify the latitudinarian acceptance of religious orthodoxy, as opposed to the emphasis of the Academic school upon sustained disbelief as the key to all valid knowledge, indeed science itself. By committing themselves to this rejection of sustained disbelief, these later students of skepticism effectively eliminated scientific inquiry from their purview, and this omission was more than useful to later theologians.

With the conquests of Alexander the Great (356-23 B.C.E.), Greek civilization entered its Hellenistic phase late in the fourth century, divided between two competitive but friendly intellectual centers, Athens (which persisted as the center of philosophy) and the entirely new city of Alexandria built from scratch on an isthmus near the mouth of the Nile River. Alexander himself had chosen the site of Alexandria, and after his death his general (and natural half-brother) Ptolemy I had supervised its construction. Alexandria turned out to be a wealthier and better-planned city than Athens, and it soon replaced Athens as the dominant port and commercial center of the eastern Mediterranean region. It also contained the first university (called "the Museum"), Alexander's mausoleum (his body preserved in honey), an enormous library that was estimated to house between five and seven hundred thousand manuscripts, and the Serapeum, an imposing temple attached to the library that housed an enormous metal statue imbedded with countless precious stones that depicted the newly invented god Serapis for ordinary citizens to worship

A few of Ptolemy's scholars concocted Serapis to merge Greece's Dionysian cult with Egypt's religion of Isis and Osiris. They did this in order to promote and justify Alexandria's unique role in extending Greek civilization to Egypt on the edge of Africa. While scholars and scientists pursued their respective inquiries at the Museum and Alexandrian Library, average citizens could within shouting distance worship Serapis as a brand new deity who combined the religious traditions of both Greek and Egyptian culture. At first, Egyptians disdained Serapis, but eventually he and his consort Isis, the latter borrowed intact from Egyptian mythology, became the most widely worshipped pagan deities in the Mediterranean region. In the third century, A.D.E., Serapis actually supplanted Mithra as the dominant pagan deity to be suppressed in the final ascent of Christianity. The two-for-one bargain package for fifth century Christians was that they could destroy both the pagan temple to Serapis, apparently the biggest and most impressive of its kind in the Mediterranean region, and the Alexandrian library adjacent to the temple, the most comprehensive collection of texts in the ancient world. Some of these texts, for example Greek tragedies, provided excellent record of pagan traditions. However, a great many others were secular, even atheistic, discourses that had accumulated during the Hellenistic period. But more about this historic catastrophe later.

Athens continued to dominate ancient philosophy both during and after the Peloponnesian War and the many years of political turmoil that followed. Established as permanent institutions,

Aristotle's Lyceum developed a more empirical version of science, Plato's Academy reverted from Platonic metaphysics to skepticism more reminiscent of Socrates than Plato, and, as relative latecomers, Epicureans emphasized Democritus' atomism in order to justify their particular version of hedonistic ethics. Other philosophical schools in Athens included the Stoics, Cynics, Cyrenaics, Megarians, and Dialecticians, but these played a less important role in the advance of secular philosophy. As an ethical philosophy, Stoicism featured materialist assumptions drawn from Aristotle's theory of continuous space (which they described as a plenum) and the four basic pre-Socratic elements. Stoic philosophers made no substantial philosophical innovations of their own beyond their theory of *pneuma* (breath or vital spirit) as the fifth element and their emphasis on determinism to justify the possibility of predicting the future. Stoicism's two principal spokesmen, Zeno of Citium (334-262) and Chrysippus (280-207), did propose useful truth criteria that provoked Academic skepticism's theoretical reaction. However, the notion that Academic skeptics did little more than elaborate their own version of Stoic epistemology seems exaggerated, granted the likelihood that the Academics could not have advanced their own particular epistemology to the level of sophistication they finally attained without having had Zeno and Chrysippus to challenge.

Epicurus (341-270), the leader of the school by his name, was far more productive in his authorship than either Plato or Aristotle, or any other ancient author, as a matter of fact. He was notorious, indeed ridiculed, for his excessive productivity. However, only one text survives that summarized his materialist cosmology, his 12-page "Letter to Herodotus" that Diogenes Laertius included in his *Lives of Eminent Philosophers*.<sup>20</sup> Here Epicurus conceded the existence of the gods (in the plural), but as harmless creatures with no providential impact upon human experience. Instead, Epicurus explained, very likely with tongue in cheek, they live in a realm of their own and do not trouble themselves with human affairs.<sup>21</sup> Having dispensed with religion in this fashion, thus averting prosecution (always a threat to ancient atheists), Epicurus explained the universe itself as a mechanistic realm dominated by a "swerve" that produces interactive collision among falling atoms. Gravity produced a kind of stasis, or underpinning, but also important was resistance to this gravity through the swerve of atoms expressive of an additional force, perhaps nothing more than the intrinsic structure of atoms. Like everything else, Epicurus claimed, humanity is immersed in these structures imposed by interactive atomic motion at every level of manifestation, so individuals best serve themselves through the pursuit of static (or *catastematic*) pleasure, a kind of painless equilibrium in harmony with the equilibrium of the universe. Death, on the other hand, is merely the termination of human existence as one particular order of atoms, followed by non-existence no more fearful than the non-existence that preceded our birth. Thus he advocated the necessity of living a balanced life dominated by prudence, good friendships, and a moderate satisfaction of appetites.

Epicurus also summarized a variety of materialist principles that he himself had probably treated at length elsewhere. Many of the summarized concepts were undoubtedly borrowed from Aristotle and many others, but they were also of seminal importance in the development of modern secular philosophy, giving Epicurus an intermediate role comparable to that of Cicero, Sextus Empiricus, and Diogenes Laertius as a conduit of ancient assumptions that could be explored at length ten centuries later on perhaps a more sophisticated basis. These included the notion that nothing can be created from nothing, that the universe is boundless and will always be the same, that an infinity of worlds exist just like our own, that atoms move with equal speed

and are impervious to change, and that the heavenly bodies consist of fire in such intense concentrations that they could not have been created by any god(s). Relevant to the human mind and questions of epistemology, he argued that sensed qualities partake of substance without possessing independent existences, that images and ideas are the product of repetitive experience, that human nature is the product of circumstance, and that the soul is not immortal, but is instead both corporeal and distributed throughout the entire body. In retrospect, a few of Epicurus' assumptions may be rejected in light of modern science, for example that all atoms are impervious to change and move with equal speed, the latter quite aside from today's assumption that all light waves or particles travel at the same speed. However, most of his thinking bore a substantial impact once his Letter to Herodotus became available in Latin and modern languages beginning in the early Renaissance.

Of Epicurus's many followers, Lucretius who lived a century later (ca. 96-55 B.C.E.), immortalized his cosmology in a famous epic philosophical poem, *De Natura Rerum (Of the Nature of Things)*, by far the most eloquent ancient testament of materialist philosophy. Like Epicurus, Lucretius described in extensive detail an atomistic universe without limit and perpetually in motion. He also summarized an ancient "big bang" theory to explain the origin of the universe based on pre-Socratic assumptions:

They [pre-Socratic materialists] go back to heaven and its fires for a beginning, and first suppose that fire changes into air, next that from air water is begotten and earth is produced out of water, and that all in reverse comes back from earth, water first, next air, then heat, and that these case not to interchange, to pass from heaven to earth, from earth to stars of ether.

However, he rejected any notion of a genesis that culminates in total obliteration, arguing, "Something unchangeable must needs remain over, that things may not utterly be brought back to nothing."<sup>22</sup> Today's popular big bang theory would suggest that a fiery inception did occur followed by successive transformations illustrated by star formation, the creation of elements in the interior of stars, the creation of planets, and the creation of life on a few of these planets, all of which evolves into the steady absorption of stars in black holes that somehow trigger further big bangs to initiate the birth of other universes. Specifically with regard to the four elements featured by Lucretius and his precursors, fire produced earth, earth produced water, and water produced air, but the exact sequence did not really matter. What was important was the notion of cosmic evolution whereby our particular universe, now estimated to have a life span in the range of 80 billion years, was the product of fire (lets call it the big bang) and that it will not exist forever because of some kind of a post-evolutionary residue (lets call it black holes). Lucretius also extended the notion of the swerve of falling bodies to human psychology as a principle of free will, and repeated Epicurus's notion of gods limited to a happy realm of their own without any power to intervene in human affairs. Their worship, he explained, was for the most part the product of fear and ignorance.

### **Strato unto Alexandria**

Arguably, the most important figure of Athens in early Hellenistic years was the scientist Strato, the third director of the Lyceum after Aristotle and Theophrastus. Strato abandoned

Aristotle's obsessively categorical version of science by featuring sheer induction through the systematic investigation of natural phenomena by means of simple experiments. His so-called Stratonician Presumption, the premise that nothing but physical evidence matters in science, might seem to be self-evident and relatively inconsequential to the modern reader, but it first articulated a major advance in scientific inquiry preliminary to the inception of science during the sixteenth century.<sup>23</sup> Aristotle's earlier methodology had indeed launched science, but it was too indebted to metaphysics to accommodate experimental inquiry except in just a couple of instances and on a relatively primitive basis. Aristotle's disciple, Theophrastus, was constrained by the same limitations, but Strato (d. 269 B.C.E.) finally took the crucial extra step. As a result he played a far more influential role than now recognized in the early history of science. As earlier indicated, his radical materialism as well as his outspoken atheism probably led to the complete destruction of all his writings in later centuries. Nevertheless, his influence on Alexandrian scientists and his contributions as explained by Cicero and others survived anyway, and for that the modern scientist can be grateful.

Strato's experiments were simple, necessarily limited to the demonstration of principles based on ocular evidence, but he was also said to have repeated them with many variations, providing a sufficient accumulation of data to be able to draw valid conclusions in a manner that anticipated standard procedures in science today.<sup>24</sup> Much of his inductive reasoning involved what he described as "thought experiments," suggesting a rudimentary use of the scientific hypothesis. Just as a thought experiment dictated the use of a conceptual model to set the stage for experiments to determine what exactly happens in the physical universe as observed in particular instances, the modern scientific hypothesis serves the same purpose by ascertaining whether a certain explanation is true or not true. For example, Strato argued in his lost treatise, "On Motion," that the elongation and breakup of water drops from great heights might result from acceleration, causing lower portions of these drops to travel faster than the upper portions. Somehow, Strato concluded, the accurate determination of this relationship would clarify the relation between motion and gravity.

Strato actually made specific reference to "falsifiability by observation," the systematic elimination of false hypotheses as explained by the twentieth century philosopher Karl Popper. This inductive strategy was effectively illustrated by one of his few sentences to have survived, which is possibly relevant to the breakup of water drops as explained above. It is quoted out of context by Simplicius in his *Commentary on Aristotle's Physics*: "The weight of the object does not increase, the object itself has not become greater, it does not strike a greater space of ground, nor is it impelled by a greater [external force]; rather it moves more quickly."<sup>25</sup> Here, Strato compared the impact of two objects respectively dropped less than an inch and a hundred feet in calculating the importance of velocity in the measurement of relative force. He concluded that speed alone accounted for the difference, having dispensed with four alternative hypotheses by having gathered the necessary data to determine that the single effective cause was the acceleration of an object dropped from the higher point. Each of the alternatives he rejected may be identified as a false hypothesis, and his method of taking them into account in order to reject them may accordingly be accepted as perhaps the earliest use of exclusionary analysis codified much later by Popper and others. Unfortunately, Popper seems not to have been aware of Strato's contribution, but no matter: Strato invented the science that has been in progress since

the sixteenth century, and Popper resurrected Strato simply enough by having described the principles and assumptions intrinsic to its methodology.

Strato explored many additional questions with an uncompromising commitment to empiricism, including the theories of light, displacement, condensation, rarefaction, and elasticity. Strato actually devised laboratory equipment to test some of his theories, most notably his use of vessels attached to tubes from which one could suck air in order to produce partial vacuums for helping to make a choice between Aristotle's theory of physical continuity and Democritus's theory of atoms suspended in a void. In retrospect Strato's equipment was far too primitive to be of any use in clarifying this question, but the importance of such a determination cannot be denied. Its investigation by Strato anticipated similar issues that later emerged between Newton and Huygens' theories of light (respectively of particles and waves), and more recently between quantum mechanics and Einstein's theory of relativity. Though at a vastly more sophisticated level of analysis, Einstein's dedication of his later years to the pursuit of a unified field theory was in the same spirit as Strato's effort to synthesize Aristotle and Democritus's theories of space. It can be mentioned here pertinent to modern findings that both Democritus and Aristotle can be argued to have proposed valid theories, just as relativity and quantum mechanics are also valid though at odds with each other. Aristotle described the entire universe as a continuous energy field without empty gaps, which is certainly true, and Democritus emphasized the discreet structure in any particular atom--or, smaller yet, photon or electron--which is so much more concentrated than its surrounding field that the vast difference between the two, the particle and its environment, justifies the convenient if ultimately false distinction between void and matter.

Of the fifty-six books listed (but not quoted or summarized) by Diogenes Laertius, Strato apparently wrote three with the title "On the Gods," all of which probably asserted an atheistic viewpoint. Strato was also reputed to have declared, as did Laplace to Napoleon ("Sire, I have done without that hypothesis"), that he "did not make use of the gods in explaining the origin of the world."<sup>26</sup> This might seem to identify him as having been an agnostic, like Protagoras, but according to Cicero Strato was also said to have argued elsewhere, "The sole repository of divine power is nature, which contains in itself the causes of birth, growth, and decay, but is entirely devoid of sensation and of form." Here he made the inductive leap from his knowledge of the world about him to the certainty that such a world was not a product of the god(s). Strato also proposed that the underlying structure of matter is particulate, and he emphasized Anaximander and Aristotle's suggestion that there are only two primary qualities, hot and cold (a notion not entirely absurd in light of today's cosmology. On the other hand, Strato explained, "Whatever either is or comes into being is or has been caused by natural forces of gravitation and motion."<sup>27</sup> Here Strato seems to have been a better Newtonian than Newton himself, reducing Aristotle's unmoved mover to exactly two impersonal cosmic forces, gravitation and motion. There was no room for god(s) in the universe proposed by Strato, not even of the pantheistic variety described by pre-Socratic materialists.

As already indicated, Strato's outspoken atheism probably explains the subsequent loss of his writings. Cicero himself rejected Strato's atheism with delicate irony ("Assuredly he frees the deity from a great task . . . [but] I do not accept the view of Strato").<sup>28</sup> In *De Natura Deorum* Cicero had already paid his obligatory respects to Rome's pagan orthodoxy, but with a slight

shift in tone as if to abide by official standards with reluctant acquiescence.<sup>29</sup> However, in explaining his unwillingness to accept Strato's atheism, Cicero was able and willing to confess his ambivalence, "At one moment one [alternative] seems the more probable, and at another moment the other."<sup>30</sup> Here he grudgingly acknowledged the appeal of Strato's atheism both as an antidote to the mortal fear of a punitive afterlife and as a concession of his inability to deny the truth claims of atheism with any sense of finality. Unlike Strato, Cicero remained an agnostic without taking the final inductive leap that would have totally nullified the concept of an afterlife. But there can be no doubt that Cicero paid his respects to Strato's more radical viewpoint.

Strato's influence seems to have been substantial in Alexandria, where science and scholarship took precedence over philosophy. Apparently Strato traveled back and forth between Athens and Alexandria, perhaps on a regular basis, and he was said to have served as a mentor to several of Alexandria's most important scientists, including Aristarchus and Heron. Through Aristarchus, Strato was also said to have borne an indirect influence on Archimedes of Syracuse. The level of scientific achievement attained by these scientists indebted to Strato was impressive. In the field of astronomy, for example, Aristarchus followed by Eratosthenes and Hipparchus established the earth to be a sphere located in a heliocentric universe, and among themselves these three astronomers demonstrated that the sun is larger than the earth, that the earth rotates on its axis, causing day and night, and that it tilts on its axis, resulting in the seasons.

Hipparchus measured the length of the year, calculated the accurate sizes of the sun and moon, and charted the stars, dividing them into brightness classes. Eratosthenes, in turn, offered a close approximation to the size of the earth as well as the expansion of continents, the position of mountain chains, the geological submergence of lands, and the elevation of ancient seabeds. His measurement of the earth's circumference was remarkably ingenious. He calculated that at noon, when the sun was directly overhead at Syene, thus casting no shadow whatsoever, the shadow of its angle at Alexandria could be measured to determine the angle at the center of the earth between Syene and Alexandria. The ratio between this arc (with an angle of roughly 7.2 degrees) and the circumference of the earth (360 degrees) was necessarily equivalent to the size of the arc subtended by this angle (i.e., the distance between Syene and Alexandria of roughly 5,000 stades) compared to the total circumference of the earth if the earth were round (which Eratosthenes took for granted). The earth's total circumference thus turned out to be roughly 250,000 stades, equivalent to 39,700 kilometers, just short of the modern figure of 40,009 kilometers. Eratosthenes accordingly put simple geometry to use in calculating the earth's size many hundreds of years before post-Ptolemaic astronomy had a clue.<sup>31</sup>

Also a student of Strato, the mathematician and inventor Heron investigated such phenomena as the flow of water in pipes and the reflection of light rays in short paths, and he invented numerous ingenious devices, including siphons, fountains, an air pump, a water organ, a thermoscope, and, most notably, the first steam engine pushed by jets. Other notable scientists included Dioscorides and Zosimus (of Panopolis), who standardized the fields of chemistry and alchemy, and Herophilus, Eudemus, Marinus, and Erasistratus (of Ceos), who made major strides in anatomy and medicine preceding the major accomplishments of Galen. In the field of mathematics, Diophantius standardized the field of algebra, Euclid did the same with geometry,

Pappus and Apollonius (of Perga) extended geometry to conic sections, and Hipparchus created the fields of plane and spherical trigonometry. Of course, few of these achievements resulted from the direct influence of Strato, especially in the field of mathematics, but he did provide the single ascertainable link between Athenian philosophy and the scientific accomplishments of Alexandria that followed. For both science and mathematics thrived in Alexandria starting a couple hundred years before Christ and not more than three hundred miles from Jerusalem. This major achievement, totally ignored by the various authors of the Bible, later set the stage for the rebirth of science during three centuries of medieval Arab civilization and still later during the Italian Renaissance and beyond.

### Pyrrhonism versus Academic Skepticism

Last but not least were the skeptics who gathered in Athens during the Hellenistic period. At no time in this history, not even during the Age of Pericles, was skepticism practiced or tolerated by the masses. However, once introduced by pre-Socratic materialists beginning with Xenophanes and then featured by the Sophists, skepticism took hold in philosophy one way or another for the next four hundred years. Most Epicureans, for example, seem to have considered themselves skeptics, and even Stoics conceded the value of skeptical arguments supplementary to their more dogmatic epistemology. For skepticism was more a methodology than a particular belief or theory. Just as the word *skeptic* referred to an inquirer or investigator in its original definition, skepticism as a movement during the Hellenistic years featured inquiry with particular emphasis upon the "suspension of assent" (*epoche*) until better answers could be determined. The three ancient names for skeptics included *skeptikoi* ("examiners"), *zetetikoi* ("searchers"), and *aporetikoi* ("doubters"), all three of which may be conflated, "searchers who examine in the spirit of doubt."<sup>32</sup> Belief was no longer paramount; the question to be answered was to what extent doubt should be exercised to arrive at a qualified judgment deserving of tentative acceptance.

After Socrates and Plato, skepticism underwent several major permutations in its history. At first, as advocated by Pyrrho of Elis (c. 360-270 B.C.E.) and his disciple Timon of Phlius (c. 320-230), there was a holistic suspension of judgment (*epoche*) that gave the quest for "truth" a subordinate role to *ataraxia*, mental relaxation that occurs upon accepting the inevitability of one's ignorance.<sup>33</sup> Skeptics able to attain repose with this sense of inevitability have since been described as Pyrrhonians. However, two other extra-skeptical objectives were also introduced, first Arcesilaus' concept of *eulogon*, involving a willingness to accept "reasonable" truths for most matters in life, followed by Carneades' concept of *pithanon*, involving a more systematic grasp of probability--or, as some argue, credibility--in judging the relative merits of potential truths. Skeptics with this sense of obligation as emphasized by Arcesilaus and Carneades been described as Academic skeptics, named after Plato's Academy, which they inherited. Later, Aenesidemus and Sextus Empiricus sought to restore skepticism based on the original Pyrrhonian concept of indeterminacy, but they also had an extra-skeptical agenda, the obligation to live an "undogmatic way" by "following the laws, customs, and natural affections" of their fellow citizens. In their opinion, the provisional "truths" justified by Carneades' theory of probability finally amounted to dogma no less rigid than any other version of belief, as opposed to passive indifference to all truths as dictated by the needs of social adjustment through the acceptance of one's peers. Also described as Pyrrhonians, these latter skeptics felt obliged to be aware of their

inescapable ignorance, confident of their moral and intellectual superiority in accepting this burden to pay lip service to orthodox belief as a justifiable pursuit of social harmony through intellectual conformity. They could be tentatively patriotic and/or religious rather than doubters and niggers relentlessly at odds with received assumptions.

At all times Pyrrhonism and Academic skepticism used doubt for two entirely different ends, the first ultimately supportive of religion and orthodox belief and the second ultimately supportive of science and empirical inquiry. This distinction was always at play in ancient times, if without being categorically asserted, and it later became obvious when these two versions of skepticism were revived during the Renaissance. Inspired by Cicero and a few passages in the Roman authors Sextus Empiricus relevant to the theories of Arcesilaus and Carneades, modern philosophers and scientists such as Copernicus, Bacon and Gassendi adopted the assumptions of Academic skepticism, while so-called fideists beginning with Pico della Mirandola were no less inspired by Pyrrhonism explained by Sextus on the assumption that one is able to accept God by faith alone if His existence can neither be confirmed nor denied by empirical investigation. The Catholic Church was understandably wary of skepticism, but whenever Academic skeptics resorted to systematic doubt to call church doctrine into question, skeptics identified as Pyrrhonians--more specifically as Fideists--were welcome for their totally uncompromising insistence on the exclusive use of doubt to guarantee the need for worship as an antidote to unavailing ignorance about matters theological.

The first major skeptic to emerge after the reign of the Sophists was Pyrrho (or Pyrrhon) of Elis, approximately a generation younger than Aristotle. Pyrrho introduced to Greek philosophy his knowledge of the moral teachings of India's Gymnosophists and Magi to whom he had been exposed while serving as a foot soldier of Alexander the Great during his invasion of Asia. Pyrrho combined this ethical vision with the epistemology of Protagoras taught him by his mentor, Anaxarchus, a follower of Democritus who was also associated with Metrodorus of Chios.<sup>34</sup> Pyrrho was also a pupil of Bryson, of the Megaric School, and his followers included Nausiphanes of Teos, a teacher of Epicurus, whose emphasis upon moderate pleasure may thus be at least partly traced to Pyrrho's concept of *ataraxia*. If all knowledge, Pyrrho argued, is unavoidably indeterminate, we must cultivate a suspension of judgment (*epoche*) that lets us emphasize *ataraxia*, or tranquility, by living in harmony with the world that surrounds us. Once *epoche* is achieved, Pyrrho explained, *ataraxia* follows "like its shadow," or, with better poetic impact, "even as a shadow follows its substance."<sup>35</sup> As with religious conversion, a single instance of *epoche* might produce life-long *ataraxia*; then again, repeated *epoche* might be needed to revitalize *ataraxia* among individuals tempted by dogmatic belief.

Pyrrho was supposedly the first skeptic to give the term *epoche* a central role in philosophical discourse, but it seems he did so only to activate the principle of *ataraxia*. The skeptic "did" *epoche* in order to bask in *ataraxia*. At the level of philosophical speculation, *epoche* might have been divisive, but its use was preliminary, hence secondary, to the final achievement of *ataraxia*, an experience of internal harmony akin to the Zen Buddhist attainment of *satori* wherein everything can be understood with a "sense of beyond" upon the cessation of analytic thought.<sup>36</sup> As already indicated, Pyrrho also linked *epoche* with the acceptance of social custom on the assumption that it produced *ataraxia* through an effortless accommodation to received values. As later explained by Aenisidemus, quoted by Diogenes Laertius, "It was only

his [Pyrrho's] philosophy that was based upon suspension of judgment [*epoche*], and . . . he did not lack foresight in his everyday acts."<sup>37</sup> As further explained by Diogenes Laertius:

. . . the Sceptic [knows] that he will be able so to live as to suspend his judgment in cases where it is a question of arriving at the truth, but not in matters of life and the taking of precautions. Accordingly we may choose a thing or shrink from a thing by habit and may observe rules and customs. According to some authorities the end proposed by the Sceptics is insensibility; according to others, gentleness.<sup>38</sup>

Sextus' seemingly harmless concession, "and may observe rules and customs," discloses the primary agenda of Pyrrhonism, since anybody with an outspoken skeptical viewpoint might otherwise be tempted to challenge orthodox assumptions. But not so. The gentle Pyrrhonist takes it for granted that the public is best permitted to deceive itself when it pleases ("*Populus vult decipi, ergo decipiatur*")--even, at times, to impose its self-deception upon others. So it is expedient to "go along with" this tide of opinion by philosophers fully aware of the final contingency of all truths once submitted to thoroughgoing analysis.

Pyrrho does not seem to have directed his attention to the obvious contradiction that received values are inescapably dogmatic as defined by ancient skeptics. It does not seem to have bothered him that submission to these values does little more than reduce the function of *epoche* followed by *ataraxia* to a transitional stage in the abandonment of speculation in order to obtain one's acceptance by the community at large. If atheism may be conceded to be dogmatic (as it is), since it cannot escape the inductive leap (no proof of God, *ergo* no God,"), the Pyrrhonian use of *epoche* followed by *ataraxia* makes possible the nominal observance of religious belief that is at least as dogmatic as atheism, if less offensive to one's neighbors and compatriots. Once skepticism confirms that no proof exists one way or the other relevant to God's existence, one is free to believe what one pleases. *Ataraxia* is thus obtained through benign dogma that at least performs its appropriate function of helping to unite all citizens in a harmonious social context. All that needs to be avoided is destructive collective behavior rooted in the pursuit of such behavior as wars, insurrection, and other such social aberrations.

Of special importance in understanding this relatively complex ideological commitment by Pyrrho was Cicero's response over two hundred years later. In *Academica*, his pivotal dialogue upon the theory and history of skepticism, Cicero limited his discussion of Pyrrho's version of skepticism to an ethical thesis in a brief passage in which he did not bother to identify him by name:

He [Pyrrho] denied that anything was honorable or dishonorable, just or unjust. And so, universally, he held that there is nothing really existent, but custom and convention govern human action; for no single thing is in itself more this than that.<sup>39</sup>

In other words, Pyrrho was entirely satisfied with the gaping double standard between on one hand a rigid dedication to the principle of indeterminate "truth" in philosophical matters, and, on the other, a latitudinarian acceptance of orthodox conventions in currency among friends and relatives. It did not bother him that these conventions might be susceptible to rejection, if not ridicule, once judged by rigorous standards of verification that ordinarily apply in science and

philosophy. For, properly used, skepticism could be cultivated as a valuable agent supportive of the status quo among educated citizens too sophisticated to accept popular assumptions on any other basis. The potential difficulty, of course, was that vicious and unscrupulous leaders could take advantage of the credulousness of their uneducated backers, confident of the collaborative support of skeptics who expected nothing better in the social arena.

### Arcesilaus

The so-called Academic School of skeptics began with Arcesilaus (c. 315-240 B.C.E.), two generations after Pyrrho. The influence of Plato's Academy had declined after Plato's death, and Arcesilaus assumed its leadership forty years later, around 287, with the intention of restoring its philosophical standing by setting aside Plato's metaphysics and revitalizing the original Socratic dialectic in an entirely new light closer to the intentions of Socrates himself. Arcesilaus seems to have felt that Plato had misappropriated skepticism and that the skeptical vision deserved to be resurrected free and clear of metaphysical considerations. He also paid his respects to the early skeptical achievement of pre-Socratic philosophers and sought to draw upon skeptical tradition in refuting the more recent theory of Stoicism, founded by Zeno of Citium, which featured the truths of the sage (or "wise man") to be accepted at their face value.

Like Socrates, Arcesilaus knew that he knew nothing, and, one step further, like Metrodorus of Chios, he was also aware that he didn't even know that. He could at times be telling the truth, but without sufficient evidence to be confident of its validity. If no knowledge was totally verifiable, Arcesilaus concluded, it was necessary and appropriate to challenge Stoicism's assumption that some ideas are "cataleptic" (or *apodictic*) in the sense that they bear a clear and distinct resemblance to reality. Instead, Arcesilaus advanced the *acataleptic* principle that all seemingly valid perceptions can be fabricated and, as a result, that all concepts can likewise be nullified through equipollence (*isosthenia*), their inevitable symmetry with equally valid contrary propositions as already explained by Protagoras and featured in the dialectic context by Socrates. Therefore, Arcesilaus argued, knowledge (*episteme*) and received opinion (*doxa*) are not separate categories as insisted by Stoics. Instead, *episteme* can be treated as nothing better than an advanced version of *doxa*--for in fact all knowledge is *doxa*, naïve belief grounded on insufficient evidence. Like Socrates, the truly wise sage can only acknowledge his ignorance: "And if all things are non-apprehensible, it will follow, even according to the Stoics, that the wise man suspends judgment" (*epichein ton sophon*).<sup>40</sup>

Apparently stung by the critique of his skeptical extremism, Arcesilaus sacrificed this uncompromising principle of doubt to practical considerations by conceding the Stoic virtue of "the reasonable" (*eulogon*)--in other words common sense, a concept not entirely different from the stoic version of truth. Almost as an afterthought, Sextus later mentioned this concession by Arcesilaus in a single relatively brief passage not to be overlooked--that one "who suspends his judgment about everything will regulate his inclinations and aversions and his actions in general by the rule of 'the reasonable.'"<sup>41</sup> Here any number of English synonyms suggest themselves: practical, sensible, judicious, wise, sane, plausible, credible, arguable, etc., giving Arcesilaus ample opportunity to abide by the rules and customs emphasized by Stoics and Pyrrho, thus granting the sage sufficient freedom to exercise judgment toward a "reasonable" assessment.

The task of gaining social acceptance was accordingly compounded by the new and sometimes conflicting task of “right thinking”--of favoring ideas that seem more likely than others.

Arcesilaus could thereby adopt Pyrrho's concept of *epoche* for his own use. By isolating the suspension of judgment from the attainment of *ataraxia* that Pyrrho featured as its inevitable outcome, Arcesilaus emancipated *epoche* for the first time from its supposed therapeutic impact on the human mind. In doing so, he also valorized Protagoras' reference to the unlimited time needed to confirm the existence of the gods as a valid insight in its own right whether or not it served to induce peace of mind in the society of others. Instead of encouraging a suspension of judgment preliminary to the attainment of intellectual tranquility and social adjustment, as recommended by Pyrrho, Arcesilaus featured a permanent suspension of judgment in dealing with philosophical issues that defy ready closure for the purposes of gratification.

The difference between Pyrrho and Arcesilaus' respective uses of the term *epoche* was of fundamental importance. Pyrrho employed the word to encourage a cessation of inquiry once satisfaction is obtained rather than its perpetuation, as intended by Arcesilaus. By implication, Pyrrho suggested, *epoche* could be terminated upon the experience of *ataraxia*, of course to be put to use whenever needed on later occasions for a comparable therapeutic effect. By replacing *ataraxia* with *eulogon*, common sense in judging situations, Arcesilaus gave limitless free reign to *epoche* at all times. It was not portable, something to be pocketed except when brought forth to gain satisfaction. As explained by Pyrrho, *epoche* induces a withdrawal from inquiry through a kind of stoic equipoise, in contrast to the alternative explanation by Arcesilaus, fully in accord with the original definition of a skeptic as an "enquirer," that it perpetuates inquiry by precluding any final act of judgment inclusive of the choice to avoid or forestall such judgment. In Pyrrho's version, "suspension" meant putting an end to analytic deliberations with the confidence that they go nowhere otherwise; in the Academic version intended by Arcesilaus, it meant a prolongation of analytic deliberations based on common sense without culminating in *ataraxia*, *doxa*, or any other kind of final response produced by their cessation. These two uses of *epoche* were entirely different, and their difference bore important consequences in the future history of skepticism. Taken to its extreme, Pyrrho's skepticism was an anti-intellectual gambit ultimately supportive of the status quo, since the undifferentiated rejection of all ideas means that any will do, while Academic skepticism consisted of "forever being disquieted" without any prospect of final answers.<sup>42</sup> In either case an individual might be described as a skeptic, but two vastly different uses of skepticism were involved.

Arcesilaus did not subscribe to Aristotle's theory of "demonstrative knowledge" confirmed by deductive standards of logical proof. Rather, he engaged in something like "abduction" as proposed by the nineteenth century American philosopher, Charles Sanders Peirce, in the sense that "hopeful suggestions" can be entertained in pursuit of answers that do not immediately present themselves.<sup>43</sup> Also suggested were H. Poincaré's theory of "sensible intuition" and John Dewey's thesis of "warranted assertibility."<sup>44</sup> Like Arcesilaus, Dewey insisted that the truth of any proposition is necessarily provisional until better truths can be found. As a result, the perpetuation of doubt while inquiry proceeds takes precedence over the simplistic pursuit of quick satisfaction in received truths--I doubt all theories whatsoever, therefore give up and take comfort in being an Episcopalian, etc. Also suggested was Husserl's concept of "bracketing," specifically identified as a temporary use of *epoche* to disconnect presumably self-evident ideas

on a hypothetical basis from our broad assortment of fixed assumptions in order to explore them in a new and better light.<sup>45</sup> The only difference would be that Arcesilaus' version of skepticism encouraged the advance from one bracketed assumption to another, and yet another, without any end in sight. Even scientific hypothesis might have been involved as first suggested by Plato's use of the word *hypothesis*: "I don't know yet whether it fulfills the conditions, but I can propose a *hypothesis* [i.e., a hypothetical explanation that can actually be tested]," once again with the suggestion that one such useful idea sometimes leads to another, and many more as well.<sup>46</sup> Such freedom in the speculative stages of scientific inquiry cannot be ignored, for it gives no role to *ataraxia* beyond Archimedes' "eureka" response that unavoidably dissolves upon the recognition that new questions are at hand.

Overlooked by classical scholars was Arcesilaus's close personal friendship with Strato as indicated in Strato's final will quoted by Diogenes Laertius.<sup>47</sup> It requires no ingenuity to explain how Arcesilaus might have adopted the concept of *epoche* mindful of its implications relevant to both the Stratonician Presumption and what must have seemed Strato's endless fascination with basic, simple-minded scientific experiments dependent on the principle of falsifiability. We have no direct evidence of Arcesilaus having explored this essential connection with Strato's methodology, but Strato's use of empirical data to test various hypotheses certainly exemplified Arcesilaus' concept of *epoche* as an extension of inquiry beyond the arbitrary answers to be expected of orthodox dogma. The suspension of judgment Arcesilaus advocated necessitated the avoidance of quick and easy solutions, and this made possible experimentation as a prolongation of scientific inquiry liberated from presumably self-evident preconceptions. True, Arcesilaus' version of *epoche* in and of itself did not oblige the systematic pursuit of scientific answers typical of both Aristotle and Strato any more than the termination of judgment led to *ataraxia* sought by Pyrrho. But the connection seems obvious: Arcesilaus' version of *epoche* was essential to Pyrrho's scientific methodology, and Pyrrho's success as a scientist demonstrated the value of *epoche* in scientific matters.

During the Renaissance almost two thousand years later, this particular version of *epoche*, devoid of *ataraxia*, would become no less popular than Pyrrho's version. Montaigne actually wrote the word *epoche* on the ceiling above his desk, and his reference to Academic skepticism in his *locus classicus*, "Apology for Raimond Sebond," as articulated by Cicero significantly exceeded his reference to Pyrrhonian skepticism despite his obligatory fideist profession of faith at the end of the text that permitted its publication without posing any threat to Montaigne's health and reputation in his declining years. Moreover, in his important Introduction to *Novum Organum*, Bacon did everything short of using the word to indicate its central importance, once again based on its Academic interpretation. In the very last sentence of his Introduction the emphasis on the words "just hesitation" made this plain to contemporaries familiar with Cicero's treatment of Academic skepticism in *Academica*. Finally, the philosophy of Gassendi, published later in the seventeenth century, most notably in *The Syntagma* (1658), was replete with references to the Academic version of *epoche* as well as Democritus's theory of atomism. Today Gassendi is little known, but at the time he was good friends with Hobbes and far more influential than his younger colleague Descartes. In his ongoing debate with Descartes (who was essentially a fideist), Gassendi was generally considered to have prevailed. Not to be overlooked, Shakespeare's tragic protagonist Hamlet may also be understood to have been the Renaissance's best and most compelling hero who took *epoche* to its tragic extreme as "just hesitation" lacking

*ataraxia*. Hamlet's concern about the question of life after death ("To be or not to be," etc.) was also very likely asserted in response to Montaigne's notion of death as a "consummation," a concern that can in turn be traced back to Academic skepticism, with whatever consummation entailed having been the best that could be expected toward the attainment of *ataraxia* after death. While Oedipus had served to exemplify one's punishment for disbelief in prophecies, Hamlet served to exemplify disbelief as sustained uncertainty about revenging one's father, but also about human destiny in general and the prospects of an afterlife as promised by Christian eschatology.

### Carneades

The next major figure in the school of Academic skepticism was Carneades (213-125 B.C.E.), who lived almost exactly a century after Arcesilaus. Like Socrates, Pyrrho, and Arcesilaus, Carneades was said to have written nothing. He resembled his predecessors in having obtained his central role in the skeptical movement by the merit of his verbal superiority in speeches and oral exchanges. Just as Socrates was recorded by Plato and Pyrrho by his disciple Timon, the spoken arguments of Carneades were transcribed by an even more prolific disciple, Clitomachus, who was said to have authored some four hundred works that elaborated Carneades' theories, including four texts upon *epoche* alone. Unfortunately, all of Clitomachus' texts have been lost to posterity, but Cicero and Sextus were familiar with at least some of them and were able to preserve the main lines of Carneades' version of skepticism, Cicero in *Academica* and Sextus in *Against the Logicians*.<sup>48</sup>

All four of the skeptics in this oral tradition--Socrates, Pyrrho, Arcesilaus and Carneades--were famous for their verbal dexterity, but Carneades was probably the best and most celebrated for his argumentative skills. The single oft-repeated example to confirm his excellence occurred during an ambassadorial mission to Rome, when he presented two lectures on successive days, first a persuasive defense of justice and then a critique of his defense that argued the opposite side of the case with equal persuasiveness. The austere Roman Censor, Cato, who was unfamiliar with the Athenian dialectic tradition of presenting both sides of an issue (*in utramque partem*), was said to have been so outraged by Carneades' performance that he forced his quick departure from Rome as a threat to the moral integrity of its youth.

Like Arcesilaus, Carneades formulated the theoretical framework of his skepticism in reaction against the current arguments of Stoic philosophers--Carneades having responded to Chrysippus's ideas just as Arcesilaus had to Zeno's--and with very similar results. Carneades was actually said to have conceded, "Without Chrysippus, where would I have been?"<sup>49</sup> Like Arcesilaus, Carneades found ample grounds to emphasize the necessity of *epoche*, but he rejected Stoicism's emphasis upon *cataleptic* certitude by emphasizing probability (*pithanon*, translated into Latin by Cicero as *probabilia*) instead of Arcesilaus' concept of reasonableness (*eulogon*). Reasonable was acceptable to Carneades in daily life, but he considered it to be inadequate in more advanced levels of inquiry in which an argument also needed to be defensible based on a thorough determination of its sufficient likelihood.

It is again to be conceded that Plato had already referred to probability in his dialogue *Timaeus* as a useful consideration for determining the validity of the many theories he cited. He

actually anticipated Carneades with his prescient remark, “We may venture to assert that what has been said by us is probable, and will be rendered more probable by investigation.”<sup>50</sup> Indeed, as insisted by Carneades, everything Plato discussed in his dialogue possessed some degree of probability, however remote, so his assurance was valid that it could be confirmed or denied at a later date through investigation. What diminished the importance of Plato’s remark is that he offhandedly presented it as a digressive consideration without focusing on it, much less making it a central aspect of his argument. In contrast, Aristotle gave probability full status as a logical function, but he disdained the notion of scientific probability (which he described as chance, the accidental, and the indeterminate) for its lack of precision:

We must first say regarding the accidental, that there can be no scientific treatment of it. This is confirmed by the fact that no science--practical, productive, or theoretical--troubles itself about it.<sup>51</sup>

Aristotle sought to limit science to “that which is always or . . . that which is for the most part,” and probability stretched the boundaries of “for the most part” to an excessive degree. However, Aristotle did concede the necessity of probability in presumably non-scientific fields of inquiry such as ethics and aesthetics that admitted of relatively limited precision.

For the purposes of comparison, it can be added here that contemporary Biblical literature made no reference whatsoever to the notion of probability. God bestowed all truth, and the Bible was entirely true--period, end of discussion except for the correct interpretation of this truth. This categorical insistence upon scriptural validity was of course useful in the moral task of steering the laity into acceptable limits of behavior, but it could only suffocate scientific inquiry such as had been pursued during the Hellenic and Hellenistic civilizations.

In contrast to both Plato and Aristotle (as well as the Bible), Carneades gave probability a central role in the determination of truths. Moreover, he expanded its application to three levels of use, hence making it the primary consideration in all fields of inquiry. At the simplest level Carneades expressed his concurrence with Arcesilaus in accepting common sense as being probable (*pithane*) in the sense that it is apparently true, for example regarding most of the information we take for granted in our daily affairs. At the second level, he proposed that truths are both probable at the first level and "irreversible" (*aperispatos*) in the sense that they have been found to be consistent with additional evidence likewise determined to be probable at the first level of application. And finally at the third level he proposed that probable and irreversible truths can be accepted for having been sufficiently "tested" in the sense that they have been both examined and confirmed "from all sides" (*periodeumine*)--if possible, one assumes, including a close empirical study of data as best illustrated by the scientific method introduced by Strato a century earlier.<sup>52</sup> He did not mention Strato by name or his scientific endeavors in any of the texts upon his theory available today, but the connection seems inescapable.

The primary advantage of this hierarchy was that the philosopher or scientist is permitted, even encouraged, to explore ideas that seem obviously wrong, contrary to Arcesilaus's comparatively simplistic standards of common sense, since these ideas might be demonstrated to be valid based on more thorough analysis despite their seeming absurdity. For even wrong ideas can turn out to be right, just as so many “right” ideas turn out to be wrong. The meteorologist’s

prediction, for example, that it might rain on the next day can turn out to be incorrect since rain does not occur as predicted, yet this prediction may be accepted as having been valid in the sense that all available evidence had indicated rain to be the most likely possibility. The neophyte's contrary prediction at first level of probability and/or the more experienced farmer's contrary prediction at the second level might turn out to be more accurate than the scientific prediction, but the meteorologist's mistake at the third level remains superior in the sense that it has been based on a more inclusive body of relevant information. At all three levels an inductive leap necessarily occurs, and one's fully substantiated guess based on empirical evidence often turns out to be wrong, but one cannot relinquish the responsibility to promote analysis based on an inductive accumulation of evidence, and very possibly (but not necessarily) with insights at the first and second levels of probability explored in greater depth.

This choice presents itself in all analysis, not simply weather prediction, justifying full speculative freedom beyond Arcesilaus' notion of *eulogon* as well as the premature closure of intellectual inquiry imposed by Pyrrho's notion of *ataraxia*.<sup>53</sup> Carneades revitalized the effort of both Socrates and Strato to establish the correct idea (or ideas) by rejecting those that were demonstrably false, but perhaps with more latitude because there was no correct answer in mind as he went about eliminating false answers. The positive advantage of his approach was that it was possible to entertain totally absurd suppositions some of which might have turned out to be true, for example the preposterous notion that continents float on a sea of hot magma, or that chimpanzees and people share a common ancestor, or that mass is convertible to energy, or that enormous black holes in the sky swallow up stars, or that genetics is coded on tiny molecular strands within each body cell's nucleus, etc. As formulated by Carneades, the Academic version of *epoche* did not automatically culminate in peace of mind or seemingly reasonable opinions, but, quite the opposite, it necessitated careful judgment that ultimately involves upgrading first to second-level and second to third-level assessments of probability through the careful examination of supportive evidence.

The French classicist Pierre Couissin has persuasively argued that Carneades' theory of probability had nothing to do with modern statistics and scientific method, but if anything, referred to the rhetorical principle of persuasiveness linked with the Stoic doctrine of assent.<sup>54</sup> According to Couissin, Carneades used the word *pithanon* to suggest an idea merely plausible (or credible) rather than specifically confirming that it stands an excellent chance (or, better yet, a measurable chance) of being objectively true. According to this explanation, Carneades' was not trying to make a final determination of a proposition's objective truth, but addressed himself to the question whether this determination was convincing to anyone who inquires into the issue. However, there are problems in trying to isolate these two capacities from each other, credibility versus objective likelihood, as suggested by Sextus' later explanation that perception (*phantasia*, misleadingly translated as "presentation"), ". . . must, like light, both reveal itself and be indicative of the evident object which produced it."<sup>55</sup> That is to say, all acts of perception are dual, representing both the sensation perceived and one's response to this sensation as an act of perception. In other words, the depictive and receptive aspects of perception--its division into observable phenomena and their observation by the individual--necessarily manifest themselves relevant to all experience including science and rhetorical persuasiveness. And herein lies the crux of the issue. For as understood relevant to the felt verification of this experience, the word *plausibility* emphasizes receptive acquiescence, while the word *probability* in its modern sense

as well as its sense used by Carneades and Cicero emphasizes discernible, hence ultimately measurable, objective considerations. Couissin accordingly seems to have erred by suggesting that Carneades' use of probability was strictly receptive as a matter of plausibility. Indeed, the words *plausible* and *credible* might best serve to translate the word *pithanon* relevant to the first and even the second level of probability proposed by Carneades, but for the third level, of "tested" validity, the word *probable* seems an obviously better choice, as would be suggested by Cicero's translation into Latin with the word *probabilia* and by his use of the word in a variety of contexts in *Academica* in which objective probability seems to have been intended.

If "probabilism" played a role in the history of Academic skepticism, as seems more than likely, Couissin suggests its initial use should be attributed to Philo, who was Clitomachus' successor and Cicero's teacher in the late history of the Academic school. Twice removed as the student of a student of Carneades, Philo--not Carneades--supposedly first took the concept of probabilism into account. Unfortunately, Couissin seems to have overlooked Cicero's remark in *Academica* to the effect that he drew his understanding of "the whole system of Carneades," necessarily inclusive of his theory of probability, from Clitomachus's four volumes upon *epoche*.<sup>56</sup> Since Clitomachus preceded Philo and was reputed to have been primarily responsible for the preservation of Carneades' theory regarding this question, and since there is no evidence that Cicero might have used Philo as his source rather than Clitomachus, or that he had any reason to obscure his source, one must conclude [with all the inductive skill featured by Strato] that his treatment of probabilism in *Academica* reflected Carneades' use of the word as transcribed by Clitomachus at least as much as it did either Philo or Antiochus's explanations, granted the consideration that both were Cicero's teachers.<sup>57</sup>

Couissin's "credibility" thesis indeed seems justified by Cicero's passage in *Academia* in which he tells of the sage who withholds assent either to deny all truth or as a means of conveying approval or disapproval of something, letting him be "guided by probability" in expressing his opinion to others.<sup>58</sup> Here the receptive aspect of *pithanon* seems paramount, suggesting both Arcesilaus's notion of *eulogon* and Carneades' first level of probability. However, Cicero also explains in the same context, "Whereas you speak of things as being 'perceived' and 'grasped,' we describe the same things (provided they are probable) as 'appearing.'" Here, with the idea of perception as "things appearing," the depictive aspect of *pithanon* prevails, since the objective accuracy of an idea takes precedence over its subjective believability. Earlier in the text, the depictive aspect once again predominates when another of the debaters addresses Cicero--

For they hold (and this in fact, I noticed, excites your school extremely) that something is *probable*, or as it were resembling the truth and that this provides them with a canon of judgment both in the conduct of life and in philosophical investigation and discussion.<sup>59</sup> [Italics added for emphasis]

Relative objective accuracy seems meant by the words, "resembling the truth," thus once again featuring probability rather than persuasiveness. Even the normative reference to a "canon of judgment" bears depictive implications at least to the extent that the persuasiveness of a truth under consideration must be accepted or rejected based on its objective accuracy. A depictive emphasis may also be seen in Cicero's extension of probability to daily experience: "That same

fact will hamper you also in going a voyage, in sowing a crop, in marrying a wife, in begetting a family, in ever so many things in which you will be following nothing but probability."<sup>60</sup> In this application the primary desideratum is the conduct of one's life, as opposed to convincing somebody or being convinced oneself about this conduct. And as a final example, Cicero linked probability with science in a rambling sentence that emphasized the importance of objective comprehension:

If nothing can be comprehended, the practice of the arts and crafts [i.e., technology] collapses, and would not grant me that sufficient validity for this purpose is possessed by probability, so now I retort to you that art [again, technology] cannot exist without scientific knowledge.<sup>61</sup>

This is not to suggest that Cicero or, for that matter, Carneades, tried to apply anything like the modern theory of probability to the physical sciences, or that either of them addressed himself to the philosophical implications of scientific issues, as would be suggested by Cicero's rhetorical but valid question elsewhere in *Academica* regarding science, "Is there anybody so puffed up with error as to have persuaded himself that he knows this subject?"<sup>62</sup> Nevertheless, Cicero's concession here seems all the more suggestive of his willingness to substitute probability for full knowledge, if such be possible in any realm of inquiry. The analysis proposed here might seem excessively pedantic, but its clarification is essential in linking the epistemological standard of probability important to Carneades, as well as Cicero, Sextus, and undoubtedly Philo too, with later advancement of science. As Carneades insisted, the only truth available in almost every realm of modern science depends on "tested" probability, but what Carneades did not anticipate, of course, was the function of modern statistics in specifying the degree of probability based on test results, giving all scientific hypotheses the status of conditional truths to which John Dewey, for example, would be willing to grant warranted assertibility. For, yes, it is probably true that the earth is round (if slightly flattened toward its poles) and that it travels in an elliptical orbit around the sun (if with small modifications resulting from additional sources of gravitational attraction).

Carneades' concept of probability was of course primitive compared to the mathematical theory of probability later advanced by Pascal, Condorcet, Galton, and Pearson, among others, and as applied in virtually every science by the mid-twentieth century. However, Carneades was the first to feature probability as an essential consideration in philosophical discourse. Again, it is to be conceded that both Plato and Aristotle had mentioned probability, but they did this almost as a concession to tidy up the exceptions and limitations one confronts in philosophy. Moreover, the notion of probability can be extrapolated from Arcesilaus's notion of common sense (*eulogon*), but in a relatively sloppy manner relegated by Carneades to his lowest category of analysis. Otherwise, there is relatively little use of the notion in the ancient world. As already indicated, the concept of probability was all but inconceivable in the Hebraic tradition, which was hamstrung by edicts, prophecies, and categorical injunctions: ([in all instances] thou shalt not kill; [in all instances] thou shalt honor thy father and mother, etc.). It was Carneades who first made probability the primary consideration among natural philosophers.

Carneades' theory of probability liberated all fields of inquiry from orthodox constraint through its tacit permission to examine presumably "wrong" ideas as potential truths to be

confirmed or rejected based on further investigation. As already indicated, wrong ideas could actually be “true” in light of all available evidence at one time, only later to be demonstrated to be false. And vice versa, presumably true ideas could turn out to be false. Carneades was ridiculed for taking this unseemly possibility into account, but by doing so he removed the shackles of orthodoxy from intellectual speculation. No longer was the sage (or “wise man”) fettered by the obligation to mouth received truisms because anything different might seem wrong to his contemporaries. This principle might seem to have already been tested to an excessive degree by much of Plato’s speculation, especially in *Timaeus*, but Plato had been fully in his rights in calling upon the notion of probability to justify his extravagance. And this freedom extended to others as well. All thinking turns out to be welcome as speculation to be sifted relevant to its intrinsic validity confirmed by empirical evidence. As later codified by Karl Popper, objective probability depends on the rejection of false alternatives, and with empirical thoroughness necessarily guaranteed by the principles of *epoche* and deniability. And this has borne excellent results throughout the history of science, for simplistic received “truths” almost inevitably turn out to be wrong, and too often supposedly wrong ideas turn out to be far more valid than anyone might have supposed.

More specifically, Carneades’ outspoken atheism was primarily based on logic, but it finally depended on assumptions rooted in the pursuit of probability tested for verification. Just as the existence of god(s) could not be absolutely proven, neither could their non-existence. All that was possible was to explore all the reasons, then conclude that god(s) probably exist or do not exist, and, if these reasons seem to be sufficient, to make the inductive leap that god(s) do or do not exist until further evidence can be taken into account supportive of this claim. Carneades exhaustively took into account evidence supportive of the existence of a God (or gods), and by refuting this evidence he established that such an entity might exist, but probably not, so it could therefore be rejected as being non-existent based on its improbability. Of course an inductive leap was needed, as in all issues of probability, but Carneades was willing to take this leap. There is no single passage in Cicero, Sextus, or Diogenes Laertius’ writings that spells out this exclusionist sequence step by step in all of its particulars. However, its thrust seems plain enough, putting Carneades’ version of atheism at the same level as those of Russell, Ayer, and most other positivists in the twentieth century. One important example of this logic, perhaps in the words of Carneades himself, was a passage quoted by Sextus (perhaps first transcribed by Clitomachus) in which tortuous syllogistic logic was used to demonstrate that God’s existence cannot be proven by “pre-evident” (i.e., a priori) assumptions:

In order to form a conception of God one must necessarily--so far as depends on the Dogmatists--suspend judgment as to his existence or non-existence. For the existence of God is not pre-evident [i.e., a priori]. For if God impresses us automatically, the Dogmatists would have agreed together regarding his essence, his character, and his place; whereas their interminable disagreement has made him seem to us non-evident and needing demonstration. Certainly not, then by means of the pre-evident; for if what demonstrates God’s existence were pre-evident, then--since the thing proved is conceived together with that which proves it, and therefore is apprehended along with it as well, as we have established--God’s existence also will be pre-evident, it being apprehended along with the pre-evident fact which proves it. But, as we have shown, it is not pre-evident; therefore it is not proved, either, by a pre-evident fact. Nor yet by what is non-evident. For if the non-

evident fact, which is capable of proving God's existence, needing proof as it does, shall be said to be proved by means of a pre-evident fact, it will no longer be non-evident but pre-evident. Therefore the non-evident fact that proves his existence is not proved by what is pre-evident. Nor yet by what is non-evident; for he who asserts this will be driven into circular reasoning when we keep demanding proof every time for the non-evident fact which he produces as proof of the one last propounded. Consequently, the existence of God cannot be proved from any other fact.<sup>63</sup>

Arcesilaus would have engaged in this elaborate deduction to promote agnostic uncertainty whether God exists, but Carneades' emphasis upon probability encouraged the bold inductive leap that God's non-existence can be tentatively accepted as being true--or, in modern terms acceptable to Russell and Ayer, that His existence can be rejected as little more than a meaningless supposition--that is to say, a "pseudo-statement."

The very next segment of this passage by Carneades articulated for perhaps the first time in the history of freethought the theoretical paradox that a truly merciful God cannot be benevolent and both omniscient and omnipotent at the same time:

But if he [God] had forethought for all, there would have been nothing bad and no badness in the world; yet all things, they say, are full of badness; hence it shall not be said that God forethinks all things. . . . But if he [God] had both the will and the power he would have had forethought for all things; but for the reasons stated above he does not forethink all; therefore he has not both the will and the power to forethink all. . . . And if, again, he has the power but not the will to have forethought for all, he will be held to be malignant; while if he has neither the will nor the power, he is both malignant and weak--an impious thing to say about God. Therefore God has no forethought for the things in the universe.<sup>64</sup>

In other words, God can be either merciful or omniscient, but not both unless He is also less than omnipotent, fully aware in inequities but unable to do anything about them. Carneades thus emphasized the unavoidable choice between an evil and a relatively powerless God in order to encourage the rejection of the probability of God's existence. Far more likely was Strato's impersonal universe anticipated by Anaximander's paradigm for evolution by which the forces of nature created life, which whereupon generated intelligence (or "soul") without the benefit of supernatural intervention.

Much earlier Plato had proclaimed God's unique probability in his dialogue, "Timaeus": "I call upon God and beg him to be our savior out of a strange and unwonted inquiry, and to bring us to the haven of probability." True, Plato seems to have anticipated both Strato and Carneades when he argued the value of probability relevant to non-religious matters, but he withdrew this invitation for issues expressly dealing with religion: ". . . and we ought to accept the tale which is probable and inquire no further." Elsewhere he seems to have subordinated probability to sheer credulousness in matters of religious tradition:

We must accept the traditions of the men of old time who affirm themselves to be the offspring of the gods. . . . Although they give no probable or certain proofs, still, as they

declare that they are speaking of what took place in their own family, we must conform to custom and believe them.<sup>65</sup>

Religion, unlike other issues, accordingly both meets and exceeds the demand for probability, so, according to Plato, its probability should be granted without further investigation. Carneades held a far more stringent criterion of probability. An idea's likelihood could be asserted on a provisional basis, but, contrary to Plato's assurances, further inquiry would be acceptable, if not obligatory. For Carneades the emphasis upon a "tested" judgment at the third and most dependable level of probability was just as relevant to religion as to science and philosophy. Again, it must be conceded that Cicero and Sextus did not quote or paraphrase Carneades in drawing a connection between atheism and his theory of probability, but there is no doubt that Carneades challenged religion with enough aggressiveness to rank his lack of faith beyond Protagoras' agnosticism and on par with Strato's atheism.

In *De Divinatione* ("On Divination"), Cicero quoted Carneades' arguments against spiritual prophecy, a more important issue in ancient times than today, but Carneades' argument takes on obvious relevance to current religious practices if the word *divination* is loosely translated as the expectation of future events that reflect God's providential generosity. Carneades emphatically rejected the notion of divine providence relevant to matters involving the senses, science, art, illness, moral choice, and the cultivation of artistic talent. He concluded as paraphrased by Cicero--

But if there is no place for divination in things perceived by the senses, or in those included among the arts, or in those discussed by philosophers, or in those which have to do with government, I see absolutely no need for it anywhere.<sup>66</sup>

In sum, if god(s) exist, their capacity to impose their will on future events is non-existent, so religious worship is a waste of time. This seems to have been Carneades' final judgment on the matter.

In *De Natura Deorum*, Cicero assured readers, perhaps with a measure of irony suggested by his use of parentheses, that Carneades did not entertain "the object of establishing atheism (for what could less befit a philosopher?)" But then Cicero went on to cite an endless and finally preposterous list of pagan gods Carneades described to justify the conclusion:

Either therefore this process [cataloging the gods] will go on indefinitely, or we shall admit none of these [gods]; and this unlimited claim of superstition will not be accepted; therefore none of these [gods] is to be accepted.<sup>67</sup>

True, Carneades' ridicule of polytheism could be treated as evidence supportive of monotheistic religion, but earlier in *De Natura Deorum* he was shown to have been equally dismissive of monotheism by having "controverted at great length" the view "that the whole world is ruled and governed by divine intelligence and reason, and . . . that the gods' providence watches over the life of men."<sup>68</sup> In another context, Cicero quoted Carneades to the effect that all living creatures, including the human being, "must of necessity perish" sooner or later."<sup>69</sup> The assumption was plain that there is no such thing as a guaranteed afterlife once death occurs. Carneades may

accordingly be categorized with Strato, Epicurus and Lucretius as an enemy of orthodox religion during Hellenistic times, when freethought had become paramount among the educated classes. The gods continued to thrive among the lower classes, but their social and intellectual betters were agnostics, and the philosophers these betters admired the most were very likely outright atheists suitably equipped with distractive arguments to avoid persecution.

In retrospect it may be seen that Carneades' concept of probability anticipated modern science with implications no less important than Strato's insistence upon empirical experiments and Arcesilaus' emphasis on postponing judgment until sufficient evidence has been gathered. For indeed these three epochal innovations serve as an axiomatic triad whose combination defines modern scientific inquiry. Each provides one aspect of effective empirical research, and together they encompass its essential requirements. Without any of the three, the other two fall short of meeting the full definition of science. Aside from Strato's close friendship with Arcesilaus (as becomes obvious in his will quoted by Diogenes Laertius in its entirety), all three aspects seem to have been expostulated in separate contexts, but once brought into combination they were later of extraordinary importance in the advance of modern science--indeed in the useful pursuit of all realms of inquiry:

- Strato's uncompromising empirical approach based on the Stratonician Presumption helped to inspire the scientific advances of Alexandria, which in turn inspired the scientific achievements of medieval Arab civilization and finally modern science beginning in the sixteenth and seventeenth centuries.
- Arcesilaus's principle of *epoche* as sustained inquiry toward resolving uncertainties became a central issue for Renaissance and post-Renaissance philosophers such as Montaigne, Bacon, and Gassendi, all of whom acknowledged their debt to the concept.
- And finally the probabilism of Carneades first anticipated the almost universal dependence on probability theory today. With few exceptions all modern science is ultimately a matter of statistics as a quantification of probability.

Both individually and in combination modern classical scholarship has overlooked these three major conceptual innovations first explored in depth by ancient Hellenistic philosophy. To the extent that today's specialists in ancient philosophy have acknowledged these achievements, they have dealt with them both briefly and separately, thereby diminishing the recognition of their central role in the scientific revolution once brought into combination with each other. Bacon's brief Preface to *Novum Organum*, not more than six extended paragraphs in length, does manage to mention "degrees of certainty" (an issue of probability), the "interpretation of nature" (in adherence to the "Stratonician Presumption"), and, in the last sentence, the importance of "just hesitation" (suggestive of *epoche*), but he made no effort to integrate the three in a single coherent definition of science. Nevertheless, the initial articulation of these innovations may be treated as the pinnacle of secular achievement in philosophical discourse during the Hellenistic Age that anticipated and helped to inspire modern scientific methodology beginning in the Renaissance. Ancient Greek civilization as a whole, and Greek philosophy in particular, might have provided more striking examples of speculative genius, most notably Plato's irrepressible

metaphysical suppositions and Aristotle's no less irrepressible use of logic to organize empirical analysis. However, neither Plato nor Aristotle confronted the limitations intrinsic to their achievement, and the wealth of empirical knowledge available beyond their purview could only be attained once the contributions of Strato, Arcesilaus, and Carneades were put into useful interplay by modern science as well as modern empirical philosophy.

### **Cicero's Rome**

In the most inclusive sense the Roman Empire did not rise and fall, as suggested by Gibbon. Instead, its entire tortuous history from Augustus to Theodosius caused the destruction of all classical civilization. In other words, Greece, Alexandria and the Roman Republic "rose," and it was the Roman Empire sought by Caesar and imposed by Augustus that "fell." Classical civilization had sustained itself as a diachronic whole for slightly more than a thousand years, and the last four hundred was swallowed up in violence and cultural decadence under imperial Roman authority. An expansionistic empire replaced the republic, and then, as happened again (and yet again in the Eurocentric tradition), it was the empire itself that collapsed. The reign of Augustus that initiated this slow-motion catastrophe first seemed to produce an unprecedented level of opulence and human achievement. However, its initial successes declined into failure. Poetry, drama, philosophy, history, science, oratory, sculpture, architecture and all else worthy of pursuit fell short of earlier levels of excellence. Beneficent autocratic governance under Augustus lessened once Tiberius came to power, then further yet among the rest of the Caesars punctuated by periods of total catastrophe under the Emperors Caligula and Nero. Eighty years of relative achievement seem to have been salvaged under the four Antonine emperors (Trajan, Hadrian, Antoninus, and Marcus Aurelius), but then Roman standards of achievement collapsed in the third century, A.D.E., culminating in Christian fanaticism and finally the capture and occupation of Rome by various barbarian armies.

Gibbon and others have suggested that Christianity brought about the fall of Rome. Their assumption is not entirely false, but I would suggest that the cause was more basic--finally rooted, as Protagoras first suggested, in the more inclusive struggle between belief and disbelief (i.e., between orthodoxy and speculative freedom). More specifically, the orthodox phase that entailed the aggressive pursuit of "defensible religion" as an antidote to Greek skepticism was already of paramount importance beginning with the reign of Augustus a couple decades before Christ was born. The grand dialectic conflict that took root with Thales and ended with St. Augustine was between veridical and doxological ends. Free inquiry (veridical) won more than its share of victories, then belief (doxological) prevailed and classical civilization tumbled into decline.

Of course many other factors may be taken into account. Additional causes of collapse included the overextension of Rome's empire, its excessive emphasis on warfare and slavery, its widening division between wealth and abject poverty, its heavy influx of foreign immigrants, its rapid expansion of a profligate rabble living in total idleness, its dissolute lifestyle, its oppression of the rural population, its incessant plots, assassinations, insurrections, and poisonings, its factional disputes that set Roman legions against each other, and its enlarged army having accelerated the turnover of leadership--toward the end as many as thirty-two emperors in ninety-two years, not counting twenty-seven pretenders. To this list can be added a taxation policy that

drove into financial ruin an entire social class that would otherwise have been its most patriotic citizens. Despite all this, Rome's quality of life remained relatively high until the fifth and sixth centuries. Universal free education persisted into the fourth century as well as free food for the needy, free medical care, free entertainment in the theater, amphitheater and circus, and access to elegant public baths for a nominal charge.<sup>70</sup> The illusion of shared prosperity persisted in a world of intensified uncertainty. However, the tradition of philosophy and literature had become inconsequential by the end of the second century, when for all practical purposes free inquiry came to an end. Within two centuries literacy was restricted to the clergy.

In better days, during the three Punic Wars against Carthage (264-146 B.C.E.), Rome brought both Greece and Alexandria under its control without engaging in major hostilities against them. The two earlier epicenters of civilization thereafter served as outposts essential to Rome's control of the eastern Mediterranean region, and their intellectual freedom, epitomized by their emphasis on philosophy and science, nicely complemented Rome's emphasis on law and government. Romans imitated Greek sculpture and architecture, and most major authors during Rome's period of hegemonic dominance came from Greek backgrounds and continued to write in the Greek language. However, some assimilation did occur, for example with Lucretius' epic philosophical poem, *On the Nature of Things*, written in Latin, which rendered in hexameter verse Epicurus and Democritus's theories of materialism. Nero's tutor and advisor, Seneca--also incidentally Rome's wealthiest citizen--imitated Greek tragedy with enough success that the translation of his play *Thyestes* later inspired Elizabethan tragedy and exposed the British public to some of the Aristotelian standards of Greek tragedy. Seneca, Marcus Aurelius, and Epictetus updated Greek stoicism with new insights of their own, and, inspired by the empirical data of Aristotle and Theophrastus, Seneca as well as Pliny gathered substantial empirical information to provide encyclopedic natural histories of the world, if cluttered by too much obviously mythical speculation. Pliny also benefitted from Aristotle's precedent by denying the existence of an afterlife: "All men are in the same state from their last day onward as they were before their first day, and neither body nor mind possesses any sensation after death, any more than it did before birth."<sup>71</sup> In other words, all mankind is already expert in lifelessness previous to birth, so we can expect to enjoy exactly the same expertise after we die.

Skepticism persisted in the genre of satire despite the effort to impose orthodox belief in most other discourse. Horace cast doubt on religion in a couple of his satires, "*Credat Judaeus Apella*" and "*Deos tristes*," but did not openly challenge official orthodoxy. Less fortunate, Ovid was exiled because of his involvement in a family scandal of Augustus, but also, it seems, because of the decadent implications of *Metamorphosis*, which could be construed to have ridiculed the frivolous immorality of the official gods. Satire was also produced by such poets and authors as Juvenal, Martial, and Petronius, and finally the atheistic poet Lucian, who ridiculed popular mythology during the reign of Marcus Aurelius.<sup>72</sup> A product of the second century, Lucian is generally conceded to have been ancient Rome's final major author.

Of pivotal importance in the history of Rome, Cicero was born in 106 B.C.E., six years before Julius Caesar. The two knew each other well--Caesar a remarkable general, author and political leader, Cicero a no less remarkable statesman, orator, rhetorician, prose stylist, and student of letters familiar with Hellenistic trends and schools of philosophy. Unfortunately, Caesar and Cicero fell into opposition in politics, most notably regarding Rome's abandonment

of its status as a republic dominated by its Senate in favor of an empire led by a powerful sovereign. Caesar wanted to assume power as emperor, but Cicero sought to preserve Rome's Republic in the tradition of Athenian democracy. Cicero had already played a singular role in bringing the destruction of Catiline and his followers twenty years earlier for similarly plotting to subvert the republic, and it might have been with his permission that the same steps were taken with the assassination of Caesar. In retrospect the outcome can be seen as having been tragic, with Cicero having served as an outstanding agent of received tradition and with Caesar having served as an exemplar toward the achievement of an imperial future. Cicero's disciples (Brutus, Cassius, etc.) assassinated Caesar in 44 B.C.E., and Caesar's disciples (Marc Antony, Octavian, etc.) arranged the murder to Cicero some eighteen months later. And of course Octavian became Augustus, Rome's first emperor sixteen years later, in 28 B.C.E., launching exactly the imperial despotism that Cicero had wanted to prevent. As perhaps to be expected, Augustus' venture in imperialism bore excellent results at least for his particular reign, but the negative consequences became increasingly obvious with subsequent reigns beginning with that of Tiberius. The history of Rome's transition from a republic to an empire at least deserves to be mentioned here, since it demarcates the more inclusive change that occurred for classical civilization's six centuries of achievement from about 600 B.C.E., when Solon democratized Athens, to the reign of Augustus that culminated with his death in 14 A.D.E. Roughly four centuries of decline followed, culminating with the invasion of Rome by Alaric I in 410 A.D.E. A total millennium of almost exactly 1,000 years thus transpired, followed by the Dark and Middle Ages, which occupied a second millennium bringing European history to the Italian Renaissance.

Cicero sought to expose Romans to Greek philosophy, and in fact his role in philosophy was just as pivotal as his role in politics. For he alone was able to provide a full explanation of Hellenistic philosophy at the time, especially of Academic skepticism that was popular with most of the educated leadership of Rome. Hellenistic teachers, including the eminent skeptics Philo of Larissa and Antiochus of Ascalon as well as the no less eminent Stoic philosopher Posidonius, had instructed Cicero himself during his youth. Historically, Philo and Antiochus were students of Clitomachus, the disciple and amanuensis of Carneades. Philo (c. 160-83) emphasized the historic unity of skepticism from Plato to his own time, and Antiochus (c. 100) sought a new and more inclusive synthesis between skepticism and Stoicism. Cicero himself did not offer any theories of his own. The primary importance of his contribution was in having remembered the teachings of Philo and Antiochus and the writings of Clitomachus well enough to have written the only contemporary treatises dealing with their ideas (especially in *Academica* and *De Natura Deorum*) to have survived the Dark and Middle Ages. Of course Sextus and Diogenes Laertius also wrote upon Academic skepticism, but they lived between one and two hundred years later and were relatively brief and unsympathetic in their assessments.

That it was Cicero who wrote these treatises upon Academic skepticism while it was still popular compounds their usefulness additional to his many other accomplishments. His private correspondence is generally considered the best and most graceful testimony of his age, his speeches before the Roman Senate had the reputation of having surpassed the performance of all ancient orators except Demosthenes, and his scholarship upon rhetoric was only matched by that of Quintilian. Moreover, his eloquent prose style initiated the so-called Ciceronian standards by which all prose was judged throughout Europe into the eighteenth century. But by far his most important contributions were in politics and philosophy. Having played a pivotal role both in his

unsuccessful effort to defend the Roman Republic, Cicero went into retirement with the intention of recording his extensive knowledge of Hellenistic philosophy based on his studies with the most prestigious Greek thinkers available to him during his youth. He took into account every aspect of Greek philosophy with which he was familiar, but the area of inquiry primarily of interest to him seems to have been Academic skepticism, perhaps the single most cogent legacy of Hellenistic civilization. Driven from politics, Cicero was able to spend two years of self-imposed exile feverishly transcribing to papyrus everything he knew about the Academic school before he was murdered at the insistence of Marc Antony.

During his political exile between 46 and 44, B.C.E., Cicero rapidly authored perhaps a dozen major texts, written as dialogues, most of which survive today. Cicero's skepticism was plain in his treatises *On Divination* and *On the Nature of the Gods*, and in *Academica* he explored the history of skepticism with particular emphasis on the arguments of Carneades as transcribed by Clitomachus. Unfortunately, key passages in both of the latter texts have been lost, probably because later scribes had intentionally deleted them, but their essential meaning can be reconstructed through a close interpretation of the rest. A potential difficulty in this task, however, is that Cicero was also favorably influenced by the Stoic philosopher Posidonius, and to the extent that Cicero devoted *Republic* (54 B.C.) to ideas of an astral afterlife obviously in conflict with the standards of probability demanded by Carneades.<sup>73</sup> When his daughter Tullia died in 46 B.C.E., Cicero once again concerned himself with the issue of an eternal soul in his lost essay *Consolatio*, perhaps the first Latin treatise upon the subject. Amazingly, he wrote this pagan eschatology at about the same time as he wrote *Academica*, the single most important source today upon the atheistic vision of Carneades.<sup>74</sup> So the reconstruction of Cicero's thinking remains unpredictable to a certain extent in both texts. The best that may be said of Cicero's wavering philosophical commitment is that he experienced unresolved ambivalence between Stoicism and skepticism throughout his entire life, and that his marvelous verbal intelligence enabled him to record this ambivalence for posterity except of course in the texts and passages that have been lost.

### **Aenisidemus Revives Pyrrhonism**

Ancient skepticism survived another two hundred-fifty years after Cicero, but primarily by reversing itself through the rejection of the entire Academic School, including Arcesilaus's concept of *epoche*, Carneades' probabilism, and Cicero's essayistic response to their contribution. The self-appointed hit man who made this transition happen was Aenisidemus, possibly (but not necessarily) a younger contemporary of Antiochus who taught in Alexandria. There is no precise chronological evidence when Aenisidemus lived, but it seems likely that he emerged as the dominant skeptic after Cicero's death, for Cicero did not mention him anywhere in his extant writings. Aenisidemus initiated the wholesale abandonment of the Academic School by rejecting both Philo and Antiochus's pursuit of a synthesis between skepticism and a non-skeptical, hence "dogmatic," philosophy. But he also rejected the major theoretical contributions of Arcesilaus and Carneades in favor of Pyrrho's uncompromising standards of doubt divested of the distractive principle of *ataraxia*. In Aenisidemus' opinion, Pyrrho's version of skepticism in and of itself had been valid before the field was diverted by *ataraxia* followed by the issues of common sense and ultimately probabilism, both of which could only subvert religious orthodoxy. Hence the need for a brand-new version of Pyrrhonian skepticism updated to meet the needs of the Roman

Empire just about the time when the Emperor Augustus spearheaded a renewed interest in polytheism as a useful public concern supportive of expansionistic nationalism. Pyrrho seems to have been almost entirely neglected by Academic skeptics at the time, as would be indicated by Cicero's lack of reference to him except for a few words about his status as a moralist. But he was not entirely forgotten, and suddenly Aenesidemus resurrected his ideas divested of the principle of *ataraxia* in order to reform and purify skepticism along presumably more defensible lines useful to Rome's increased aggressiveness in enlarging its empire.

Aenesidemus' theoretical innovation seemed a useful line of inquiry readily integrated with Academic skepticism. In his lost book, *Introductory Outline of Pyrrhonism*, he renewed Pyrrho's approach by isolating ten "tropes" (or modes of demonstration) to refute dogmatic ideas and theories that presumably deserve to be believed without sufficient inquiry. Each of his tropes emphasized the relativity of knowledge because of the inevitable paradoxes (*aporia*) that arise from the effort to make a valid connection between judgment and appearances. As listed by Diogenes Laertius, these may be listed as contradictions produced by the following circumstances: (1) the variable experience of pleasure and pain; (2) variable preferences; (3) variations between the senses; (4) variable bodily conditions; (5) variable laws, customs, and beliefs; (6) mixed perceptions; (7) variation in distance and perspective; (8) variable levels of satiation; (9) variable levels of familiarity; and (10) relative interpretations of greater and less, up and down, etc. In his list of Aenesidemus' tropes, Sextus Empiricus later revised their order and combined categories 1 and 2, 3 and 4, and 8 and 9 in order to give room for additional tropes relevant to anatomical differences between men and animals, the human mind's ignorance of the real nature of objects, and the limitation that all knowledge can only be grasped in conjunction with something else.<sup>75</sup> Whatever the sequence, the list of tropes served as a kind of pre-Baconian catalog of idols that distract the mind from the careful and objective pursuit of truth.

In another of his lost books, *Pyrrhonian Discourses*, Aenesidemus added eight tropes to challenge theories of causation, several of which anticipated Hume's attack upon causation in the eighteenth century. As recounted by Sextus, these tropes included the following useful assumptions: (1) that causation as we understand it is merely the object of thought and cannot be confirmed by empirical data; (2) that the emphasis upon either a single cause or a limited number of causes obscures the impact of others as well; (3) that a disorderly mixture of causes is often at work in producing what seems an orderly sequence of events; (4) that similar outcomes often result from dissimilar assortments of causes; (5) that individuals are prone to impose their own particular theories of cause; (6) that these individuals accordingly exaggerate the importance of facts supportive of their theories; (7) that they also lapse into contradictions not only with the evidence but with their own theories; and (8) that they are too willing to combine doubtful theories of causation with doubtful evidence. As listed by Diogenes Laertius two centuries later, these causation tropes were slightly different, respectively featuring the arguments that bodies cannot cause other bodies any more than incorporeal things can cause other incorporeal things; that motion is illusory; that nothing truly erupts into existence from nothing; and, apropos of ethics, that "the good by nature is unknowable," since "one and the same thing is thought good by one person and bad by another."<sup>76</sup>

The skeptic Agrippa, who lived perhaps a hundred years after Aenesidemus, proposed five additional tropes, the first and third of which were borrowed from Aenesidemus. Agrippa's

tropes emphasized fallacious argumentation: (1) based on the conflict among opinions, that all human discourse is "full of the utmost contentiousness and confusion"; (2) based on the principle of "extension ad infinitum," that arguments endlessly inspire new arguments; (3) based on the principle of relativity, that everything must be understood relative to other things, not in and of itself; (4) based on the principle of hypothesis, that most thought involves credulousness through reliance on unproven premises rather than the tentative exploration of suppositions; and (5) based on the principle of reciprocal inference (or *petitio principii*), that most thought begs the question by using ideas to prove other ideas, which in turn are needed to confirm the original ideas.<sup>77</sup> These tropes primarily applied to argumentation, thus supplementing Aenesidemus' list, so they could be added to the total with relative ease. As a whole, the roughly two dozen skeptical tropes by Aenesidemus and Agrippa, as recapitulated by Sextus and Diogenes Laertius, offered a negative perspective suggestive of both the Mosaic commandments and Bacon's Idols. Needless to say, all of these considerations could have been accepted without much difficulty by Carneades and Cicero as important considerations in light of the Academic approach. In and of themselves these tropes may be understood to augment Carneades' version of skepticism, not to refute it. And in fact there is nothing suggested by them that Carneades would have challenged.

Unlike Cicero and both Arcesilaus and Carneades, Aenesidemus went on to insist upon the deficiency of all beliefs as explained by his list of tropes in order to advocate the acceptance of prevalent customs as a matter of social necessity that transcended the constraints of intellectual verification. If all belief is equally vulnerable to error, then the acceptance of any particular assumption as being true should depend as much on social considerations above and beyond its apodictic truth value dependent on full confirmation. Since the absolute truth is almost totally elusive, one is able to avoid saying or even suggesting anything at odds with received opinion while communicating with others. The needed cognitive modifications seemed obvious, so Aenesidemus adopted the latitudinarian tactic of rejecting both Arcesilaus' version of *epoche* and the probabilism proposed by Carneades for a renewed uncompromising skeptical quietism:

As regards the End (or aim of life) we differ from the New Academy, for whereas the men who profess to conform to its doctrine use probability as the guide to life, we live in an undogmatic way by following the laws, customs, and natural affections.<sup>78</sup>

Amazingly, what Aenesidemus advocated here was an "undogmatic way" by "following" all prevalent dogmas at the time, i.e., the unverified "laws, customs and natural affections" of the society in which he lived. How, though, could an adherence to laws, customs, and natural affections (i.e., instincts) be anything but dogmatic unless a good deal of effort was expended in face of received assumptions to keep an open mind to alternative possibilities? On the other hand, Aenesidemus implied that probabilism could be rejected based on the assumption that it ultimately encouraged conformity to a fixed "doctrine" by narrowing one's perspective to the burdensome task of sifting among alternative theories and explanations. By the "doctrine" of probability, obviously suggestive of Carneades, Arcesilaus meant the adherence to analytic standards involved in undogmatic speculation rather than the conformity necessitated by laws, customs and natural affections. Suddenly, though, it was "undogmatic" to accept the dogma of others at face value, and it was nothing less than dogmatic skepticism to refuse to do so. It seems here as if Aenesidemus willfully subverted the meaning of the words he used in order to appropriate the virtues of probabilism in advancing the presumed benefits of social conformity.

In this light, persistent inquiry could be challenged because it encouraged ideas and theories at odds with orthodox opinion, for example in matters of religion and politics.

Obviously, Plato's already quoted injunction was preferable, "to accept the tale which is probable and inquire no further," and without at all conceding the value of Carneades' flagrant use of tentative judgment justified by "tested" probability at a more stringent level of analysis. Once *epoche* and probabilism were combined, nothing was sacrosanct except the truth in and of itself. As implied by Sextus, who played a supportive role with Aenesidemus comparable to Cicero's role with Carneades, the word *undogmatic* meant the "new" Pyrrhonian skeptic could accommodate social constraints to the fullest possible extent: "For we follow a line of reasoning which, in accordance with appearances, points us to a life conformable to the customs of our country and its laws and institutions, and to our own instinctive feelings."<sup>79</sup> And again for emphasis:

For it is, I think, sufficient to conduct one's life empirically and undogmatically in accordance with the rules and beliefs that are commonly accepted, suspending judgment regarding the statements derived from dogmatic subtlety and furthest removed from the usage of life.<sup>80</sup>

In other words, skepticism should be limited to the rejection of philosophical issues characterized by "dogmatic subtlety" and presumably irrelevant to the "usage of life," letting one pursue one's daily affairs unencumbered by speculative extravagance and the dangerous issues it sometimes raises. But exactly what philosophical issues might these be? Ultimately all of philosophy was at risk, paring skepticism down to an instrument of received orthodoxy and the status quo through being doubtful about the doubtfulness of others: "I'm skeptical of your atheism," "I'm skeptical of your dissatisfaction with our optimistic assessment," etc.

As far as Aenesidemus seems to have been concerned, the concepts of *epoche* and *pithanon* emphasized by Academic skepticism were just as dogmatic as any of the non-skeptical theories of ancient Greece. In his opinion, the whole purpose of disbelief from a truly skeptical vantage--their own, of course--was, "not to resist, but to follow without any strong impulse or inclination," as opposed of a more aggressive "sympathy due to strong desire." As later explained by Sextus Empiricus:

Since Carneades and Cleitomachus declare that a strong inclination accompanies their credence and the credibility of the object, while we say that our belief is a matter of simple yielding without any consent, here too there must be a difference between us and them.<sup>81</sup>

Aenesidemus and Sextus considered the use of disbelief by Arcesilaus and Carneades to be a rejection of orthodox belief fully as aggressive as any belief system it challenged, therefore inferior to the passive equanimity of the "true" skepticism needed to succeed in life. For to them the ultimate goal of skepticism was nothing more than the urbane task of carrying on one's life totally without belief (*adoxastos*) and therefore in genuine happiness (*eudaimonia*).<sup>82</sup> The skeptic could harbor his skepticism without disclosing his doubts about the beliefs of others, and without even going so far as to harbor belief about the need to avoid belief. The true skeptic was

accordingly free of dogmatic encumbrances, on one hand enlightened and on the other truly a good citizen able and willing to go along with the less flexible ideological demands of his less educated compatriots. Unaccountably, Aenisidemus also sought to link his revival of Pyrrhonism to a Heraclitean philosophy of opposites in conflict with each other in a world whose universal substance (*arche*) consists of air, as first proposed by Anaximenes. This theoretical indulgence by Aenisidemus was just as vulnerable to doubt as any of the earlier materialist theories, but its use of materialist assumptions seems to have been little more than an ingenious effort by Aenisidemus to vest his expediency in venerable ancient assumptions.

As already indicated, Cicero's neglect to mention Aenisidemus in either his letters or philosophical writings would suggest that Aenisidemus probably lived after Cicero, but the possibility cannot be discounted that he was Cicero's contemporary but remained relatively inconspicuous at the time, having spent his career in Alexandria instead of Rome. Then again, Aenisidemus might have mounted his defense of Pyrrhonism after Cicero's death, perhaps at the time Augustus came to power two decades later. It can therefore be speculated, as I am doing here, that Aenisidemus chose to revive Pyrrhonian analysis during the period of transition between Rome's existence as a Republic in which skeptics and agnostics were welcome to an Empire led by an ambitious young emperor who insisted on his unique supernatural status as a living god. Appropriately, Augustus justified his imperial coup d'état by demanding renewed polytheistic belief on the assumption that ample religious devotion can be used to intensify patriotic loyalty. Toward this end, he restored temples, required by law the public worship of the gods, reinstated ancient festivals and a sacrificial priesthood, and claimed for himself the status of a living god as the emperor of Rome. Just as July gave Julius Caesar status equal to that of other gods, the next month would do the same for himself. Religion was suddenly "in," and skepticism, potentially its worst enemy, needed to be redefined (dare one suggest emasculated) in order to accommodate its revival. What better time for Aenisidemus to have retrofitted a clean and simple version of Pyrrhonism?

Of course the useful connection between religion and patriotism had been evident well before Augustus used it to promote imperial Rome. Critias had warned of the connection, and Aristotle, anticipating Machiavelli many centuries later, had argued, "A tyrant must put on the appearance of uncommon devotion to religion. Subjects are less apprehensive of illegal treatment from a ruler whom they consider god-fearing and pious." The Greek historian Polybius had argued in the same vein--

Since the masses of the people are inconstant, full of unruly desires, passionate, and reckless of consequence, they must be filled with fears to keep them in order. The ancients did well, therefore, to invent gods, and the belief in punishment after death.

Lucretius similarly explained with an aphorism, "All religions are equally sublime to the ignorant, useful to the politician, and ridiculous to the philosopher." Later Seneca said the same with simpler words, "Religion is regarded by the common people as true, by the wise as false, and by the rulers as useful." Varro, the Roman scholar and antiquarian at the time of Cicero, reduced the principle to a simplistic maxim, "It is for the good of states that men should be deluded by religion." Cicero himself extended the principle to soldiers at war, "Without the hope of immortality, no one would ever face death for his country." And Ovid, a contemporary

(and victim) of Augustus, phrased the connection with obvious irony, “It is expedient that gods should exist; since it is expedient, let us believe they do.”<sup>83</sup>

Augustus actually commissioned his good friend Virgil to write his literary epic *The Aeneid*, modeled after Homer, in order to provide mythic validity to this connection between patriotism and religious belief. Like ancient Greece seven centuries earlier, Rome would be provided with its own mythical history that supported its imperial governance. In cobbling together *The Aeneid* as perhaps the most talented literary vehicle for a political agenda in all history, Virgil combined in a single composite narrative both the Homeric narratives of military victory against hostile enemies and a prolonged “odyssey” homeward. It was Virgil’s genius to have put these Homeric motifs in reverse sequence with victory following the journey, and with Penelope, Circe, and Calypso compressed into the single identity of Dido. Virgil’s depiction of Hades resembled that of Homer, but it also suggested the pleasant destiny of reincarnation after death, apparently a faddish notion popular at the time. The result was a high quality potboiler in consummate poetry that updated Homer in a contrived reorganization of his episodes and characters to justify a new and presumably updated civilization. In the most inclusive sense, Ciceronian enlightenment gave way to patriotism justified by Virgilian mythology.

Virgil never completed his final revision of the text, and his deathbed wish was for the entire manuscript to be destroyed. Significantly, it was Augustus who countermanded this request, but Virgil’s intentions were understandable. For his effort to honor Rome with mythical heroism akin to that of Homer was artificial from the beginning, and he seems to have wanted to be remembered for his earlier poetry. Nevertheless, he did succeed in concocting a more or less credible mythopoeic justification for the Roman Empire, so it would seem to have been equally appropriate for Aenisidemus to have resurrected Pyrrhonism to validate this justification among the educated classes based on the simple presumably irrefutable assumption that all truths are equally believable (or unbelievable), including those of retrofitted mythology. Of course Virgil’s theodicy was utter nonsense, but it was prudent and appropriate to encourage the renewed worship of traditional gods in order to instill patriotic confidence in Rome as an up and coming imperial empire. On his part, Aenisidemus showed how this could be done. There is no historic evidence whether he proposed his version of the truth before, during, or after Virgil’s effort, but the two texts fit like a glove, one of them a fabricated story of heroism that linked mythology (hence religion) with patriotism, the other its epistemological “quantification” that insisted all belief inclusive of mythology is equally indeterminate, hence equally true.

With skepticism purged of Academic demands, Roman polytheism was no more vulnerable to challenge than any other explanation of the universe. It did not matter that its mythology, like that of Homer and Hesiod, flunked Carneades’ first level of probable confirmation, to say nothing of the second and third. For Aenisidemus overhauled skepticism to remove Carneades’ probabilism from the intellectual marketplace, just as Plato had already done with Sophism and pre-Socratic materialism by having used Socrates’ strident declarations of uncertainty (“I know that I do not know,” etc.) to propose a theory of metaphysics fully as deserving of skeptical examination as anything else in the entire history of philosophy. As recorded by Plato, all of Socrates’ disciples basked in the necessity of doubt, but they were extraordinary gullible in their acceptance of Plato’s most bizarre assumptions inserted in the mouth of Socrates once he had convinced everybody of his felt ignorance. Aquinas later performed a comparable task with

Averroes in the Middle Ages, just as Descartes did with Bacon and his scientific contemporaries in the seventeenth century, just as Kant did with Hume at the turn of the nineteenth century, and just as Wittgenstein did with Bertrand Russell in the late twentieth century. Every one of these updated Pyrrhonists ventured to talk skepticism, but only to minimize the potential threat of uncompromising empiricism. Mill, Dewey, Ayer, Carnap, Popper, and even Santayana may all be identified as active modern probabilists willing to take speculation to the limit in the tradition of empiricism as first advocated by Academic skepticism, while Derrida, Barthes, Rorty, Fish, and a large assortment of contemporary deconstructionists have twisted inquiry to help resurrect the latest version of Pyrrhonian doubt in the hallowed cause of orthodoxy, whatever this has entailed in their particular circumstances.

It may be added that AenSIDEMUS's use of Pyrrhonism in defense of orthodoxy, as codified by Sextus, turned out to be fully as beneficial to all competitive religious belief systems once Augustus' artificial mythology fell into disfavor. For the Pyrrhonian defense of orthodoxy urged by AenSIDEMUS was just as relevant to the acceptance of various near-eastern religious sects that surged into popularity, culminating in the triumph of Christianity at the beginning of the fourth century. In almost all instances since then, whether admitted or not, the task of Pyrrhonists has been to promote received beliefs by turning the behavior of skepticism against itself. The creed of universal indeterminacy has been infinitely useful to Pyrrhonians unwilling to let issues of politics, religion, or anything else be examined in depth toward any kind of an acceptable inductive judgment contrary to their most basic assumptions.

### **Sextus Empiricus and Diogenes Laertius**

Almost two hundred years after Cicero and AenSIDEMUS, Sextus Empiricus systematically examined numerous ancient theories relevant to the principles of skepticism with emphasis on the tropes proposed by AenSIDEMUS and his followers. Just as Cicero provided an "old testament" upon trends culminating with Carneades' leadership of the Academic New School, Sextus offered its equivalent "new testament" with his summary of skepticism, inclusive of the Academic School, that was fully launched with the theoretical contribution of AenSIDEMUS. And just as Cicero had ignored the early influence of Pyrrho and made no reference to AenSIDEMUS, Sextus made no reference to Cicero and limited his discussion of Arcesilaus and Carneades to relatively short passages. Sextus also restricted the word *skeptic* to describe Pyrrhonian skeptics, while describing the entire Academic school that had lasted almost three hundred years as a kind of philosophy rather than skepticism: "Some indeed say that the Academic philosophy is identical with skepticism; consequently it shall be our next task to discuss [i.e., challenge] this statement."<sup>84</sup> Sextus thereupon proceeded to argue in passages already quoted that probabilism was fully as dogmatic as the philosophies of Plato, Aristotle, Zeno, and others. One suspects Sextus was up against comparable circumstances to those confronted by AenSIDEMUS, and with the similar outcome that he felt it necessary to appease orthodox opinion. For he probably lived during the period of ancient Roman history when Roman imperial authority under the Antonine emperors was on the brink of decline into anarchy and the enthusiastic worship of various gods led by Mithra, Serapis and Christ.

More or less a contemporary of Sextus, the historian Diogenes Laertius wrote *Lives of Eminent Philosophers*, an uneven encyclopedic compilation of eighty-two biographies that

included samples of his subjects' prose now and again. Especially useful were the biographies of Pyrrho and Epicurus, the latter including three long letters that have survived the Dark and Middle Ages only because of their inclusion. Without Diogenes we would have no prose whatsoever of Epicurus, the most prolific author in ancient times. Nothing of Epicurus remains today except for the letters in Diogenes' *Lives* in which Epicurus tried to summarize his theories for the benefit of those to whom he was writing. Like Sextus, Diogenes Laertius probably lived during the twilight of "high" Roman civilization, just before the third century, a period of upheaval that culminated in the adoption of Christianity under the Emperor Constantine. Unfortunately, both Sextus and Diogenes Laertius neglected to discuss Academic skepticism with sufficient thoroughness, thereby encouraging the modern assumption that Pyrrhonist skepticism almost totally dominated ancient discourse. Again, this is simply not true. Academic skepticism prevailed for almost three centuries during which Pyrrhonism was all but forgotten. Pyrrhonism did not revive until Aenesidemus found it useful, afterwards becoming dominant for another two centuries or so. Both times it subordinated sustained inquiry to the achievement of peace of mind through social conformity dependent on shared religious belief.

### **St. Augustine**

The final ancient author who wrote on skepticism was St. Augustine (354-430), whose first book, *Against the Academics*, was published in 386, just months before his conversion to Christianity and half a decade before the destruction of the Alexandrian library. Augustine seems to have wanted to explain and justify his abandonment of skepticism as a personal philosophy during his wayward youth. Surprisingly, he emphasized Carneades and Cicero in his thumbnail history of skepticism with no acknowledgement of Aenesidemus and Sextus. Just as Cicero had ignored Pyrrho, and just as Aenesidemus and Sextus had ignored Cicero and featured Pyrrho, Augustine ignored Pyrrho, Aenesidemus and Sextus, and instead featured Cicero. It seems, in other words, that the revival of Pyrrhonian skepticism led by Aenesidemus and Sextus had later been superceded by a revival of Academic skepticism, and in sufficient time for Augustine to limit his analysis to Academic theory in his effort to show just cause for his conversion to Christianity.

Augustine addressed his entire argument to Arcesilaus and Carneades as interpreted by Cicero, and his primary thesis seems to have been the argument that Stoic philosophers had already subverted Platonism with an unacceptable epistemology, in response to which Academic skeptics appropriately emphasized doubt in the sense that they challenged the validity of Stoic paganism. Augustine accordingly granted skepticism its negative value in having refuted the false "truths" of ancient philosophy to set the stage for the advent of Christian truths deserving of full and unreserved belief. However, he emphasized that skepticism became irrelevant once Christianity had been confirmed, so one could take satisfaction in undiluted Christian revelation uncontaminated by disbelief. In other words, Christian belief was true as opposed to Stoic belief, so skepticism played an essential role in challenging the authenticity of Stoic belief, but not in doing the same for Christian belief. This tactic turned out to be similar to that of Pyrrhonians, but Augustine drew upon Academic skepticism explained by Cicero rather than Pyrrho's notion of *epoche* in order to justify the final validity of religious faith. Augustine actually expressed his admiration for Cicero, which culminated with his hearty but condescending recommendation in his next-to-last paragraph, "Read the *Academica*. You will find there that Cicero--for what could

be easier?--has disposed of my trifling remarks."<sup>85</sup> Which was all too true, though for reasons that Augustine might not have wanted to explore when he wrote this, his first book, at the age of thirty-two.

### Catastrophe

Religion served as a sustained *basso ostinato* of undiluted belief during the early history of western civilization, especially among the lower classes. Then it became increasingly important beginning the first century, A.D.E, and, not accidentally, its increased popularity accompanied a substantial decline of secular philosophy as well as its termination a few centuries later. In other words, materialism and skepticism, invented by ancient Greece, supplanted polytheism among the educated elite for five hundred years, from the fifth century through the time of Christ. At about the same time polytheism itself also began to lose popularity in favor of Near Eastern sacrificial deities. Roman citizens dubious of both Greek philosophy and the polytheistic state mythology promoted by Augustus became fascinated with a variety of sacrificial monotheistic religions imported to Rome during its conquests in the Near East. These included the worship of Cybele and Attis beginning as early as the early third century, B.C.E., the worship of Mithraism and Mazdaism (or Zoroastrianism) beginning the first century, A.D.E., the worship of Serapis beginning during Nero's reign (A.D.E. 54-68), and worship linked with the sects of Gnosticism and Manichaeism, respectively beginning during the second and third centuries, A.D.E. Christianity itself, a comparative newcomer among Near Eastern religions to reach Rome, gained momentum in the third century, then prevailed beginning with the reign of the Emperor Constantine in the early fourth century.

All these sects were in competition, but there was also extensive syncretism whereby they shared ideas and practices, for example baptism, asceticism, secret temples, the use of candles, robes, and symbolic blood sacrifice, and the worship of sacrificial gods on the winter solstice and spring equinox (roughly the times of Christmas and Easter according to the Julian calendar). Roman emperors tolerated all pagan religions willing to coexist on equal terms with the official worship of the emperors themselves. So Rome actually enjoyed a broad "freedom of religion," and it was with justification that the Emperor Tiberius was able to boast of religious toleration in Rome, arguing "If the Gods are insulted, let them see to it themselves."<sup>86</sup> The only exceptions were Jews and Christians, who were persecuted because they refused to accept the worship of the rest of the gods, especially the divine status of Roman emperors. They also refused to serve in Roman legions, to swear by the name of Caesar, and to burn incense before the emperor's effigies as a god.<sup>87</sup> Unwilling to make these concessions, they were prohibited from practicing their own religions in Rome, and indeed they were intermittently persecuted, most notably during the reigns of Nero, Decius, and Diocletian.

Christianity also had its difficulties with secularism since its inception. When Paul visited Athens to preach his version of Christianity (Acts, 17.16-34), he was asked to lecture about his religion, but hearers scoffed at his notions about raising the dead, and he was successful in converting only a couple of his audience. He described Athens as a city "full of idols," and his sense of futility was best indicated by his immediate departure for Corinth, where his reception was more supportive. The Roman historian Tacitus later described Christians as "a class hated for their abominations," supportive of "a most mischievous superstition," and something

“hideous and shameful” brought to Rome.<sup>88</sup> Suetonius described Christians as “a race of men of a new and mischievous (or magical) superstition.”<sup>89</sup> Plutarch criticized fundamentalist Near Eastern religions, obviously referring to Christianity at least as much as the rest, as an “unhappy superstition” that “by its excess of caution in trying to avoid everything suggestive of dread, unwittingly subjects itself to every sort of dread.”<sup>90</sup> In his more extensive attack on Christianity, *On the True Doctrine: A Discourse Against the Christians*, ca. 185, Celsus criticized Christians, among many other things, for their “apparent simplemindedness,” their “monstrous fiction” about Christ’s death and resurrection, their “absolutely offensive doctrine of everlasting punishment and rewards,” and their appeal to the “lowest sort of men.” He also argued that Christ was the natural child of Mary by a Roman soldier named Panthera.<sup>91</sup> A century later in *Against the Christians*, ca. 280, Porphyry rejected transubstantiation and Christian allegory, and warned, “Far from being friends of the empire, they are renegades waiting for their chance to seize control.”<sup>92</sup> In retrospect his warning seems to have been valid, as indicated by the swift takeover of Christianity after the conversion of the Emperor Constantine.

Mithraism prevailed in Rome by the end of the third century, but the effort to sustain its dominance by the Emperor Diocletian failed and Christianity suddenly came to the fore when the Emperor Constantine converted to Christianity in 312, followed by the 313 Edict of Milan that guaranteed universal freedom of religion. Christianity became Rome's state religion upon the death of Constantine in 337, after which Christian bishops produced a forged decree in which Constantine supposedly ordered the punishment of all who sacrificed to pagan gods. Ironically, Christians had demanded universal religious toleration during the two centuries their sect was forbidden in Rome, but swiftly abandoned this demand as soon as Christianity became the predominant creed and had the power of the state behind it.<sup>93</sup> Paganism enjoyed a brief respite under the Emperor Julian the Apostate (A.D. 361-63), but the Emperor Theodosius (A.D.E. 379-95) restored Christianity once and for all with his 380 edict, "We brand all the senseless followers of the other religions with the infamous name of heretics, and forbid their conventicles assuming the name of churches." Once in authority, Christians forbade the worship of all the other gods and goddesses, for, they claimed, the teachings of Christ (for example John 14.6) made it clear that anybody who did not adhere to his precepts and accept his unique status as the Son of God was doomed to eternal hellfire. This radical insistence later became law with the passage of the Theodosian Code of imperial decrees that outlawed all pagan religions, ordered their temples to be destroyed, and imposed confiscation, imprisonment, fines, and even death upon any who clung to their worship. Theodosius enforced this edict with fifteen penal laws against heresy during the final fifteen years of his reign. He outlawed pagan rites, made the inspection of entrails a capital offense, forbade any one to enter a pagan temple, and condemned to death anybody who engaged in pagan sacrifice on Easter, the day of the spring equinox at that time, not accidentally the day of worship for a number of pagan gods and goddesses long before Christ was born.

The advent of Christianity was no less disastrous to secularism than to competing pagan religions, and in fact its relationship with secular philosophy had been precarious since the very beginning. During the late second century, the Greek philosopher Celsus ridiculed Christianity for its adherents’ stultifying repetitious insistence, "Do not ask questions; just believe."<sup>94</sup> This remarkable injunction was totally antithetical to Academic skepticism's earlier emphasis on the suspension of belief--in its purest distillation the antithetical compulsion, "Do not believe; just

ask questions." Just as Academic skepticism made a virtue of incessant inquiry, Christianity prohibited such inquiry in favor of mute obedience that was no less incessant. Many Christians actually promoted sheer belief confirmed by the utter senselessness of what was to be believed. This was mandated by Tertullian's famous paradox, "Just because it is absurd, it is to be believed," obviously at odds with Arcesilaus' insistence on common sense. Moreover, Christian orthodoxy could be imposed on the entire population, no matter how absurd it seemed to non-believers among that population, as justified by St. Augustine's edict, "Compel them to come in" (Luke 14.23). "Coming in" supposedly meant to join the church, and "compel" meant the enforcement of this obligation on non-believers. Doubt was accordingly abolished by the categorical insistence upon belief, and religious assent became obligatory no matter how ridiculous any particular aspect of Christian doctrine might have seemed. Skepticism had become a vice, probability an exercise in meaningless irrelevance.

The single catastrophe that epitomized the final collapse of Rome is sometimes assigned to the capture of Rome in 410 by the Visigoths led by Alaric, an Arian Christian, and sometimes to the Goths' victory over Roman armies in 476, but at least as compelling as an arbitrary point of departure would be 389 (or 391--the date is not certain), when the Emperor Theodosius ordered the destruction of the Serapeum, the temple of Serapis in Alexandria that housed the enormous jewel-studded metal statue of the deity. The demolition, described in detail by Gibbon in chapter 28 of *The Decline and Fall of the Roman Empire*, was consistent with Theodosius's campaign to eradicate pagan religion by destroying all its idols and temples, and by abolishing its rites and sacrifice, including even the Olympics, which he banned in 394.<sup>95</sup> The most resilient pagan religion outside Rome despite Christian demands had continued to be the worship of Serapis, so at the command of Theodosius, a large mob of Christian zealots, most of them monks, invaded the Serapeum in Alexandria, at that point a six-hundred year old temple with hallowed status comparable to the Vatican today. The mob smashed to pieces Serapis's huge statue as well as the temple's pillars and walls that enclosed it in order to make room for the later construction of a chapel to Christian martyrs.

With even more telling effect, these pious soldiers of Christ also destroyed the Alexandrian library attached to the Temple of Serapis along with its incomparable collection of writings. This was the largest and most complete ancient library in the ancient world, containing more than a half million papyrus manuscripts. Julius Caesar had accidentally destroyed approximately half its collection in 47 B.C.E., when he burned his fleet to prevent its retreat, but Marc Antony later replaced many of the manuscripts and the library continued to be enlarged over the centuries. Now, under Theodosius, the collection was totally demolished, resulting in an enormous portion of the writings of classical authors eradicated from history, some without a trace. The loss included four-fifths of Aristotle, most Greek tragedy, and many dozens of philosophers we only know to have existed from their having been mentioned and/or catalogued by other classical authors. As already indicated, these losses included everything published by Strato and Clitomachus, and almost all the writings of Epicurus and Democritus.<sup>96</sup> Only Plato's writings survived in their entirety, and of course these were later useful to the advance of Christian theology.

An even more despicable atrocity occurred twenty-five years later in Alexandria. In 415, at the instigation of St. Cyril, the Christian patriarch of Alexandria, a throng of monks led by Peter

the Reader pulled the Neo-Platonist philosopher Hypatia from her chariot, stripped her naked, and dragged her into a church, where they stabbed her to death and scraped her flesh from her bones with oyster shells. Hypatia may be considered ancient civilization's last identifiable philosopher, if only because of her martyrdom. St. Cyril also incited pogroms against the Jewish community in Alexandria and manipulated the 431 Council of Ephesus to establish Mary as "mother of God," thereby rejecting as heresy the effort of Nestorius, Bishop of Antioch, to ascribe to Christ two distinct natures, both human and divine. This dual role would have limited the status of Mary to mortal motherhood with less authority than Isis, hence with less appeal to pagan converts. But it would also have made possible a synthesis of Christianity and Greek philosophy that Nestorius thought might be acceptable. Condemned as a heretic, Nestorius went into exile, and his followers, also identified as heretics, scattered in flight throughout the Near East. Less than two hundred years later, an obscure Nestorian monk, Bahira, taught his Arab student, Mohammad, later the Muslim prophet, to loath idolatry and to worship the undiluted unity of God, as well as respecting the unique secular contribution of Aristotle.<sup>97</sup> This, one supposes, can be isolated as having provided the germ of everything that followed upon the sudden eruption of medieval Arab civilization in the eight century.

By the mid-fifth century Rome's Christian theocracy could no longer cope with a steady succession of pagan invaders recently converted to Christianity. As a result, the city rapidly became impoverished. Its culture disintegrated, and its population was reduced to a fraction of its earlier size--from perhaps a million in the fourth century to about 40,000 in the sixth century.<sup>98</sup> Moreover, trade was reduced, Roman law was ignored, the schools were closed, and serfs (slaves, actually), perhaps nine-tenths of the population, were reduced to abysmal ignorance and a squalid life style far worse than ever before. Paradoxically, there was also a surge in Christian decadence at the time. Augustine had already referred to the Christian community as "the cesspool of the world," and in the same spirit Salvianus was able to complain in the fifth century, "Apart from the very few who avoid evil, what is nearly the whole body of Christians but a sink of vice?"<sup>99</sup> The final effort of Justinian, the Christian emperor from 527 until 565, to reclaim Rome's glory under Christian rule led to millions of casualties in his African and Gothic campaigns, additional to countless others who died of famine and pestilence.

In 529, about two decades before Mohammad was born, Justinian actually prohibited the teaching of philosophy. He closed down all the schools in Athens, the very site of philosophy's remarkable achievements since the Age of Pericles. Greek philosophy was also outlawed, perhaps as much as anything because it featured the experience of doubt. After Justinian's death, Pope Gregory I ("the Great,"), later proclaimed a Saint, was said to have promoted the mutilation of statues, the destruction of temples, and guidelines that forbade the study of classics. He also emphasized the fearful but credible maxim that ignorance is the mother of devotion, of course ignoring its corollary that knowledge is no less often a byproduct of doubt. According to John of Salisbury, Gregory went so far as to order the final destruction of the Palatine library, portions of which somehow continued to exist at the time.<sup>100</sup> Obviously, classical civilization had come to an end. A millennium of secular genius had blossomed during the Age of Pericles and later during the Hellenistic period, but only to dissolve upon the collapse of Rome. It was followed by the Dark and Middle Ages, eleven hundred years of rampant intellectual stultification that persisted in Europe until the Italian Renaissance. True, medieval theology carried on, but the

population as a whole was illiterate and there were no truly secular philosophers to be heard or read.

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## END NOTES

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<sup>1</sup> Regarding Thales, see Diogenes Laertius, *Lives of Eminent Philosophers*, vol. 1 (Loeb Classics, 1972), p. 27; regarding Anaximander see McKirahan, pp. 35-36 and W.K.C. Guthrie, vol. 1, p. 87-88; and regarding Parmenides and Empedocles, see Freeman, pp. 29,45, and 56.

<sup>2</sup> Diogenes Laertius's biography of Thales in *Lives of Eminent Philosophers*, vol. 1 (Loeb Classics, 1972), pp. 23-47.

<sup>3</sup> For a useful catalog of pantheist speculation by pre-Socratic philosophers, see Cicero's *De Natura Deorum* (*The Nature of the Gods*), 1.29-35, in Cicero, vol. 19 (Loeb Classics, 1979), pp. 29-35--hereafter cited as Cicero. Also relevant is Aristotle's *Metaphysics*, 983b-987a, in *The Basic Works of Aristotle*, ed. by Richard McKeon (Random House, 1941), pp. 693-700.

<sup>4</sup> Alexander of Aphrodisias, *Commentary on Aristotle's Metaphysics*, 36.21-25 and Simplicius, *Commentary of Aristotle's On the Heaven*, 242-221-26--both quoted by McKirahan, *Philosophy before Socrates*, pp. 318-19 and 322-23.

<sup>5</sup> Ibid, p. 321.

<sup>6</sup> Heichelheim, *An Ancient Economic History: From the Paleolithic Age to the Migration of the Germanic, Slavic, and Arabic Nations*, vol. 2 (Leiden, 1964), pp. 35, 52-54, 60, 63--cited by Sir Peter Hall, *Cities in Civilization* (Pantheon, 1998), p. 50. Also useful as sources are Gustave Glotz's *Ancient Greece at Work: An Economic History of Greece* (Knopf, 1926); and H. Michell, *The Economics of Ancient Greece* (Cambridge, 1940).

<sup>7</sup> Hall, p. 60.

<sup>8</sup> Diogenes Laertius, vol. 2 p. 485, and *Academica*, p. 485 and 453. On p. 487 Diogenes Laertius also quotes passages from Homer's *Iliad*, bk. 20, lines 248-50, that supposedly express skepticism. However these entail outright verbal deception rather than visual or conceptual uncertainty.

<sup>9</sup> Protagoras's accomplishments are listed by Diogenes Laertius, vol. 2, and pp. 43-69.

<sup>10</sup> Ibid, pp. 463-65.

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<sup>11</sup> Plato's "Theatetus," 152-57, in Plato: The Collected Dialogues, ed. by Edith Hamilton and Huntington Cairns (Princeton, 1061), pp. 856-78. In some passages virtually every sentences may be confuted by arguments more directly supportive of Protagoras' thesis.

<sup>12</sup> David Campbell, editor and translator, Greek Lyric III: Stesichorus, Ibycus, Simonides, and Others (Loeb Classics, 1991), pp. 363-65.

<sup>13</sup> Cicero, 3.73, p. 561.

<sup>14</sup> Guthrie (Cambridge, 1969), vol. 3, pp. 248-49.

<sup>15</sup> See Sextus Empiricus, Against the Physicists, I.54 (Loeb Classics, 1936), pp. 31-33--hereafter cited as Sextus. Guthrie, vol. 3, pp. 235-47, usefully summarizes information about ancient Greek atheists.

<sup>16</sup> It may be conceded here that Plato paid his respects to pre-Socratic materialism in his dialogue, "Timaeus." However, his analysis was a potpourri of borrowings that featured, among other things, the soul, preposterous geometric speculation, the four elements, Hippocratic medical assumptions, and a monotheistic defense of a "sensible God" as the author of it all. Anaximander's holistic concepts of *arche* and *apeiron* were irrelevant to his argument.

<sup>17</sup> John Dewey's article on "Logic" in *Encyclopedia of Social Sciences*, vol. 9, p. 599--quoted by John Herman Randall, *Aristotle* (Columbia, 1960), p. 51.

<sup>18</sup> Aristotle, *On the Generation of Animals*, Bk. 3, chap. 10, 760B [30]--in the Great Books edition of *Aristotle*, trans. by Arthur Platt, vol. 2, p. 302.

<sup>19</sup> Aristotle, *Physics* 226b, 10-17, in *The Basic Works of Aristotle*, ed. by Richard McKeon, p. 306.

<sup>20</sup> *Lives of Eminent Philosophers*, vol. 2 (Loeb Classics, Harvard University Press, 1925), 10.35-83, pp. 565-613. The two other letters by Epicurus to have survived are also located in this text.

<sup>21</sup> There was widespread suspicion among Epicurus' contemporaries that he proposed the existence of gods with no connection to human affairs simply in order to avoid persecution by orthodox believers. See Cicero, *De Natura Deorum*, 1.86 and 1.123, pp. 83-84, 119.

<sup>22</sup> Lucretius, *On the Nature of Things* (Loeb Classics, 1975), Book 1, lines 782-91, p. 65--also in *The Stoic and Epicurean Philosophers* (Modern Library, 1940), p. 83.

<sup>23</sup> Among texts available today, the Stratonician Presumption was first described by Cicero in *Academica* (2.121), pp. 623-25. Strato's use of simple experiments is described by G.E.R. Lloyd in *Greek Science after Aristotle* (Chatto & Windus, 1973), pp. 15-19, and by Theodor Gomperz in *Greek Thinkers: A History of Ancient Philosophy*, trans. by G.G. Berry, vol. 4 (John Murray, 1912), and pp. 499-506. C.A. Mace's article in *The Encyclopedia of Philosophy*, ed. by Paul Roberts, vol. 8, pp. 24-25, summarizes additional theories and opinions of Strato.

<sup>24</sup> Gomperz, p. 502.

<sup>25</sup> See M.R. Cohen and I.E. Drabkin, *A Source Book in Greek Science*, 2<sup>nd</sup> ed., (Harvard, 1958)--cited by Lloyd, p. 16.

<sup>26</sup> Gomperz, vol. 4, p. 503.

<sup>27</sup> Cicero, *De Natura Deorum*, p. 39, and *Academica*, p. 623, both in the Loeb edition, vol. 19 (Harvard, 1970).

<sup>28</sup> *Academica*, 2.122, p. 635.

<sup>29</sup> *De Natura Deorum*, 3.5, 9, pp. 289-91, 295.

<sup>30</sup> *Ibid*, p. 625

<sup>31</sup> See G.E.R. Lloyd, *Greek Science After Aristotle* (Norton, 1973), pp. 49-50.

<sup>32</sup> See Phillip de Lacy's introductory article, "Skepticism in Antiquity," in *Dictionary of the History of Ideas* (Scribner's, 1973), vol. 4, p. 234. Other sources I have found useful upon ancient skepticism include R.G. Bury's Introduction to vol.1 of *Sextus Empiricus* (Loeb, 1933), pp. xxix-xlii; and *The Skeptical Tradition*, ed. by M.F. Burnyeat (University of California, 1983), especially M.R. Burnyeat's Introduction, pp. 1-8, and David Sedley's paper, "The Motivation of Greek Skepticism," pp. 9-31.

<sup>33</sup> It should be noted here that Timon wrote as a satirist loyal to Pyrrho's version of skepticism. He apparently despised Arcesilaus as a charlatan but spoke favorably of both Democritus and Protagoras. He dedicated his *Silloi* to Xenophanes and refrained from attacking the other Eleatics.

<sup>34</sup> See "Pyrrho," in Diogenes Laertius, 9.105, vol. 2, p. 515.

<sup>35</sup> Respectively described as a shadowy aftereffect by both Diogenes Laertius, *Lives of Eminent Philosophers*, 9.108, vol. 2, p. 519; and by Sextus Empiricus, *Outlines of Empiricism*, 1.29, p. 21.

<sup>36</sup> The resemblance between *epoche* and other aspects of oriental philosophy is discussed by Jay Garfield in "Epoche and Suunyataa: Skepticism East and West," *Philosophy East and West*, vol. 40, no.3 (July, 1990), pp. 285-307. See also D.T. Suzuki's explanation of *satori* in *Zen Buddhism* (Double Day Anchor, 1956), pp. 84-85, 95-96, and 103-8.

<sup>37</sup> Diogenes Laertius, "Pyrrho," 9.108, vol. 2, p. 475.

<sup>38</sup> *Ibid*, p. 519.

<sup>39</sup> *Ibid*, p. 475.

<sup>40</sup> Sextus Empiricus, vol. 2, *Against the Logicians*, 1.155, p. 85.

<sup>41</sup> *Ibid*, 1.158, p. 87.

<sup>42</sup> Sextus Empiricus, 1.14, vol. 1, p. 11.

<sup>43</sup> Charles Saunders Peirce, “Pragmatism and Abduction,” in *Collected Papers*, vol. 5 (Harvard, 1934, 1935), pp. 121-22.

<sup>44</sup> H. Poincaré, *The Foundations of Science* (The Science Press, 1913, 1945), pp. 210-22--Part 1, chap. 1, in *The Value of Science*. John Dewey, *Logic: The Theory of Inquiry* (Henry Holt, 1938), pp. 7-9, 11, 143, etc.

<sup>45</sup> Edmund Husserl, *Ideas* (1913; George Allen, 1931), pp. 107-11.

<sup>46</sup> Plato, ‘Meno,’ in *The Collected Dialogues of Plato*, ed. by Edith Hamilton and Huntington Cairns (Princeton, 1961), pp. 371-72.

<sup>47</sup> *Lives of the Eminent Philosophers*, vol. 1, pp. 515-19. Strato’s nine references to Arcesilaus indicate a close friendship, suggesting the possibility they shared similar views in science and philosophy, with Strato’s emphasis on falsifiability dependent on the elongation of inquiry obliged by Arcesilaus’ version of *epoche*.

<sup>48</sup> *Academica*, 2.79-98, pp. 567-93, and *Against the Logicians*, 1.159-65, vol. 2, pp. 87-91.

<sup>49</sup> Diogenes Laertius, vol. 1, p. 439.

<sup>50</sup> ‘Timaeus,’ 72.d, in Edith Hamilton and Huntington Cairns, *Plato: The Collected Dialogues* (Princeton, 1961), p. 1195.

<sup>51</sup> ‘Metaphysics,’ Bk. 6, 2, 1026 b, in Richard McKeon, *The Basic Works of Aristotle* (Random House, 1970), pp. 779-81.

<sup>52</sup> *Against the Logicians*, 1.173-84, pp. 93-101.

<sup>53</sup> The difference I am proposing here is to be observed today in comparing the performance of experts who refuse to make predictions of any sort, and their more experienced colleagues who are willing to make hypothetical judgments with the understanding that their calculations are of the ballpark variety. These, I would suggest in the spirit of Carneades, are the better and more useful experts.

<sup>54</sup> Pierre Couissin, “The Stoicism of the New Academy,” ed. by Myles Burnyeat in *The Skeptical Tradition* (Berkeley, 1983), pp. 42-55. Charlotte Stough takes the same approach in *Greek Skepticism: A Study in Epistemology* (Berkeley, 1969), pp. 50-64. In a more recent collection, *The Original Sceptics: A Controversy* (Hackett, 1997), p. 33, fn. 16, Burnyeat himself argues more aggressively, “Getting the translation right is the first step towards undoing the myth of Carneades as a proponent of ‘probabilism.’”

<sup>55</sup> Sextus Empiricus, vol. 2, 1.163, p. 89. The word *phantasia* has also been translated as “impression,” but as explained by modern psychology any sensory impression grasped on the most primitive cognitive basis may be described as a perception. Once the necessity is granted, the epistemological sophistication of Academic skeptical arguments becomes obvious as explained by both Cicero and Sextus Empiricus.

<sup>56</sup> Cicero, *Academica* 2.98-99, pp. 593-94.

<sup>57</sup> See Couissin, pp. 44-45, 54-55.

<sup>58</sup> *Academica*, 2.104, p. 601.

<sup>59</sup> *Academica*, 2.33, p. 509.

<sup>60</sup> *Academica*, 2.109, p. 607.

<sup>61</sup> *Academica*, 2.146, p. 655.

<sup>62</sup> *Academica*, 2.116, p. 615.

<sup>63</sup> Sextus, *Outlines of Pyrrhonism*, 3.6-9, pp. 329-31.

<sup>64</sup> *Outlines of Pyrrhonism*, 3.9-12, p. 331-33.

<sup>65</sup> Plato, “Timaeus,” 40e, pp. 1169--70. Respectively, the three preceding quotations from “Timaeus” were: 48e, p. 1176; 72d, p. 1195; and 29d, p. 1162.

<sup>66</sup> Cicero, *De Divinatione*, 2.12, vol. 20 (Loeb Classics, 1923), p. 383.

<sup>67</sup> *De Natura Deorum*, 3.44-52, pp. 327-37.

<sup>68</sup> *De Natura Deorum*, 1.4, p. 7.

<sup>69</sup> *De Natura Deorum*, 3.29-er, p. 313-17.

<sup>70</sup> Joseph McCabe, *A Rationalist Encyclopedia* (Watts & Co., 1948), pp. 507-8 and 627. McCabe cites as his primary sources Macrobius’s *Saturnalia*, Marcellinus’s *Res Gestae*, and the correspondence of Symmachus and his friends.

<sup>71</sup> *Natural History*, Book VII, section 55, in the Loeb Classics edition, vol. 2 (Books III-VII), pp. 633-35.

<sup>72</sup> “Zeus Tragedos,” probably Lucian’s most direct critique of classical religion, ends with the final opinion of Hermes, “It is no such terrible disaster, if a few people go away infected [with atheism]. There are plenty who take the other view--a majority of Greeks, the body and dregs of the people, and the barbarians to a man.” *The Works of Lucian of Samosata*, vol. 3 (Oxford, 1905), p. 104. Also see Robertson, vol. 1, p. 208.

<sup>73</sup> Cicero, *De Republica*, 6.16-28, in vol. 16 of the Cicero edition (Loeb Classics, 1988), pp. 267-83, esp. p. 269.

<sup>74</sup> See Franz Cumont, *After Life in Roman Paganism* (1922; Dover, 1959), pp. 31-33. See also J.M. Robertson, *A History of Freethought*, vol. 1 (Watts, 1936), and pp. 202-6.

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<sup>75</sup> Diogenes Laertius, vol. 2, pp. 79-88; also “Pyrrho,” pp. 493-99; and Sextus Empiricus in *Outlines of Pyrrhonism*, 1.36-163, pp. 25-93.

<sup>76</sup> Sextus Empiricus, *Outlines of Empiricism*, 180-85, pp. 103-5; Diogenes Laertius, 9.97-103, vol. 1, pp. 509-13.

<sup>77</sup> *Ibid.*, 9.88-90, p. 501.

<sup>78</sup> *Outlines of Pyrrhonism*, 1.231, p. 143.

<sup>79</sup> *Outlines of Empiricism*, 1.17, p. 13.

<sup>80</sup> *Outlines of Pyrrhonism*, 2.246, p. 315.

<sup>81</sup> *Outlines of Empiricism*, 1.230, pp. 142-43.

<sup>82</sup> Myles Burnyeat, “Can a Skeptic Live His Skepticism,” in *The Original Sceptics: A Controversy*, ed. by Myles Burnyeat and Michael Frede (Hackett, 1997), pp. 29-30. Burnyeat proposes a longer and necessarily cumbersome sequence whose earliest stages include conflict, undecidability, equal strength (equipollence), *epoché*, and *ataraxia*. However the final sequence between the two terms I emphasize in this context--*adoxastos* and *eudemonia*--seem to describe the escapist version of skepticism that appealed to Aenesidemus more specifically.

<sup>83</sup> All the passages quoted here are listed by James Haught in *2000 Years of Disbelief* (Prometheus, 1996), pp. 18-22.

<sup>84</sup> *Outline of Pyrrhonism*, 1.220, p. 133.

<sup>85</sup> St Augustine, *Against the Academics* (Newman Press, 1951), p. 151.

<sup>86</sup> J.B. Bury, *A History of Freedom of Thought* (Henry Holt and Company, 1913), p. 40.

<sup>87</sup> Homer Smith, *Man and His Gods* (Little, Brown, 1952), pp. 170, 209.

<sup>88</sup> Tacitus, *Annals*, book xv, sect. 44.

<sup>89</sup> Suetonius, *The Twelve Caesars*, “Life of Nero,” sect. 16.

<sup>90</sup> Plutarch, *Moralia* (Loeb Classics), vol. 2, p. 467.

<sup>91</sup> Celsus, *On the True Doctrine: A Discourse Against the Christians* (Oxford, 1987), pp. 53, 57, 64, 70, 74.

<sup>92</sup> Porphyry’s *Against the Christians*, ed. and trans. by R. Joseph Hoffman (Oxford, 1994).

<sup>93</sup> Bury, p. 52. See also Joseph McCabe, *A Rationalist Encyclopedia* (Watts & Co., 1948), p. 423.

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<sup>94</sup> Celsus, p. 54.

<sup>95</sup> As to be expected, the destruction of pagan temples involved extensive plundering, as described by Libanius in his *Oration for the Temples*. See J.M. Robertson, *A History of Freethought*, vol. 1 (Watts & Co., 1936), p. 257.

<sup>96</sup> The second Muslim Caliph, Umar, has been accused of having ordered the destruction of the Alexandrian library in 641, but there was little, if anything, left of it by then. It should also be noted that this final act of destruction was only recorded almost five hundred years later, so there is ample justification to suspect it has been emphasized to obscure Christian responsibility for the earlier destruction of the library.

<sup>97</sup> Draper's *Conflict*, vol. 1, pp. 79-80.

<sup>98</sup> McCabe, *Rationalist Encyclopedia*, pp. 206 and 315.

<sup>99</sup> *Rationalist Encyclopedia*, p. 518.

<sup>100</sup> Gregory's reputation has been mixed. For a brief critical assessment see John Draper, *The Intellectual Development of Europe* (Harpers, 1876), pp. 356-58. See also Joseph McCabe, *Crises in the History of the Papacy* (G.P. Putnam's Sons, 1916), chap. 4, esp. p. 63; *Rationalist Encyclopedia*, pp. 269-71.

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